GYMNASTIC APPARATUS

NARRAGANSETT MACHINE CO.
STANDARD
PROVIDENCE, R.I. U.S.A.

CATALOGUE F13

HARVARD UNIVERSITY

VAY GYMNASIUM, Cambridge,.....19

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Director.

be deposited *at once* in the box of the Committee on Athletics in the entry of the Gymnasium.

Copies of this Catalog will be sent
to any Physical Director on application.

Narragansett Machine Co.

CATALOGUE OF

GYMNASTIC APPARATUS

MADE BY THE

NARRAGANSETT MACHINE CO.

PROVIDENCE, R. I., U. S. A.

CHICAGO
1504 MONADNOCK BLOCK

NEW YORK
52 VANDERBILT AVE.

FACTORY OF THE NARRAGANSETT MACHINE COMPANY
PROVIDENCE, R. I.

FLOOR AREA, 200,000 FEET

SHED AREA, 40,000 FEET

A FOREWORD

THIS, is the thirteenth edition of our Catalogue of Gymnastic Apparatus. We hope its compact form, easy to keep on a shelf with standard books and convenient for reference, will be appreciated.

It contains the old tried and approved forms of apparatus and some that are new, all developed and refined to meet the requirements of modern practice.

We have also incorporated our Anthropometric and Locker Catalogs and the recently issued book of 80 pages on Gymnasium Construction; thus making this book a reference encyclopedia for the Gymnasium Director.

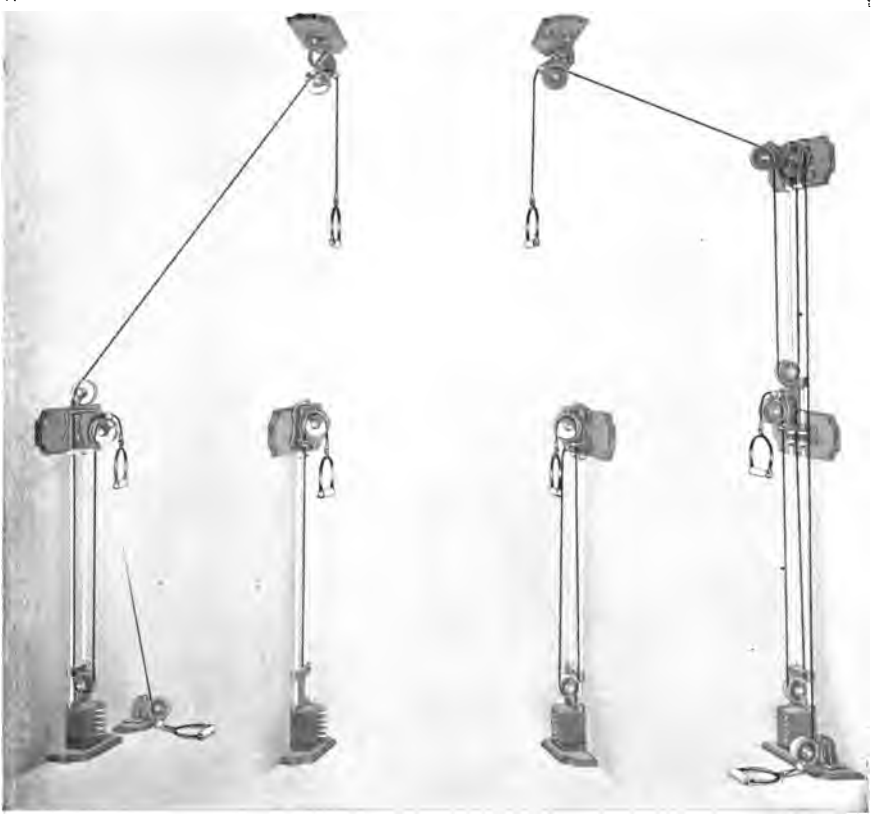
Our apparatus is made in our own commodious and fully equipped factory with all the advantages of modern machinery, methods of manufacture, convenience of shipping, and under the constant oversight of expert designers and workmen. We can confidently recommend it, and we further assure our patrons that as in the past no effort will be spared to give them the best possible service.

Yours Respectfully,

NARRAGANSETT MACHINE CO.,

PROVIDENCE, R. I.

CHEST WEIGHTS. COLLEGE OF THE CITY OF NEW YORK



3—DUPLEX 1—SINGLE 2—COMPOUND 4—TRIPLEX

PULLEY WEIGHTS

The above illustration shows the arrangements of pulleys and ropes generally used.

1—SINGLE. The earliest form. The weight being lifted direct, moves as fast as the handle. A type still used for rowing weights.

2—COMPOUND. The rope passes under the pulley on the weight holder; the effective weight is one-half the actual weight, the form generally used on pulley weights.

3—DUPLEX. Compound, using both ends of the rope. The most satisfactory combination of two machines.

4—TRIPLEX. The addition of a third handle to the duplex. The chest pulley acts as a compound rope machine.

THE STANDARD PULLEY WEIGHT

SPECIFICATION

Hard Wood Wheels with Steel Shaft.

Self-Lubricating Noiseless and Interchangeable Bearings.

Rods Screwed in Brackets.

Baked Japan Finish.

Buffers at top of Rods.

Hollow Swivel Blocks.

Handles with Swivel Joints.

Felted Weight Holders.

Under-Lift Weights.

Grey Braided Cord.

Selected Oak Woodwork, Natural Finish.

The principle adopted in these Pulley Weights enables us to furnish substantial and durable machines at a moderate cost. There are more gymnasiums fitted with this grade than any other.

The illustration, which is made directly from a photograph, shows the artistic design of this line of Pulley Weights. The well rounded corners and smooth outlines emphasize the fine black finish and contrast favorably with the neatly moulded oak mountings.

STANDARD DETAILS

PULLEY BEARINGS

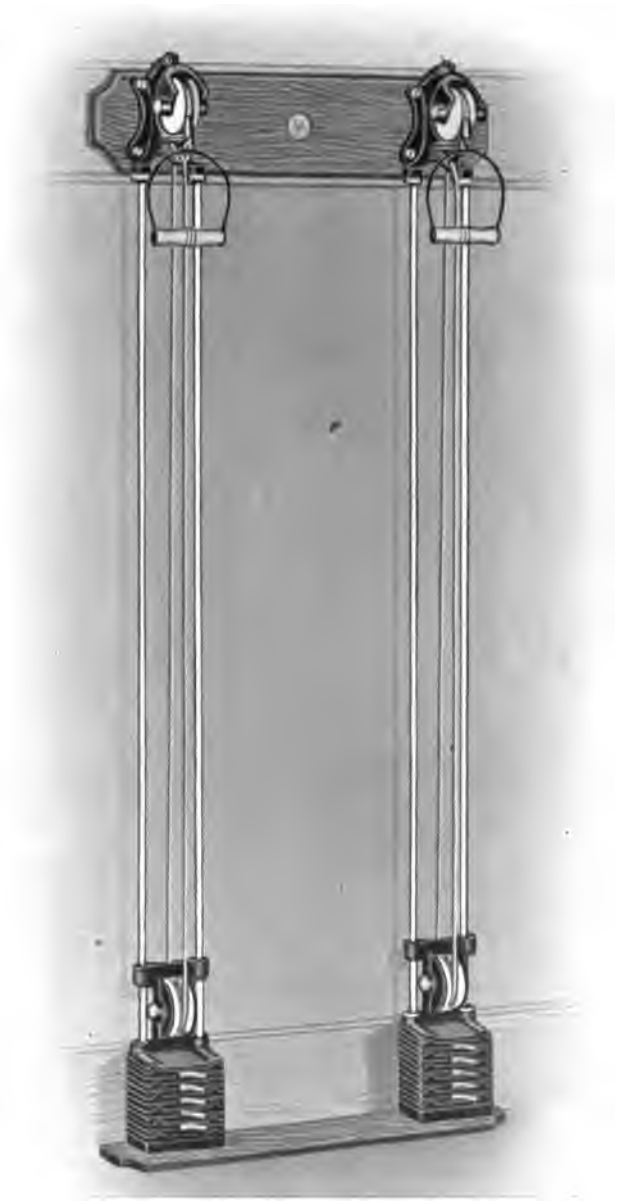
The durability and smooth running of a pulley weight depends on its bearings. The Standard Bearing consists of a wooden collet, saturated with oil and forced into a brass cup. This cup is adjusted and held by a conical pointed set screw pressing in an inclined groove. The shafts are polished steel.

FELT BEARINGS

Our Felt Bearings guide the weight holder smoothly and noiselessly on the rods.

UNDER-LIFT WEIGHTS

The Under-Lift Weight was first adapted to the chest weight by us, and its superiority has forced others to use it. The Standard Under-Lift Weight as made by us is still the most practical form. The illustrations show a separated weight, the upper half attached to the weight above it by the lever. The wooden bushings, one of which is shown in section above, prevent metallic contact of the weight with the rods. The two halves of the weight when riveted together hold the bushings and the locking lever in place. This form of weight cannot stray from the machine, and is attached or detached by a touch of the toe. A spring prevents accidental detaching.



NO. 10 CHEST WEIGHT

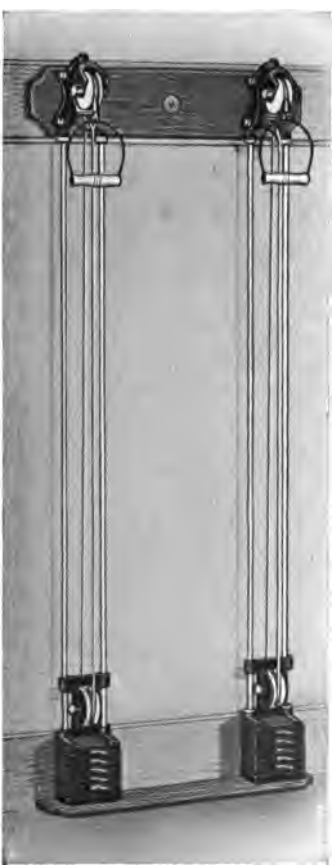
No. 10 CHEST WEIGHT

The most popular machine. Thousands are in use in gymnasiums, and many in homes. It has the compound rope, which allows twice the length of weight movement, and swivel blocks that permit movements in every direction. It is noiseless and self-lubricating.

This machine has the under-lift weights. On these the weight can be changed by a touch of the toe, and cannot be taken from the machine or get lost.

The first forty-six exercises (Fig's. 1-34) in our Chest Weight Manual can be done on this machine.

This machine may be placed back of Stall Bars.



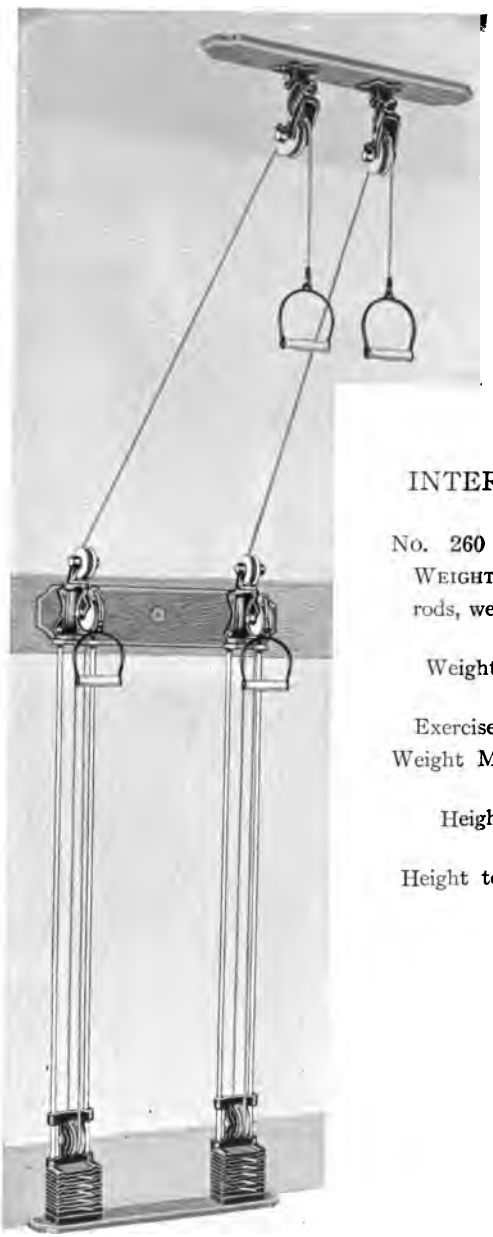
No. 10 CHEST WEIGHT, Standard. Double set of pulleys, rods, weights, etc.,

Weight 75 lbs. Packed for Shipment.

Height of wall-board to center 5 ft.

The boards on which the machine is mounted are twenty-six inches long, the wall-board is six inches wide, and its centre is five feet from the floor.

DUPLEX PULLEY WEIGHT



INTERCOSTAL CHEST WEIGHT

No. 260 DUPLEX INTERCOSTAL CHEST WEIGHT, Standard. Double set pulleys, rods, weights, etc., . . .

Weight 90 lbs. Packed for Shipment.

Exercises 1 to 54 (Fig's. 1-36) in our Chest Weight Manual can be done on this machine.

Height of wall-board 5 ft. to centre.

Height to ceiling 8 or more feet for adults.

DUPLEX PULLEY WEIGHT

The ingenious use of both ends of the rope, first introduced by us and more fully described on page four, enables us to furnish several comprehensive and practical Pulley Weights. The two most desirable forms are listed on this and the opposite page; other forms are illustrated elsewhere, but usually any desirable combination of two machines can be made.

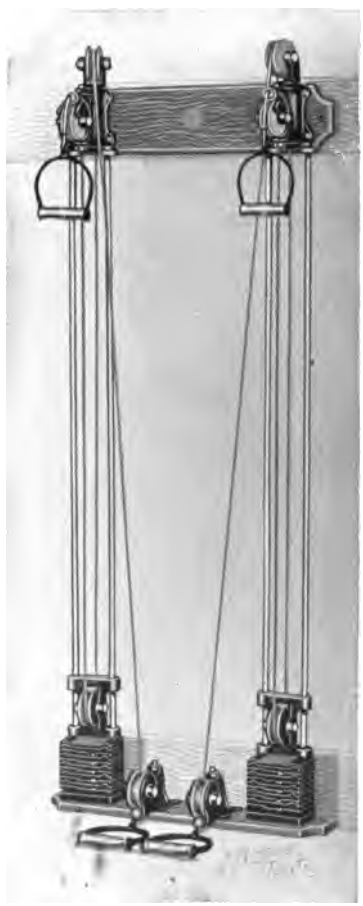
BACK AND LOIN CHEST WEIGHT

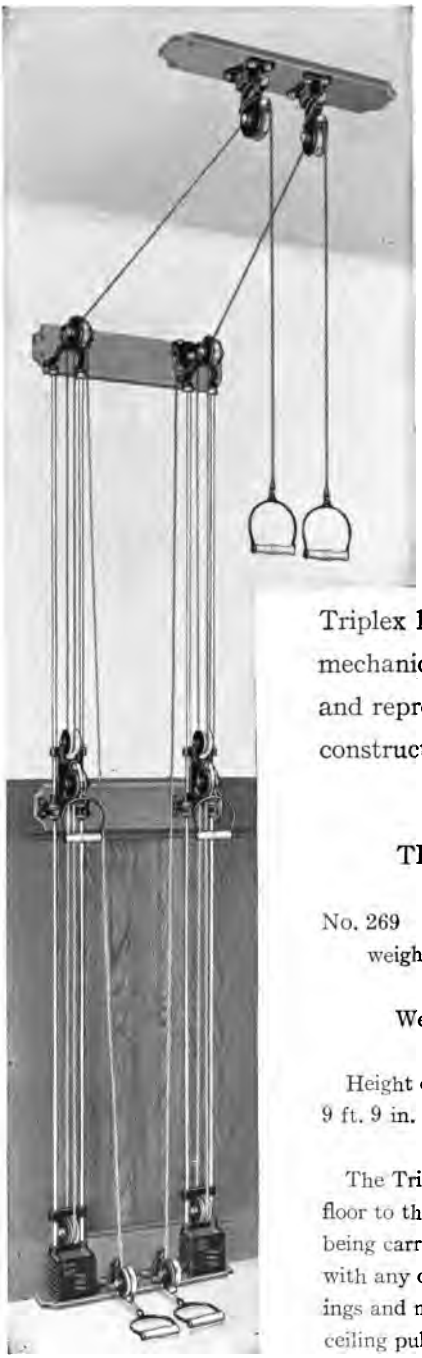
No. 265 DUPLEX BACK AND LOIN CHEST WEIGHT, Standard. Double set of pulleys, rods, weights, etc., . .

Weight 90 lbs. Packed for Shipment.

Height of wall board to center, 5 ft.

All exercises in our Chest Weight Manual except Group V, Nos. 47 to 50 (Intercostal Chest Weight Exercises) may be done on this machine.





TRIPLEX UNDER-LIFT PULLEY WEIGHT

The Triplex Pulley Weight is designed to economize room. It adds a third handle, or combines the intercostal, chest and back-and-loin pulleys in one machine without any adjustment of ropes, catches, etc., to change from one to the other. The result is obtained in the Triplex with less pulleys, and consequent smoother action, than in any other machine. The Triplex has every improvement in detail and mechanical construction of previous machines, and represents the "climax of pulley weight construction." Its action is as fine as silk.

TRIPLEX PULLEY WEIGHT

No. 269 "STANDARD," double set pulleys, rods, weights, etc., as specified on page 6, .

Weight 165 lbs. Packed for Shipment.

Height of lower wall-board 5 ft., upper wall-board 9 ft. 9 in. to centers. Ceiling 10 ft.

The Triplex requires a height of ten feet from the floor to the ceiling to admit of the intercostal handles being carried to the floor, a less height than is possible with any other principle. In rooms having high ceilings and no gallery, brackets may be used to hold the ceiling pulleys.

TRIPLEX DETAILS

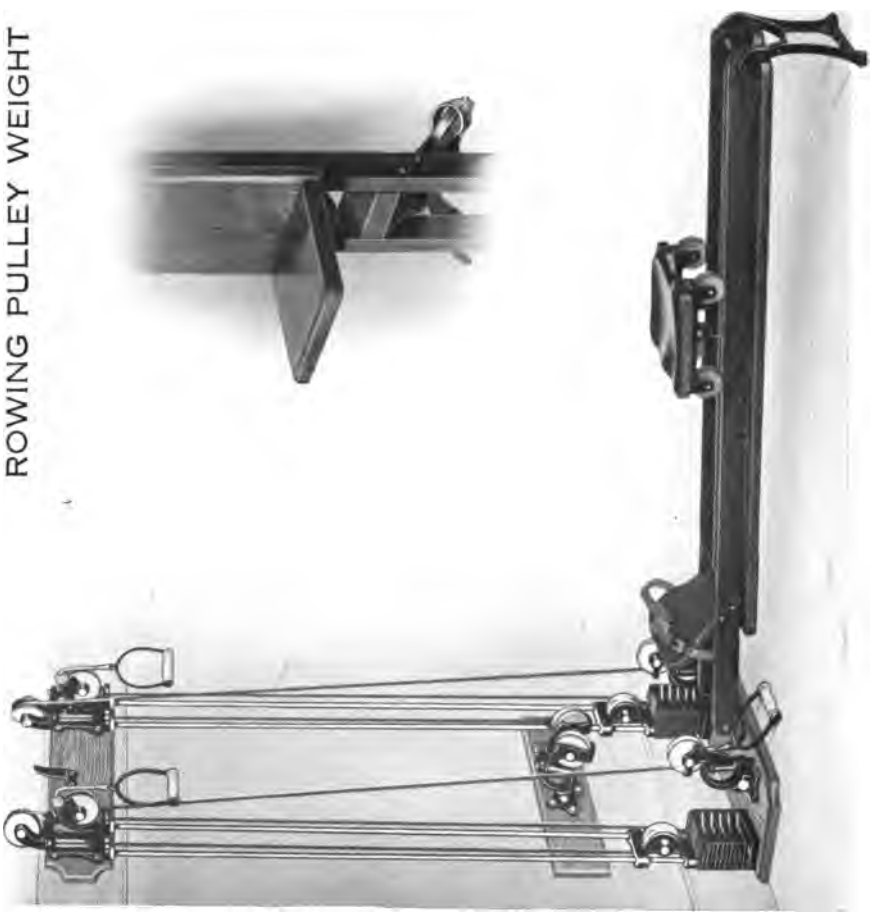
This illustration of details of the Triplex Pulley weight shows the thoroughness and care we put into the design of all our apparatus, particularly the pulley weights.

The ceiling pulley is adjustable to provide for varying rope angles. The top pulley also swings to lead correctly to the ceiling pulley. The swivel chest weight pulley, with its sliding block, is a fine example of neat design, and the swivel floor pulley reaches down over the floor board to draw the handles as close to the floor as possible.

The operation of the weights, run of the ropes, etc., is shown in the sectional cuts on page five.

NOTE:—The weight most used, i. e., the chest weight, is the simplest; it has a short rope, and in its use only two pulleys are used. When using the intercostal or floor pulley only three pulleys are used, the same as on the Duplex Pulley Weight.

ROWING PULLEY WEIGHT



ROWING PULLEY WEIGHT

For class work in gymnasiums and for home use, a machine that will give a wide range of exercise is needed. We have designed the No. 60 Pulley Weight, shown on the opposite page, for these purposes. It is a strong, durable machine, built for gymnasium practice, but equally well adapted for home use.

The folding seat, although desirable, is not a necessity, and the back-board will be provided without it if desired. The seat is shown dropped in the right hand illustration and raised in the central figure. It is dropped by pressing a lever back of the board, and latches automatically on being raised.

On this machine no adjustment of pulleys or ropes is necessary in order to change from the upper to the lower pulleys. The lower wall pulleys carry the ropes over the foot board of the row-slide at the proper height for rowing.

No. 60 PULLEY WEIGHT, Standard, with chest, back and loin and rowing pulleys, back-board, row-slide and seat. Double set rods, weight, etc., ...

Weight 200 lbs. Packed for Shipment.

Height of wall-board to center 5 ft.

No. 61 PULLEY WEIGHT, Standard, with back-board and row-slide and no seat, ...

Weight 180 lbs. Packed for Shipment.

Height of wall-board to center 5 ft.

No. 60-1 ROW-SLIDE only, with folding seat, . . .

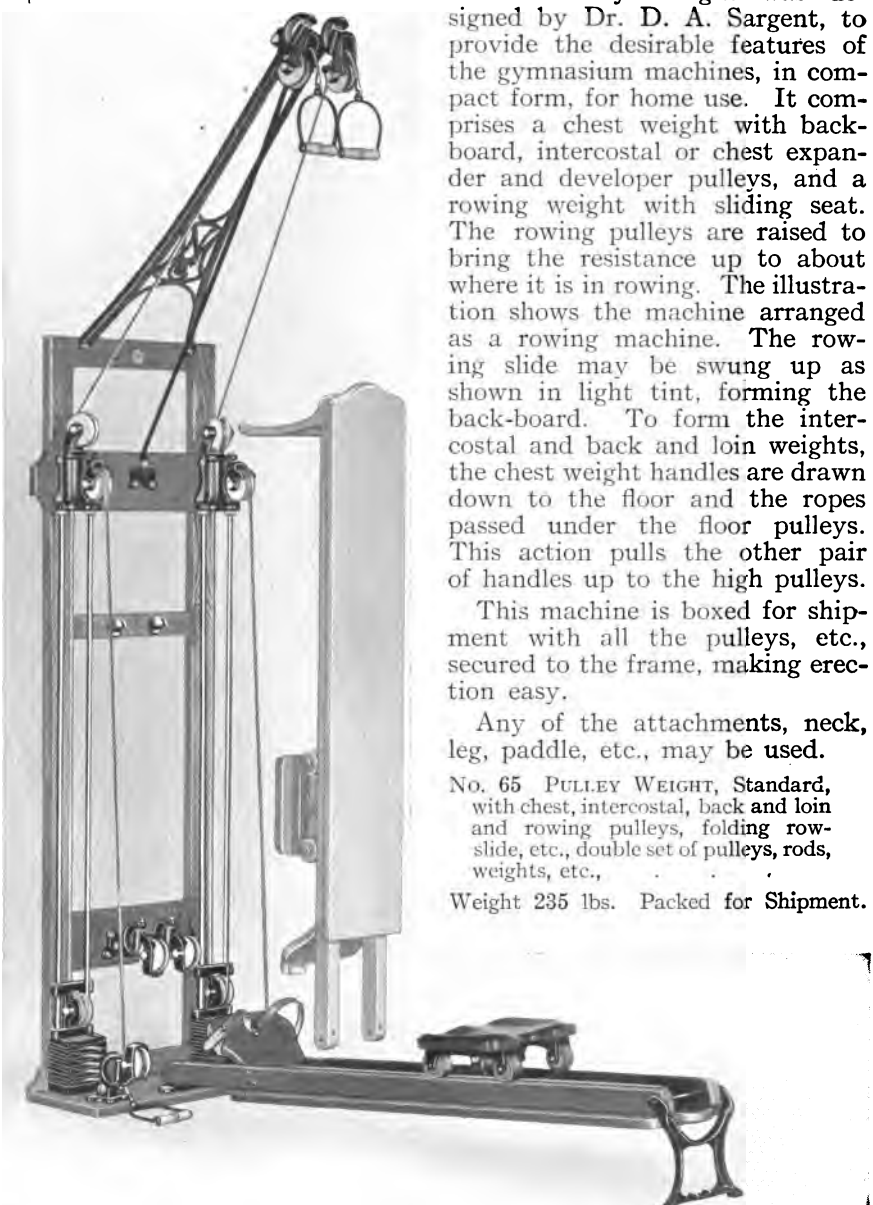
Weight 65 lbs. Packed for Shipment.

Height of wall-board to center 5 ft.

No. 61-2 ROW-SLIDE only, no folding seat, ...

Weight 55 lbs. Packed for Shipment.

SARGENT COMBINATION
PULLEY WEIGHT



This Pulley Weight was designed by Dr. D. A. Sargent, to provide the desirable features of the gymnasium machines, in compact form, for home use. It comprises a chest weight with backboard, intercostal or chest expander and developer pulleys, and a rowing weight with sliding seat. The rowing pulleys are raised to bring the resistance up to about where it is in rowing. The illustration shows the machine arranged as a rowing machine. The rowing slide may be swung up as shown in light tint, forming the back-board. To form the intercostal and back and loin weights, the chest weight handles are drawn down to the floor and the ropes passed under the floor pulleys. This action pulls the other pair of handles up to the high pulleys.

This machine is boxed for shipment with all the pulleys, etc., secured to the frame, making erection easy.

Any of the attachments, neck, leg, paddle, etc., may be used.

No. 65 PULLEY WEIGHT, Standard, with chest, intercostal, back and loin and rowing pulleys, folding row-slide, etc., double set of pulleys, rods, weights, etc., . . .

Weight 235 lbs. Packed for Shipment.

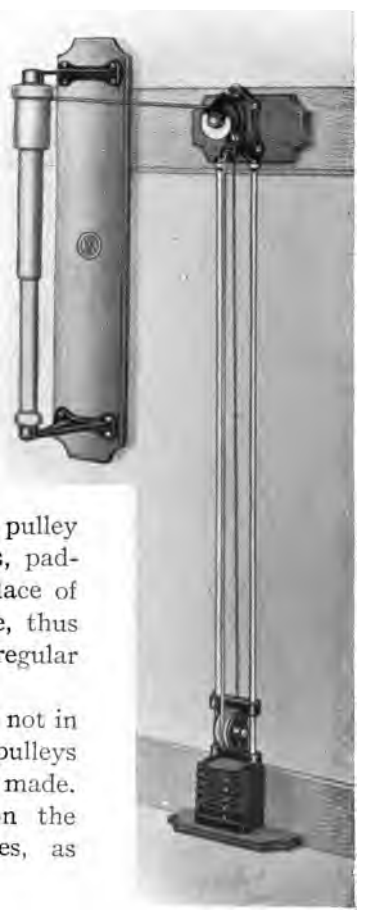
WRIST ROLL

These machines are made with polished maple rolls and long brackets to allow wrist movement back of the roll. The roll may be set either in a horizontal or vertical position.

No. 143 WRIST ROLL, Standard. Single set of rods, weights, etc., with wrist roll, . . .
Weight 60 lbs. Packed for Shipment.

No. 143-1 WRIST ROLL, may be attached to any chest weight, . . .
Weight 28 lbs. Packed for Shipment.

Height of wall-board to center 42 inches for Horizontal wrist roll.



ATTACHMENTS

Many of the means of operating pulley weights, such as wrist rolls, head gears, paddles, etc., can easily be attached in place of the commonly used chest weight handle, thus forming special machines from the regular chest weights.

The attachments, when detached, do not in any way interfere with the use of the pulleys for class work, the changes being quickly made.

Attachments will be found listed on the pages with, and following, the machines, as in case of wrist roll above.

FINGER MACHINE

The carriage of this machine runs on steel rods, thus producing a smooth action.

No. 180 FINGER MACHINE, "Standard."
Single set rods, pulleys, weights, etc.,

Weight 45 lbs. Packed for Shipment.

To set up, secure the board to the wall with the finger bar forty-two inches high.

ABDOMINAL MAT

This machine consists of a single back and loin pulley, with a mat having a sliding foot rest attached. The mat is not secured to the floor and may be easily removed. It may be purchased separately and used as an attachment to any floor pulley machine.

No. 207 ABDOMINAL MAT, "Standard." Single set of pulleys, rods, weights, etc., with mat, . .
Height of wall-board to center 5 ft.
Weight 65 lbs. Packed for Shipment.

No. 207-1 ABDOMINAL MAT ATTACHMENT, . .
Weight 30 lbs. Packed for Shipment.

PULLEY WEIGHT ATTACHMENTS

When attached to pulley weights form neck, leg and ankle machines, etc.

HEAD GEARS

No. 150-4 HEAD GEAR. Strongly made of leather, as shown in illustration of Neck Machine, No. 150, ...
Weight 1½ lbs. Packed for Shipment.

No. 150-2 HEAD GEAR. Two white webbing head straps and a cross bar. The straps are washable, . . .
Weight 10 oz. Packed for Shipment.

No. 150-3 HEAD GEAR. A webbing head strap, attaches to the handle of a chest weight, ...
Weight 3 oz. Packed for Shipment.

SHOES

FOR LEG PULLEYS OR ATTACHMENTS.

No. 230-7 SHOE. Central attachment,
Weight 13 oz. Packed for Shipment.

No. 230-3 SHOE. Toe and heel attached,
Weight 7 oz. Packed for Shipment.

No. 230-4 FOOT STRAP, . . .
Weight 3 oz. Packed for Shipment.

No. 130-2 PADDLE. May be attached to any chest weight, . . .
Weight 8 lbs. Packed for Shipment.

No. 135-1 SCULLING OAR. May be attached to any chest weight, . .
Weight 12 lbs. Packed for Shipment.

No. 143-1 WRIST ROLL. May be attached to any chest weight, . .
Weight 25 bs. Packed for Shipment.

No. 226-2 ROW SLIDE, ...
Weight 45 lbs. Packed for Shipment.

No. 271-1 QUARTER CIRCLE ARC, ...
Weight 60 lbs. Packed for Shipment.

NECK MACHINES

Single; head gear chest height.

No. 150 SINGLE NECK MACHINE, "Standard." Single set rods, pulleys, weights, etc., with head gear, No. 150–4, .

Weight 50 lbs. Packed for Shipment.

Duplex; head gear at chest height and at floor.

No. 152 DUPLEX NECK MACHINE. "Standard." Single set rods, pulleys, weights, etc., with head gear, No. 150–4, . .

Weight 60 lbs. Packed for Shipment.

SINGLE GIANT PULLEY

No. 208 GIANT PULLEY, "Standard". Single set of pulleys, rods, weights, etc., with split handle, ...

Weight 55 lbs. Packed for Shipment.

LEG PULLEY

No. 232 HIGH AND LOW LEG PULLEY, "Standard." Single set of pulleys, rods, weights, etc., with back-board and shoes,

Weight 70 lbs. Packed for Shipment.

BACK BOARD

For Leg Pulley or Giant Pulleys, see cut on opposite page.

No. 230–1 BACK-BOARD, ...

Weight 20 lbs. Packed for Shipment.

CHEST BARS

Sets of Chest Bars may have two, four or six bars.

Plain Chest Bars have no braces at the top and can be used for heights of twelve feet or less.

No. 340 PLAIN CHEST BARS, two bars, (Packed Wt. 40 lbs.)
No. 340A PLAIN CHEST BARS, four bars, (Packed Wt. 80 lbs.)
No. 340B PLAIN CHEST BARS, six bars, (Packed Wt. 120 lbs.)

Braced Chest Bars have braces at the top and are secured to walls.

No. 342 BRACED CHEST BARS, two bars, (Packed Wt. 75 lbs.)
No. 342A BRACED CHEST BARS, four bars, (Packed Wt. 145 lbs.)
No. 342B BRACED CHEST BARS, six bars, (Packed Wt. 220 lbs.)

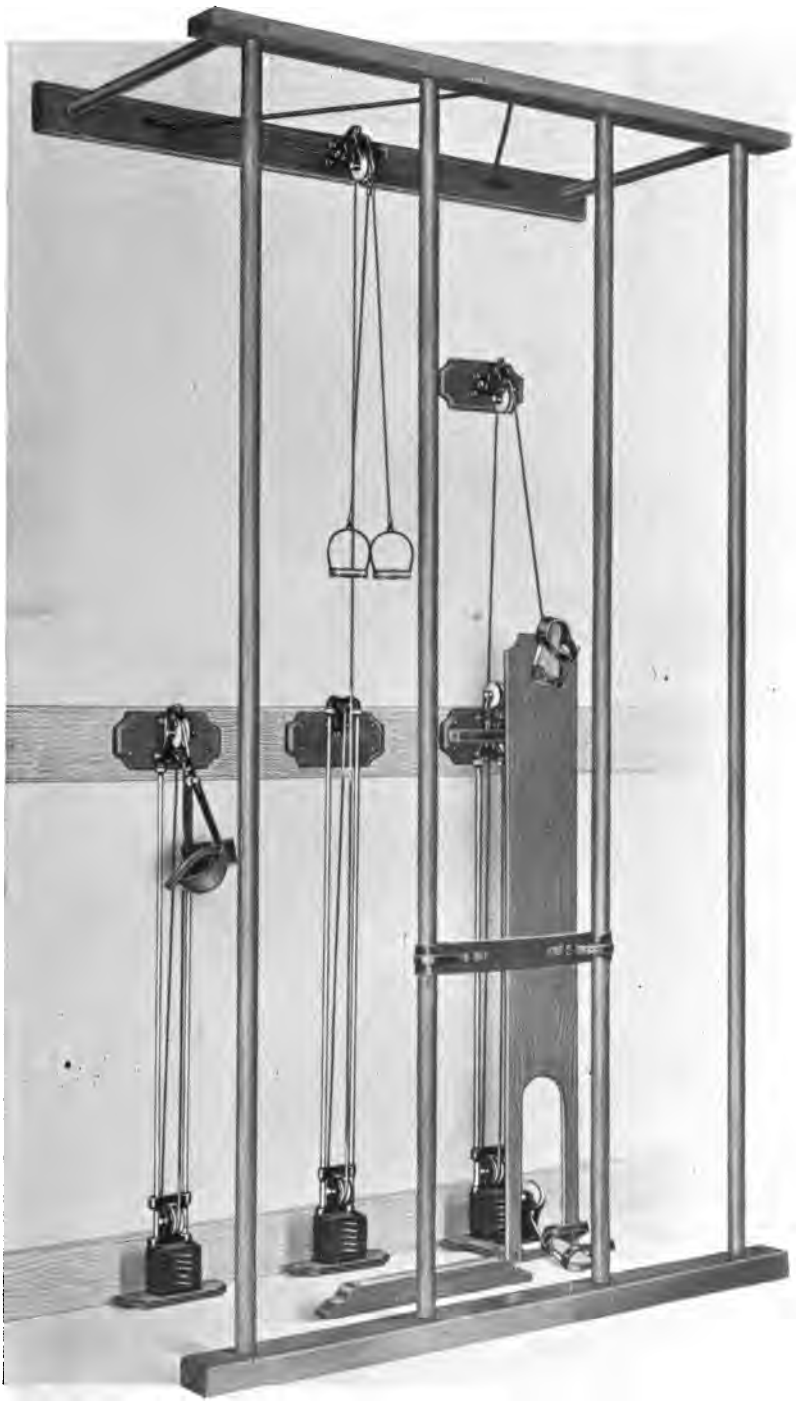
ABDOMINAL STRAP

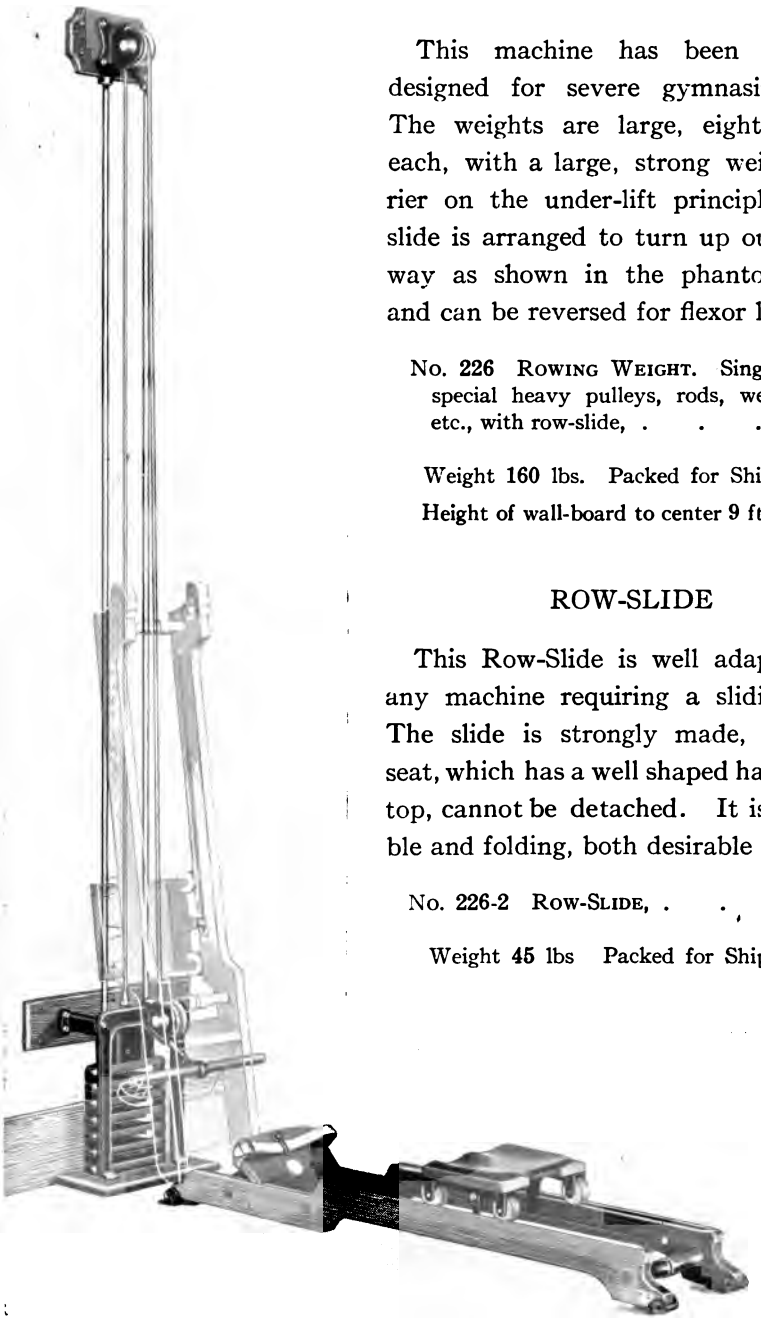
And Cleat for use on Chest Bars.

No. 347 ABDOMINAL STRAP and Cleat, ...

Machines Nos. 150, 208, 232, 342A and 347 are shown on the opposite page; fuller information will be furnished if desired.

Height of wall-board to center 5 ft., to upper wall-board on leg pulley 8 ft.





ROWING WEIGHT

This machine has been specially designed for severe gymnasium use. The weights are large, eight pounds each, with a large, strong weight carrier on the under-lift principle. The slide is arranged to turn up out of the way as shown in the phantom lines, and can be reversed for flexor leg work.

No. **226** ROWING WEIGHT. Single set special heavy pulleys, rods, weights. etc., with row-slide, . . .

Weight **160** lbs. Packed for Shipment.

Height of wall-board to center 9 ft. 10 in.

ROW-SLIDE

This Row-Slide is well adapted for any machine requiring a sliding seat. The slide is strongly made, and the seat, which has a well shaped hard wood top, cannot be detached. It is reversible and folding, both desirable features.

No. **226-2** ROW-SLIDE, . . .

Weight **45** lbs Packed for Shipment.

QUARTER CIRCLE

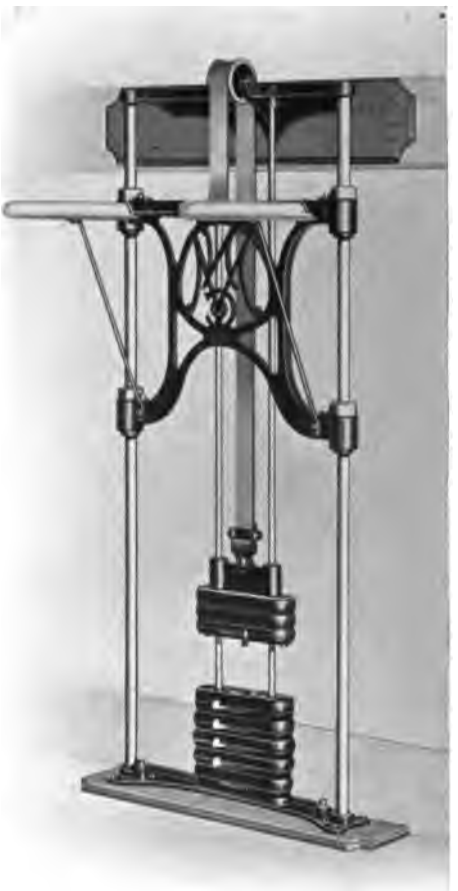
The back-board may be swung up out of the way or removed entirely, if desired.

No. 271 QUARTER CIRCLE, "Standard." Double set of pulleys, rods, weights, etc., with curved back-board,

Weight 125 lbs. Packed for Shipment.

No. 271-1 QUARTER CIRCLE arc, may be attached to any chest weight.

Weight 60 lbs. Packed for Shipment.



TRAVELING PARALLEL

The machine (shown in the illustration) is made very heavy to sustain the pressure applied to the extended arms in lifting the heavy weights. The carriage slides on strong cold rolled steel rods and has self-lubricating bearings. The weight is of the under-lift type; easy to change.

No. 275 TRAVELING PARALLEL,

Weight 280 lbs. Packed for Shipment.

Height of wall-board to center 5 ft.

ABDOMINAL CHAIR

A compact machine, not requiring fastening, and very effective for its purpose.

The seat is hollowed out to sustain and hold the user comfortably. The pedals and back rest are adjustable. A latch, to hold the weights at about half travel, is provided for convenience in getting in and out. As a heavy, strong acting weight is required, the weights are used "single" (See No. 1 on page 5) and their travel made the entire height of the chair. Plain weights are used and a shelf is provided for spare weights.

No. 280 ABDOMINAL CHAIR. Double set special pulleys, rods, weights, etc., Weight 250 lbs. Packed for Shipment.

WRIST MACHINE

These machines may be furnished double as shown, or single, i.e., one on a board. They should be secured to a wall fifty-four inches from the floor to centre.

No. 325 FRICTIONAL WRIST MACHINE, double,

Weight 30 lbs. Packed for Shipment

WRIST ROLL

This Wrist Roll can be placed either in a horizontal or vertical position. The brackets hold it well out from the wall, allowing ample room for the hand and wrist back of the roll. The friction is smooth and constant, acting in either direction, and can be adjusted to give any required resistance.

No. 327 FRICTIONAL WRIST ROLL, frictional,

Weight 30 lbs. Packed for Shipment

To set up, fasten to a wall with the centre forty-five inches from the floor:

NAUTICAL WHEEL

An adaptation of the steering wheel of a vessel. The friction brake, that forms the resistance, is simple and durable. The arms or spokes are supported by the rim. The machine presents a fine appearance, the arms being ash, the rim cherry and the mountings polished brass.

No. 320 NAUTICAL WHEEL, frictional, 48 inches diameter, . .

Weight 100 lbs. Packed for Shipment

To set up, secure strongly to the wall about four feet from the floor to the centre.

WRESTLING MACHINE

A modification of the Nautical Wheel. The greater space between the spokes permits different movements.

No. 321 WRESTLING MACHINE, frictional, 48 inches diameter,

Weight 75 lbs. Packed for Shipment.

Set up same as Nautical Wheel.

Where resistance to rotation is the only requirement a friction brake is the most simple and effective device. The brake used on the above two machines is specially designed to produce smooth, even resistance and be easily adjusted.

NO. 335 HYDRAULIC ROWING MACHINE

THE MACHINE USED FOR TRAINING ROWING CREWS AT CORNELL, HARVARD, YALE, PRINCETON AND SYRACUSE UNIVERSITIES, THE U. S. NAVAL ACADEMY AND OTHER INSTITUTIONS AND BY MANY PRIZE CREWS.

HYDRAULIC ROWING MACHINES

In this machine a liquid resistance to rotation offers the closest approximation to actual rowing yet obtained. The oar turns to allow feathering and is balanced by the bowl.

The illustration below shows the blade and cover of the bowl lifted up to show the blade with its valves, and the partitions in the bowl.

The pressure on the oar is governed by the valve in the centre of the shaft. A key for this valve is furnished and can be kept by the person in charge, thus preventing the pressure being changed. All of a set of machines may easily be set at a uniform pressure, and when so set will not require altering afterwards, as greater or less resistance can be got by varying the speed of rowing.

When the oar is pulled, the blades swing between the partitions in the bowl, forcing the liquid through the valve which controls the pressure. On the "return" the liquid passes freely through the ball valves in the blades.

No. 335 HYDRAULIC ROWING MACHINE, one oar with sliding seat, ...

Weight 125 lbs. Packed for Shipment.

No. 334 HYDRAULIC ROWING MACHINE, one oar, no seat,

Weight 80 lbs. Packed for Shipment.

No. 336 HYDRAULIC ROWING MACHINE, two oars, with one sliding seat, . . .

Weight 210 lbs. Packed for Shipment.

CHEST WEIGHT EXERCISES

A Booklet, 3½" x 6"; 112 pages; 80 figures from photos; 106 exercises on Chest, Intercostal, and Floor Pulleys.

Price 10 cents. Post Paid.

This Booklet will be sent free to Physical Directors.

HORIZONTAL BARS

The Horizontal Bars shown on the following pages are the types that have proved the most practical in gymnasium use, with their details refined to meet actual working conditions.

BAR CAPS

Bar Caps and Ends have been made interchangeable, so that a standard bar—either steel or hickory steel core—will fit any horizontal or vaulting bar fittings. The bar of a steel core vaulting bar can be used in the place of a steel suspended bar or vice versa. Illustrations of various caps and ends are on a following page.

Pin Locking is used for all adjustable bars. The pin being supplemented by clamping screw as shown on this page.

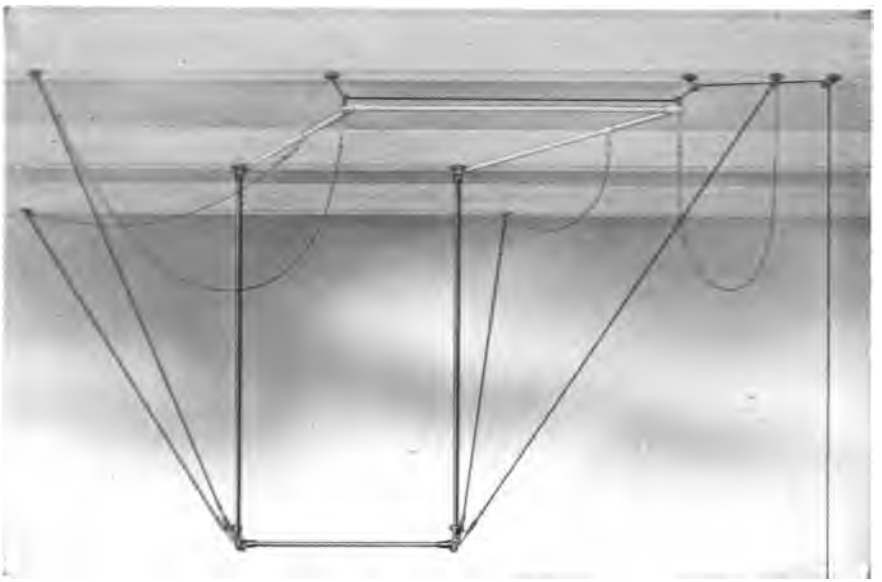
BAR PLANS

As both Horizontal Bars and Vaulting Bars are secured overhead and must be swung up or otherwise moved out of the way, each bar calls for special plans. Let us plan a bar for you.

"STANDARD" LOCKING BOLT

This Bolt is used to secure all Vaulting Bar posts to the floor, that swing or hoist up. The central bolt holds the post firm and by locking under the post prevents its lifting. It is locked or unlocked by the foot.

It is such carefully studied details as this that make "Standard" Apparatus the most practical for use, and convenient to handle.



SUSPENDED HORIZONTAL BAR

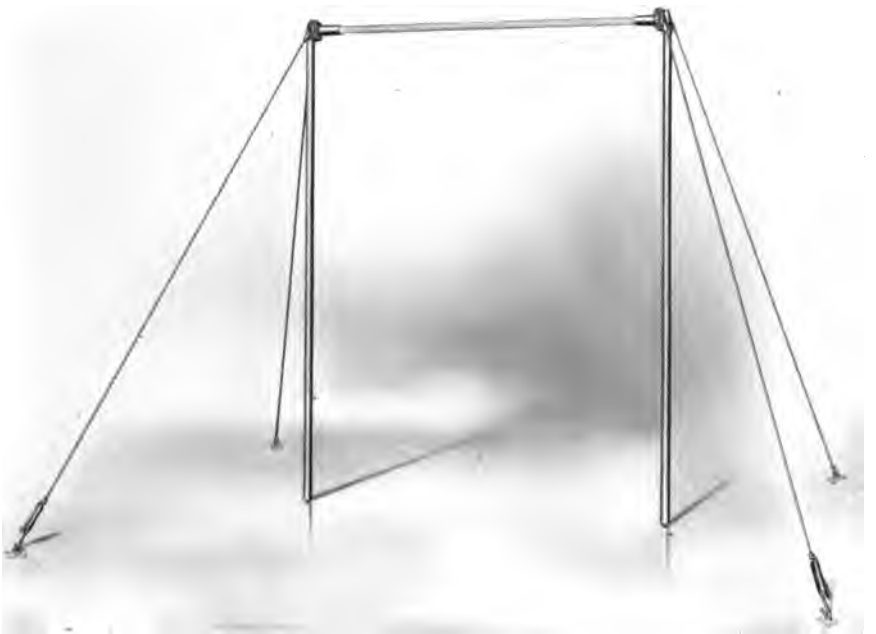
For gymnasium use, this is a practical bar. It is out of the way, having no guys or posts coming down to the floor. The bars listed below, are for heights not exceeding twenty-four feet. Special prices will be quoted for other heights.

The bar is made to swing up close to the ceiling, as shown in phantom lines, when it is desirable to clear the room for games.

No. 367A HORIZONTAL BAR, 6 foot "Standard" steel core hickory bar.
Weight 100 lbs. Packed for Shipment.

No. 369A HORIZONTAL BAR, 6 foot "Standard" steel bar, . . .
Weight 110 lbs. Packed for Shipment.

Horizontal bars are also made double or triple, i. e., with the bars parallel and about seven feet apart, or they may be placed end to end in a line. We will be pleased to send sketches of such special bars.



FLOOR HORIZONTAL BAR

This is the simplest form of Horizontal Bar. Being provided with our instantaneous turnbuckles, it can be taken down or set up in a fraction of a minute.

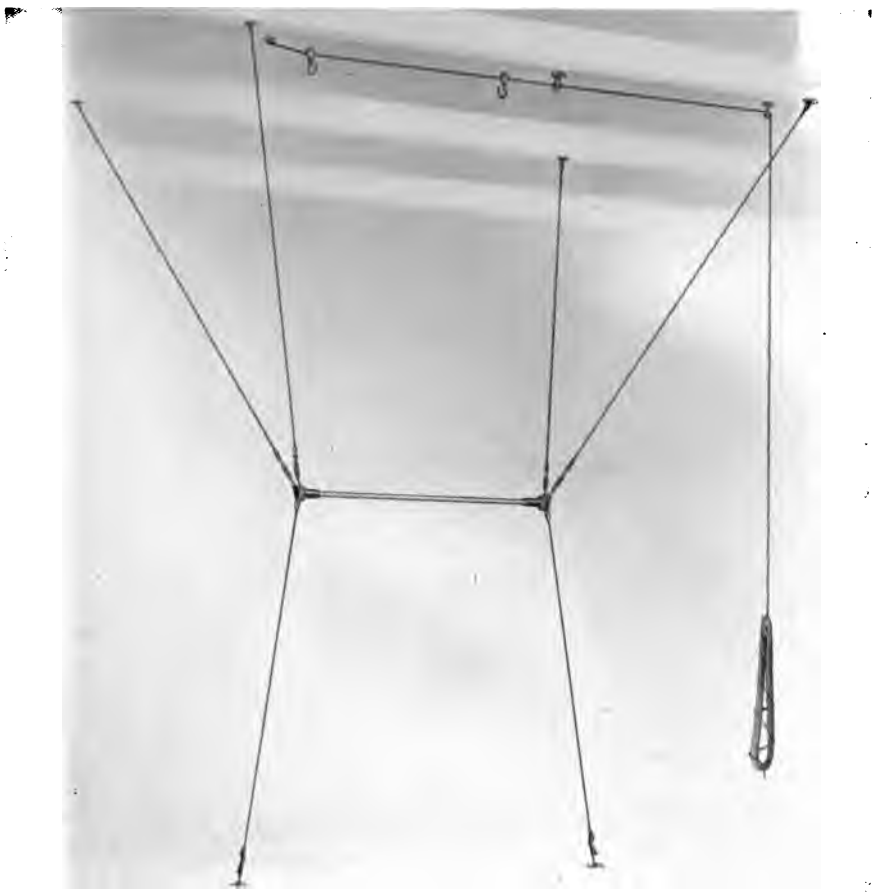
It has pipe uprights, wire rope guys, with improved hooks, two instantaneous turnbuckles, floor plates with screws, etc.

No. 362 HORIZONTAL BAR, 6 feet, "Standard" steel core hickory bar, ...
Weight 100 lbs. Packed for Shipment.

No. 364 HORIZONTAL BAR, 6 feet, "Standard" steel bar, .
Weight 100 lbs. Packed for Shipment.

All our Horizontal Bars have our improved interchangeable caps. Any steel or steel core hickory bar will fit any horizontal or vaulting bar fixtures.

COLLEGE OF THE CITY OF NEW YORK, GYMNASIUM.



SIX GUYED BAR

This makes a simple, cheap and efficient bar, much prized by gymnasts on account of its peculiar elasticity.

Two instantaneous turnbuckles provide for quick detachment from the floor, after which it is easily hoisted up out of the way.

This bar can be made "double" if desired.

No. 372 SIX GUYED HORIZONTAL BAR, 6 foot "Standard" steel core hickory bar, with hoisting tackle complete, . . .

No. 374 SIX GUYED HORIZONTAL BAR, 6 foot "Standard" steel bar, with hoisting tackle complete, ...

Weight 80 lbs. Packed for Shipment.

COMBINED HORIZONTAL AND VAULTING BAR

This is the most popular bar we make. It can be quickly put up or taken down, does not occupy much floor space, and it is very strong and rigid, the uprights being held firm by braces.

No. 378 COMBINED HORIZONTAL AND VAULTING BAR, 6 foot "Standard" steel core hickory bar, ...

Weight 170 lbs. Packed for Shipment.

No. 378A COMBINED HORIZONTAL AND VAULTING BAR, 6 foot "Standard" steel bar, ...

Weight 180 lbs. Packed for Shipment.

All Vaulting Bars are adjustable from two to seven and one-half feet.

SEMI GUYED HORIZONTAL AND VAULTING BAR

This bar is same as No. 378 except that one post is fastened to the wall or a column.

No. 376 SEMI GUYED HORIZONTAL AND VAULTING BAR,
6 foot "Standard" steel core hickory bar, . . .
Weight 125 lbs. Packed for Shipment.

No. 376A SEMI GUYED HORIZONTAL AND VAULTING BAR,
6 foot "Standard" steel bar, ...
Weight 135 lbs. Packed for Shipment.

All Vaulting Bars are fitted with our combination pin and clamp cap. The pin holds the bar at any height for vaulting; a turn of the clamp knob tightens the bar for turning.

SWING UP VAULTING BAR

This bar has swing joints at the top of the posts and locking bolts at the bottom as shown. Hooks to hold the posts when swung up, or ropes and blocks to hoist them up, as conditions may require, will be furnished.

No. 392A SWING UP VAULTING BAR, 6 foot "Standard" steel core hickory bar,
No. 394A SWING UP VAULTING BAR, 6 foot "Standard" steel bar . .

Weight 125 lbs. Packed for Shipment.

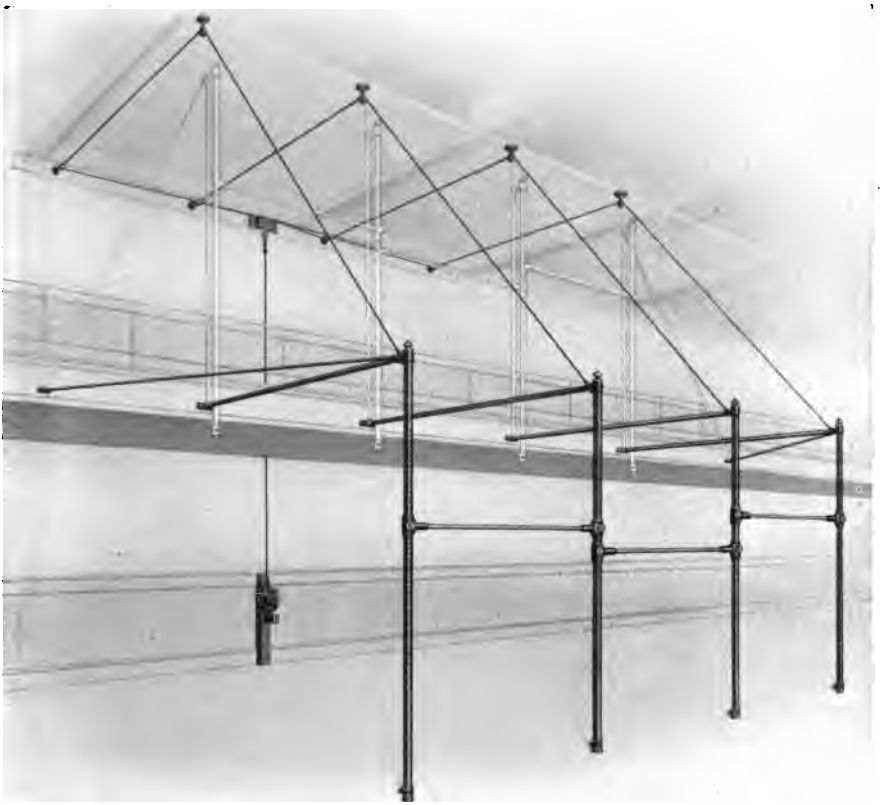
FIXED VAULTING BAR

This bar is similar to the illustration, except that it is fixed at the floor and top; that is, it does not swing up.

No. 392 VAULTING BAR, 6 foot "Standard" steel core hickory bar . .
No. 394 VAULTING BAR, 6 foot "Standard" steel bar . . . .

Weight 120 lbs. Packed for Shipment.

The Vaulting Bar shown above is the most practical form when there is sufficient height and width of gallery. It is the acme of simplicity.



FOLDING HORIZONTAL AND VAULTING BAR

This type provides for both turning and vaulting, the bars being eight feet from the gallery. The bars lift entirely out of the way. Where more than one bar is furnished, it is desirable to use a winch for hoisting the bars as shown in phantom lines. It is only necessary to release the locking bolts at the floor to prepare the bars for hoisting. If desired, this bar may be placed against a wall.

Steel Core Bars		Steel Bars	
397B	1 Bar, no winch.	399B	1 Bar, no winch.
397C	2 Bars, with winch.	399C	2 Bars, with winch.
397D	3 Bars, with winch.	399D	3 Bars, with winch.
397E	4 Bars, with winch.	399E	4 Bars, with winch.

Weight from 200 to 600 lbs. Packed for Shipment.

BARS AND CAPS

S 2084 BAR END

All Standard Steel Bars have the above end.

No. 376-11 "STANDARD" 6 FOOT STEEL BAR, 1⅛ inches diameter, with S2084 Bar Ends . . . . . .

S 2079 BAR END

This end is used on all Standard steel core hickory bars.

No. 376-10 "STANDARD" 6 FOOT STEEL CORE HICKORY BAR, with S2079 Ends . . . . . .

No. M63	STEEL BAR, 6 ft., 1⅛ in. dia.	Weight packed 28 lbs.
No. M64	STEEL BAR, 7 ft., 1⅛ in. dia.	Weight packed 33 lbs.
No. M65	HICKORY STEEL CORE BAR, 6 ft.	Weight packed 20 lbs.

HORIZONTAL BAR CAP

The No. 369-20S Bar Cap is used on suspended and guyed floor bars. A double faced cap is used when two or more bars are set in line. The caps fit Standard one and one-quarter inch pipe.

369-20S

372-20S

SIX GUYED BAR CAP

No. 372-20S Bar Cap may be used either four guys up or four down. A double cap is provided for bars in sets, two, three, or more.

VAULTING BAR CAP

On all forms of adjustable bars the No. 376-12S cap is used. It has a latch pin for the quick removal of the bar and a pull pin with a tightening knob for adjustment. The pin assures safety and the knob tightness.

376-12S

LUNGE STRAP

A strong webbing belt, having cotton ropes attached to the sides by swivels.

No. 540 LUNGE STRAP . . . . . .

Weight 10 lbs. Packed for shipment.

SUSPENDED LUNGER

Consisting of a Lunge Strap, having the side ropes carried over pulleys on the ceiling to a large single rope, which is held by the instructor.

No. 545 SUSPENDED LUNGER . . . . . .

Weight 20 lbs. Packed for shipment.

TURNBUCKLES

No. 379-5 PLAIN TURNBUCKLE, each, ...

INSTANTANEOUS TURNBUCKLES

This turnbuckle is used on all our Bars when quick release is necessary. The cuts show the turnbuckle closed and opened.

No. 379-1 INSTANTANEOUS TURNBUCKLE, each, ...

No. 379-2 INSTANTANEOUS TURNBUCKLE, each, ...

For guys having hooks on them.

SAFETY STRAP

Used in practicing on the horizontal bar. Made of strong webbing, lined with soft leather and twisted, right and left, to form a comfortable loop for the wrist.

No. 379-12 SAFETY STRAP, per pair, .

BUCKLED SAFETY STRAP

The buckle permits easy removal of the strap from the bar. The stiff leather collar protects the bar and prevents binding.

No. 379-13 SAFETY STRAP, with buckle, per pair, ...

CLIMBING APPARATUS

"Standard" Climbing Apparatus is specially designed for safety, correct size and durability.

All top fastenings are made by shackles double pinned. We have special fastenings for clamping to iron beams, or to pipe beams.

Ropes are made with four strands of a selected long fibre manilla that wears smooth and is very durable. Italian hemp ropes will be furnished if preferred. Prices on application.

CLIMBING ROPE

No. **550** CLIMBING ROPE, Manilla, 18 feet or less, with knot, . .
Weight 25 lbs. Packed for Shipment.

No. **551** CLIMBING ROPE, Manilla, 18 feet or less, no knot, . .
Weight 23 lbs. Packed for Shipment.

KNOTTED CLIMBING ROPE

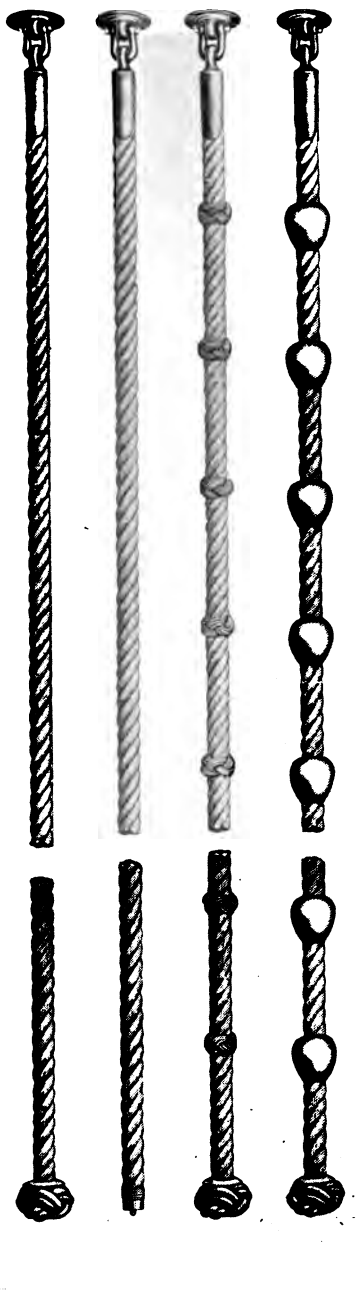
The knots are braided around and through the rope, eight inches apart, to form the "rise" and "rest" for the climber.

No. **555** KNOTTED CLIMBING ROPE, Manilla, 18 feet or less, with bottom knot, ...
Weight 25 lbs. Packed for Shipment.

BALL ROPE

The Ball Rope, or "Rosary," as it is sometimes called, is a climbing rope with balls secured twelve inches apart. The balls are of turned maple.

No. **560** BALL ROPE, Manilla, 18 feet or less, with bottom knot, . .
Weight 40 lbs. Packed for Shipment.



550 551 555 560

CLIMBING POLES

The "Standard" Climbing Poles are made of selected Oregon Pine, cut following the grain, filled, finished smooth and shellac'd.

No. 570 CLIMBING POLE, 18 feet or less
1½ inch diameter, . . .
Weight 25 lbs. Packed for Shipment.

ROPE LADDERS

This ladder has maple rounds with their ends worked into the side ropes. Each side rope is secured separately at both top and bottom, the bottom fastening being a strap that can be tightened.

No. 940 ROPE LADDER, 18 feet or less, with straps, . . .
Weight 35 lbs. Packed for Shipment.

No. 941 ROPE LADDER, 18 feet or less, without strap at the bottom, .
Weight 30 lbs. Packed for Shipment.

FOOT STRAP

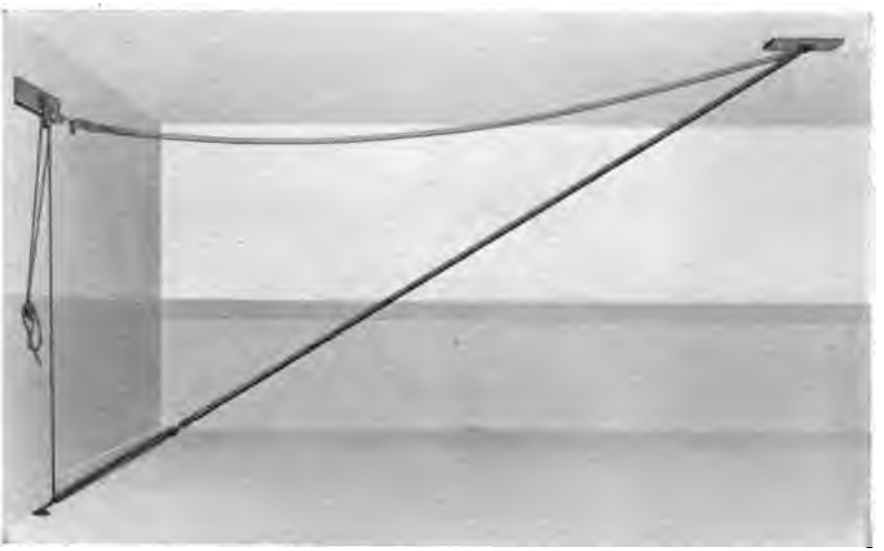
The Foot Strap shown herewith is used to hold ropes and poles taut and prevent their swinging. The strap may be quickly detached from the floor.

FLOOR STRAP, extra
Weight 2 lbs. Packed for Shipment.

No. 729S HOIST, For Ropes or Poles.

Will hoist 1 to 5 ropes or poles.
Weight 12 lbs. Packed for Shipment.

570 940



POSSE INCLINED ROPE

This style of Inclined Rope can be quickly loosened and hoisted out of the way, as is shown by the lighter shaded rope above.

The tightening rope, having a downward pull, and passing over double blocks, tightens the climbing rope without over-straining it.

No. 554 POSSE INCLINED ROPE, 24 feet or less, with block and hoisting fixtures, complete, ...

Weight 60 lbs. Packed for Shipment

SLIDING POLE

The Sliding Pole is a quick means of descending from the gallery.

The "Standard" Sliding Pole is made of polished brass tube, extra heavy, and is secured at the top by braces to the walls.

No. 581 SLIDING POLE. Brass with japanned iron top and brace,

Weight 100 lbs. Packed for Shipment.

SLIDING POLE RAIL

This Rail protects the opening and leaves narrow passage at the sides for access to the pole.

No. 582 SLIDING POLE RAIL. Japanned, ...

Weight 30 lbs. Packed for Shipment.

SLIDING POLE MAT

A Round Mat three feet in diameter and three inches thick. It has a hole in the centre opening to the side by a slit and closed by a strap and buckle.

No. 973 SLIDING POLE MAT, 3 inches felt, covered with white duck,

Weight 25 lbs. Packed for Shipment.

STANDARD HORSE

(PATENTED).

The design of this horse includes all the desirable features suggested by long experience. The column and base are cast in one piece, the one merging into the other with long, smooth, graceful lines. All bolts and projections that injure in case of a fall are eliminated.

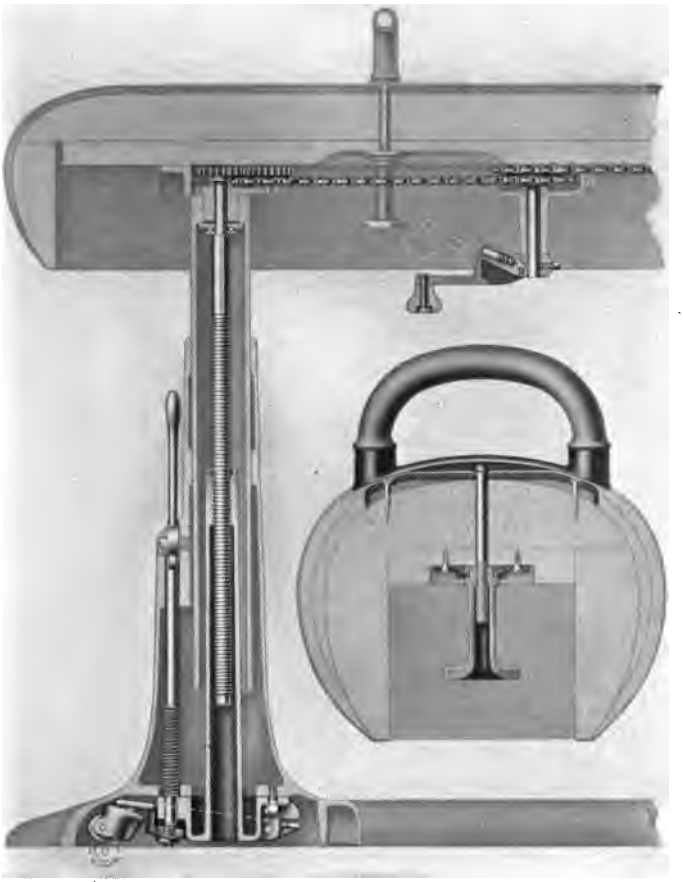
No. **600** STANDARD HORSE, straight body, ...
No. **601** STANDARD HORSE, necked body, ...

Weight **650** lbs. Packed for Shipment.

CASTER

The caster mechanism is of new design, operated by roller bearing levers on the columns. Casters are of the swivel roller bearing type with metal rollers accurately turned and are entirely enclosed within the base.

The hand levers on the sides of the legs operate the casters.



The mechanical principle used in adjusting for height consists of screws concealed within the columns. These screws are operated by chains of the bicycle roller type with a crank lever underneath the center of the horse. This lever disappears within the body of the horse when not in use. The range of adjustment is from 36″ to 57″.

The pommels are removable, the grip part being padded and covered with leather or made of highly polished maple. They are secured to the body by a central bolt and a non-detachable locking nut.

The horse is a perfected machine thoroughly adapted to its work by both its form and mechanical principles.

NO. 620 STANDARD BUCK

(PATENTED)

No. 620 STANDARD BUCK, ...

Weight 360 lbs. Packed for Shipment.

The adjusting mechanism and design of the column is substantially the same as the horse shown on the previous page and has the same range 36″ to 57″. The adjusting crank lies close to the column, out of the way when not in use. The large base with its weight low makes a particularly stable support for the body at its greatest height.

Leather shoes secured to the underside of the feet protect the floor from injury on horse, buck and parallel bars.

BASE OF BUCK

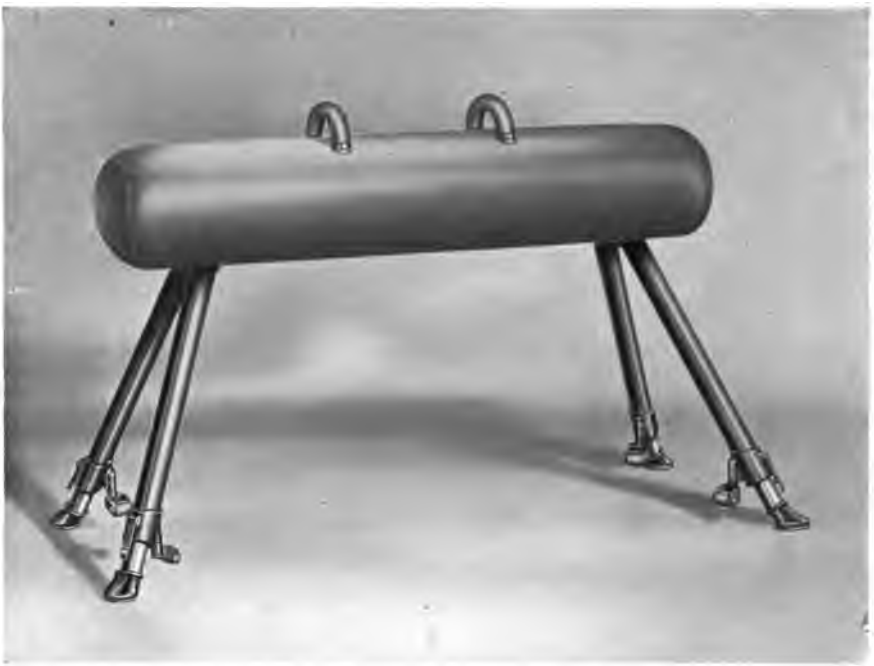
A view of the underside of the base of the buck shows the caster operating mechanism.

There are four casters, same as previously shown in section, attached to pivoted frames; these latter being operated by the lever shown on the side of the post on both horse and buck. Depressing the lever lifts the apparatus with the casters resting on the floor ready to move in any direction.

A similar mechanism under the base of the horse operates two casters at each post.

Round sole leather shoes are secured at each tip of the feet of the horses, bucks, parallel bars and other apparatus having iron bases. These shoes are easily removed and prevent scratches on floor as well as slipping of the apparatus on the smooth floor.

The oval section of the bases of standard apparatus gives great strength and solidity to the apparatus with the least possible hindrance to the placing of mats.



No. 612 HORSE

No. 612 HORSE, straight body, ...
No. 613 HORSE, necked body, ...

Weight 290 lbs. Packed for Shipment.

The Horse and Buck shown on this and the following pages are built on the lines of the German horse with improvements in construction. This form, known as the four-legged, is preferred by many experts; it stands firm and the base increases as the body is raised. It is covered with first quality leather. The feet have "Standard" leather shoes.

The Horse handles are removable, padded and open, thus affording a good grasp for the hands. They are four and one-half inches high, and have a central attaching bolt, that leaves only one hole in the body for each handle.

NO. 632 BUCK

No. 632 BUCK, ...

Weight 175 lbs. Packed for Shipment.

The legs of both Horse and Buck are of large steel tube, telescoping, and arranged so the inner tube cannot turn in the outer. Both are adjustable from thirty-seven to fifty-seven inches high. The latch is an improvement over the pin, as it does not project to bruise any one that might strike it, and, being attached to the leg, cannot get lost. Under the latch are casters that come into action when the inner section of the legs are pushed completely in and held up by the latch. The bodies of the above and the Standard Horse and Buck are alike, the difference being wholly in the base and legs.

SHORT HORSE

Buck bodies fitted with Horse Handles, and on either central post or four legs.

No. 621 SHORT HORSE, single post, ...

Weight 325 lbs. Packed for Shipment.

No. 631 SHORT HORSE, with four legs, . .

Weight 200 lbs. Packed for Shipment.

SPRING BOARDS

BATTEAU BOARD

The "Standard" Batteau Boards and Bars are made of carefully selected seasoned ash. We have special facilities for getting the stock best adapted for this purpose. We take great care to give the proper dimensions, curves, etc., to these boards and bars to secure the strength and elasticity necessary to the severe strain to which they are put.

The upper half of the board is covered with cork carpet glued on. The board is secured to the bar by leather straps tightened by wedges, and a similar device holds the ends of the bar in the pedestals.

No. 640 BATTEAU BOARD, 6 x 1½ feet with bar and pedestal complete, .
Weight 130 lbs. Packed for Shipment.

INCLINED SPRING BOARD

A well known form of Spring Board, indispensable in any fairly well equipped gymnasium. We are making it of the best material throughout, using New England ash, grown in the granite hills where it absorbs the strength of the rocks. It is light and can easily be moved to any part of the gymnasium and yet stands firm without fastening. All spring boards are rubber shod and will be covered with cork carpet on the upper end unless otherwise ordered.

No. 649 INCLINED SPRING BOARD, 6 feet x 22 inches, ...
Weight 120 lbs. Packed for Shipment.

BOUNCING SPRING BOARD

A Platform Spring Board, made very strong and substantial to stand the severe strain to which it is subjected. The base is made of oak and the board of selected New England ash. It is very elastic, yet firm in its bearings and supports. It may be used as director's platform by blocking it from underneath.

No. 656 BOUNCING SPRING BOARD, 6 x 2 feet, . . .
Weight 140 lbs. Packed for Shipment.

BALANCE BOARD

This board is made I shape in section, two inches wide at the edges, the object being to obtain lightness consistent with the strength and stiffness required.

No. 667 BALANCE BOARD, 12 feet long, ...
Weight 50 lbs. Packed for Shipment.

TANK SPRING BOARD.

This is the most substantial, practical and durable spring board yet produced.

It consists of three oak slats, tapered to give the proper elasticity securely fastened to two heavy cleats at the shore end and having two light cleats over the pool.

The anchors are iron with bronze nuts and are secured in the cement platform of the pool. Bronze bolts, easily removed and leaving only small holes hold the cleats to the floor. All screws and bolts are brass and bronze.

No. 654B TANK SPRING BOARD.

Weight 220 lbs. Packed for Shipment.

INTERCOLLEGIATE OFFICIAL SPRING BOARD

This board rests on an heavy oak chair, which is anchored same as No. 654, and can be easily removed.

The board has five oak slats covered with cocoa matting, all metal work galvanized, all wood work painted white.

No. 652 INTERCOLLEGIATE SPRING BOARD.

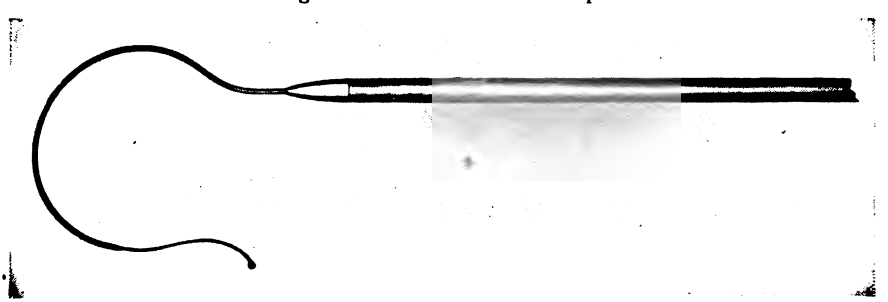
Weight lbs. Packed for Shipment.

SWIMMING TROLLEY

A substantial device for coaching beginners. It consists of a half inch galvanized wire rope drawn taut with a turnbuckle, on which runs a brass carriage having two brass pulleys. To the carriage is attached a pair of galvanized blocks and a control rope. A broad webbing belt with shoulder straps completes the outfit.

Price does not include special fittings that may be necessary to fasten to other than plain walls.

No. 546 SWIMMING TROLLEY . . . . . .
Weight 80 lbs. Packed for Shipment.



RESCUE POLE

An adoption of the Shepard's Crook for pool emergencies.

No. 547 RESCUE POLE, 10 foot pole, Weight 30 lbs. Packed

BEAT BOARD

Made of oak, covered with thick cork carpet and rubber shod.

No. 662 BEAT BOARD, 30 x 25 inches, ...

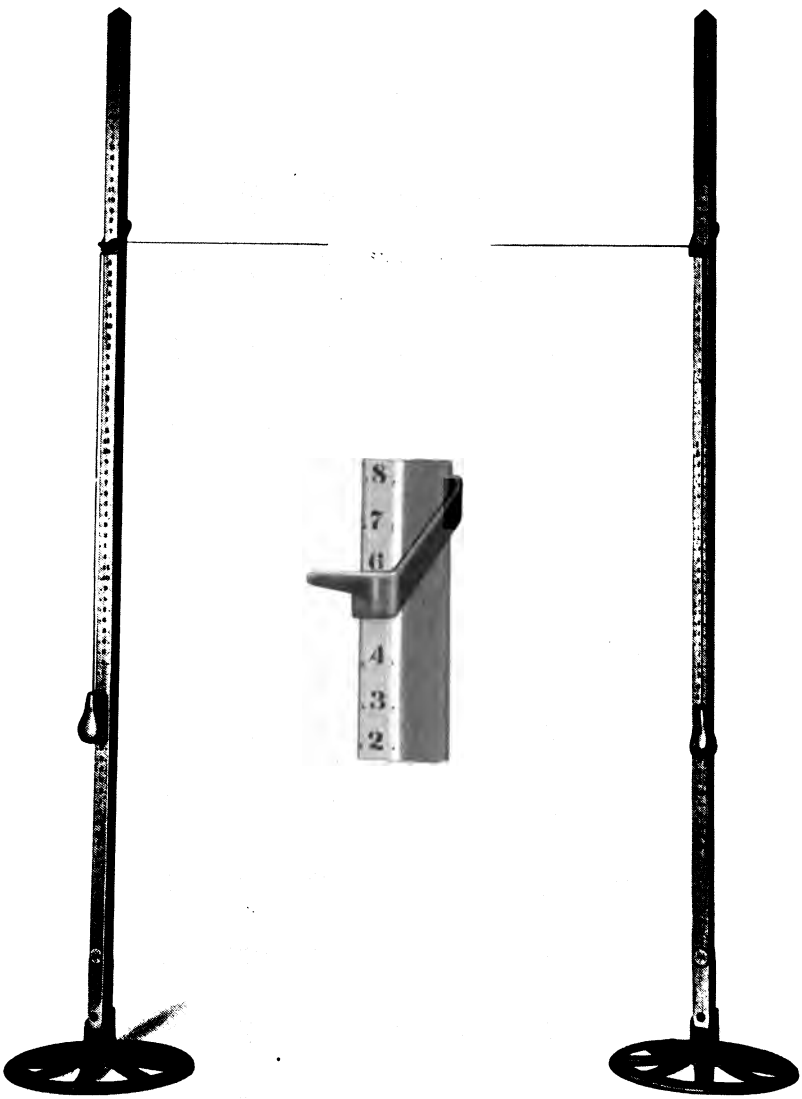
Weight 40 lbs. Packed for Shipment.

SPRING BEAT BOARD

An Elastic Beat Board for use in connection with horse, buck and parallel bars. The elasticity is not great, just enough to avoid the solidity of the ordinary board and to give a slight impetus to the user.

No. 663 SPRING BEAT BOARD, 4 feet x 20 inches, . . .

Weight 75 lbs. Packed for Shipment.

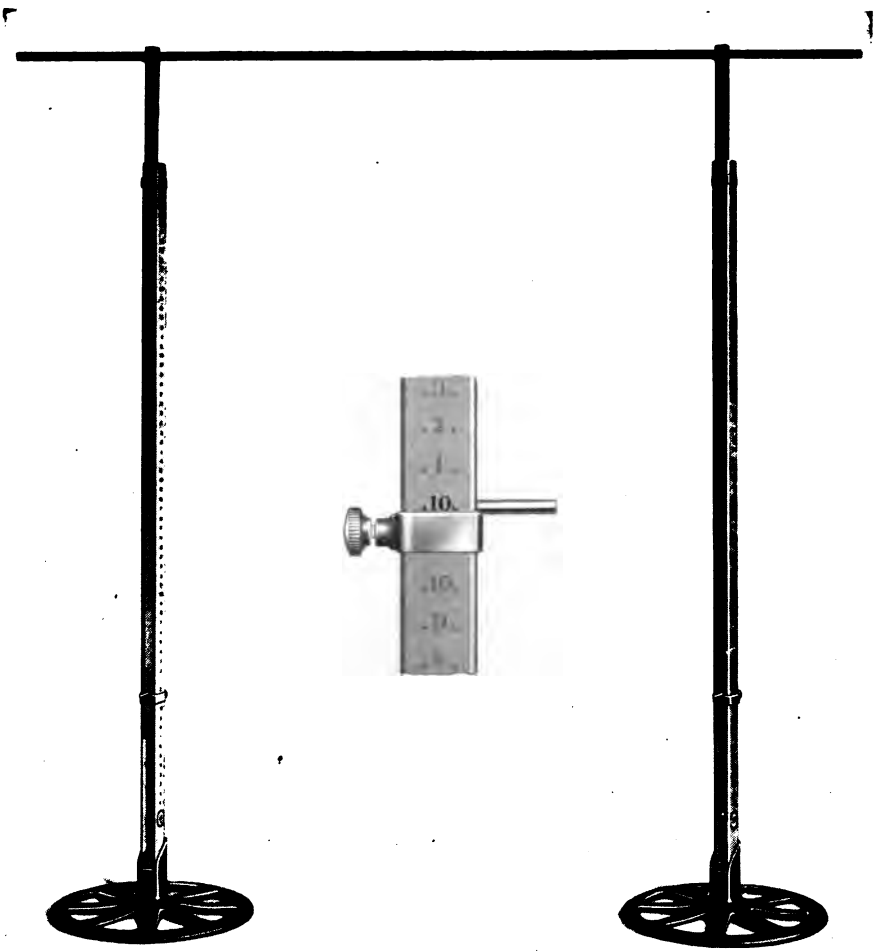


JUMP STANDS

The "Standard" Jump Stand has a light spruce post with an approved collar or pin (as shown in detail) which can be set at any height but cannot be removed or lost. The feet are distinguished from inches by a different color. The base is of iron, heavy, so it cannot easily be upset, and round with a rounded edge, so it can be rolled along on the floor.

No. 671 JUMP STAND, 8 feet high. Per Pair
No. 672 JUMP STAND, 10 feet high, Per Pair
Weight 55 lbs. Packed for Shipment.

Price includes rope and rubber plummets or six sticks.

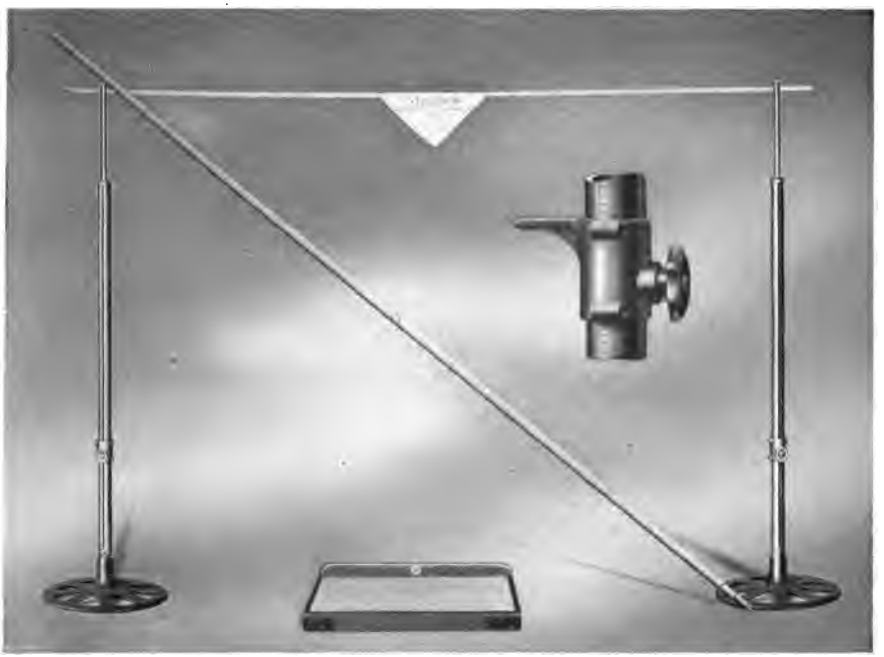


ADJUSTABLE JUMP STANDS

This Jump Stand is designed especially for Pole Vaulting, although it is well adapted for jumping and other lower work. The iron bases are of the same form, but larger than those used on our "Standard" Jump Stands; the uprights are made of well-dried maple; the sliding rod has a pin at each end, and the fixed posts are numbered on their opposite sides to correspond with these pins. It is only necessary to adjust one screw to raise the stick to the highest point.

No. 674 HIGH JUMP STAND, adjustable, 1 to 12 feet with 6 sticks, .

Weight 100 lbs. Packed for Shipment.



TUBULAR ADJUSTABLE JUMP STANDS

The uprights of this Jump Stand are steel tubes; the outer tube being slotted to connect the sliding knob to the base of the inner tube. These are separate graduations for the upper and lower pins, both of which move with the sliding post. The screw knob shown enlarged in the illustration moves and holds the sliding post, with both upper and lower pins, in any position. The vaulting post and pole vaulting board are not included with the stands but will be found listed on another page.

674B HIGH JUMP STAND, adjustable 1 to 12 ft. with 6 sticks, .
Weight 145 lbs. Packed for Shipment.

JUMP STAND CORD

With triangular target and rubber plummets attached.

No. 670-1 JUMP STAND CORD, ...

JUMP STICKS

No. 676 JUMP STICKS, one dozen (12) 8 feet long, . . .

POLE VAULTING BOARD

This is indispensable for indoor vaulting to protect the floor and prevent the spikes from slipping. It is made of small blocks of soft wood placed end up, nailed and glued. The soft wood centre has an oak frame with iron corners and a high back to prevent the spike slipping over. The board is inclined from 2½ inches at the front to 4½ inches at the back, and has rubber feet to prevent its slipping.

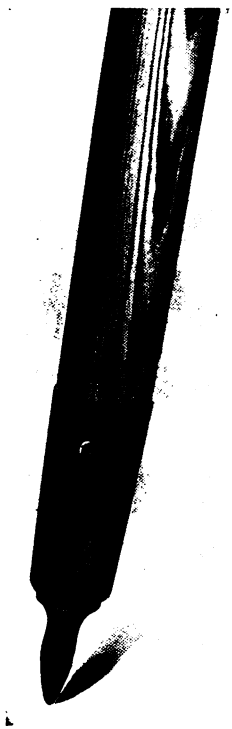
No. 698 POLE VAULTING BOARD, 24 in. wide, 36 in. long . .
Weight 80 lbs. Packed for Shipment.

POLE VAULTING TROUGH

A strongly made trough with an inclined bottom cushioned at the ends on which poles without spikes are used.

It is made of hardwood with white enamel finish and has studs that anchor into plates set in the floor to prevent slipping.

No. 688 POLE VAULTING TROUGH . . . . . .
Weight 60 lbs. Packed for Shipment.



"STANDARD" SPIKE

VAULTING POLES

Years of experience have demonstrated that vaulting poles made from selected spruce are the lightest and safest.

The "Standard" Vaulting Poles are planed by hand, from the finest spruce obtainable, to sizes that use has proved to be correct for grasp and balance.

Special attention has been given to the spikes. The socket or cap, that fits the end of the pole, is drawn sheet steel, and the tip that is brazed to it, turned steel, hollowed to make it light.

"STANDARD" VAULTING POLES

No. 691 8 feet, weight 3¼ pounds . .
Weight 11 lbs. Packed for Shipment.

No. 693 10 feet, weight 4 pounds . .
Weight 13 lbs. Packed for Shipment.

No. 695 12 feet, weight 5 pounds . .
Weight 15 lbs. Packed for Shipment.

No. 697 14 feet, weight 6 pounds . .
Weight 17 lbs. Packed for Shipment.

No. 699 16 feet, weight 7 pounds . .
Weight 19 lbs. Packed for Shipment.

Poles having the steel cap without spike for use out-doors and with a trough, same prices as above.

BAMBOO VAULTING POLES

With or without spikes. Taped between joints.

10 ft. 12 ft. 14 ft. 16 ft.

VAULTING POLE RACKS

To keep poles straight they should be laid on racks, not leaned in a corner. The racks listed below may be screwed on a wood or sheathed wall. For brick walls they should be mounted on strips. Three racks hold a pole.

No. 690-2 VAULTING POLE RACKS, per set of three . . .
Weight 2½ lbs. Packed for Shipment.

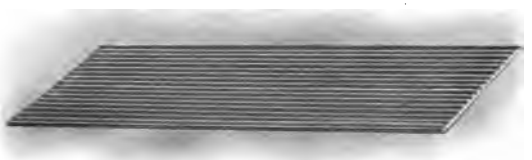
No. 690-3 VAULTING POLE RACKS, per set of three, mounted on oak,
Weight 3½ lbs. Packed for Shipment.

LONG JUMP MAT

The Long Mat is used to get the "run" for pole vaulting, high jumps, etc., also to define the scratch line in broad jumps and for fencing. It is made of corrugated rubber on a cloth back, weighing about three pounds per running foot, and will not slip on the gymnasium floor.

No. 677 LONG JUMP MAT, 36 inches wide, per foot, ...

Packed Weight per foot 4 lbs.

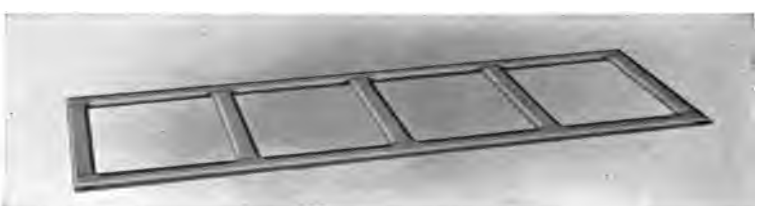


JUMP MAT

The Short Jump Mat is made of the same material as the Long Jump Mat, and is used to indicate the scratch line and to prevent slipping.

No. 678 JUMP MAT, 18 x 24 inches, each. . . . . .

Weight 2½ lbs. Packed for Shipment.



JUMP FRAME

Used in children's classes for successive jumping.

No. 680 JUMP FRAME, ...

Weight 15 lbs. Packed for Shipment.

HITCH AND KICK

Arranged to go on the wall under a gallery. The pan is strong leather stitched over an iron rim. A steel chain connects to the index. The figures that indicate the height of the pan are read in the centre of the index, which is held by notches one inch apart.

No. 740 Hitch and Kick, ...

Weight 25 lbs. Packed for Shipment.

TRAVELING RINGS

All of our Traveling Rings have our Rocking Joint, insuring freedom from wear and noise. Attachments to wood or iron beams, or pipe will be furnished at the same price.

No. 700 TRAVELING RINGS, with Rope, Rocking Joint, top attachment, etc., complete, each

Weight 20 lbs. Packed for Shipment.

INCLINED PLANK

Convenient for "starting" on Traveling Rings. It is made of oak thoroughly braced and covered with linoleum on the top side to prevent slipping. It should be set with the lower end under the first ring, the inclined surface approximating the sweep of the ring.

No. 709 INCLINED PLANK, ...

Weight 70 lbs. Packed for Shipment.

ADJUSTABLE TRAVELING RINGS.

To accommodate children or adults and to secure the separate adjustment for alignment of each ring, this form of traveling ring is necessary.

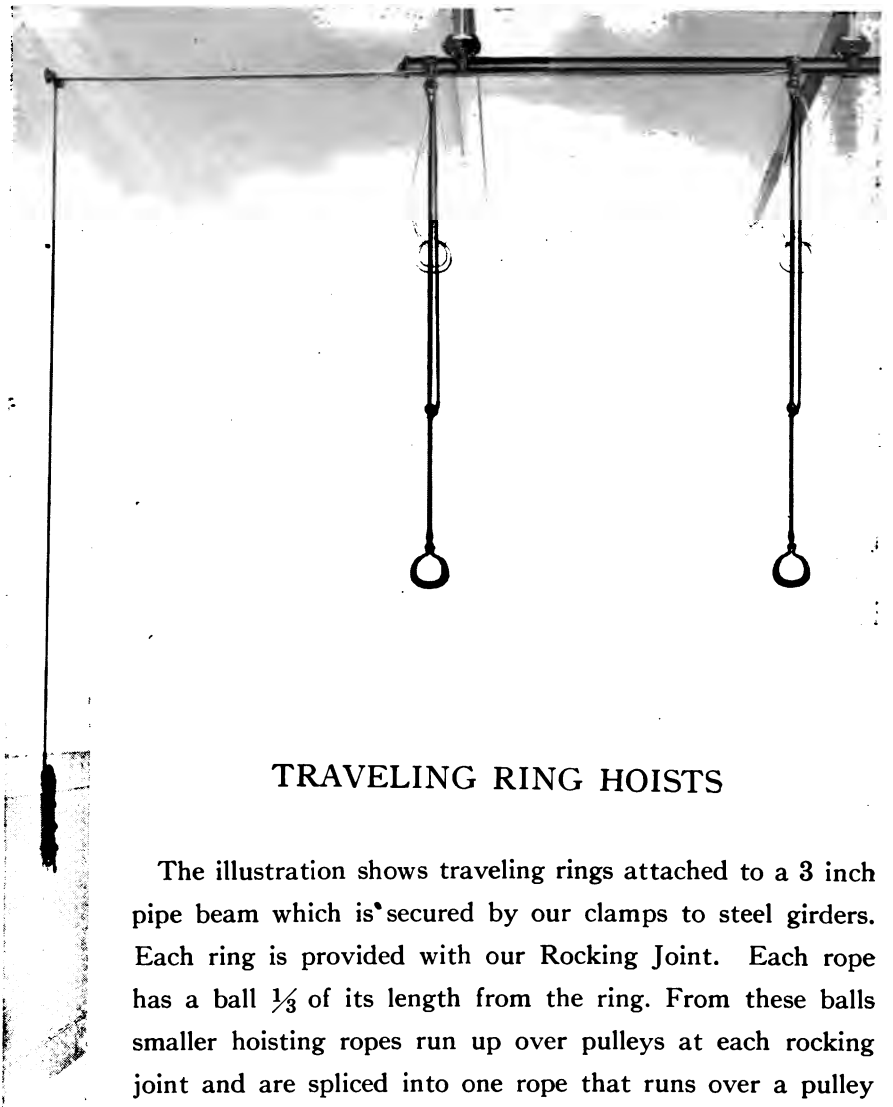
Generally five to seven rings are located on one line. The chain and locking latch provide for the adjustment of the entire line from 3 to 17 feet on a 20 foot ceiling. When drawn up to 17 feet they are out of the way.

The rings are our stirrup pattern (shown on page 71) with a strap eye that prevents their turning over. The short straps provide for the changing lengths of ropes, securing a perfect line.

The pipe beam shown is not included in the price of rings as they may be secured to other forms of support.

No. 706 ADJUSTABLE TRAVELING RINGS with Clamp Pulleys to attach to pipe or other overhead support. Each

Weight, per set of five 80 lbs. Packed for Shipment.



TRAVELING RING HOISTS

The illustration shows traveling rings attached to a 3 inch pipe beam which is secured by our clamps to steel girders. Each ring is provided with our Rocking Joint. Each rope has a ball ⅓ of its length from the ring. From these balls smaller hoisting ropes run up over pulleys at each rocking joint and are spliced into one rope that runs over a pulley on the wall to a cleat. When this latter rope is drawn down the rings are raised as is shown in phantom lines.

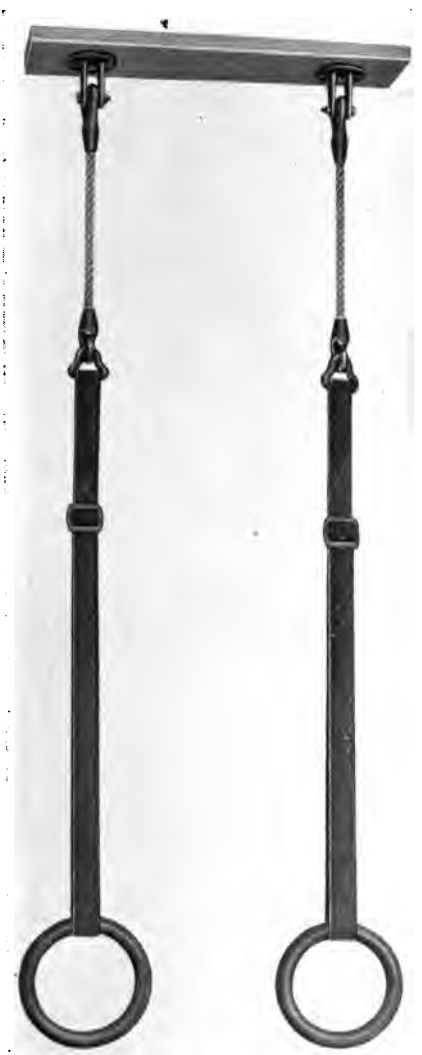
As cost depends on the conditions for erection, complete plans with estimates will be furnished on application.

No. 708S TRAVELING RING HOIST. Price depends on number of rings.

Weight 25 lbs. Packed for Shipment

FLYING RINGS

We list two types of Flying Rings, the strap adjustable which has a range of 2¾ feet and the rope adjustable with an adjustment of 7 feet. Short straps are provided on the latter to keep the rings level.



"STANDARD" FLYING RINGS

Our seven inch "Standard" Rings (No. 720-2), are connected to the ropes by strong webbing adjusting straps, provided with detachable buckles. At the top our Rocking Joint connects the rope to the ceiling board, making a joint that will not wear or squeak.

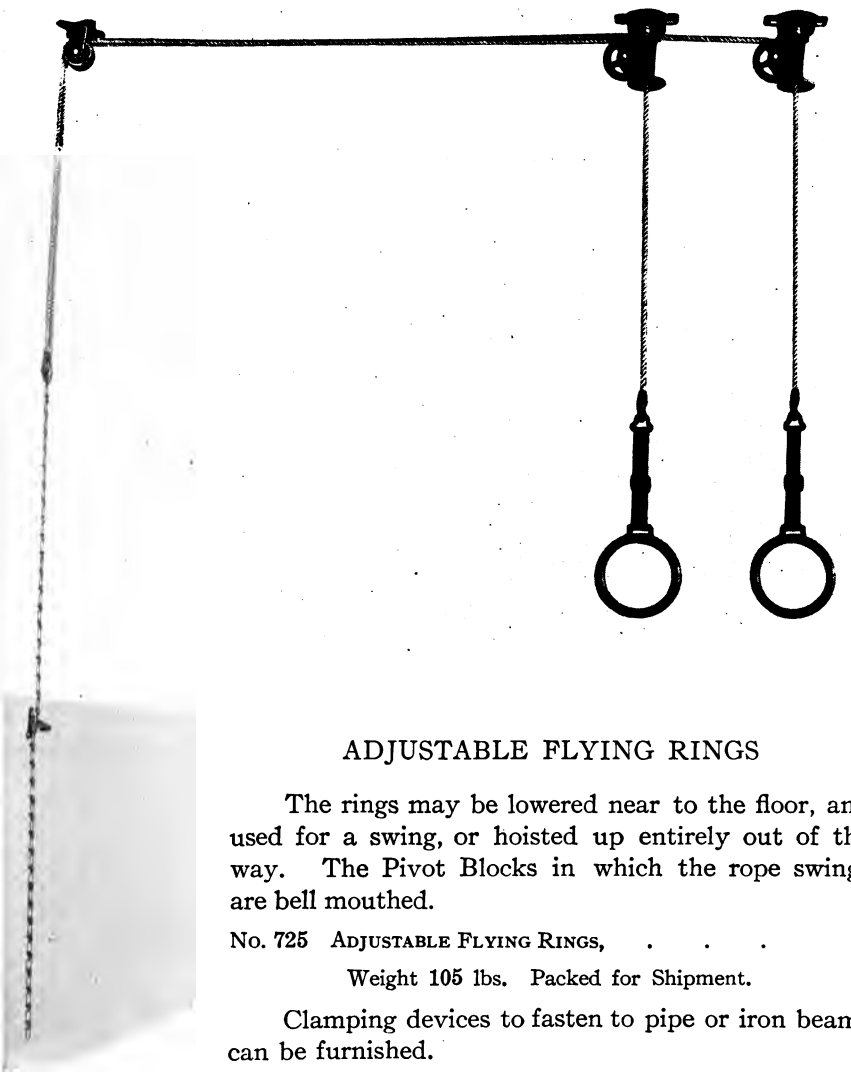
No. 720 FLYING RINGS, adjustable 2¾ feet (pipe beam not included), ...

Weight 45 lbs. Packed for Shipment.

Clamping devices to fasten to pipe or iron beams can be furnished.

No. 729S HOIST FOR FLYING RINGS.

Weight 12 lbs. Packed for Shipment



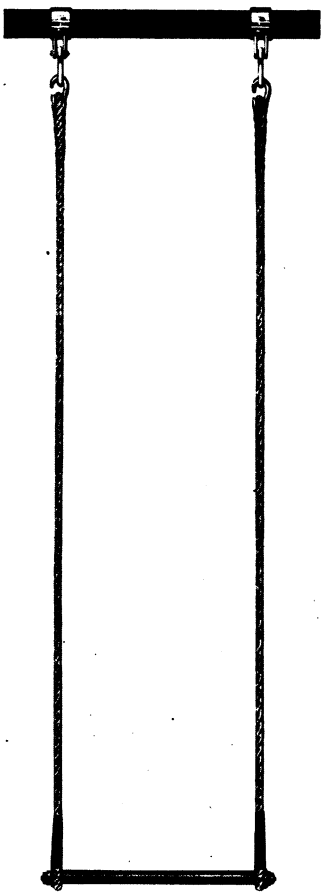
ADJUSTABLE FLYING RINGS

The rings may be lowered near to the floor, and used for a swing, or hoisted up entirely out of the way. The Pivot Blocks in which the rope swings are bell mouthed.

No. 725 ADJUSTABLE FLYING RINGS, . . .

Weight 105 lbs. Packed for Shipment.

Clamping devices to fasten to pipe or iron beams can be furnished.



NO. 720-2 NO. 720-11
NO. 720-3 NO. 720-12

"STANDARD" RINGS

Steel Rings, leather covered. Inside measurements given. Prices are for rings without ropes or straps.

No. 720-2 7 INCH RING, per pair
Weight 9 lbs. Packed for Shipment

No. 720-3 10 INCH RING, per pair
Weight 12 lbs. Packed for Shipment.

No. 720-11 8 INCH RING, with strap eye, per pair
Weight 11 lbs. Packed for Shipment.

No. 720-12 10 INCH Ring, with strap eye, per pair
Weight 13 lbs. Packed for Shipment.

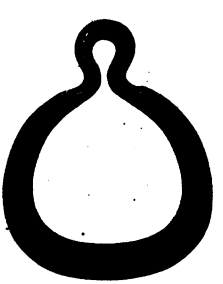
TRAPEZE

Trapeze bars have all rope connections spliced, and at the top have our "Standard" Rocking Joint for wood or pipe beams as illustrated.

No. 751 SINGLE TRAPEZE, with steel bar, ropes, etc., complete
No. 745 DOUBLE TRAPEZE, with steel lower and hickory upper bar, ropes, etc., complete.

"STANDARD" TRAVELING RINGS

Our "Standard" Traveling Rings are an improved stirrup form with oval grasp and round corners. They are made of cast steel and carefully covered with good leather, cemented on so it will not slip.



No. 700-1 STANDARD TRAVELING RING, Leather Covered without rope, each . .

Weight 4 lbs. Packed for Shipment.

FLYING RING ATTACHMENTS

These Attachments are very strongly made and easy to change.

No. 725-1 TRAPEZE ATTACHMENT for No. 725 flying rings, hickory bar, ...

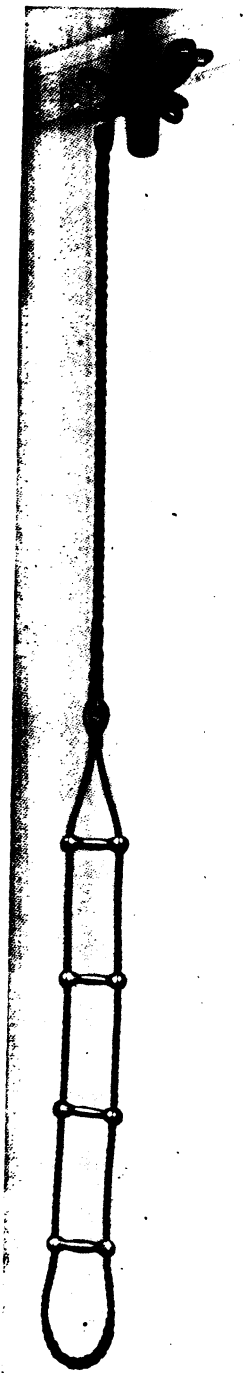
Weight 5 lbs. Packed for Shipment.

No. 720-17 TRAPEZE ATTACHMENT for No. 720 flying rings, hickory, bar, ...

Weight 5 lbs. Packed for Shipment.

No. 725-2 SWING ATTACHMENT for No. 725 flying rings, oak seat, ...

Weight 10 lbs. Packed for Shipment.



GIANT STRIDE

OR MERRY-GO-ROUND

Our illustration shows the Pivot and one Rope Ladder Handle. As this Pivot is usually placed where it is difficult of access for oiling, etc., it is so designed that it cannot wear out or work loose and fall even if neglected. The "Standard" Pivot is made with steel ball bearings. This runs easily and without noise; requires no oil, and will wear the longest of any known form.

We have special fittings for attaching to 3 in. pipe or iron beams.

No. 730 GIANT STRIDE, with 6 Rope Ladder Handles, ...

Weight 60 lbs. Packed for Shipment.

No. 729S HOIST FOR GIANT STRIDE.

Weight 12 lbs. Packed for Shipment.

ERECTION OF APPARATUS

On this and the following page we show some of our Pipe Clamp and Beam Clips and a method of fastening to an iron girder through plastering.

Our Pipe Clamps are all malleable iron and may have several styles of attachments. A fastening to any beam by means of a beam clip is shown above, also rocking joints and plain eyes.

Our Beam Clips clamp to nearly all forms of iron beams and have slots in which all fixtures can easily be secured. A threaded plate for pipe is shown above and several eyes on the opposite page. They hold securely and are quickly put up or changed from one position to another.

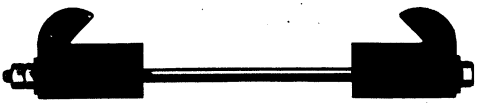
"STANDARD" ROCKING JOINT

PATENTED

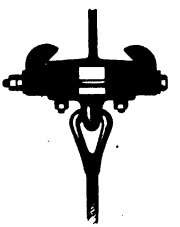
This unique joint was designed for out-door use, but it so perfectly fulfills its purpose of preventing wear and noise, that we supply it on all swinging apparatus indoor and out. The Clamp or hanger shown is for pipe, but we have hangers for wood or iron beams.

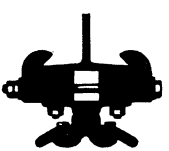
No.		Each
718-3	ROCKING JOINT, straight for 3 inch pipe,	
718-4	ROCKING JOINT, cross, for 3 inch pipe,	
719-1	ROCKING JOINT, for wood beams,	

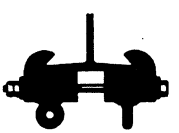
STANDARD BEAM CLIP

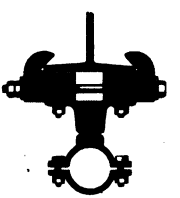


THE JAWS ARE SLOTTED TO RECEIVE THE BOLT HEADS OF FIXTURE PLATES OF ALL SORTS, PIPE HANGER FLANGES, "EYES", ETC.









STANDARD BEAM CLIPS

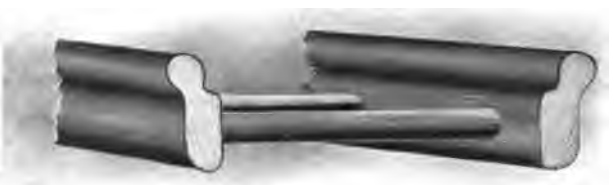
ILLUSTRATING ADAPTABILITY TO VARIOUS REQUIREMENTS.

TYPE "B" HANGER SET FOR ATTACHING PIPE BEAM TO FIRE PROOFED GIRDER.

LADDERS

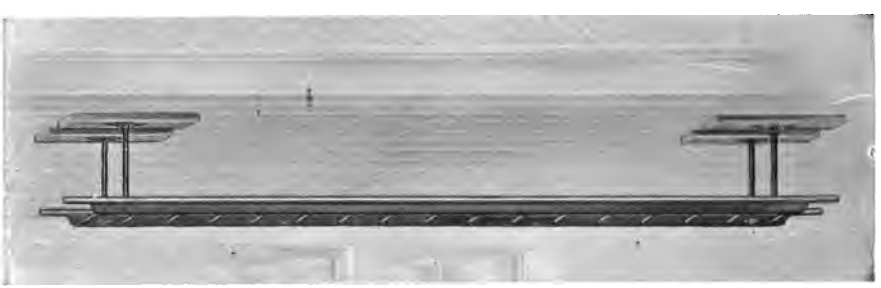
REGULAR SIDE

The proportions of this form of ladder side have been carefully chosen to afford the greatest strength consistent with a comfortable grip.



"STANDARD" SIDE

This form of side makes a strong stiff ladder, easily grasped by the fingers, and keeps the wrist from rubbing on the lower edge.



HORIZONTAL LADDER

This is about the only form that can be used under galleries or low ceilings. It can be suspended in any desired location by means of proper brackets, hangers, etc.

No. 803 HORIZONTAL LADDER, "Standard" sides, 16 feet, with hangers,
Weight 200 lbs. Packed for Shipment.

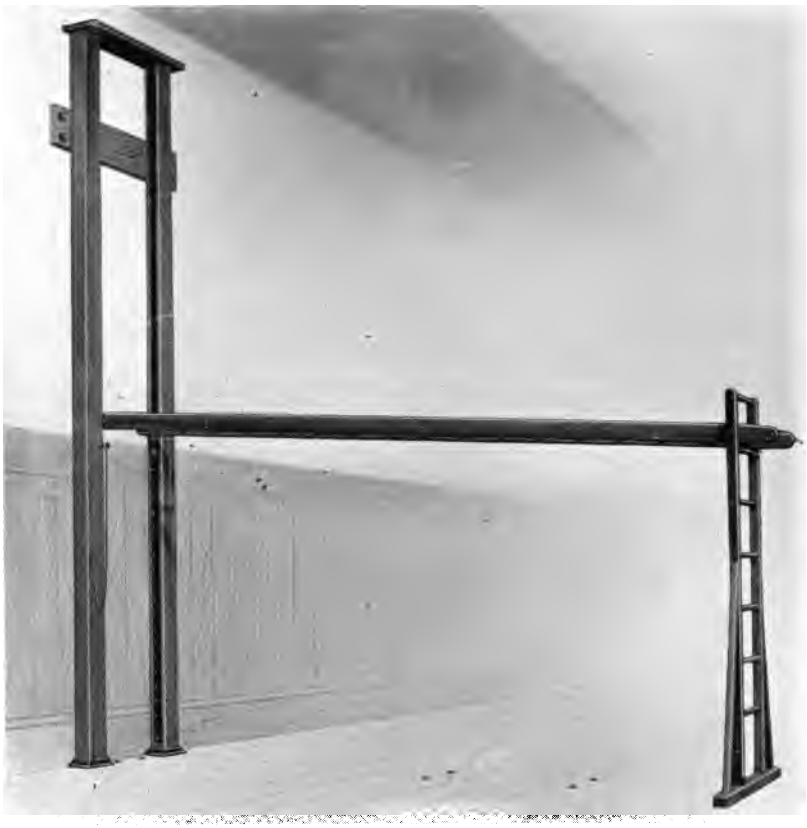
"STANDARD" ADJUSTABLE LADDER

This is the most desirable ladder for general use. It forms a vertical, inclined or horizontal ladder and when not in use folds up close to the wall. It consists of a vertical ladder, sixteen feet long, secured to the wall, gallery, or other means of support; an adjustable section, made of spruce for lightness, fifteen feet long; and a short foot ladder, seven feet high, to support one end of the adjustable section. The adjustable section has leather covered hooks at both ends.

No. 813 ADJUSTABLE LADDER, including foot ladder, . .
Weight 260 lbs. Packed for Shipment.

No. 814 ADJUSTABLE LADDER, no foot ladder, . . .
Weight 200 lbs. Packed for Shipment.

The outer end of the adjustable section may be supported on a vaulting bar.



ADJUSTABLE BALANCED LADDER

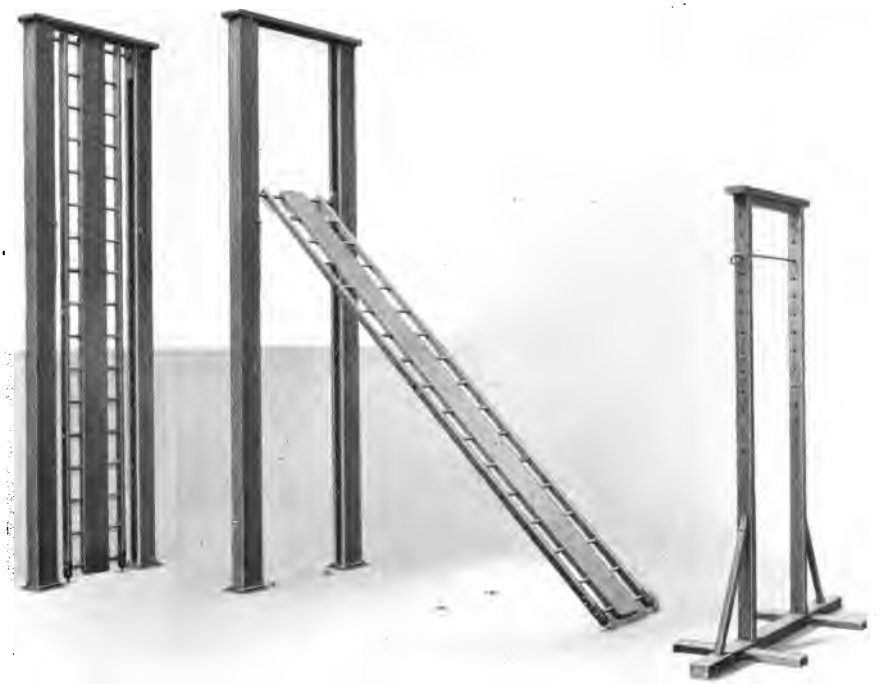
This ladder is designed for simplicity and ease of adjustment. The adjustable ladder is balanced by weights that run in the boxes forming the wall guides; and by means of pins in the wall guides and plates on the floor may be set at any angle. This ladder is furnished with or without the foot stand.

No. 811 ADJUSTABLE BALANCED LADDER, with foot stand . . .

Weight 520 lbs. Packed for Shipment.

No 812 ADJUSTABLE BALANCED LADDER, no foot stand . . . .

Weight 460 lbs. Packed for Shipment.



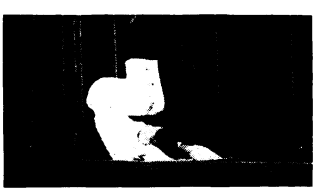
"RATH" ADJUSTABLE LADDER (PATENTED)

This ladder combination offers many advantages. The addition of the center board makes possible a large number of exercises,some of which are illustrated below.

This ladder is balanced at the wall end, is easily moved, and stands close to the wall between the weight boxes. Floor plates secure the ladder in the vertical and two inclined positions.

No. 817 ADJUSTABLE BALANCED "RATH" LADDER, with Foot Stand
Weight 560 lbs. Packed for Shipment.

No. 818 ADJUSTABLE BALANCED "RATH" LADDER, no Foot Stand . . .
Weight 500 lbs. Packed for Shipment.



ROMAN LADDERS

These ladders are used entirely for pyramids, grouping, etc. They are light and strong, and smaller at the top than at the base. The top handle is large and easy to grasp from any direction.

The "Standard" Roman Ladders have an oak base. The ladders are of selected spruce, giving the greatest strength for the weight. The handles are malleable iron, and the feet have points that fit holes in the base so that the ladders cannot slip.

No. 827 Roman Ladders and Base, ...

Weight 175 lbs. Packed for Shipment.

BALANCE SWING

Also called See-Saw and Teeter Ladder. It is one of the most valuable and enjoyable pieces of apparatus for ladies and children who need to be tempted by the pleasure of the exercises to use any overhead apparatus.

The "Standard" Balance Swing has a pipe central part on which the ladder is adjustable for height and around which it may rotate when the pin is below the collar on the post.

No. 826 BALANCE SWING, ...

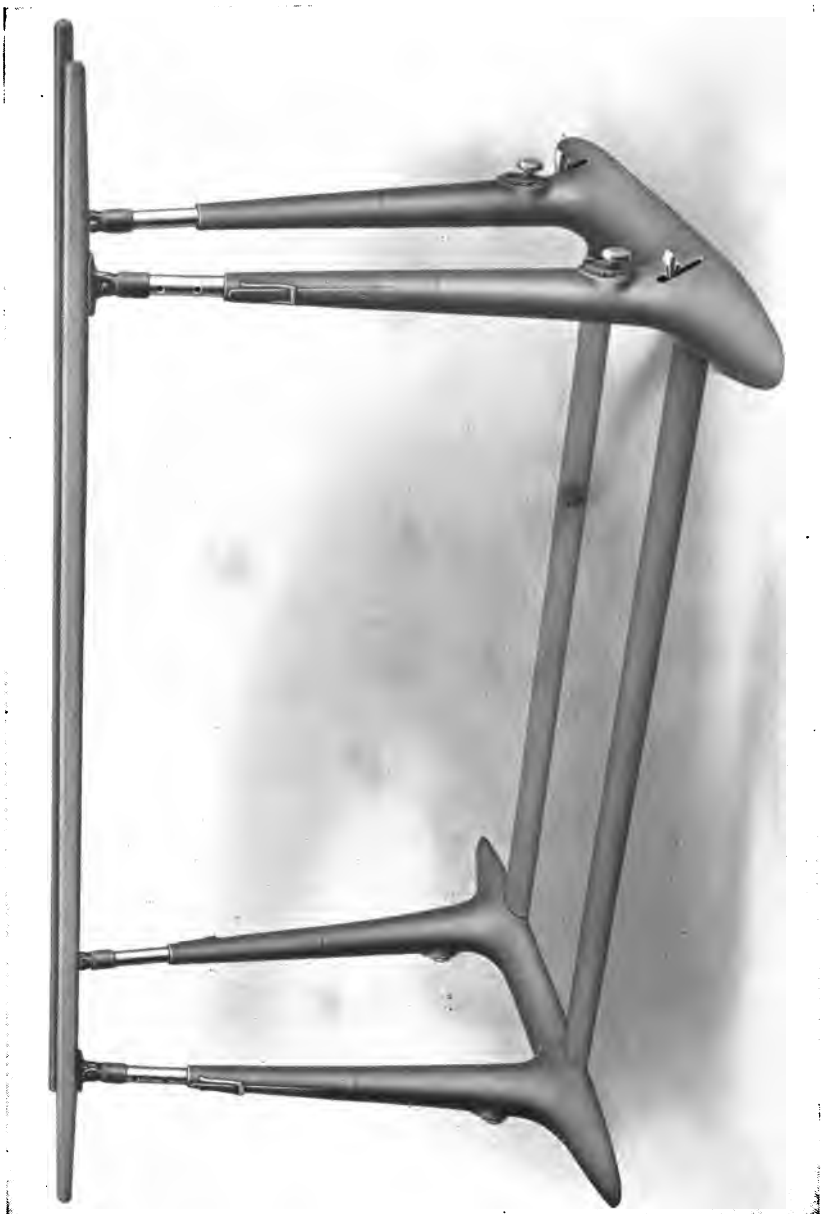
Weight 240 lbs. Packed for Shipment.

LADDERS

These ladders may be adapted for use on vaulting bars.

No. 825-1 LADDER, 10 feet long, ...

Weight 60 lbs. Packed for Shipment.



NO. 838 STANDARD PARALLEL BAR

STANDARD PARALLEL BAR

The design of this parallel bar insures rigidity and security together with easy adjustment for both height and width. The uprights are connected together by pressed steel rails semi-oval in shape. These rails pass under the uprights and are secured entirely within the base, thus eliminating all projecting bolts.

The hand rails are standard in form and made of the finest straight grained hickory. They are connected to the uprights by a flexible machine fitted joint.

The sliding section of the leg is encased in brass and fits accurately. It will not rust and is always easy to adjust. The vertical adjustment is by our improved spring latch which is quick and positive.

The width adjustment is by means of a hand wheel at the foot of the upright which operates and locks it. Recording means are provided so that both ends of the bar can be set exactly to the same width.

All adjustments are made by hand, or foot; no wrenches or tools of any kind are required. The range of adjustment is from 3′ 9″ to 5′ 3″ in height and from 15″ to 18″ in width.

The caster mechanism is entirely concealed within the base and is operated by self-locking foot levers at the foot of the uprights. The casters are our standard form, swivel roller bearings, metal rollers accurately turned.

No care nor expense has been spared to make this bar mechanically perfect in every detail.

No. 837 "STANDARD" PARALLEL BAR, 8 feet . . .
Weight 640 lbs. Packed for Shipment.

No. 838 "STANDARD" PARALLEL BAR, 10 feet . . .
Weight 650 lbs. Packed for Shipment.

PARALLEL BAR DETAILS

POST JOINT

The Post Joint and Latch here illustrated are used on our "Standard" and School Parallel Bars.

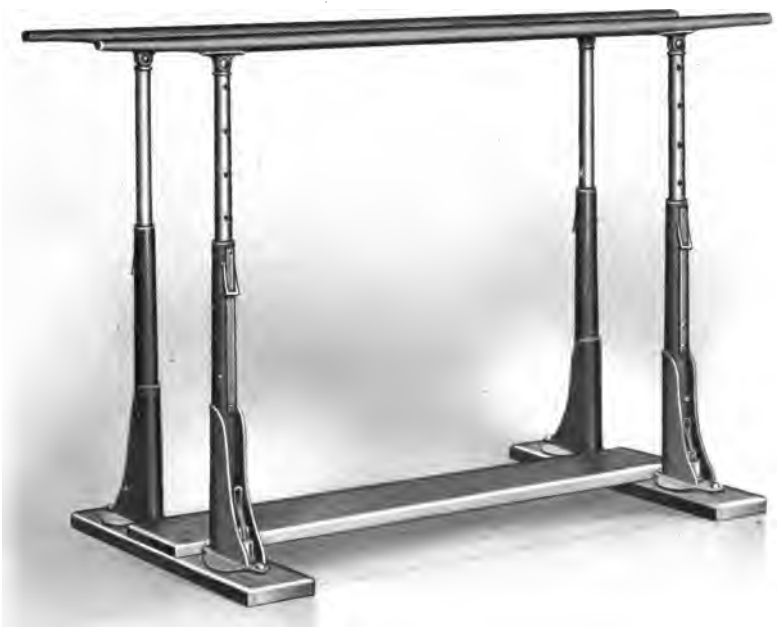
The Post Joint holds the bar securely to the post, and permits the bar to bend. The bar is held on the top part of the joint by the two screws shown. The two pins enter the under side of the bar, hold it straight and prevent undue strain coming on the screws. This joint does not weaken the bar, will not wear into it, and does not require holes on the top of the bar.

LATCH

The Latch holds the bar positively and securely at different heights. Raising the lever draws out the pin and admits of the bar being raised or lowered. When the lever is pressed down the pin will snap into one of the holes in the top sections of the bar leg.

The width adjustment and caster lever of our Standard Bar are shown in the lower cut. The leg joint has no ugly protrusions and the width adjustment is positive, safe and firmly locked, numbers indicating the width apart of the bars.

The caster lever and latch are foot operated in both raising and lowering.



SCHOOL PARALLEL BAR

This bar is a modification of our "Standard" Parallel Bar, to provide a lighter and less expensive piece of apparatus. The base is of oak, and has casters that when thrown into action enable the bar to be easily moved. Quick adjustment, for height only, is provided. While not adjustable for width the bars may be ordered set at any desired width.

No. 846A PARALLEL BAR, 8 feet, ...

Weight 345 lbs. Packed for Shipment.

FIXED PARALLEL BAR

This bar is the result of much study and experiment to produce a good bar at a low price. The bars are of selected hickory, made the same as our "Standard" Bars; the legs are of hard wood. The cast brackets which secure them to the base are strong and of a neat design. All corners of both wood and iron are carefully rounded. The base is of oak and has casters that when thrown into action enable the bar to be easily moved.

These bars are all made five feet high, and with rails eighteen inches apart, centre, unless otherwise ordered.

No. 851A Regular Parallel Bar, 8 feet, ...

Weight 225 lbs. Packed for Shipment.

LOW PARALLEL BAR

A useful and safe piece of apparatus for learning many parallel bar feats. Made strong and substantial with rounded corners.

No. 864 Low Parallel Bar, 7 feet long, 15 inches high

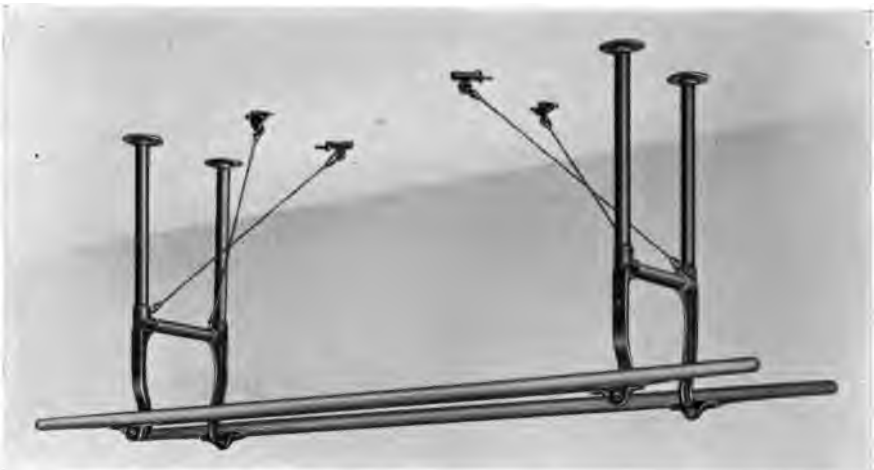
Weight 100 lbs. packed for shipment.

VAULTING PARALLEL BAR

This bar, sometimes called the Hand Spring Bar, is used for hand springs, shoulder rolls, hand stands, vaulting, etc. Much of the work done on the parallel bar can be done with greater safety on this.

No. 865 Vaulting Parallel Bar, 30 inches long, 24 inches high

Weight 100 lbs. Packed for Shipment.



SUSPENDED PARALLEL BAR

This adaptation of the Parallel Bar is deservedly popular. It is easiest placed under a gallery. If the support is over ten feet high, guys to hold the hangers firm are necessary. The bar may be secured in front of a gallery or in any desired position, by special hangers. The hangers shown above are made of malleable iron and wrought iron pipe, and are designed to give as much head and shoulder room as possible while leaving the top side of the bars clear for hand walks, jumps, etc. The joints are the same as shown for School and Standard Parallels.

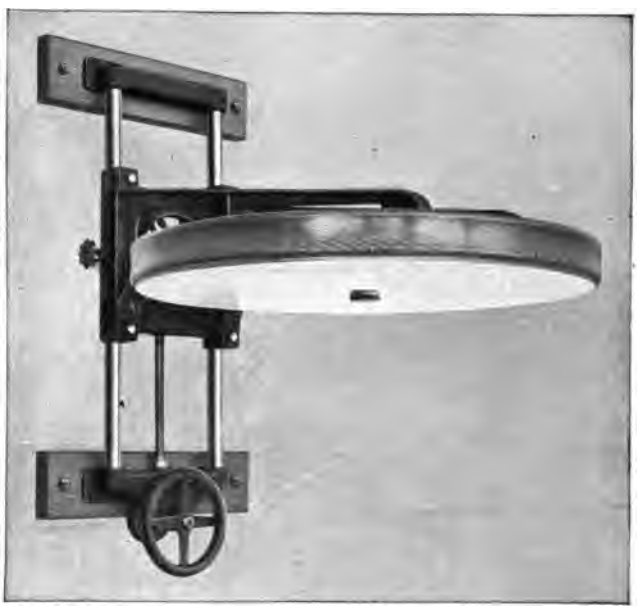
No. 871 SUSPENDED PARALLEL BAR, 8 feet, . . .
Weight 100 lbs. Packed for Shipment.

No. 872 SUSPENDED PARALLEL BAR, 10 feet, . . .
Weight 100 lbs. Packed for Shipment.

RENSSELAER POLYTECHNIC INSTITUTE GYMNASIUM. TROY, N. Y.

STRIKING BAG DRUMS

The Standard Drums are built up solid with maple face and heavy backing giving a smooth solid surface with sufficient weight to check the impact of the bag.



ADJUSTABLE BRACKET DRUM

A mechanically well built device for supporting and adjusting a Standard Drum.

It has a geared adjusting screw, with a ball thrust bearing, having a range of 18 inches. The heavy drum with its substantial iron brackets offers a weighty resistance to the blows of the bag. The iron work is finished in baked japan.

No. 890 ADJUSTABLE BRACKET DRUM . . . .

Weight 320 lbs. Packed for Shipment.

BRACKETED DRUM

The simplest form for a plain vertical wall.

No. 894S BRACKETED DRUM . . . . . .

Weight 170 lbs. Packed for Shipment.

PIPE SUSPENSION DRUM

The form usually used under a gallery. Pipes may vary in length from 3 in. to 5 feet.

No. 893S PIPE SUSPENSION DRUM . . . . . .

Weight 170 lbs. Packed for Shipment

OVAL BAG

PEAR SHAPED BAG

STRIKING BAGS

A bag for severe general use, made of selected Cordovan, with welted seams, double stitched on each side. First quality rubber bladder.

No. 97X STRIKING BAG, Oval, each
No. 7AS RUBBER BLADDER, Oval, each
No. 99P STRIKING BAG, Pear Shaped, each
No. 8PS RUBBER BLADDER, Pear Shaped, each

Bags Weigh 2 lbs. each Packed for Shipment.
Bladders weigh 1 lb. each. Packed for Shipment.

No. 895-4S

No. 895-5S

STRIKING BAG DRUM SWIVELS

No. 895-4S SWIVEL FOR DRUMS, Complete.
Weight 1 lb. Packed for Shipment.

No. 895-5S SWIVEL MOUTH PIECE.
Weight ½ lb. Packed for Shipment.

SWEDISH BOOMS

On the following pages will be found the latest improvements on this valuable piece of apparatus.

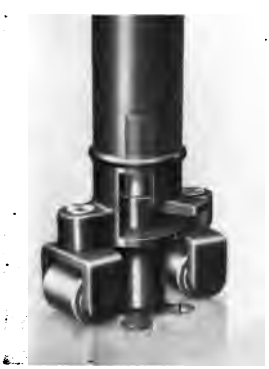
By an improved cap, here shown, we are enabled to make the posts of steel tube, which is strong, compact and not liable to twist and bind the bar.

"STANDARD" BOOM CAP

PATENTED

It is always desirable to be able to turn a Swedish Bar over. This feature is secured by this cap, and in addition means are provided for clamping the bar in the caps and the sleeves to the post, to eliminate all rattle and loose motion.

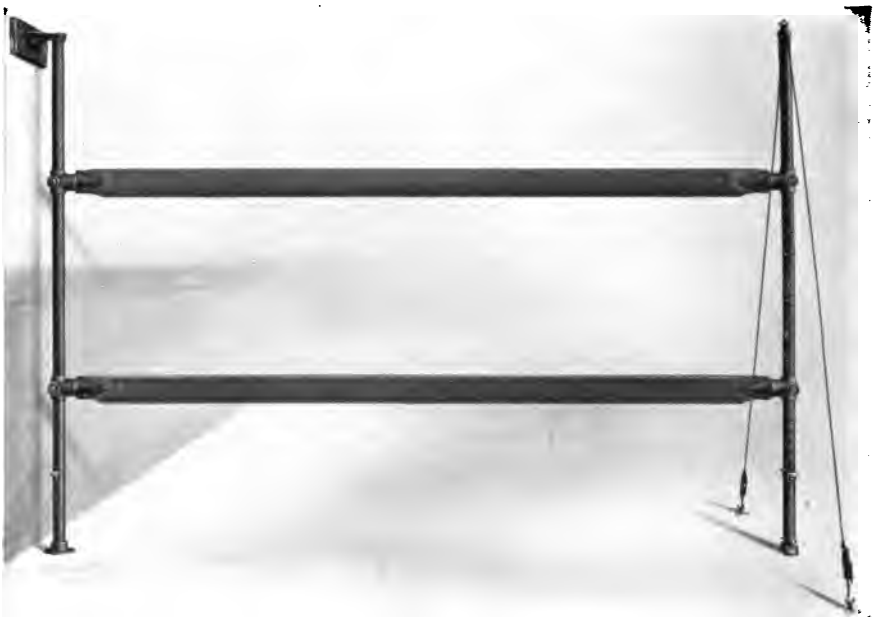
The hand wheel on the right tightens the sleeve on the post, and the knob in its centre operates the pin on which the bar rests. The knob at the left locks the bar. The chains are connected over the bars with the balance weights; one chain at each end of each bar, keeping them level.



The Caster and Locking Bolt illustrated on this page, having pivoted "Standard" roll bearing rollers, same as are used on parallel bars, will swing easily on an arc without dragging.

The central Locking Bolt, shown in phantom, locks or unlocks the bottom of the post by a touch of the toe.

Either the plain or balanced Swing Boom can be swung under a quite low gallery and for ease of handling have no equals.



SWINGING BOOM

OR HORIZONTAL BAR

The Boom shown above has one post bracketed from the wall, forming a pivot upon which the boom may be swung back to the wall like a gate. It requires a height of eight feet, eight inches. The other post has casters, that permit easy movement, and is secured to the floor by a central locking bolt. It is also braced by guys, which having instantaneous turnbuckles permit a quick detachment from the floor.

The Bar and Heaving Board are our "Standard" Patterns, are twelve feet long, and are provided with our "Standard" Boom Caps that permit the bars to be reversed. This Cap holds the bar up by pin and is clamped tight by a hand screw.

No. 910B SWINGING BOOM, complete, ...

Weight 180 lbs. Packed for Shipment.

BALANCED SWINGING BOOM

In this style Boom the bars are balanced so that they are easily raised and lowered. The bars have our "Standard" boom caps that permit reversing of the bars.

The pivot post is bracketed to the wall, and the outer post is secured at the bottom by a locking bolt, and at the top by guys. Instantaneous turnbuckles provide for quick and easy adjustment of the guys.

The post and connecting brace across the top being iron, very compact in design, enable this boom to be swung under a low ceiling or gallery and avoid all trouble formerly experienced with wooden posts due to shrinking or swelling. The outer posts will swing under a gallery 9′ 3″ high and the inner post requires a height of 9′ 5″.

No. 912B BALANCED SWINGING BOOM, ...

Weight 630 lbs. Packed for Shipment.

BOOM SADDLE

This desirable attachment for the Boom is made of white pine, very light, and is provided with a latch and hand screw that clamps it firmly to the bar.

Three saddles are generally used on a twelve foot or four on a sixteen foot bar.

No. 915 STANDARD BOOM SADDLE, ...

Weight 30 lbs. Packed for Shipment.

"STANDARD" SWEDISH BARS

The "Standard" Swedish Bar and Heaving Board are made from carefully selected white pine to approved forms that have been drawn with great care to secure proper strength and desirable edges to work on.

SECTION OF THREE STALL BARS

Stall Bars (or Rib Stools) may be placed along a gymnasium wall, as many in a line as the space will permit. Each stall or section occupies three feet.

The "Standard" Stall Bars are made of oak with polished maple bars, oval in section.

No. 920 STALL BARS, per stall in sections of two or more, . . .
Weight 60 lbs. Packed for Shipment.

STALL BAR BENCHES

These benches are made of oak, strongly braced and have rounded corners. The feet are as wide as the top and incline outward, even with the ends, making the bench stable in any position.

No. 927 STALL BAR BENCH . . . . . .

Weight 20 lbs. Packed for Shipment.

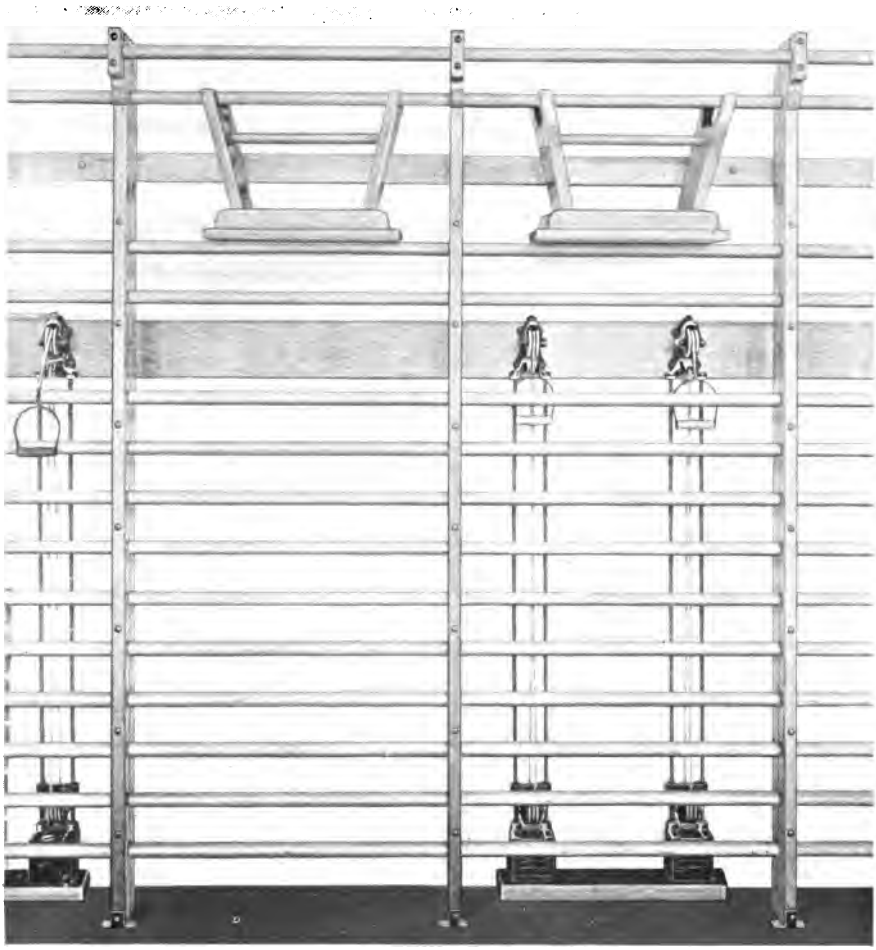
PADDED BENCHES

This is the No. 927 Bench, padded with one inch of hair felt, and covered with brown duck.

No. 928 STALL BAR BENCH, padded . . . . .

The benches may be put up in the open space of the stall bars when not in use.

Weight 22 lbs. Packed for Shipment.

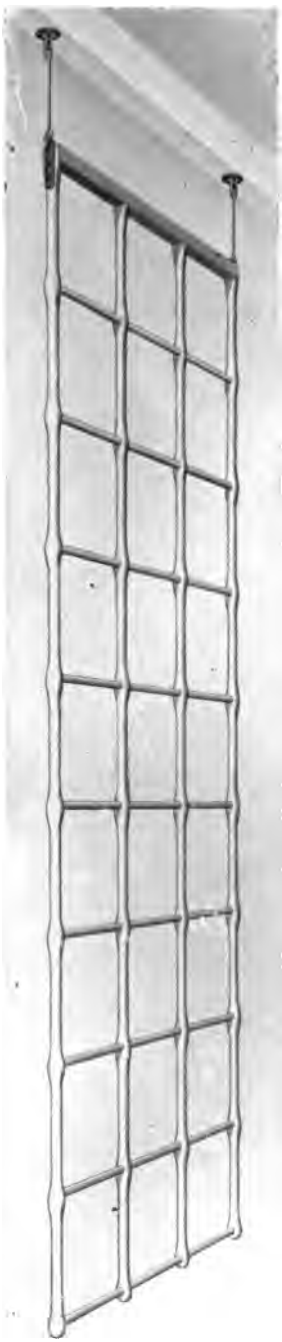


STALL-BAR CHEST WEIGHT COMBINATION

The illustration shows the most effective combination of two kinds of apparatus that can be made in a gymnasium, stall bars and chest weights. Both are wall apparatus. The stall bars are spaced 3 feet apart and chest weights back of them 6 feet apart. A gymnasium 100 feet long will thus provide for a class of 60 on stall bars and 30 on chest weights.

Many institutions line both long walls in this way.

For erection, the heights of wall-boards to centers are 7 feet for the stall bar and 5 feet for the chest weight.



VERTICAL LADDER

This ladder being made specially for Vertical Work has the sides rounded and reduced to nearly the diameter of the rounds, thus adapting them for serpentine work.

The sides are of Oregon pine and the rounds of maple. Special pains are taken to round all corners and smoothly finish the entire ladder.

When made nine spaces high as shown above, the supporting beam or pipe should be eighteen feet from the floor. Shorter ladders made to order.

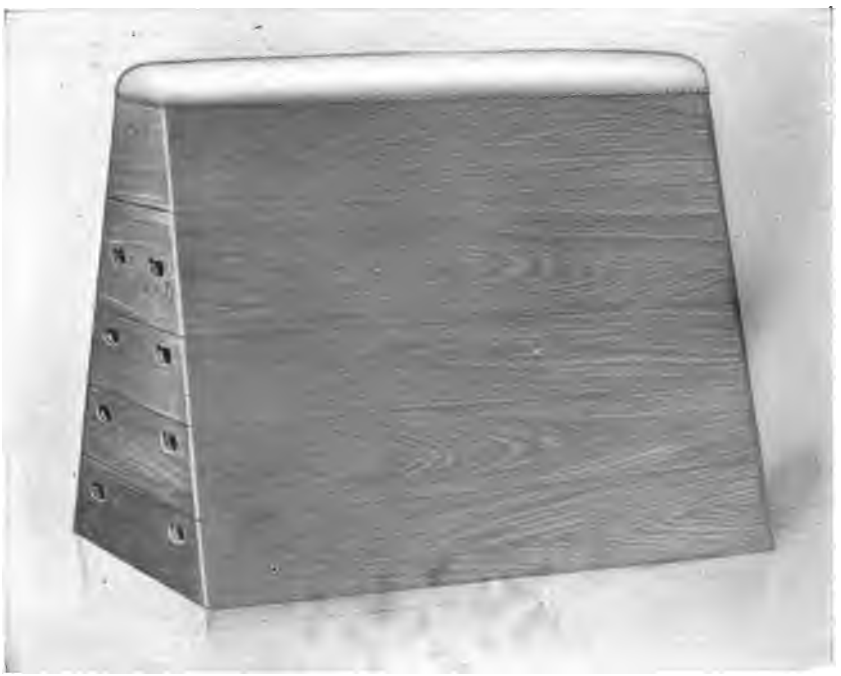
No. 931 "STANDARD" VERTICAL SWEDISH LADDER . . . . . .

Weight 225 lbs. Packed for Shipment.

HORIZONTAL LADDER

The Horizontal Ladder has a stronger frame than the vertical ladder and has a central side support. It can also be used as a vertical ladder if necessary.

No. 932 "STANDARD" HORIZONTAL SWEDISH LADDER, ...
Weight 290 lbs. Packed for Shipment.



VAULTING BOX

The Vaulting Box is made of light, strong wood, and has four lifts for the adjustment of height. Each of these lifts has long, hard wood tenons to hold the lift above, iron corner plates, and is braced inside. The top lift or box is padded on the top with hair felt and covered with leather specially prepared to prevent slipping. The top lift is twenty-five inches high, and each under lift adds eight inches to the height, making the total height forty-nine inches.

No. 900 VAULTING BOX, with three underlifts, ...

Weight 220 lbs. Packed for Shipment.

DIRECTOR'S PLATFORM AND STALL BAR COMBINATION

This platform when folded up forms two sections of stall bars uniform in style, dimensions and finish with the Standard Stall Bars. When down as shown, the platform is 5′ 10″ wide, 6′, 10″ deep and 18″ high. It is made of oak with a maple floor.

This combination effects a saving in first cost and space without any detriment to the apparatus.

No. 924 STALL BAR-PLATFORM . . . . . .

Weight 380 lbs. Packed for Shipment.

INSTRUCTOR'S PLATFORM

This Platform is seven feet long and six wide. It is made of North Carolina pine, with maple floor, natural finish and is arranged to fold up against the wall, the outer feet folding down as shown in the phantom of the platform turned up; or is arranged on casters so it can be moved to any part of the room.

No. 896 INSTRUCTOR'S FOLDING PLATFORM, ...

No. 897 INSTRUCTOR'S PLATFORM on casters, ...

Weight 400 lbs. Packed for Shipment.

GYMNASIUM MATS

The "Standard" Felt Mats are made of two layers of one-inch hair felt, best grade, each layer reinforced by burlap, covered with No. 6 Soft White Duck, (21 oz.). The edges are all built up square. The handles are made of duck strongly sewed to the reinforced edge of the mat and lying so close that they avoid all possible chance of catching the feet. They are so placed that two mats may be lashed together for tumbling etc. This mat is sewed with waxed twine, closely tufted, and will stand years of hard use.

"Standard" mats, two inches thick, No. 6 Soft White Duck, (21 oz.) are kept in stock in the following sizes:

No. 981 "STANDARD" MAT, 2 inch, 3 x 5 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

No. 965 "STANDARD" MAT, 2 inch, 4 x 6 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

No. 982 "STANDARD" MAT, 2 inch, 5 x 5 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

No. 983 "STANDARD" MAT, 2 inch, 5 x 7 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

No. 984 "STANDARD" MAT, 2 inch, 5 x 10 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

No. 985 "STANDARD" MAT, 2 inch, 5 x 15 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

No. 986 "STANDARD" MAT, 2 inch, 5 x 20 feet, ...
Weight 2 lbs., per square foot. Packed for Shipment.

2 INCH "STANDARD" MATS, to order, per square foot, . . .

3 INCH "STANDARD" MATS, to order, per square foot, . . .

4 INCH "STANDARD" MATS, to order, per square foot, . . .

PARALLEL BAR MATS

For Parallel Bars, at the sides, two-inch mats three feet wide are used. They are generally one foot shorter than the bars. At the ends a three by five mat may be used.

No. 962 SIDE MAT, 2 inch, 3 x 7, for 8 foot bar, . . .
Weight 42 lbs. Packed for Shipment.

No. 963 SIDE MAT, 2 inch, 3 x 9, for 10 foot bar, . . .
Weight 54 lbs. Packed for Shipment.

COMBINATION MATS

These are made the same as "Standard" mats, except that they are hinged on one edge, so they may be folded together making of two 5′ x 10′ x 2″ mats either a 10′ x 10′ wrestling mat or a 5′ x 10′ x 4″ mat.

No. 969 COMBINATION MAT, 2 inch . . . . . .

Weight 200 lbs. Packed for Shipment.

SLIDING POLE MAT

For sliding poles in corners of gymnasiums. Round, with a hole in the centre, and slit from one side closed by a strap and buckle. See illustration of Sliding Pole.

No. 973 SLIDING POLE MAT, 3 inch felt, No. 6 White Duck . .

Weight 40 lbs. Packed for Shipment.

WRESTLING MAT

Made in one piece, 16 feet square, 2 inches thick, of No. 6 White Duck, (21 oz.) with handles, etc.

No. 975 WRESTLING MAT . . . . . .

Weight 500 lbs. Packed for Shipment.

MAT TRUCK

A substantial truck with heavy casters. The center casters are large and higher than those at the ends to permit easy turning. The end casters have roll bearing swivels. The platform is 3′ 10½″ wide and 8′ long carrying 10 foot mats without folding.

No. 980 MAT TRUCK . . . . .

Weight 280 lbs. Packed for Shipment.

MAT COVERS

These Covers are made of 8 oz. soft duck. They are made large enough to fold under the mat 2 feet and are laced on the corners. They can be made to order for any size mat.

No. 976 WRESTLING MAT COVER 20′ x 20′ for 16′ Wrestling Mat.

Weight 100 lbs. Packed for Shipment.

MAT HOOKS

A strong swinging hook that will hold four two-inch mats. It is designed to go on the five-foot high apparatus board.

Hooks for different sizes of mats are as follows:

5 x 5 Mat	2 Hooks	5 x 20 Mat	4 Hooks
5 x 7 "	2 "	3 x 9 "	3 "
5 x 10 "	2 "	3 x 7 "	2 "
5 x 15 "	3 "		

No. XX MAT HOOK, per pair . . . . . .

Weight 30 lbs. Packed for Shipment.

INDIAN CLUBS

"STANDARD" MODEL

This model represents the latest development in clubs, i. e., a low weighted, slow swinging club. They are turned from seasoned maple to carefully designed forms, by machinery that produces exact duplicates, thus securing uniform sizes, and balance.

No. 1001	½ Pound Clubs, selected, per pair	. . . .
No. 1002	¾ Pound Clubs, selected, per pair	. . . .
No. 1003	1 Pound Clubs, selected, per pair	. . . .
No. 1005	1½ Pound Clubs, selected, per pair	. . . .
No. 1007	2 Pound Clubs, selected, per pair	. . . .

Add 25% to net weight for packing.

Note:—Selected Clubs are free from knots and cracks. They are hand polished with shellac, the only finish that will not become sticky with use. Culls, or seconds, are such clubs as will not pass as selected but have no defects that injure them. They are sold at half price.

SCHOOL MODEL

This model has the weight still lower than the "Standard", and is consequently slower. They are used exclusively in the public schools of Greater New York.

No. 1061	½ POUND, selected, per pair	. . . .
No. 1062	¾ POUND, selected, per pair	. . . .
No. 1064	1 POUND, selected, per pair	. . . .

Add 25% to net weight for packing.

DUMB-BELLS

2 LB. 1½ LB. 1 LB. ¾ LB. ½ LB.

"STANDARD" MODEL DUMB-BELLS

The "Standard" Dumb-Bells have been carefully designed to meet the requirements of gymnasium exercise. The handles are large and smooth with rounded corners, and the heads are shaped to stand the most severe use. They are carefully turned of selected maple and finished in lathe polish only, and are as near the weight given as the wood will run.

"Standard" Dumb-Bells. Selected "Standard" Model, lathe polished, maple.

No. 1102 "STANDARD" DUMB-BELL, selected, weight ½ pound, per pair,
No. 1103 "STANDARD" DUMB-BELL, selected, weight ¾ pound, per pair,
No. 1104 "STANDARD" DUMB-BELL, selected, weight 1 pound, per pair,
No. 1106 "STANDARD" DUMB-BELL, selected, weight 1½ pounds, per pair,
No. 1108 "STANDARD" DUMB-BELL, selected, weight 2 pounds, per pair,

Add 25% to net weight for Packing.

Selected Bells are free from imperfections. Culls are those having knots or stains that do not injure them for use; they are sold at half price.

CABINET C

CLUB AND BELL CABINETS

Steel Cabinets with strongly braced paneled doors in which apparatus can be kept locked safe from meddling and dust.

Each cabinet has a lock and is finished in olive green baked japan.

All single depth cabinets are 12″ deep, 40″ wide and 60″ high.

All double depth cabinets are 16½″ deep, 40″ wide and 60″ high.

All Cabinets can be made double depth, double in capacity at an additional cost.

Double depth cabinets can be put on casters at an added expense.

Single Depth Cabinets cannot be put on casters.

C Cabinet for 40 pairs of 1½ or 2 lb. Bells . . . .

F CABINET for 50 pairs of 1 lb. Bells . . . .

Single depth cabinets weight 230 lbs. and double depth 330 lbs. crated for shipment.

CLUB AND BELL CABINETS

CABINET A

A CABINET for 20 pairs 1 lb. Clubs, 20 pairs 1 lb. Bells and 20 Wands

G CABINET for 30 pairs 1 lb. Clubs, and 20 Wands . . .

H CABINET for 40 pairs 1 lb. Bells and 20 wands . . .

J CABINET for 50 pairs 1 lb. Bells and 20 Wands . .

Weight 260 lbs. Packed for Shipment.

CABINET B

B CABINET for 30 pairs of 1½ or 2 lb. Clubs or Bells . . . .

Weight 237 lbs. Packed for Shipment.

CABINET E

E CABINET for 20 pairs of Bells and 20 pairs of Clubs 1½ or 2 lb. . .

Weight 250 lbs. Packed for Shipment.

CABINET K

K CABINET for Games. Double depth (16½ inches) with 3 shelves . .

Weight 200 lbs. Packed for Shipment.

"STANDARD"
CLUB AND BELL HOOKS

A hook with well rounded corners, that will hold Bells, Clubs, or Bar-Bells. They are furnished either with screws to be secured to any wood work, or mounted on oak strips neatly finished as shown.

No. 1145 "STANDARD" HOOKS, with screws, per pair . . .
No. 1145-M "STANDARD" HOOKS, mounted on oak, per pair . .
Weight 1 lb. per pair. Packed for Shipment.

"STANDARD" LOCKING RACK

This rack secures the apparatus so it cannot be used without supervision. These racks are furnished in sets of ten or more pairs to each lock, mounted on oak strips, as shown, at the prices quoted.

No. 1146 "STANDARD" LOCKING RACK, per pair, including lock, in lots of 10 pairs . . . . . .
Weight 2 lbs. per pair. Packed for Shipment.

This view of the under side of our "Standard" Locking Rack shows the mechanism and how it is operated. Under each hook is a pivoted lever, having a bent arm that when closed secures whatever is in the hook, and when opened as is shown in phantom, releases it. These levers are all connected at their lower ends to a flat rod that runs the entire length of the rack, and is operated by the finger lever shown, and secured in its closed position by the lock.

IRON DUMB-BELLS

Plain cast iron dumb-bells, finely japanned, correct forms. Handles to fit the hand and long enough (even on the smallest bells) for the largest hands. Our dumb-bells are cast of the best gray machinery iron, are extra smooth, and do not require wrought iron handles.

No. 1151 IRON DUMB-BELLS, 1 pound, cast hollow, per pair . .
IRON DUMB-BELLS, 2 pounds and upwards, per pound . . .

We have the following weights:

2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 90 and 100 pounds.

Add 10% to net weight for packing.

RACKS FOR HOLDING IRON DUMB-BELLS

No. 1150-1 RACK for 5 pair of from 3 to 6 lb. bells . . . . . .
No. 1150-2 RACK for 4 pair of from 4 to 15 lb. bells . . . . . .
No. 1150-3 RACK for 3 pair of from 20 to 30 lb. bells . . . . . .
No. 1150-4 RACK for 2 pair of from 35 to 60 lb. bells . . . . . .
No. 1150–5 Rack for 3 bells, 60 to 100 lbs. each, ...
Weight 8 lbs. Packed for Shipment.

All the above racks made of maple, thirty-six inches long, are to be placed upright on walls, are neat in appearance, strong and durable. One to three lb. iron bells may be held in Indian club racks.

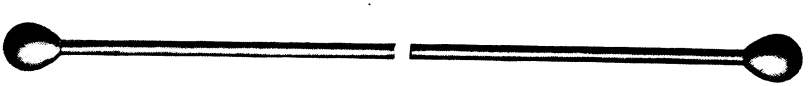
ADJUSTABLE BAR-BELL

The "Standard" Adjustable Bar-Bell consists of a bar provided with adjustable flanges having latches and end nuts. The adjustable flanges are set for any weight, by dropping the latch into holes in the bar. When the weight discs are in place the latch cannot be loosened. The bar, latch discs and nuts weigh ten pounds, which is the minimum weight of the bar-bell.

There are eleven discs weighing five pounds each for each end of the bar. These when put on in pairs add ten pounds to the weight, making the range from ten to one hundred and twenty pounds. When the discs are in place they are held snug at the ends of the bars by the nuts, hence for any weight the weights are at the ends of the bar.

No. 1268 ADJUSTABLE BAR-BELL, weight 120 pounds . . .
Weight 130 lbs. Packed for Shipment.

BAR-BELLS



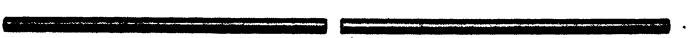
"STANDARD" BAR-BELLS

The "Standard" Bar-Bells have pear-shaped maple bells, and lathe polished selected straight grained handles.

No. 1251 "STANDARD" BAR-BELLS, 4 feet 8 inches long, each .
Weight 2 lbs. Packed for Shipment.

WANDS

The "Standard" Wands are made of carefully selected maple stock, straight grained and strong. They have rounded ends and are filled and polished.



No. 1211 SCHOOL WAND, 3 feet x 5/8 inches, per dozen
Weight 6 lbs. per dozen. Packed for Shipment.

No. 1200 "STANDARD" WAND, 3½ feet x ¾ inches, per dozen
Weight 8 lbs. per dozen. Packed for Shipment.

No. 1203 "STANDARD" WAND, 4 feet x 1 inch, per dozen
Weight 10 lbs. per dozen. Packed for Shipment.

No. 1202 "STANDARD" WAND, 4½ feet x 1 inch, per dozen
Weight 12 lbs. per dozen. Packed for Shipment.

No. 1207 SHORT WAND, 3½ feet x 1¼ inches, per dozen
Weight 10 lbs. per dozen. Packed for Shipment.

METALLIC WANDS

JAPANNED IRON WANDS

No. 1231 IRON WAND, 4 feet x 5/8 inch. Weight 4 pounds each .

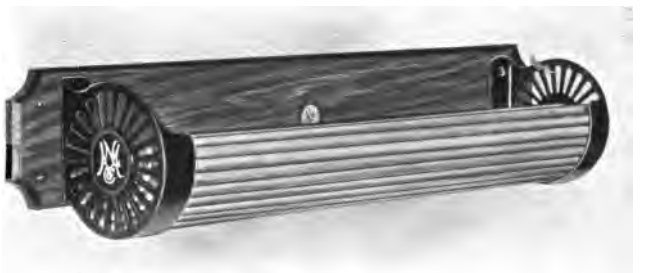
Other sizes will be made to order.

NICKELED STEEL WANDS

No. 1238 STEEL WAND, 3½ feet x 5/8 inch. Weight 3½ pounds each .
No. 1239 STEEL WAND, 4 feet x 5/8 inch. Weight 4 pounds each . .

These Wands are covered with copper jacket which absolutely prevents rust.

Add 10% to net weight for packing.



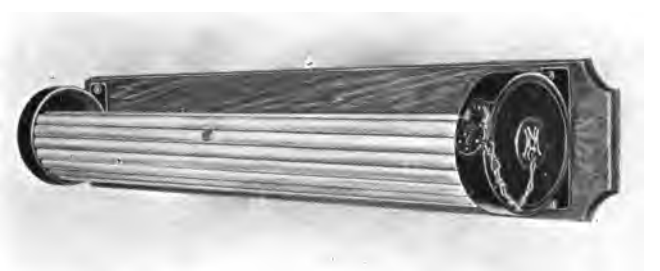
HORIZONTAL WAND RACK

This style rack will hold several dozen wands, according to their size. The wands are thrown in as the class passes by and will lie straight as they fall. In taking the wands there is always one on the front edge of the bundle ready to grasp. It will hold forty one-inch, or fifty three-quarter-inch wands.

No. 1201-1 WAND RACK, horizontal, ...

No. 1201-2 WAND RACK, mounted on an oak board, . . .

Weight 25 lbs. Packed for Shipment.



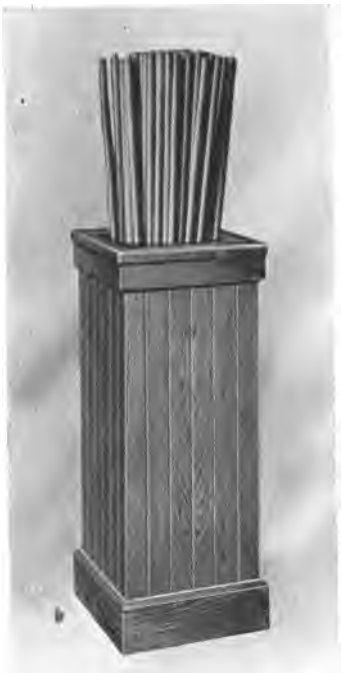
LOCKING WAND RACK

One end of this rack has a hinged cap that can be locked, thus preventing use of the wands without supervision.

No. 1201-3 WAND RACK, locking, each . . . . .

Weight 35 lbs. Packed for Shipment.

WAND BOXES



BOX FOR WOOD WANDS

Made of oak with padded bottom. Will hold one hundred and fifty wands

No. 1201-8 WAND BOX, for wood wands . . . . .

Weight 70 lbs. Packed for Shipment.

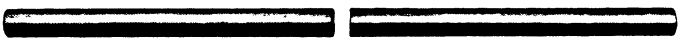
BOX FOR STEEL WANDS

Strongly made of oak. The top is perforated for seventy wands and the wands strike on a thick padded bottom.

No. 1201-9 WAND BOX, for steel wands . . . . .

Weight 90 lbs. Packed for Shipment.

POLES



For pole exercises, made of selected pine or spruce. Finished same as wands.

No. 1278 POLE, 1¼ inches diameter, 12 feet long, each . . .

Weight 8 lbs. Packed for Shipment

RINGS

Made of three pieces of maple glued together, lathe polished.

No. 1301 RINGS, 5 inch inside diameter, ⅞ inch thick, per pair .

Weight 10 lbs. per dozen. Packed for Shipment.

No. 1301-1 RING RACK for 12 rings . . . . . .

Weight 5 lbs. Packed for Shipment.

MUSICAL DUMB BELLS

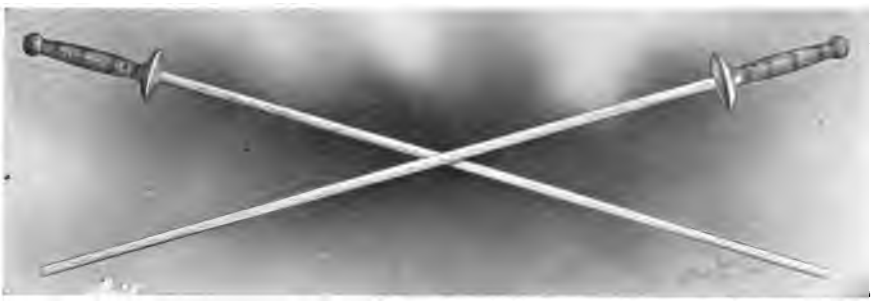
The Musical Dumb-Bell consists of two pairs of brightly nickeled bells connected by a polished hard wood handle. Each pair of bells is arranged to hold a clapper or sounder which does not ring the bells until they are forcibly turned or shaken. The bells have a sweet, clear tone. Children are charmed with them.

MUSICAL DUMB-BELLS. One pair packed in a strong box, with Primer of exercises . . . . . .
Weight 8 oz. Packed for Parcel Post.

BEAN BAGS

Specially adapted for school drills. They are made of strong striped awning duck, loosely filled to catch easily.

No. 1350 BEAN BAGS, 7 inches square, per dozen . . .
Weight 8 lbs. Packed per dozen.



ANDERSON FOILS

Costing less than steel foils, they may be used for the same purpose, and are also desirable for a modified broadsword drill.

The blades are made from straight grained hickory, and are very durable. The hilts are turned from maple to form a handle and guard. New blades are easily inserted.

No. 1401 ANDERSON FOILS, per pair . . . . .
Weight 1 lb. Packed for Shipment.

No. 1401-1 ANDERSON FOIL BLADES, per pair . . .
Weight ½ lb. Packed for Shipment.

No. 1401-2 RACKS FOR ANDERSON FOILS, mounted, per pair .
Weight 1 lb. Packed for Shipment.

DRILL GUNS

These guns are made of oak with black barrels and natural finish stocks.

No. 1426 DRILL GUN, 46 inch, each,
Weight 2 lbs. Packed for Shipment.

No. 1426-1 DRILL GUN RACK, for twelve guns, each, . .
Weight 10 lbs. Packed for Shipment.

MEDICINE BALLS

This ball has an inner canvas covered filler, over which is laced, with a rawhide lace, a strong cowhide outer cover. The inner canvas cover keeps the filling intact and free from dust. The outer leather cover receives the wear.

No. 1736 MEDICINE BALL, 30 inch, weight 4 lbs. . . .
No. 1737 MEDICINE BALL, 36 inch, weight 6 lbs. . . .
No. 1738 MEDICINE BALL, 42 inch, weight 8 lbs. . . .
No. 1739 MEDICINE BALL, 48 inch, weight 12 lbs. . . .

Add 10% to net weight for packing.

No. 1730-1 MEDICINE BALL RACK . . . . . .
No. 1730-2 MEDICINE BALL RACK, mounted . . . . .

Weight 10 lbs. Packed for Shipment.

INDOOR SHOT

This shot consists of a heavy duck inner bag, wound with canvas, having an inner leather cover sewed on and a thick leather outer cover laced on. The shot is slightly larger than when made with single elk skin covering, and will stand much harder use.

No. 1754 SHOT, 8 pound, laced cover,
No. 1755 SHOT, 12 pound, laced cover,
No. 1756 SHOT, 16 pound, laced cover,

Add 10% to net weight for packing.

BOXING GLOVES

No. 1562 "CLUB" GLOVE, extra large, brown kid, padded wrist, safety grip, laced wrist, filled with finest curled hair, per set of four gloves . . . .

Weight 3 lbs. Packed for Shipment.

No. 1566 "TRAINING GLOVE," Green kid, green trimmed, padded wrist, safety grip, laced, filled with a fine quality curled hair, per set of four gloves . . .

Weight 3 lbs. Packed for Shipment.

TOE BLOCK

For indoor shot "putting." Made to regulation dimensions.

No. 1793 Toe Block, for indoor shot . . . . . .

Weight 30 lbs. Packed for Shipment.

HURDLE

This hurdle is specially adapted for indoor work. It has a swinging gate that may be set either two and one-half, or three and one-half feet high, by simply turning it half over. The gate swings or falls when struck.

No. 2475 Folding Hurdle, each . . . . . .

Weight 20 lbs. Packed for Shipment.

POTATO RACE STANDS

A substantial Iron Stand of regulation size with a broad and heavy base not easily upset.

No. 1360 POTATO RACE STANDS, each . .

Weight 48 lbs. Packed for Shipment.

No. 1360–1 WOOD BLOCKS (Potatoes) per set of 8,

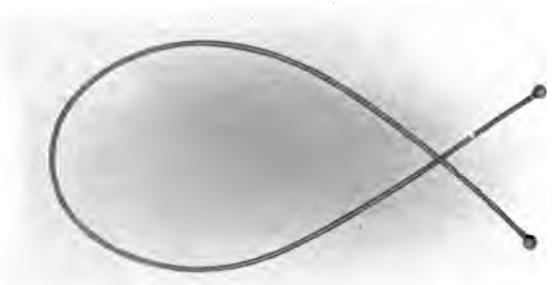
Weight 2 lbs. Packed for Shipment.

SKIPPING ROPES

Braided cotton rope with a turned handle. 8 feet long.

No. 1351 SKIPPING ROPE, each . . . . . .

Weight ¾ lb. Packed for Shipment.



SKIPPING REEDS

A rattan reed 7 feet long with ball handles. Elastic and durable.

No. 1352 SKIPPING REED, per dozen, ...

Weight 13 lbs. per dozen. Packed for Shipment.

BASKET BALL

REGULATION GOALS

Regulation size. Wrought iron rim and wrought iron braces. Cotton cord basket.

No. 1703 "REGULATION" BASKET BALL GOALS, per pair . .

Weight 20 lbs. Packed for Shipment.

LEATHER GOALS

The basket is made of rein leather, very durable and more easily seen than the cotton cord. Iron work same as regulation goals.

No. 1704 LEATHER BASKET BALL GOALS, per pair . . .

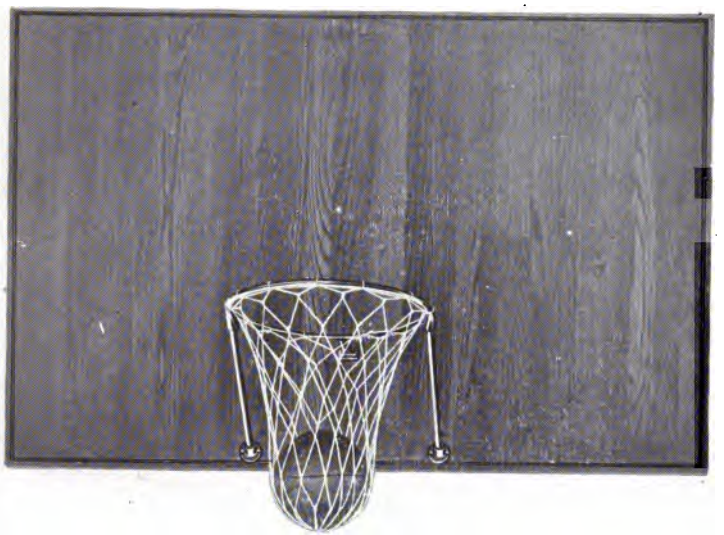
Weight 22 lbs. Packed for Shipment.

WEBBING GOALS

The basket is made of webbing that is strong and durable. Iron work same as regulation goals.

No. 1705 WEBBING BASKET BALL GOALS, per pair . . .

Weight 22 lbs. Packed for Shipment.



BASKET BALL BACK STOP

For attachment to Gallery Front or where Braces are not required. Made of Chestnut, regulation size 4 x 6 feet, strongly framed with a cleat across at the goal line; face finished in white enamel.

Price does not include goals.

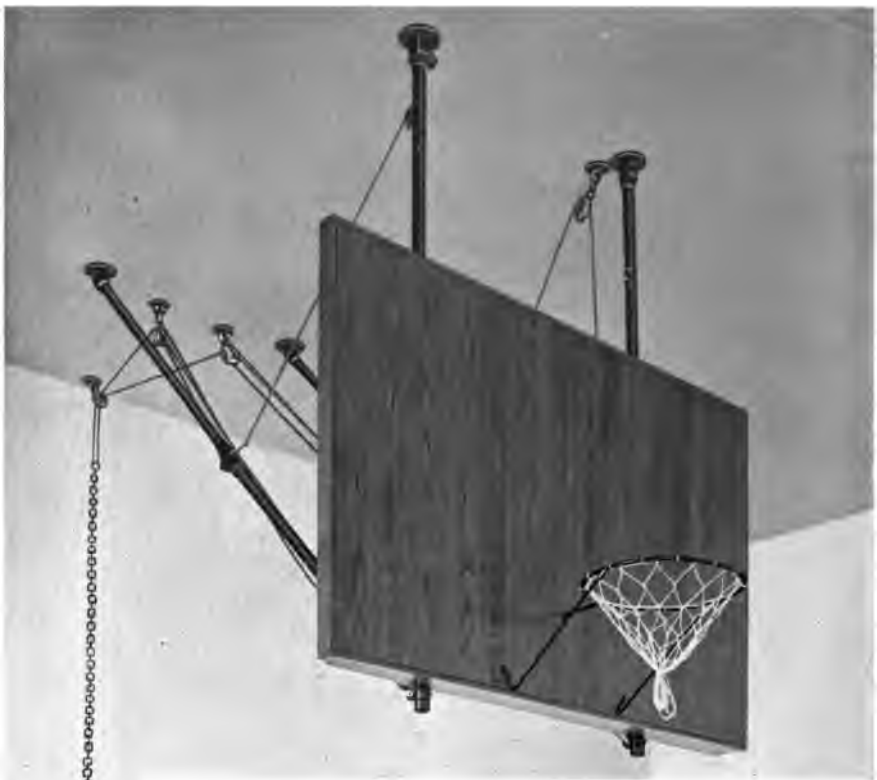
No. 1700-5 BASKET BALL BACK STOPS, per pair
Weight 160 lbs. Packed for shipment.

BASKET BALLS

No. 1709 OFFICIAL. Size, shape and weight guaranteed correct. Complete with rubber bladder.
Weight 2 lbs. Packed for shipment.

No. 1706 REGULATION. Regulation size and weight. Complete with rubber bladder.
Weight 2 lbs. Packed for shipment.

No. 1705B EXTRA BLADDERS, Best quality, each
Weight ½ lb. Packed for shipment.



SWING UP BACK STOP

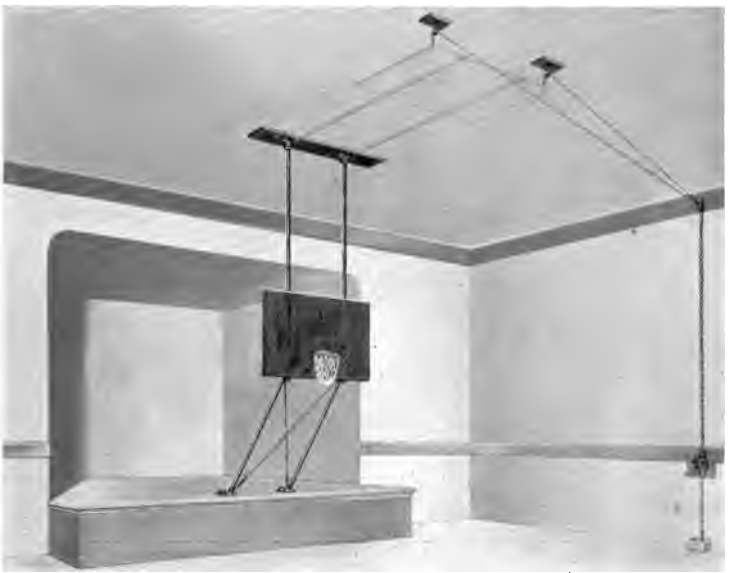
JACK KNIFE TYPE

A Regulation 4 x 6 Basket Ball Back Stop attached to swinging pipe standards and braced back of the goal to the ceiling out of the way by means of a geared winch.

The hoisting rope breaks the joints of the braces and simultaneously hoists them and the back board up to the ceiling out of the way.

Price does not include goals.

No. 1700-13 SWING UP BASKET BALL BACK STOP,
Weight each 350 lbs. Packed for Shipment.



SWING UP BACK STOP

STAGE BRACED TYPE

A Regulation Back Stop on swinging pipes braced at the bottom. The braces can be removed and the back stop swung up to the ceiling by means of a geared winch.

Price does not include goals.

No. 1700-14 Stage Braced, swing up, Back stop.

Weight each 350 lbs. Packed for Shipment.

SUSPENDED BACK STOP

WALL BRACED TYPE

The Back Stop is suspended from the ceiling by steel pipe and braced to the wall.

Price does not include goals.

No. 1700-15 Suspended, Wall braced, Back Stop.

Weight each 300 lbs. Packed for Shipment.

BRACED OUT BACK STOPS

BRACED FROM WALL

No. 1700-17 Basket Ball Back Stop, Braced out 2 feet from wall, per pair.
Weight each 250 lbs. Packed for Shipment.

No. 1700-16 Basket Ball Back Stop, Braced 5 feet from wall, per pair.
Weight each 350 lbs. Packed for Shipment.

VOLLEY BALL

The standards have pulleys and cleats for the net and hand screws with floor plates that secure the bases to the floor. Standards are 8′ 6″ high so net can be drawn to regulation height 8′ at center.

No. 1729 VOLLEY BALL OUTFIT, 1 pair standards with net . . .

Weight 110 lbs. Packed for Shipment.

VOLLEY BALL STANDARDS

Standards may be arranged in series so that 3 standards will have 2 nets, etc. For this purpose the standards are listed separately.

No. 1729-2 VOLLEY BALL Standard for End . . . . .
No. 1729-3 VOLLEY BALL Standard for Center . . . . .

VOLLEY BALL CLEATS

For use where there are supports about 30 feet apart—walls or posts.

No. 1729-4 VOLLEY BALL WALL CLEAT with Screw Eyes and Net complete

Weight 20 lbs. Packed for Shipment.

No. 1729-5 VOLLEY BALL NET, each. (Weight 3 lbs. Packed for Shipment.)
No. 1729-6 VOLLEY BALL, regulation size, each. (Weight 1½ lbs. Packed for Shipment.) . . . . .

INDOOR BASE BALL

No. 1727-1 INDOOR BASE BALL BASES, Canvas, per set of 3 . . .
Weight 15 lbs. Packed for Parcel Post.

No. 1727-3 INDOOR BASE BALL HOME PLATE, Rubber, each, . .
Weight 2 lbs. Packed for Parcel Post.

No. 1727-4 INDOOR BASE BALL, 17 inches circumference, . . .
Weight 1 lb. Packed for Parcel Post.

No. 1727-5 INDOOR BASE BALL, 14 inchs circumference . . .
Weight 1 lb. Packed for Parcel Post.

No. 1727-2 INDOOR BASE BALL, Bat . . . . . .

Weight 2 lbs. Packed for Parcel Post.

Complete outfit, weight 22 lbs. Packed for Shipment.

GYMNASIUM PLINTH

Made exactly in form and dimensions to the plinths used in Sweden. Can be furnished with either canvas or leather cover. Made of oak, it is a fine and substantial piece of apparatus.

No. 1960A CANVAS COVERED PLINTH . . . . .
No. 1960B LEATHER COVERED PLINTH . . . . .

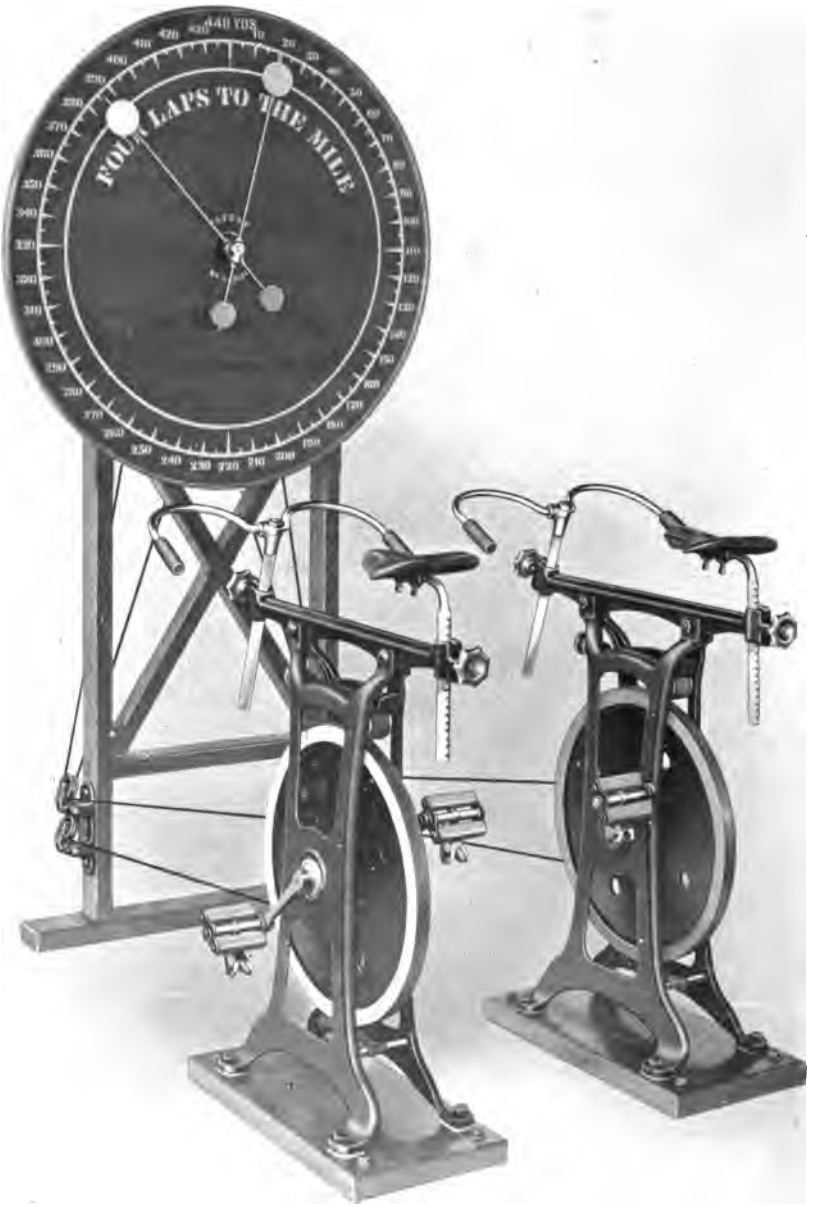
Size 13½ x 60 in.—14 and 34 in. high. Weight 120 lbs. Packed for Shipment.

MASSAGE PLINTH

Made exactly in form and dimensions to the plinths used in Sweden. Both ends are adjustable. Two heights can be obtained. Can be furnished with either canvas or leather cover.

No. 1963A CANVAS COVERED PLINTH . . . . .
No. 1963B LEATHER COVERED PLINTH . . . . .

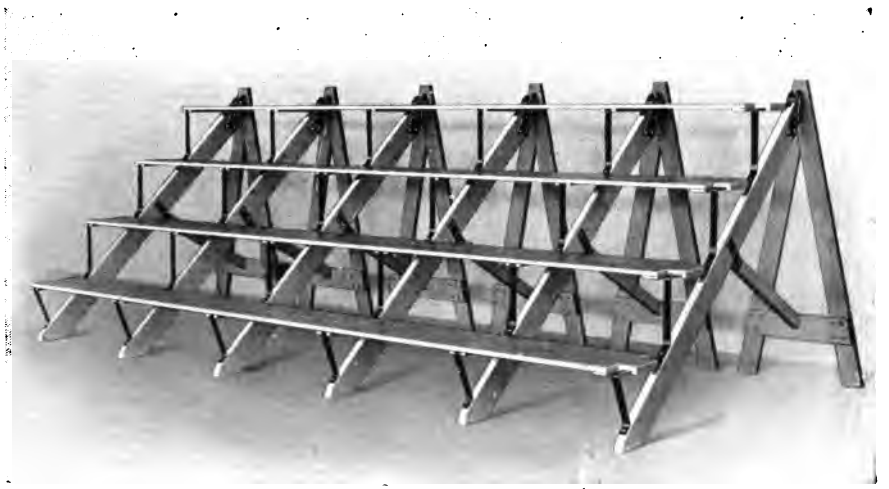
Size 18 x 60 in.—15 and 21 in. high. Weight 125 lbs. Packed for Shipment.



STANDARD BICYCLE TRAINER

No. 330 BICYCLE RACING TRAINER . . . . .
Weight 680 lbs. Packed for Shipment.

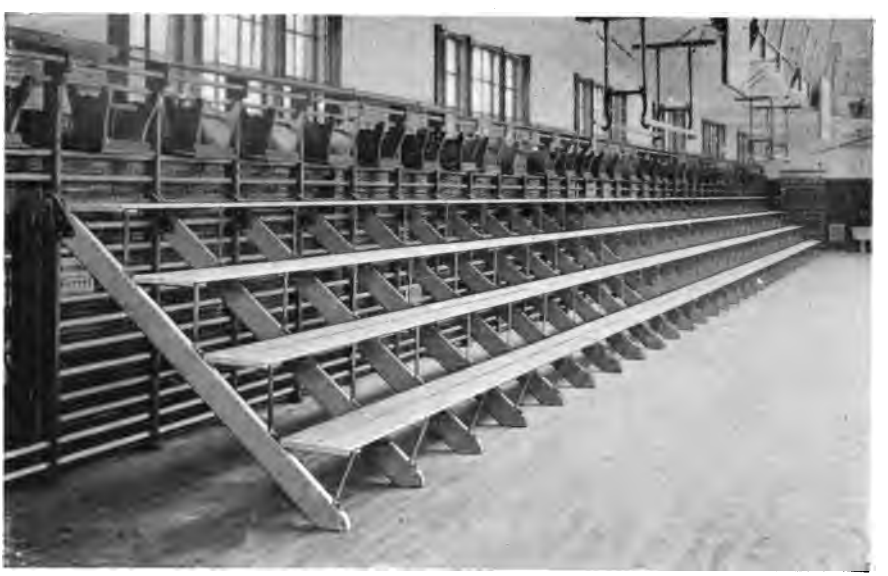
BLEACHERS



Style 995

Bleachers are a necessary provision for spectators. They may stand independent as shown above, be attached to the stall bars as shown below, or to the wall-board provided for pulley weights.

Prices will be furnished on application.



Style 997

PLAYGROUND APPARATUS

The growing popularity of Playgrounds and Out-door Gymnasiums calls for equipment that will prove both durable and popular, that is, wear well, and please well.

It must be strong, to stand both use and abuse, durable to withstand the effects of wear and weather, simple so that children can use it, safe in both arrangement and construction, and compact, for city land is expensive, and the best use should be made of every square foot.

Our Playground apparatus is designed with these qualifications constantly in view. For twenty years we have watched its use, noted the most durable materials, weeded out objectionable devices, developed and tested the suggestions of experts, until it is the acknowledged Standard of Perfection.

Playground apparatus proper, such as ladders, swings, etc., is always supported by either wood or iron frames. These frames can generally be furnished and erected by local contractors at the least cost, they being acquainted with the conditions and cost of material. For any order of playground apparatus placed with us, we will furnish plans and specifications for local contractors to build either wood or iron frames.

We are always pleased to submit plans and estimates for the equipment of Playgrounds. Write for our Playground Catalog D6.

STANDARD STEEL LOCKERS

(PATENTED)

The Standard Lockers are the results of over twenty-five years experience in locker construction for gymnasiums. We were the first to make a specialty of lockers, making them of interchangeable parts and in unit cabinets and have had double the experience of others in their sanitary needs.

Standard Locker doors are reinforced with an angle iron frame over which the metal forming the front is drawn and sealed, making a strong door with no sharp corners or edges.

Standard doors fit the frame closely at the sides and lap over it at the top and bottom, making a strong neat finish; note the doors in the illustration.

Standard Locker construction makes a locker so strong that the feet can be placed from four to six feet apart, giving ample sweeping room beneath. Adjustable feet level the lockers independent of the floor.

On Standard Lockers all outside bolts have blank heads, i. e., not slotted; they cannot be loosened from the outside.

All angle and bar iron in Standard Locker has smooth rolled sheet steel drawn over it; thus making the exterior of the locker a smooth uniform finish, well adapted for the hard baked enamel used.

Standard Lockers were developed in gymnasiums, that is the reason why they are suited to them.

Send for Locker Catalogue "G."

BOX LOCKERS

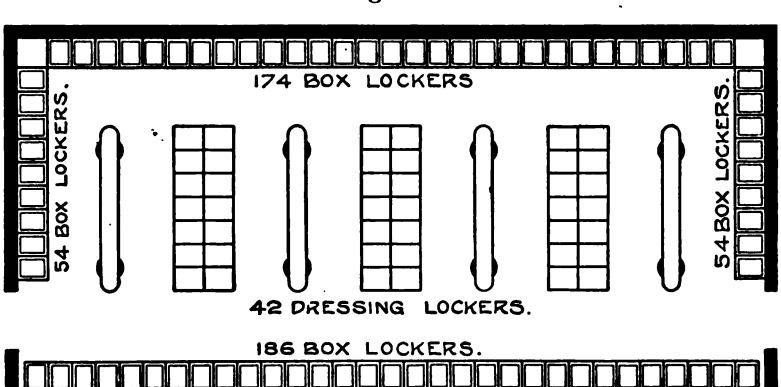
(PATENTED)

In common practice, a regular locker is actually used only from two to six hours per week, and is much larger than is needed for the Gymnasium Clothing that is stored in it the rest of the time, consequently space is wasted.

The Box Locker plan utilizes the small locker for the long time storage and the large locker for the short time storage. Thus it economizes the space required.

The plan shows 468 Box Lockers, or provision for 468 members in a room that would accommodate 120 members in single tier lockers and 240 in two tier lockers, a saving of nearly three-quarters and one-half respectively.

Write for Box-Locker Catalog.



468 Box Lockers and 42 Dressing Lockers. A ratio of 9 to 1.
This space would accommodate 120 ordinary one-tier Lockers—240 two-tier.

YOUNG MEN'S CHRISTIAN ASSOCIATION GYMNASIUM, TWENTY-THIRD STREET, NEW YORK CITY

RUNNING TRACK

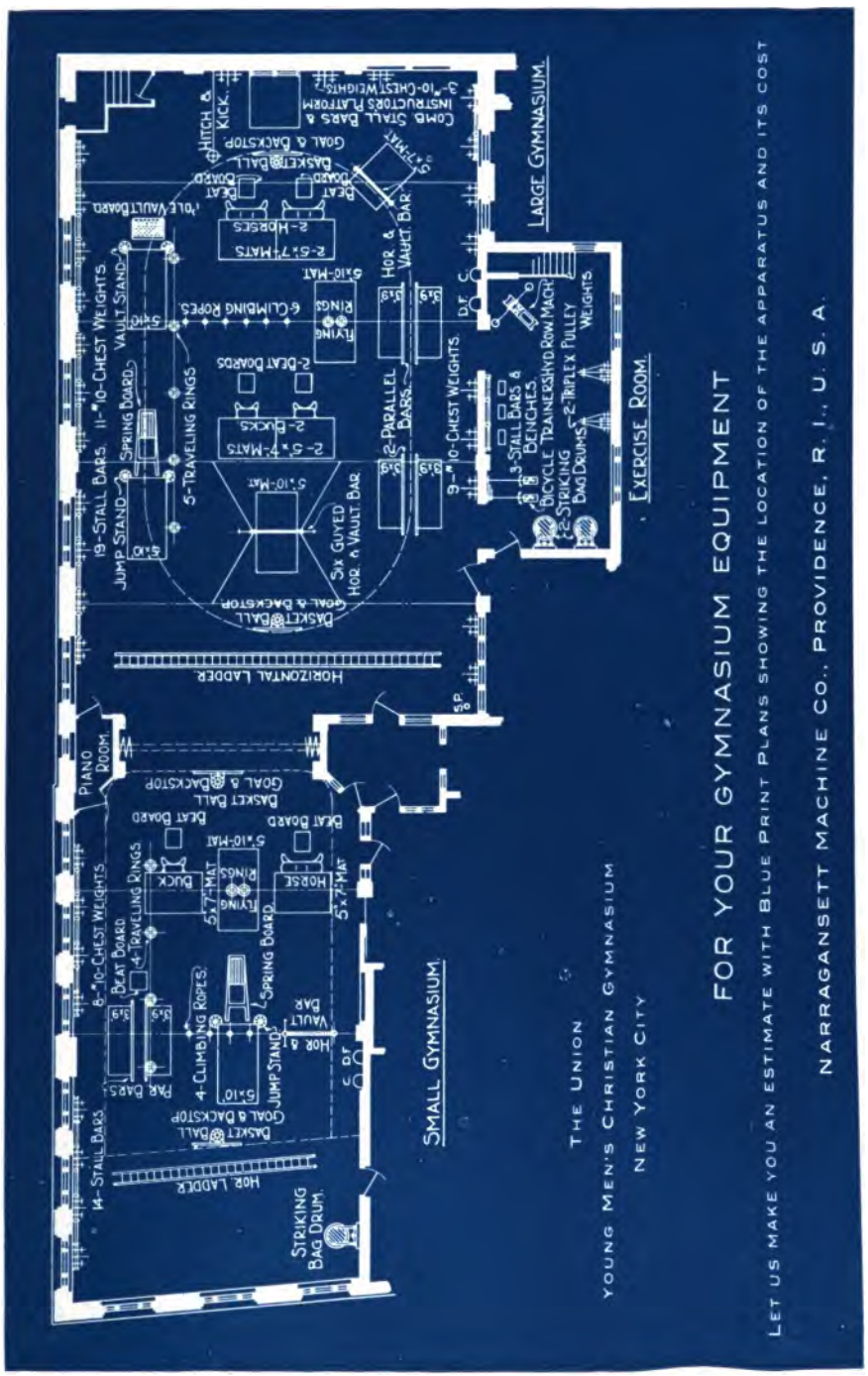
The indoor Running Track has been slowly evolved from the path marked out on the gymnasium floor of the seventies, to the gallery track of nineteen hundred. The importance of a track, with a proper incline is shown by the fact that nearly all new gymnasiums make the best possible provisions for it.

INCLINE. The proper Incline of a track is secured by placing curved sleepers on the rough floor of the gallery and flooring over them, thus forming a Concave Incline. The curvature of the sleepers and their location depends on the radius at the ends, or corners, of the track and the required speed. We will be pleased to furnish architects building tracks with plans showing the proper curves of the sleepers and their location for the Concave Incline. A plan of the gallery will give us the necessary information to do this.

COVER. We recommend the use of best cork carpet for this purpose, laid by men expert in this work. The laying of the cover is as important as the material.

EXPERIENCE. Our experience, developed by forty years, of track building and laying, is at your service. We were the first to construct a Scientific Running Track based on a mathematical formula. Our Concave Incline Track is now as much a part of a well equipped gymnasium as either the horse or parallel bar.

ESTIMATES. Send to us the plan of your gallery and we will furnish you with plans for the wood concave and estimate on cost of the cover.

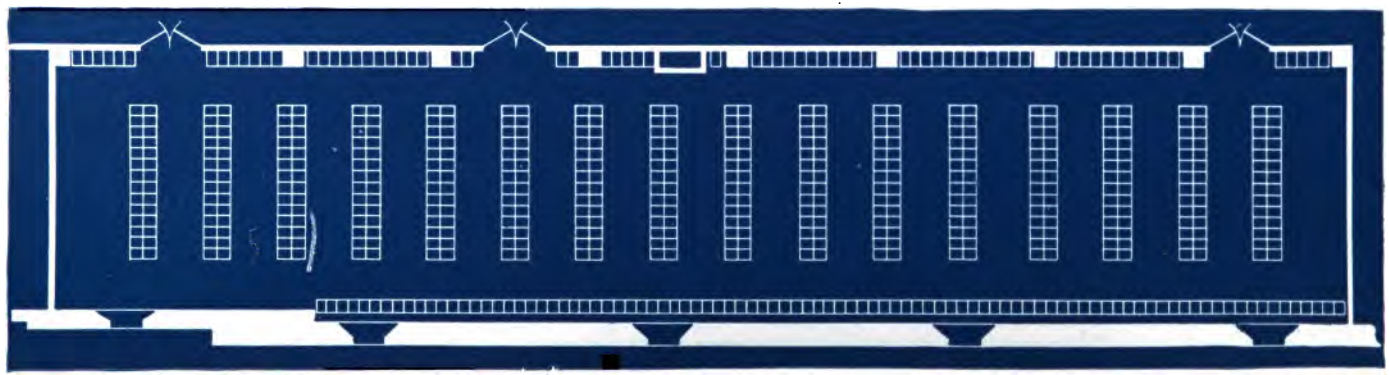


SPECIAL PLANS AND LISTS

These Special Plans embody the experience of many years in fitting Gymnasia, and although they are gotten up at considerable expense to us we will furnish them free of charge, only asking that our claims for superiority of our apparatus be given careful consideration. They enable the matter of Gymnasium furnishing to be placed in convenient form before a committee for their consideration, revision, etc.

To make these plans we require full demensions of the Gymnasium, height of gallery and railing, the location of the beams overhead and all windows, doors, etc. Generally the architect's plans contain all we need, and if desired, copies sent to us could be returned next day. The more complete the information we receive the more value our plans and lists will have to intending purchasers.

When ready for Estimates on Equipment, send us plans as noted above, and we will make Plans showing the arrangement of Apparatus, Lockers, or Running Track, with Detailed Estimates, in the best possible form for placing before directors or purchasing committees.



LOCKER ROOM OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

GYMNASIUM DIVIDING NET

A strong net, made of 48 thread twine, supported by a wire cable, arranged to be drawn to one side.

A net can be used to divide the room into two or more sections or where gymnasium is on a stage it can be used to separate the stage from the auditorium.

Price depends on size and conditions.

No. 999 DIVIDING NET . . . . . .

Weight 100 lbs. Packed for Shipment.

INDEX

CATALOGUE I.

CATALOGUE OF

ANTHROPOMETRIC

APPARATUS

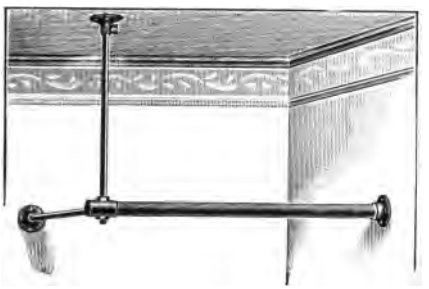
MADE BY THE

NARRAGANSETT MACHINE COMPANY

PROVIDENCE, R. I.

CHICAGO
1504 MONADNOCK BLOCK

NEW YORK
52 VANDERBILT AVE.



HORIZONTAL BAR.

For Pull Up's.

This bar is made with a support and brace to go in the corner of a room. In ordering give height of room and required length of horizontal brace. The bar is 3 feet long.

No. 583 BAR FOR PULL UP'S . .

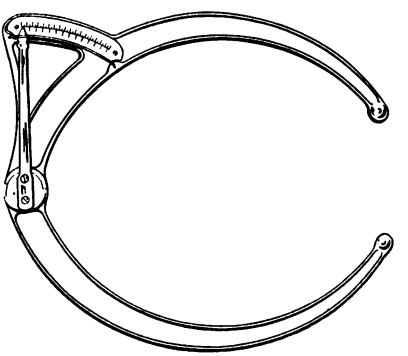
Weight 10 lbs. Packed for Shipment.

CHEST DEPTH CALIPER.

Self-Reading.

This caliper was designed specially for taking maximum and minimum chest depths at the same time. It is light and easy to handle, being made of aluminum and weighing only twelve ounces. The pressure is constant, being applied by a spring, hence the indications are independent of the observer. Its capacity is from 4 to 10.6 inches or 10 to 27 centimeters. The scales are interchangeable. The scale is white celluloid with black graduations.

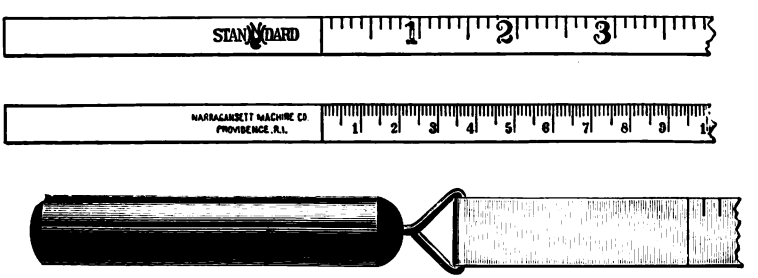
In use the caliper is held horizontal with the arm of the subject in the bow.



No. 585 CHEST DEPTH CALIPER . .

Weight 15 lbs. Packed for Shipment.

ANTHROPOMETRIC TAPE

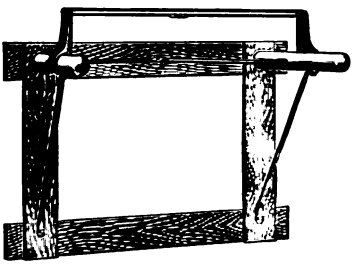


This tape is specially made for us for anthropometric work. It is graduated to inches and tenths on one side for 4 ft. and to millimetres on the other for 2 metres. It is not as cold to the touch as steel or so likely to rust, and being painted does not absorb perspiration and dirt as do common tailors' tapes.

The Spring Attachment was devised by Dr. Gulick to eliminate the personal equation of different examiners.

No. 587 ANTHROPOMETRIC TAPE, 4 ft. Metric and Inches . . . . .

No. 586 TAPE, with 6-oz. Spring (Gulick) . . . . . .



WALL PARALLEL

For making a test of the "Strength of Upper-arms (triceps) and Chest." According to the recommendations reported June, 1904, by the A. P. E. A. committee on revision of physical examination, which requires bars 18 inches apart, 5 feet from the floor, with a screen 18 inches wide and 30 inches high, erected vertically 18 inches from the ends of the bar or bars projecting 18 inches from a vertical wall with the clear space 30 inches above the bars.

There is also a tape stretched 3 inches above the bars.

The frame is made adjustable, on wall boards, so it can be lowered 2 feet 3 inches, to take the push-ups.

No. 594 WALL PARALLEL . . . . .

Weight 30 lbs. Packed for Shipment.

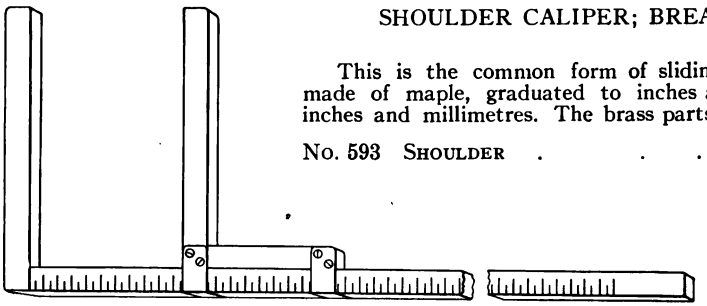
STADIOMETER

Or Height Stand

This is made according to the A. A A. P. E. rule, with the base 18 inches square and 12 inches high. The rod is maple graduated to inches and tenths on one edge and millimeters on the other. The sliding arm is arranged to measure from its upper as well as lower surface for knee heights, etc. An extension of the sliding arm makes it easy to operate and read from the floor.

No. 591 STADIOMETER . . . . .

Weight 50 lbs. Packed for Shipment.



SHOULDER CALIPER; BREADTH

This is the common form of sliding arm caliper, made of maple, graduated to inches and tenths to inches and millimetres. The brass parts are nickeled.

No. 593 SHOULDER . . . . . .

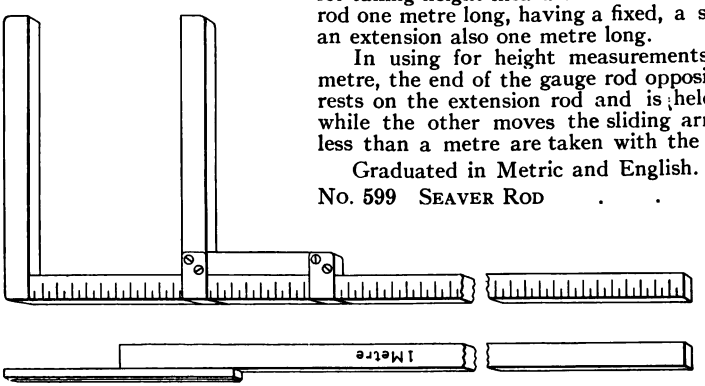
"SEAVER" MEASURING ROD

Designed by Dr. J. W. Seaver of Yale University to simplify and facilitate the taking of measurements. It will take all of the height and breadth measurements, being practically a shoulder caliper with an extension for taking height measures. The rod consists of a gauge rod one metre long, having a fixed, a sliding arm and an extension also one metre long.

In using for height measurements of more than a metre, the end of the gauge rod opposite the fixed arm rests on the extension rod and is held by one hand while the other moves the sliding arm. Heights of less than a metre are taken with the gauge rod.

Graduated in Metric and English.

No. 599 SEAVER ROD . . . . . .

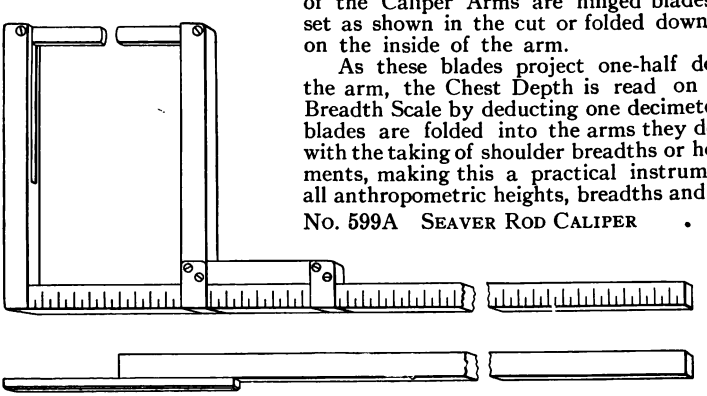


SEAVER ROD CALIPER

This is a modification of the Seaver Measuring Rod to enable Chest Depths to be taken. On the ends of the Caliper Arms are hinged blades that may be set as shown in the cut or folded down into the slot on the inside of the arm.

As these blades project one-half decimeter from the arm, the Chest Depth is read on the Shoulder Breadth Scale by deducting one decimeter. When the blades are folded into the arms they do not interfere with the taking of shoulder breadths or height measurements, making this a practical instrument for taking all anthropometric heights, breadths and depths.

No. 599A SEAVER ROD CALIPER . . .



NO. 595 WET SPIROMETER

The Wet Spirometer is generally admitted to be the only device for measuring lung capacity that will continue to record accurately. There is no rubber reservoir to leak or harden and crack in two or three years; an air cylinder immersed in water never leaks or wears out. The air cylinder is sheet zinc, and as it is made on an arbor they are exactly the same size and capacity, and record accurately their cubic contents. This cylinder is carefully balanced by weights that run in the tubes at the sides. The side tubes are polished brass, and one of them is graduated to measure the height, and consequently the volume contained by the cylinder. One side of the tube is graduated to cubic inches, the other to cubic decimeters. The stopper at the left lets the air out of the cylinder for it to descend, and that at the right has been replaced by a valve to let the water out of the tank. All parts except the brass tubes are finished in white. It has a capacity of 400 cubic inches or 6.5 cubic decimeters (litres).

A convenient shelf is made for holding the spirometer when no other support is available.

WET SPIROMETER.

No. 595 WET SPIROMETER . . . .
Weight 25 lbs. Packed for Shipment.

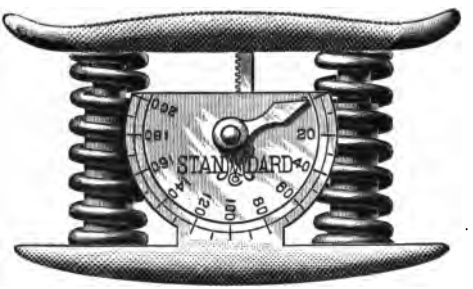
No. 595-1 SPIROMETER SHELF . . .
Weight 5 lbs. Packed for Shipment.

Wood Mouth-Piece.

MOUTH-PIECES.

No. 593-3 RUBBER MOUTH-PIECE, each . . . . . .
No. 595-4 GLASS MOUTH-PIECES, doz . . . . . .
No. 595-6 WOOD MOUTH-PIECE, 100 . . . . . .
No. 595-6 WOOD MOUTH-PIECE, 1000 . . . . . .
Weight 8 lbs. per 1000. Packed for Shipment

No. 595-5 EXTRA RUBBER TUBES, each . . . . . .
No. 595-14 TONGUE DEPRESSOR, 500 . . . . . .
Weight 5 lbs. Packed for Shipment.



MANUOMETER.

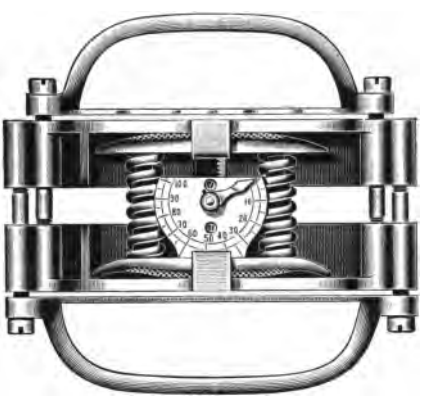
Or Grip Dynamometer.

The Manuometer or Grip Dynamometer is used for testing the muscles of the hand and forearm. This form records correctly all pressure applied to it, and cannot be overstrained or made to record high by bringing all the pressure to bear on the centre.

The Graduation may be Metric or English.

It is held in the hand, dial towards the palm and top against the fingers.

No. 596 MANUOMETER . . . . . .



PUSH AND PULL ATTACHMENT.

For making any kind of tests not exceeding 200 lbs (100 kilos).

The above attachment shows the manuometer in a device designed by Dr. D. A. Sargent for recording compression and extension. (Push and Pull). When the handles are drawn apart the tension is transmitted through the screws to the opposite plates that hold the manuometer, compressing it; and when the handles are pressed together they press directly in the manuometer. The manuometer is loosely held between the plates so that it can be easily slipped out. The instrument arranged in this way is applicable for a chest compression and extension dynamometer.

No. 596-1 PUSH AND PULL ATTACH, (does not include manuometer.)

In ordering Dynamometers advise if the
Metric or English Graduation is required.

BACK, LEG AND CHEST DYNAMOMETER (TIEMAN)

The capacity is 2000 pounds or 900 kilos.

The dial may be graduated metric or English, but not both on one dial.

No. 598 BACK, LEG, & CHEST DYNAMOMETER (Including Tieman Handle, Chain and Floor Hook as above illustrated).

Weight 10 Lbs. Packed for Shipment.

SPECIAL BASE AND CHAIN FOR DYNAMOMETER

Conforming to the recommendations of the A. P. E. A.

No. 598-1 BASE FOR DYNAMOMETER.
No. 598-2 CHAIN FOR DYNAMOMETER.

No. 598-3 DYNAMOMETER (No. 598) with above special Base and Chain complete.

Weight 30 Lbs. Packed for shipment.

In ordering Dynamometers advise if the Metric or English Graduation is required.

No. 590D

ANTHROPOMETRIC SCALE

The platform side of the beams are graduated metric to 130 Kilos by 50-gram divisions, and the other side English to 275 pounds by tenths of a pound.

Finished in silver gray enamel.

This scale can be furnished with the height stand but our No. 591 Stadiometer is better adapted for anthropometric work because of its raised base for sitting and knee heights, and its greater accuracy and ease in reading.

No. 590C Anthropometric Scale.
Weight 150 lbs. Packed for shipment.

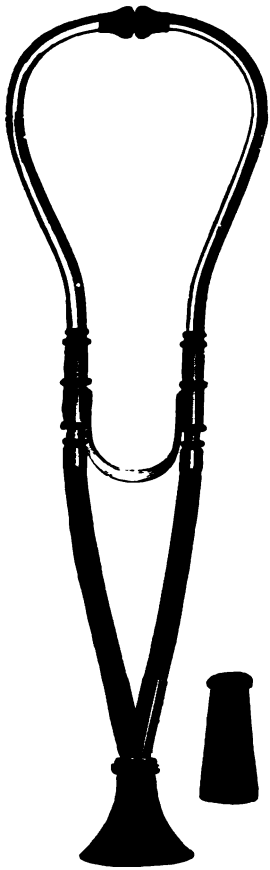
No. 590D Anthropometric Scale, with measuring rod.
Weight 155 lbs. Packed for Shipment.

No. 590D-1 Measuring Rod.
Weight 10 lbs. Packed for Shipment.

BOWLES STETHOSCOPE

With medium chest piece (1¼ in. dia.) and Flexible connecting tubes.

No. 590-5 STETHOSCOPE, BOWLES PATENT, NON-CHILL.



CAMMAN'S STETHOSCOPE.

The above is a well-known form of stethoscope. It has two sizes of cones. The connecting tubes are flexible so it can be folded to put in the pocket.

590-6 STETHOSCOPE. CAMMAN (FRYE)

B. & B. STETHOSCOPE

The object of this instrument is to render audible all sounds, whether natural or caused by morbid conditions of the human body; they can be heard with much greater intensity and within much more narrow limits than it has been possible with the ordinary Stethoscope. At the same time it conveys with great accuracy the nature of the sound.

The Phonendoscope is to sound what the microscope is to light—a magnifier.

There are several degrees of sensitiveness obtained by different adjustments.

No. 590-7 B. & B. STETHOSCOPE IN METAL CASE.

SPHYGMOMANOMETER

BLOOD PRESSURE GAUGE

No. 590-8 TYCOS SPHYGMOMANOMETER, WITH COMPRESSION SLEEVE, complete.

ANTHROPOMETRIC CABINET.

ANTHROPOMETRIC OUTFIT.

List of apparatus recommended by the A. P. E. A. committee for colleges, secondary schools, Young Men's Christian Associations, etc.

No. 591	STADIOMETER	. . . .
No. 590C	SCALE	. . . . .
No. 586	TAPE AND SPRING	. . .
No. 593	SHOULDER BREADTH CALIPER	.
No. 585	CHEST DEPTH CALIPER	. .
No. 595	WET SPIROMETER	. . .
No. 595-6	WOOD MOUTH-PIECE, 1000	
No. 598-3	DYNAMOMETER FOR BACK AND LEGS	
No. 594	WALL PARALLEL	. . . .
No. 596	MANUOMETER	. . .

Total . . . . . .

List of apparatus recommended by the A. P. E. A. committee for public schools.

No. 591	STADIOMETER	. . . .
No. 590C	SCALE	. . . . .
No. 586	TAPE AND SPRING	. . .
No. 593	SHOULDER BREADTH CALIPER	.
No. 585	CHEST DEPTH CALIPER	. .
No. 595	WET SPIROMETER	. . .
No. 595-6	WOOD MOUTH-PIECE, 1000	

Total . . . . . .

ANTHROPOMETRIC CABINET.

Of oak, with glass front, arranged to hold a complete outfit, size 1¼ x 4 feet; provided with lock.

590-1 ANTHROPOMETRIC CABINET . .

Weight 75 lbs. Packed for Shipment.

No. 590-4 AMERICAN RED CROSS FIRST AID BOX. SCHOOL.

Directions telling how to use same are pasted on the inside of the lid.

Neatly and securely packed in a handsome white enameled case. The legend is lettered in red and blue, and box is fitted with hangers by which it may be attached to the wall.

Size, 18 x 11 x 3½ inches.

The box is thoroughly up-to-date and should be a part of the equipment of every school.

CONTENTS.

4 A. R. C. First Aid Outfits.
2 A. R. C. Large Aid Dressings.
2 1-yard packages Sterilized Gauze.
12 Assorted Gauze Bandages.
1 Tourniquet.
1 Tube Carbolated Petrolatum or Boric Acid Ointment.
4 Wooden Splints.
2 ¼-pound packages Absorbent Cotton.
1 Envelope A. R. C. Finger Dressings (6).
1 Envelope A. R. C. Small Dressings (3).
4 1-yard packages Picric Acid Gauze.
2 Iodine Containers.
1 2-oz. bottle Saturated Solution Boric Acid.
1 2-dram vial Olive Oil.
1 2-dram vial Oil of Cloves.
1 2-oz. bottle Jamaica Ginger.
1 Bottle Cascara Sagrada Tablets.
1 2-oz. bottle Aromatic Spirits of Ammonia.
12 Safety Pins.
1 Pair Scissors.
1 Pair Tweezers.
1 Roll Adhesive Plaster (1 inch by 5 yards).
1 Package Paper Drinking Cups.
12 Wooden Tongue Depressors.
1 Medicine Dropper.
1 Clinical Thermometer.
1 A. R. C. First Aid Text-Book, General Edition.
Culture Tubes (to be supplied by local Board of Health upon request).

Price on Application.

STANDARD
STEEL
LOCKERS

MADE BY

NARRAGANSETT MACHINE COMPANY

PROVIDENCE, R. I.

CHICAGO
1504 Monadnock Block

U. S. A.

NEW YORK
52 Vanderbilt Avenue
Room 1615

TWO-TIER STANDARD STEEL LOCKERS

List of Stock Sizes

STOCK SIZES					
Wide	Deep	High	Wide	Deep	High
12 in.	12 in.	36 in.	12 in.	12 in.	42 in.
12	15	36	12 in.	15 in.	42 in.

Prices will be quoted on application.
See page 10 and 11 for Locks.

SPECIFICATIONS

For Standard Steel Two-Tier Lockers

Lockers.—To be made for erection in Two-Tiers as shown on page 3.

Material.—Sheet Steel Sides, Backs, Tops and Bottoms; with edges folded and secured by bolts inside the lockers.

Doors.—To be any of the types shown on page 6, and provided with three-point bolts.

Hooks.—Two, japanned steel; special design.

Locks.—As selected (See page 10 and 11).

Legs.—Standard Pattern, adjustable.

Finish.—Black or Olive Green Baked Enamel that will not flake or scale.

Cabinets.—To average Ten or more lockers in each cabinet. Smaller cabinets at special prices.

Write for Prices.

STANDARD STEEL LOCKERS ARE FIRE-PROOF

STANDARD TWO-TIER LOCKERS
STYLE J
For other Styles see page 6.

ONE-TIER STANDARD STEEL LOCKERS

List of Stock Sizes

STOCK SIZES

Wide	Deep	High	Wide	Deep	High
12 in.	12 in.	60 in.	12 in.	18 in.	72 in.
12	15	60	15	15	72
12	18	60	15	18	72
12	12	72	18	18	72
12	15	72	18	24	72

Prices will be quoted on application.
See pages 10 and 11 for Locks.

SPECIFICATIONS.

For Standard Steel One-Tier Lockers

Lockers.—To be made for erection in One-Tier as shown on Page 3.

Material.—Sheet Steel Sides, Backs, Tops and Bottoms; with edges folded and secured by bolts inside the lockers.

Doors.—To be any of the types shown on page 6 and provided with three-point bolts.

Hooks.—Two, japanned steel; special design.

Shelf.—Steel Shelf supplied with each locker.

Locks.—As selected (See pages 10 and 11).

Legs.—Standard Pattern, adjustable.

Finish.—Black or Olive Green Baked Enamel that will not flake or scale.

Cabinets.—To average Five or more lockers in each cabinet. Smaller cabinets at special prices.

Write for Prices.

NOT A SAFE — BUT NEXT TO IT

STANDARD ONE-TIER LOCKERS
STYLE J

For other styles see page 6.

STANDARD STEEL DOORS

STYLE J

FULL PERFORATED

PLAIN

STYLE M

HALF PERFORATED

STYLE K

HALF LOUVRE

STYLE L

EXTRA STRONG

THREE QUARTER INCH ROLLED STEEL FRAME, FULL RIVETED, NO WELDS TO BREAK, ENDS AND SIDES FOLDED, NO SHARP CORNERS.

SHOWN WITH RIM LOCKS AND ALUMINUM NUMBER PLATES. OTHER LOCKS ON A SUCCEEDING PAGE.

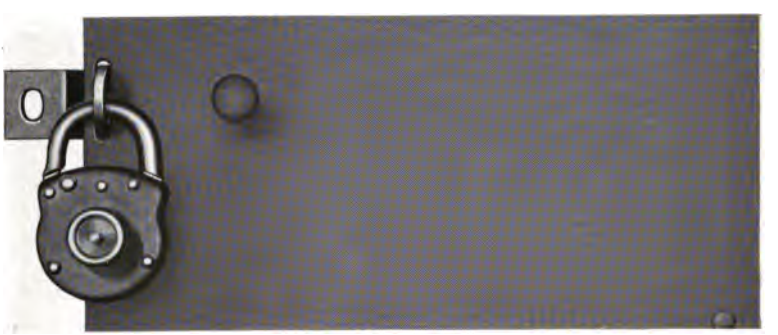
FINISH—DURABLE BLACK OR OLIVE GREEN BAKED ENAMEL.

FULL LOUVRE

STYLE P

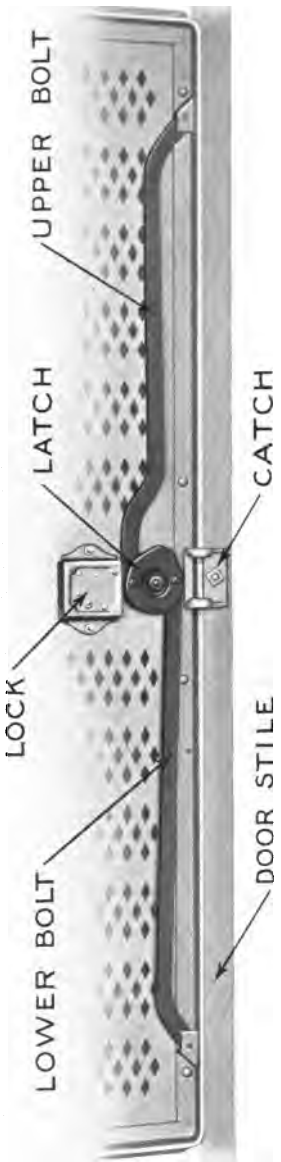
WITH RIM LOCK AND THREE BOLT KNOB

WITH PADLOCK AND THREE BOLT KNOB



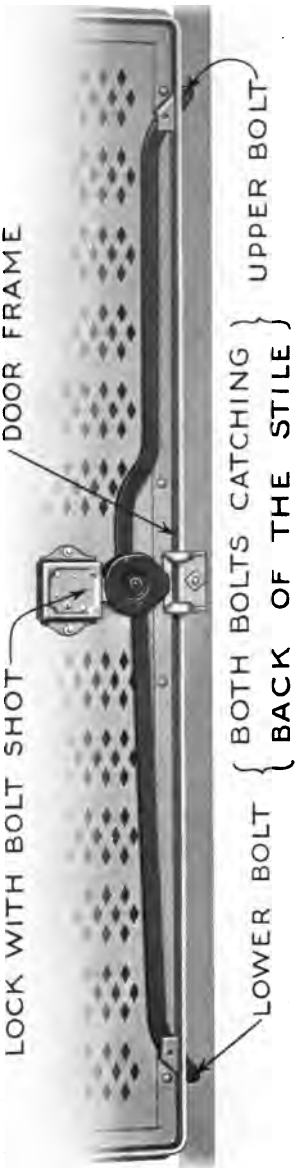
STEEL DOOR WITH PADLOCK ONLY

THE THREE BOLT LOCK

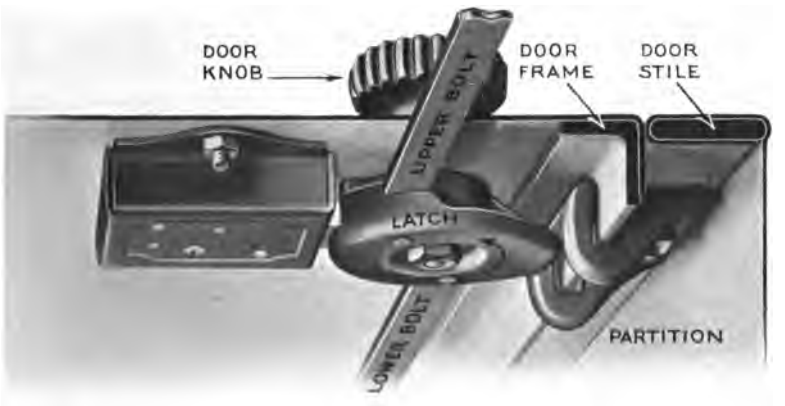


UNLOCKED

SECURITY



LOCKED



SECTION OF DOOR AND STILE

This section shows a STANDARD Locker Door and Stile cut off above the lock.

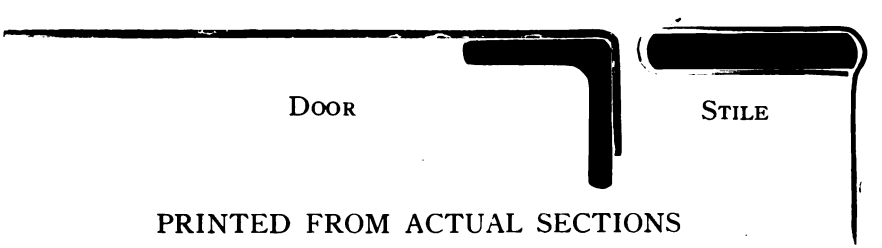
The Knob turns the Latch which engages with the hooked catch. The Lock prevents the rotation of the latch.

The Hooked Catch—Bolted to the door stile—hooks over the door frame preventing its being pried away and the latch released.

The opposite page shows the upper and lower bolts lapping the door stile near the ends of the door, preventing the door at these points from being pried open.

THE STANDARD IS
THE STRONGEST DOOR MADE
AND HAS
THE STRONGEST LOCKING DEVICE

All STANDARD Doors have the THREE BOLT LOCK.



PRINTED FROM ACTUAL SECTIONS

LOCKS

LOCK NO. 1

No. 1 Flat-Keyed Lock.

MASTERKEYED.

Size of Box, 1¾ x 1¾ inches. Steel case, brass bolt with ⅜-inch throw. Four brass tumblers with brass springs. 3,000 changes. Two German Silver flat keys each. All Locks numbered and keys registered.

No. 2 Flat-Keyed Lock.

MASTERKEYED

Size of Box, 2 x 2¼ inches. Steel case, brass bolt with $\frac{5}{16}$-inch throw. Seven brass tumblers with brass springs. 3,000 changes. Two German Silver flat keys each. All Locks numbered and keys registered.

LOCK NO. 2

LOCK NO. 3

No. 3 "Standard Time" Keyless Lock.

Size of Box, 2 x 2⅜ inches. Japanned steel case, brass bolt with $\frac{7}{16}$-inch throw. Nickel-plated dial with black letters, nickel-plated knob. Changes of combination made from back. Operated by either touch or sight. After a little practice, the dial is usually discarded.

PADLOCKS

LOCK NO. 4

No. 4

COMBINATION PADLOCK

Size 2 inches wide 3 inches long. Japanned steel case, malleable iron spring shackle. Nickel plated dial and knob. Operated by either touch or sight.

No. 5

COMBINATION PADLOCK

Size 2 inches wide 3 inches long. Japanned steel case. Blue steel, spring shackle and knob. Operates by touch.

LOCK NO. 5

LOCK NO. 6

No. 6 PADLOCK

MASTER-KEYED

Size 1½ inches wide. Japanned steel case Five secure levers, malleable iron spring shackle, self-locking. Two flat keys each. 1000 changes.

No. M68 STANDARD LOCKER HOOK

HOOKS

Each 12 inch wide Standard Locker is provided with two japanned Steel Three-Prong Hooks, specially designed to hold clothing without crowding.

15 inch wide Lockers have 3 Hooks.

TROUSERS RODS

A Wooden Rod held by the hooks at the sides. Trousers may be hung over or coat hangers on this rod. Price is for rods only.

No. 3410–31 12 INCH, TROUSERS ROD
No. 3410–32 15 INCH, TROUSERS ROD
No. 3410–33 18 INCH, TROUSERS ROD

COAT HANGER ROD

A Steel Rod with iron brackets, enameled; will hold coat hangers or trousers.

No. 3410–24 24 INCH COAT HANGER ROD

BENCHES

Iron Standards

The standards are strong castings, japanned. The benches are hard wood, natural finish, varnished. Top, 6 feet long, 7½ inches wide, 15 inches high.

Bench, with two iron standards

Prices for benches to fit spaces on application.

STOOLS

Suitable for Locker Rooms. They have a strong japanned iron base and thick oak top 11½ inches diameter, turned concave with beveled edge.

17-inch Stool, each

CLOTHING LOCKERS

For six people

Each Cabinet has—

One Large Locker 18 inches wide, 20 inches deep and 57 inches high, for coats and long clothing.

Six Small Lockers, 15 inches wide, 20 inches deep and 14 inches high, for hats, etc.

A Cabinet is 34 inches wide, 20 inches deep, and 6 feet high, (6½ feet on its legs), and will hold the clothing of six people. They are finished in durable Black or Green Baked Enamel.

The six locks on the small doors are all different, but any one of their keys will open the large door.

All locks are Master-keyed.

These Cabinets are designed for stores, offices and factories where many women are employed and space is limited.

No. 3514 CLOTHING LOCKER.

STEEL SHELVING

This cabinet is 63 inches wide, 27 inches deep and 72 inches high. The shelves are 31½ inches long and 10¼ inches apart. The legs raise the cabinet 4 inches making its total height 76 inches. Cabinets may have backs or center partitions or may be 13½ inches deep or 31½ inches long.*

*The unit of 31½ inches may be repeated to any length.

OTHER SIZES MADE TO ORDER

STANDARD SMALL LOCKER STYLE C

12 inches wide, 15 inches deep, 12 inches high.

With Rim Locks, can also be furnished with pad locks.

PATENTED

BASKET SHELVES

BASKET SHELVING

Steel shelves to take the place of Box Lockers.

When this plan is used the baskets are handed the users by an attendant with a key for a dressing locker. The plan is economical of space and secures the most complete control, but it is more costly of attendance.

This cabinet is 63 inches wide, 27 inches deep, 92½ inches high, (96½ in. on its legs) and will hold 108 baskets. Number plates are provided for every basket.

No. 3521, Single, holding 54 Baskets.

No. 3521A, Double, holding 108 Baskets.

A similar cabinet to the above on casters. Size 63 inches wide, 27 inches deep, 6 ft. high, (6 ft. 7 in. on casters), and will hold 84 baskets.

These cabinets are finished in durable black or Olive Green Enamel.

No. 3522, Basket Shelves on Casters.

BASKET SHELVES ON CASTERS

STEEL WARDROBE

With strong braced steel doors, finished in durable Black or Olive Green Baked Enamel.

Size, 36 inches wide, 18 inches deep, six feet high, (6½ ft. on legs).

No. 3512 Steel Wardrobe.

STEEL STORAGE CABINET

With strong braced steel doors, finished in durable Black or Olive Green Baked Enamel.

Size, 36 inches wide, 18 inches deep, six feet high, (6½ ft. on legs).

No. 3513 Steel Storage Cabinet.

The Box-Locker Plan

The essential features of this plan are the small Box or Storage Lockers permanently assigned to each member, and their convenient arrangement in connection with a series of lockers used as Dressing Lockers only, and the use of one padlock for both lockers.

An inner wire basket, in which to put the clothing and other articles, may be used if desired, but it is not an absolute necessity.

The plan preserves that feature of the present Locker System which provides a locker for each member, in which he can lock up his personal effects. It also permits a member to come and go without loss of time or the necessity of any increase of attendants.

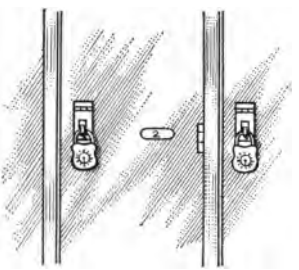
In common practice, a regular locker is actually used only from two to six hours per week, and is much larger than is needed for the Gymnasium Clothing that is stored in it the rest of the time, consequently space is wasted.

The Box Locker plan utilizes the small locker for the long time storage and the large locker for the short time storage. Thus it economizes the space required.

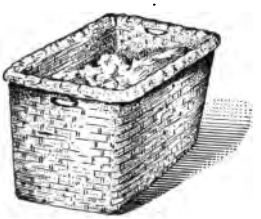
It lessens the cost of locker outfit; it adds nothing to the cost of attendants.

THE METHOD OF USING

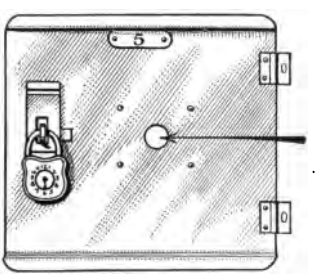
A member coming to exercise removes the padlock from the Box Locker assigned to him, takes out his basket containing his effects and carries it with his lock, to any Dressing Locker which happens to be vacant.



Dons his gym suit and locks the Dressing Locker with the lock brought from the Box Locker, leaving his outdoor clothing and basket safely locked up.

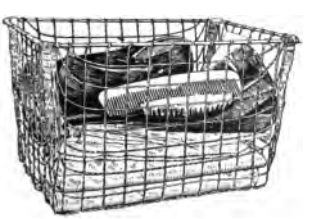


After exercising he returns to the Dressing Locker, dons his outdoor clothing, and puts his soiled gymnasium clothing and towel into the laundry hamper or shute.



Carries his shoes, and toilet articles in his basket and his lock to his Box Locker and locks it.

In doing so he automatically sets the "Use Signal."



The laundryman unlocks the Box Lockers in sections by a master locking lever lock, and puts the dry, clean, sterilized clothing in the basket, with clean towels—ready for the next time.

The Basket is 9 inches wide, 13 inches long and 8 inches deep.

Standard Box Lockers

The STANDARD BOX LOCKERS are built in cabinets six lockers high and of varying widths, generally not less than five lockers wide.

EACH LOCKER is one foot wide, fifteen inches deep and one foot high. They have sheet steel sides, backs and partitions.

THE DOORS are of steel and are secured by a padlock that is also used for the Dressing Locker. Each door has a "Use Signal," visible through a round hole in the centre, indicating when it has been opened by the lock.

A LOCKING LEVER operating the inside catches of all the doors and secured by a separate and different lock, is provided for the laundryman and emergencies.

CONSTRUCTION AND FINISH is the same as our Standard Lockers.

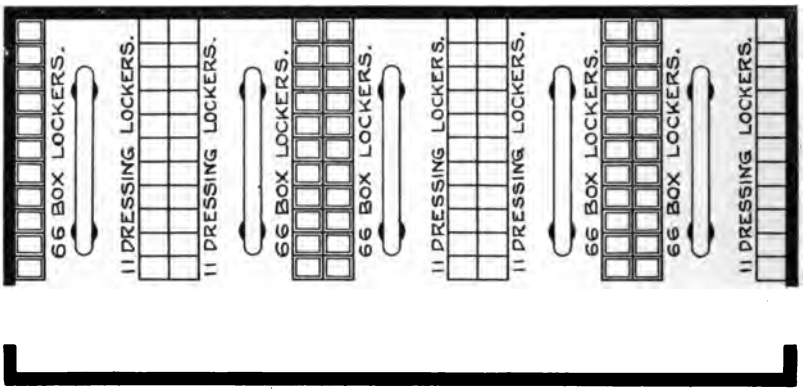
WRITE FOR PRICES AND DISCOUNTS.

STANDARD STEEL LOCKERS ARE FIRE-PROOF

STANDARD STYLE "A" BOX LOCKER

PATENTED

With Padlocks and Master Locking Lever



330 LOCKERS AND 55 DRESSING LOCKERS. A RATIO OF 6 TO 1.
THIS SPACE WOULD ACCOMMODATE
110 ORDINARY ONE-TIER LOCKERS—220 TWO-TIER.

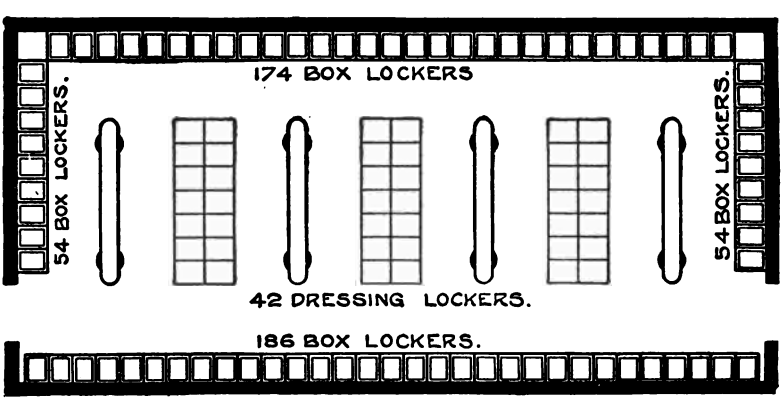
ARRANGEMENT OF BOX LOCKERS

We show on this page two arrangements of Box and Dressing Lockers. In this 15 x 32 room (480 sq. ft.) are shown locker and dressing facilities for 330 and 468 members or from 1½ to 1 square foot of floor surface per member with one tier lockers. Boys could use two tier lockers and double the dressing capacity, or reduce the ratio to 3 or 4½ Box Lockers to each Dressing Locker.

The ratio is the key to the arrangement. Of the membership how many attend at one time? When this is determined the rest is easy.

The figures under the plans show that the Box Locker Plan will effect a saving of from ⅓ to ¼ in locker room space.

We will be pleased to make special plans showing the arrangement of Box and Dressing Lockers in your rooms.



468 BOX LOCKERS AND 42 DRESSING LOCKERS. A RATIO OF 9 TO 1.
THIS SPACE WOULD ACCOMMODATE
120 ORDINARY ONE-TIER LOCKERS—240 TWO-TIER

STANDARD BOX LOCKERS IN BOSTON YOUNG MEN'S CHRISTIAN ASSOCIATION

STANDARD STEEL LOCKERS

GYMNASIUM CONSTRUCTION

NARRAGANSETT MACHINE CO.

PROVIDENCE, R. I., U. S. A.

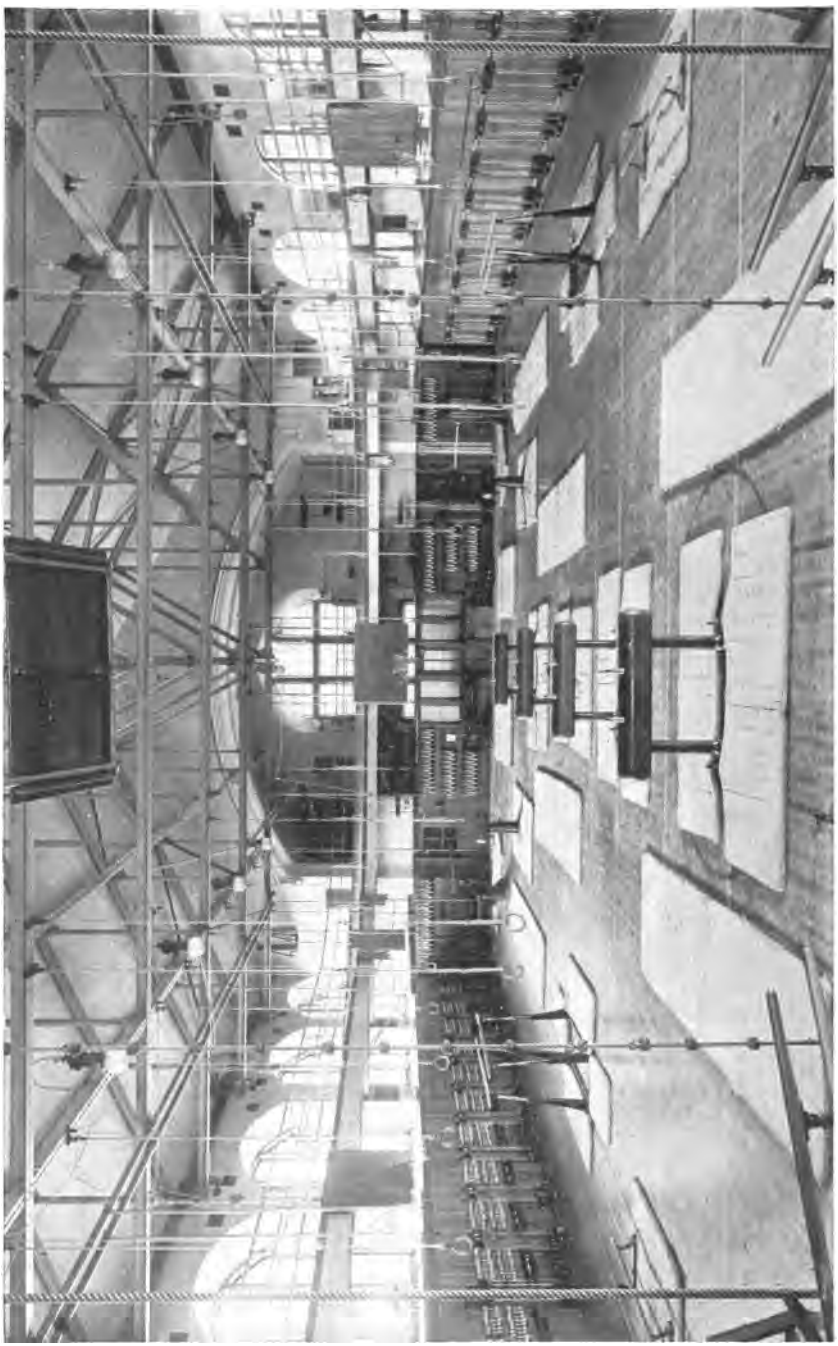
CHICAGO
1504 MONADNOCK BLOCK

NEW YORK
52 VANDERBILT AVE.

FOREWORD

GYMNASTIC apparatus has probably been installed in every type of building, from the basement of a dwelling to a most spacious armory. In many of these improvised gymnasia, the apparatus is installed and used under most severe difficulties, due to the inappropriate structural features of the building. These limitations should not be tolerated in a building designed as a gymnasium. Any style of exterior architecture may be used, but if wholly successful results are to follow, the inside structural details should be arranged to allow the most advantageous use of gymnastic equipment.

It is the particular purpose of this presentation to show the principles of construction which harmonize with equipment requirements, and to outline, in general, various other essential building features.



COLLEGE OF THE CITY OF NEW YORK GYMNASIUM.

SCOPE.

The planning of a building, to be used exclusively or in part for modern physical training, should be preceded by a careful study of the following subjects:

I. Main Gymnasium.
II. Running Track.
III. Auxiliary Exercise and Game Rooms.
  A. Special Exercise Room.
  B. Storage Room.
  C. Wrestling, Boxing and Fencing.
  D. Hand Ball Courts.
IV. Department Offices.
  A. General Office.
  B. Director's Private Office.
  C. Examination Room.
  D. Club and Library Room.
V. Locker Rooms.
  A. Division of Locker Space.
  B. Various Locker Systems.
  C. Standard Locker Sizes.
  D. Women's Dressing Rooms.
VI. Baths.
  A. General Requirements.
  B. Women's Special Requirements.
VII. Natatorium.
VIII. Toilet Rooms.

GENERAL ARRANGEMENT.

No fixed rule can be established for the arrangement and relation of various rooms and facilities. Accessibility, proximity, correlation and supervision for related activities are essential. As each building presents its own peculiar possibilities and limitations, a careful study and analysis of each plant is necessary.

The following general relationships, however, are advisable:

The locker rooms should be as close as possible to the gymnasium. Necessary connecting passage ways should be short and convenient.

The bath rooms should open from the locker rooms, serving, if possible, as the passageway between the locker rooms and natatorium. Under no circumstances, should there be baths in the natatorium. The bath and locker rooms and natatorium should be on the same floor. The main gymnasium, auxiliary exercise rooms and the Director's offices should all be on one floor. All rooms should have all the light, sunshine and ventilation possible.

A gymnasium building, or physical department, combining the following structural details will fulfill the wide range of modern requirements and avoid the ordinary faults.

I. MAIN GYMNASIUM.

The acknowledged importance of physical education demands an attractive main exercising room of adequate size and proportion. It should have ample natural light and ventilation. It should be free from all obstructions, such as supporting columns, pilasters, low windows and radiators, projecting ventilation conduits, etc. Such stairways, sliding poles, etc., as may be necessary, should be located in the corners of the room, and all doors should be made to open outward.

SIZE. A careful survey of capacity requirements should precede the determination of the gymnasium room size. There should be an allowance of fifty square feet of floor space for each individual. Any smaller allotment will be found inadequate for all recognized forms of gymnasium activity.

SHAPE. The shape of the room should be rectangular. The relation of width to length should be approximately three to five. This ratio applies to rooms of all sizes, up to girder span limits in width, after which point the length may be arbitrarily extended.

HEIGHTS. Modern requirements in physical education and scientific mechanical developments have standardized the design and construction of gymnastic apparatus. Unless the gymnasium is planned to harmonize with these fixed requirements, the efficiency of the equipment will suffer proportionately. It is therefore, essential that the following height limitations be observed: (See Fig. 1.)

Height from floor to under side of ceiling beams or girders should be not less than 18 feet and not more than 22 feet.

When building construction compels a girder height in excess of 22 feet above the floor, expensive and unsightly suspended pipe frames are necessary to afford attachment for suspended apparatus.

The height from the floor to the under side of galleries or tracks should not be less than 10 feet and not more than 12 feet. Any departure from this height range means a corresponding loss of efficiency in that part of the equipment which of necessity must be located under, or attached to such galleries or tracks.

The height from the floor *to center* of apparatus wall board (hereinafter described) should be exactly 5 feet. Any variation in this measurement involves delay and limited results in an important class of equipment.

Height from floor to window sills should be at least 5 feet 6 inches. This is minimum; 8 feet is preferable. The lower sills of windows located on track or gallery levels should be not less than 3 feet above the highest point of the track bank.

Exposed radiators, heating coils, ventilating conduits, etc., should be at least 8 feet above the floor.

Height to top of wood wainscoting should be not less than 5 feet 6 inches; 6 to 8 feet is preferable. (See Fig. 2.)

FLOOR. Because of heavy loads and vibration resulting from concerted running and jumping, it is highly advisable to see that the gymnasium floor is extraordinarily strong and durable. If there is moisture or dampness, (from baths or natatorium) rising from the story below the gymnasium, the floor should be very carefully water-proofed against such moisture. This is particularly important if the floor is below grade with no story or rooms between same and the ground. If the latter situation cannot be avoided, a liberal system of tile drainage should be laid in the ground under such floor, and additional lines of drain tile should be carried around outside of the foundation walls. Serious trouble has resulted through the lack of proper attention to this important detail. Sound proofing should also receive attention, if gymnasium noise is to be minimized.

Fig. 1. **Correct Gymnasium Heights.** Other features shown illustrate various standard requirements.

If the supporting or sub-floor is concrete, the top nailing strips or sleepers should be spaced not more than 16 inches center to center; 10 to 14-inch spacing will be found better. Such sleepers should be wire tied to the concrete floor to prevent buckling, and to provide necessary resistance against a vertical lifting tension exerted by some pieces of gymnastic apparatus.

Before the finished floor is laid, a rough board floor of pine or other suitable, well-seasoned lumber should be securely nailed to the sleepers or joists. This rough floor should be laid diagonally. The top or finished floor should consist of high grade standard rock maple, blind bored and end matched. It should be clear and straight-grained and laid lengthwise over building paper. There are other possible top floor materials, but they involve doubtful factors and cannot be recommended. If the above so-called double floor is not used, the single or top floor should be at least 1 1-2 inch thick and the ends of all pieces of flooring should "break" directly over the centers of sleepers or joists. An ordinary 7-8 inch single floor is inadvisable as it does not leave sufficient stock for screw holds after necessary apparatus floor plates are countersunk or set flush with the top of the floor.

After all other work in the gymnasium is finished, the floor should be sanded or scraped smooth and clean, and a light coat of raw linseed oil applied. Best results are secured if the oil is put on at or near the boiling point. To accomplish this, a good-sized metal pail or can and a small portable oil stove will be found convenient. The oil should be brushed on with the grain of the floor (in 10 or 12-foot square areas at a time) and the surplus rubbed off before it gets cold. In a prominent gymnasium recently built, excellent results were secured by immersing in hot oil (and well rubbing) each separate piece of flooring. The oil was placed in a narrow "V-shaped" metal trough and heated by gas flames rising from a perforated horizontal pipe under same.

For keeping a properly finished floor in good condition, cleanliness is the first essential. Frequent polishing by means of a weighted, rough carpet covered box is effective. It should never be scrubbed with soap and water. Any floor treatment producing a highly polished, slippery finish, is dangerous in a gymnasium and should be carefully avoided.

WALLS. Gymnasium wall material and construction should be determined from the standpoint of requirements for attachment of apparatus, durability and smoothness of interior finish. Any solid wall construction, such as ordinary brick, concrete, or heavy studding (frame construction) fulfills the demands for apparatus attachment. Tile and all forms of hollow construction are not satisfactory. This applies to partition as well as to outside walls. The inside wall finish to a height of at least 6 or 8 feet above the finished floor should be hard, solid, and smooth. Hard pressed or glazed brick (light color preferable) are ideal for this purpose. Smooth cement and wood wainscoting on solid wall backing are satisfactory. Ordinary lath and plaster will not stand gymnasium requirements and should never be used. If the wood wainscoting is preferred it will not be strong enough for the requirements of apparatus attachment unless securely anchored to the wall. Necessary

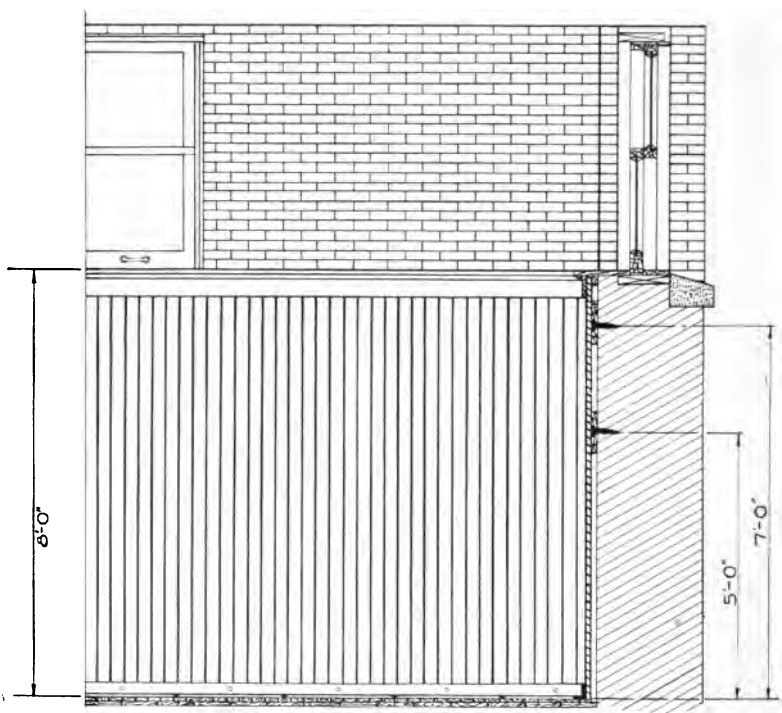


Fig 2. **Wainscoted Wall.** Special wall attachment is required to provide necessary strength. Note double floor construction and angle iron base.

strength for this purpose is probably best secured by first bolting at 4-foot intervals, (not nailing) extra heavy grounds direct to the wall. One of these grounds should be 7 or 8 inches wide and should be set exactly 5 feet to center above the finished floor. Such a ground will take the place of an exposed apparatus or wall board. If the wainscoting extends to a height of 7 feet 6 inches or more, there should be another 6-inch ground bolted to the wall, 7 feet to center above the floor. Such attached wainscoting will prove very serviceable. (See Fig. 2.)

For interior walls of any finish, except the above described wainscoting, an apparatus wall board 8 inches wide by 1 1-4 to 1 1-2 inches thick, located 5 feet to center above the finished floor, should be provided. It should extend entirely around the room, and must be securely bolted to the wall. Anchor bolts should be spaced at intervals of from 3 to 4 feet. The heads of bolts should be flush with the face of the board. (See Fig. 3.)

In view of the weight and necessary design of iron bases for portable apparatus, the use of an ordinary wood base or wash board is not advisable. As such iron bases will chip and cut out even brick and cement, a 1-4 inch by 3 to 4-inch metal base strip (extending all around the room) is recommended (See Fig. 3.) A 2 by 4-inch angle iron produces a neater and more sanitary corner. The lower or horizontal leg of the angle should not exceed 2 inches (see Fig. 2).

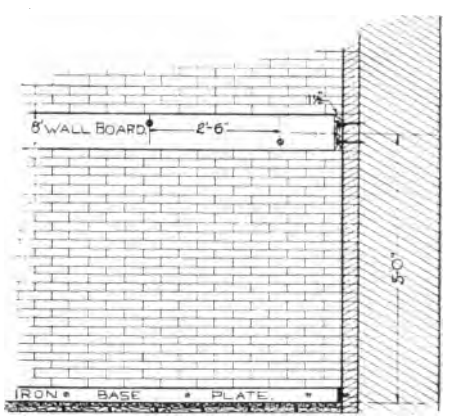


Fig. 3. **Apparatus Wall Board.** A flat iron base plate serves the same purposes as the angle iron base.

WINDOWS, and OTHER WALL INTERRUPTIONS.

With all due regard for the need of ample natural light and ventilation, gymnasium windows should be located with reference to apparatus requirements. From the standpoint of gymnasium needs, there is no demand for windows lower than 6 feet from the floor to the lower sill. In fact, windows lower than this are a detriment. They require heavier than ordinary wire guard protection, produce objectionable glare from sunlight and cause dangerous drafts when opened for ventilating purposes. Besides, they constitute a limitation to the proper placing of wall apparatus. For gymnasia having running tracks from 10 feet to 12 feet above the floor, a clear wall height of 8 feet from floor to window sills fulfills all apparatus requirements and leaves an available window area of from 2 to 4 feet below the track. This, in addition to the unrestricted window area above the track level, has proven adequate and is recognized as best practice. For gymnasia without running tracks or galleries, there is a greater opportunity for proper window arrangement in keeping with apparatus requirements as above stated.

The one exception to this window height rule is the window between the Physical Director's office and the gymnasium floor. This window should be low enough to give the Director a view of the gymnasium floor while seated at his desk.

All gymnasium windows require removable wire screens or guards. The closer the window are to the floor, the heavier the screens must be. If possible, guards should be so made and attached as to permit the opening of windows without removing or opening the screens. Unless windows are kept 8 feet above the floor, there will be difficulty in operating both windows and screens behind such wall apparatus as Stall Bars.

If sufficient light and ventilation cannot be obtained from windows, the possibility of skylights should be considered. If overhead light is necessary, the monitor type of roof is preferable, as it produces less glare and heat than flat skylights.

There should be no more doors in a gymnasium than necessary, and so far as possible, they should be made to swing out rather than into the room.

A most excellent sanitary development is the practice of installing a drinking fountain and one or more fountain cuspidors. Such fixtures should be of the recessed wall type and should be located close to, or in

the corners of the room. As a rule one drinking fountain is sufficient, but it is advisable to have a cuspidor at each end of the gymnasium.

If electric switch cabinets and similar wall obstructions cannot be avoided, they should be recessed and kept as close as possible to the corners of the room. The corners of wall projections—such as pilasters, doorways, etc., should have a generous round.

Wall radiators and heating coils should be so installed as to leave all walls clear to a point at least 6 feet above the floor; 8 feet would be better. Radiators should not be set on the floor unless recessed (preferably under windows). For such recesses, strong guards should be provided to prevent accidental contract. Radiators or coils attached to the under side of gallery are satisfactory, but they should be kept high enough to afford ample clearance for gymnastic activities. All exposed steam risers should be well covered and protected to a height of at least 6 feet above the floor.

The above wall restrictions for radiators apply also to outlets and conduits for ventilating purposes. However, flush ventilator grills are not objectionable if they do not extend lower than 6 or 8 inches, or higher than 4 feet above the floor. Regardless of the necessity for ventilation and plenty of it, there is no good place in a gymnasium for large exposed conduits.

The gymnasium should be kept at a temperature of between 65 and 70 degrees F. During exercises of extreme activity, the lower temperature will be found preferable. The question of heating and ventilating systems should receive very careful consideration. Both are technical subjects and should be so treated by specialists in these lines.

The subject of wall construction and interior finish has been thus detailed in the hope that it may lead to a clearer appreciation of a frequently misunderstood or neglected phase of gymnasium construction. Although most wall apparatus attachments occur in a zone or area of from 5 to 8 feet above the floor, the construction should permit attachment at any point. Some of the pieces of regular equipment requiring wall attachment at points higher than 8 feet are:

Swinging (or wall-hinged) booms, depending on type, 8 ft. 8in. to 9 ft. 5 in. above floor.

Striking Bag Drum, 8 feet 4 inches.
Triplex Pulley Weights, 10 to 12 feet.
Intercostal Chest Weights, 10 to 12 feet.
Adjustable Ladders, 15 feet.
Volley Ball Net Cleats, 8 ft. 6 inches.
Backstops for Basket Ball Goals, 9 ft. and 13 ft. above floor.

Furthermore, pulleys of various shapes and sizes for controlling and hoisting suspended apparatus must be attached to the walls at heights corresponding to points of attachment for such apparatus. A change of Physical Directors or the inauguration of a new policy may require the installation of a type or quantity of equipment not anticipated at the time the gymnasium is built. It is therefore advisable to so construct the walls that they will meet attachment requirements at any point or height.

CEILINGS AND OVERHEAD BEAMS. The following consideration is intended to cover ceilings and beams only in their relation to the requirements for the attachment of suspended apparatus. No gymnasium, however beautiful, symmetrical or otherwise well appointed, can be a success unless the overhead construction provides necessary facilities for apparatus attachment. Ceilings, like walls, should be kept free from all obstructions such as ventilating conduits, radiation, or other extensive pipe systems. Most types of ordinary overhead construction, flat ceiling or beams (spaced not more than approximately 18 feet apart) fulfill or can be adapted to gymnasium requirements. If expensive suspended pipe frames are to be avoided, it is necessary FIRST to see that the beams, or points of attachment for suspended apparatus, are not too high above the floor, (see Fig. 1.) and SECOND, that they are horizontal in extent (i.e.parallel to the floor), and have a *common level.*

All forms of overhead construction are divided into two classes: first those which do not require advance or special preparation for apparatus attachment, and second, those which DO. The following types constitute the FIRST CLASS.

A. Open to the roof-trusses, or girders, (steel or wood) spaced not more than 18 feet apart and not fireproof or otherwise enclosed. In overhead construction of this kind, the lower members of trusses (and "deep" girders) must be well sway braced. (See Figs. 4 and 7)

Fig. 4. **An Example of Ideal Interior Construction.**
Note longitudinal beams connecting and stiffening trusses.

B. Wood or plastered ceilings (attached *direct* to wood joists) with projecting, uncovered cross beams. (See Fig. 5).

C. Flat (wood or plastered) ceilings having no projecting beams or girders,—provided such ceilings are attached *direct* to cross beams and reasonably heavy wood joists.

The expression "attached *direct* to beams or wood joists" is used in connection with above ceilings "B" and "C" to direct attention to the necessity for such ceiling construction as compared to false or suspended ceilings which cannot be used for apparatus attachment.

The above types of construction need no advance or special provision provided proper height and common level requirements have been fulfilled. Attachment clips and fittings for "open" steel beams are shown in Fig. 6.

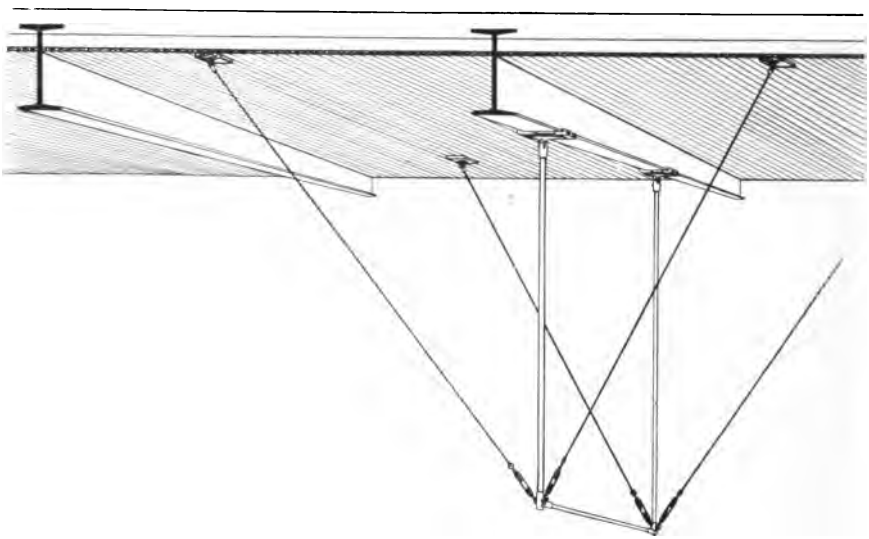


Fig. 5. **A Good Type of Overhead Construction.** Exposed beams greatly simplify the attachment of suspended apparatus.

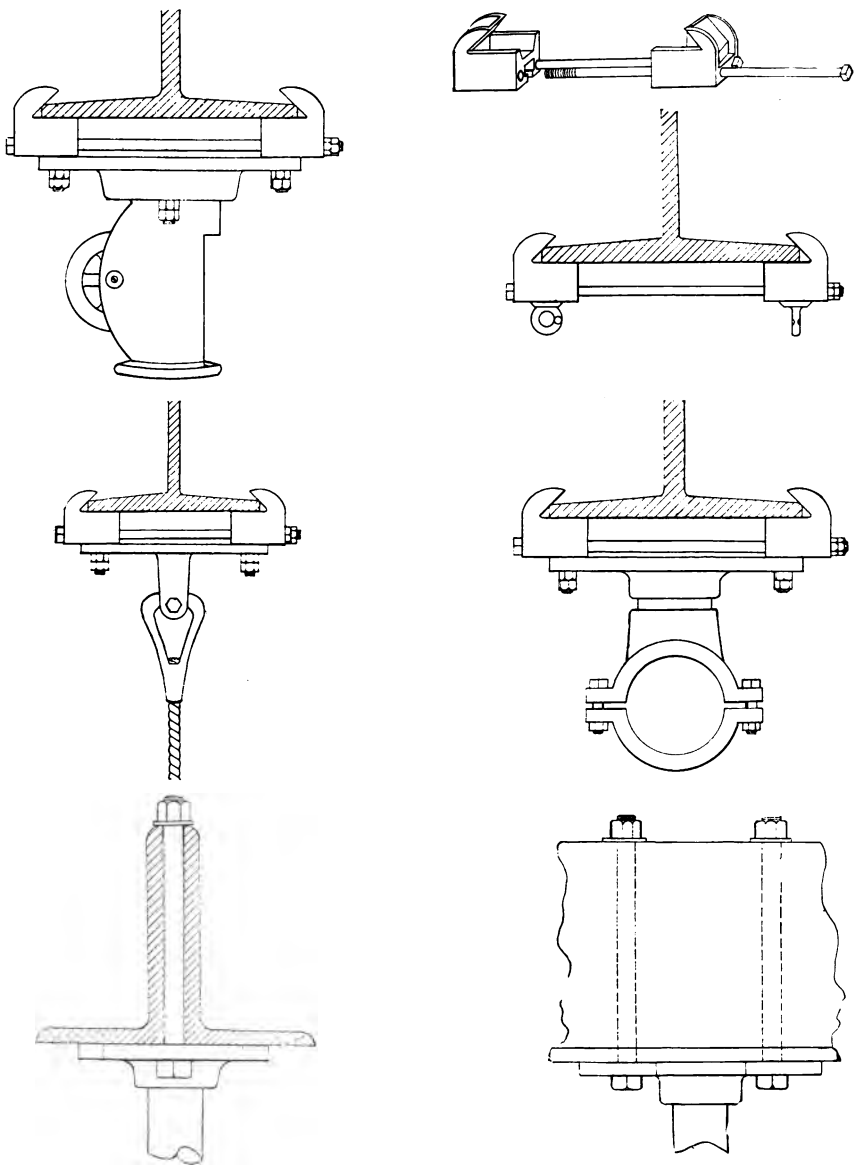


Fig. 6. **A Few Standard Beam Fittings.** For exposed beams of ordinary size and construction, the clamp principle is the safest and simplest. We carry a large variety of malleable iron clamps and fixtures.

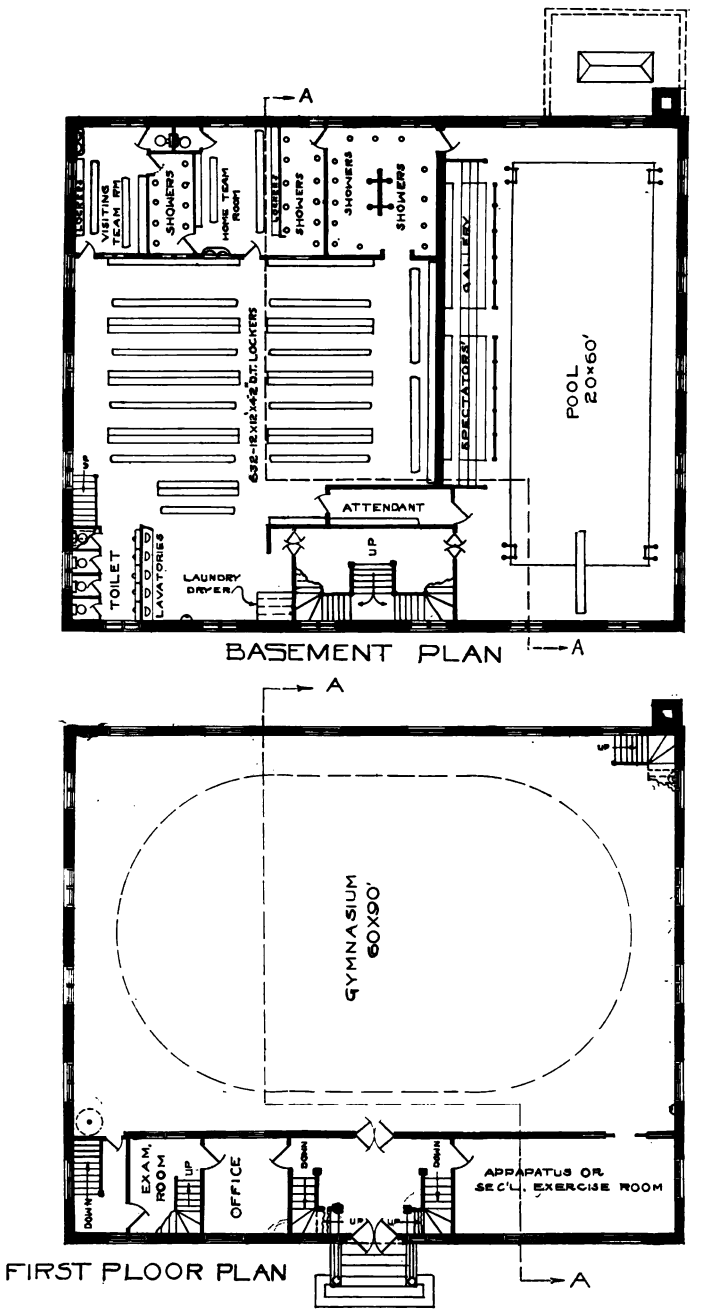
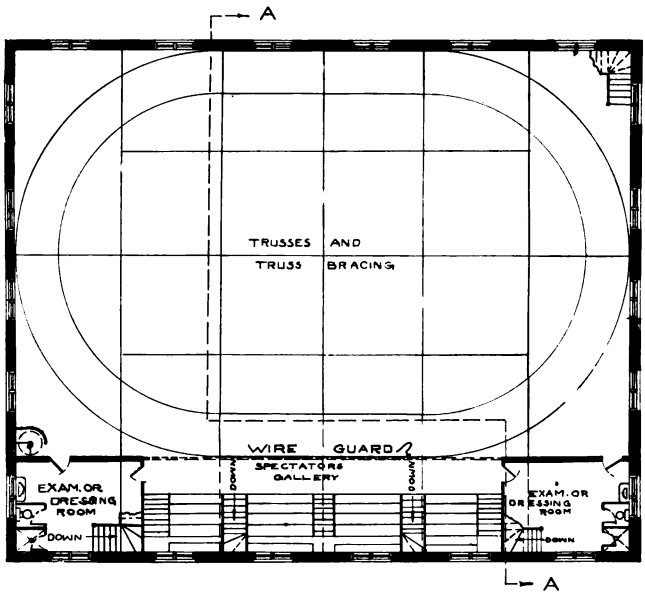


Fig. 7A. Building Outline Showing a Gymnasium for Men and Boys.



TRACK FLOOR PLAN

SECTION -A-A-

Fig. 7B. Suitable for small schools and colleges. The proportions and principles here illustrated will permit of expansion for requirements of greater size.

SECOND CLASS. The following forms of overhead construction involve difficulties of more or less gravity unless treated as hereafter suggested.

A. 1—Fire proofed (or otherwise enclosed), and reinforced concrete beams, projecting below ceiling level. To provide for apparatus attachment at any point on beams of this type, a standard 3-inch pipe or corresponding beam should be carried under each enclosed girder from wall to wall, or between gallery supporting rods if such rods intervene. For the treatment of such beams, (between 18 and 22 feet above the gymnasium floor), see Figs. 8 and 9.

2—If the height to girders is more than 22 feet, the attachment pipes must be suspended to a point not exceeding that height. In such cases, the suspended pipe frame must be securely sway braced by longitudinal pipe lines, or corresponding provision. (See Fig. 10).

3—If the height under beams is *less* than 18 feet, suspended apparatus should be attached to the ceiling. Unless such ceiling is attached direct to reasonably heavy wood joists, provision should be made *during construction* for carrying a 3-inch pipe or other exposed apparatus beam, from wall to wall. (See Fig. 11).

B. 1—Flat, or irregular, fire-proofed or concrete ceilings should be provided with hangers or inserts to support 3-inch cross pipes or beams (from wall to wall). Such attachment beams should be spaced from 15 to 18 feet apart. (See Fig. 12).

2—If the height to such ceiling exceeds 22 feet, provision should be made during construction for suspending a pipe attachment frame as indicated above under A-2. (See also Fig. 10).

C. False or suspended ceilings (having no projecting beams) cannot be used at all. Apparatus must be carried by a pipe frame or gridiron suspended from trusses or girders *above* such suspended ceiling. The pipe frame requirements are the same as shown in Fig. 10. In this type of construction all horizontal lines of pipe in the gridiron should be extended to walls and otherwise very carefully sway braced to prevent movement in any direction.

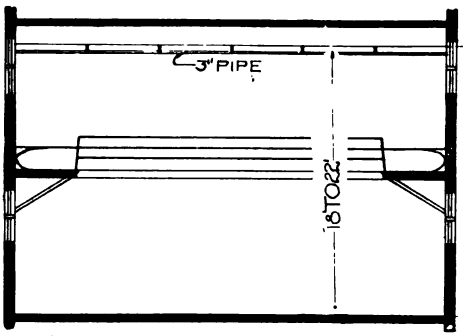
D. In double gallery construction (see Fig. 13) a suspended pipe gridiron is imperative. All horizontal lines of the pipe frame should extend and be attached to the face of the track or upper gallery.

Arched and sloping ceilings, beams or trusses involve unwarranted complication and should be avoided in gymnasium construction. Trusses having lower members composed of round tie rods or bars cannot be used for apparatus attachment.

The size of pipe used for apparatus attachment is uniformly standard 3-inch.

(We furnish, without charge, specific pipe frame plans or directions for locating pipe hangers or inserts, on receipt of architect's plans showing necessary structural data).

ARTIFICIAL LIGHTING. Experience to date suggests tungsten or nitrogen lamps, single or in clusters. As most suspended apparatus must be attached to the beams, the under side or lower flange of same should, therefore, be kept free from electric lights and conduits. The most desirable location for lights is on the ceiling *between* the beams, where they offer least obstruction and can be best protected by strong, hinged or detachable guards. Lights under the gallery should, if possible, be recessed into the under gallery ceiling or placed directly behind the gallery face. (See Figs. 17, 18 and 19),



If the ceiling beams are concrete, fireproofed or otherwise enclosed, an apparatus pipe (standard 3 in.) beam, as here shown, should be attached to each girder. There should be a space of 2 in. between the top of the pipe and the bottom of the beam. Inserts (indicated by "X") for attaching such pipe beams should be placed during building construction. All attachment fittings should be malleable iron or mild steel. An assortment of our stock fittings is shown in Fig. 9.

In buildings having flat concrete or false ceilings, without projecting girders, the same pipe beams plan should be provided.

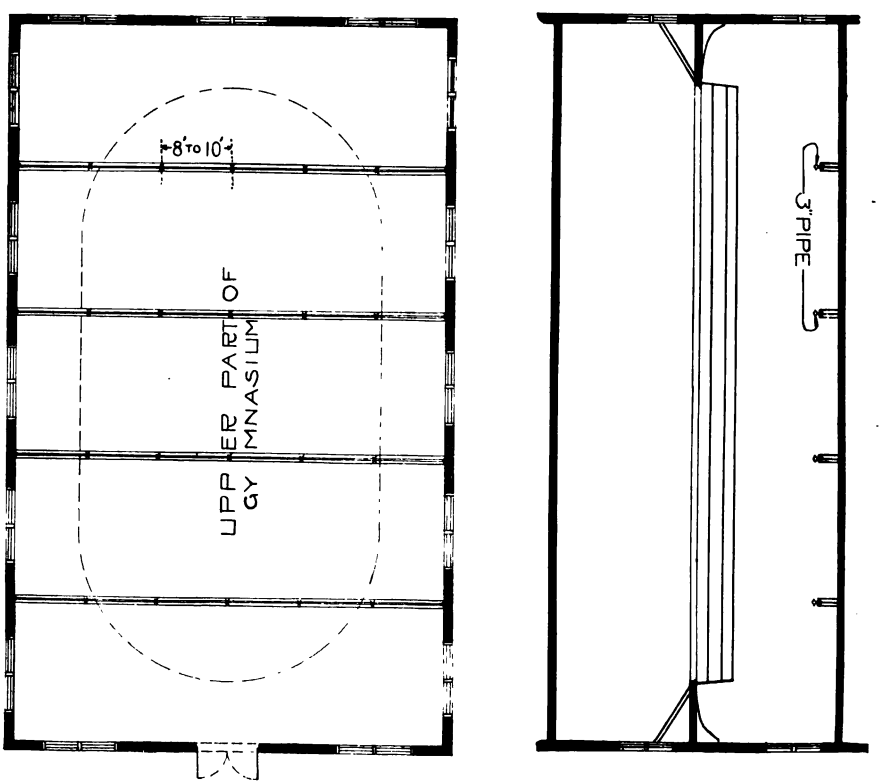


Fig. 8. **Typical Situation. Pipe Beams for Attaching Suspended Apparatus.** These sketches represent a building in which the ceiling beam height is correct; for incorrect beam heights, see following sketches:

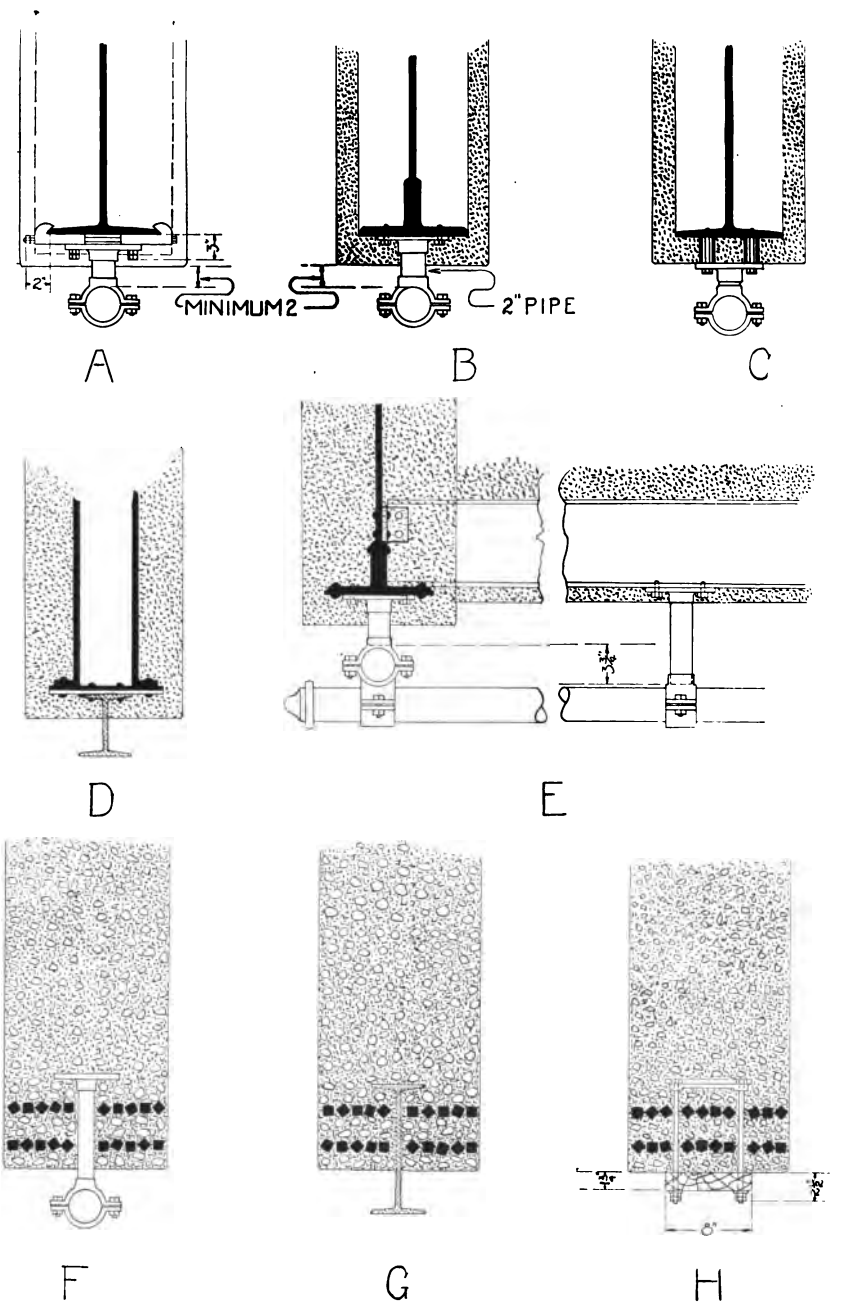
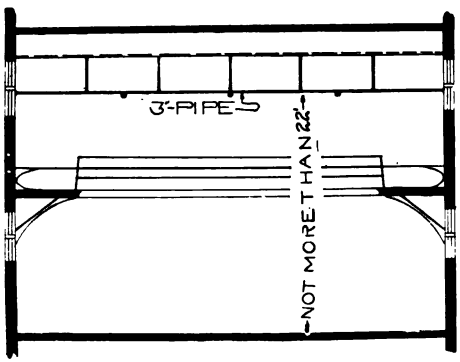


Fig. 9. Standard Fittings and Methods recommended for attaching apparatus beams to concrete and enclosed girders.



If space between girders exceeds 18 ft., intermediate pipe frame supports (indicated on plan sketch as "A") are necessary.

For method of attaching longitudinal sway-bracing pipes to cross-wise pipes, see sketch "E" Fig. 9. If girders are concrete, fireproofed or otherwise enclosed inserts ("X") should be placed during building construction. For standard attachment fittings, see Fig. 6 and 9.

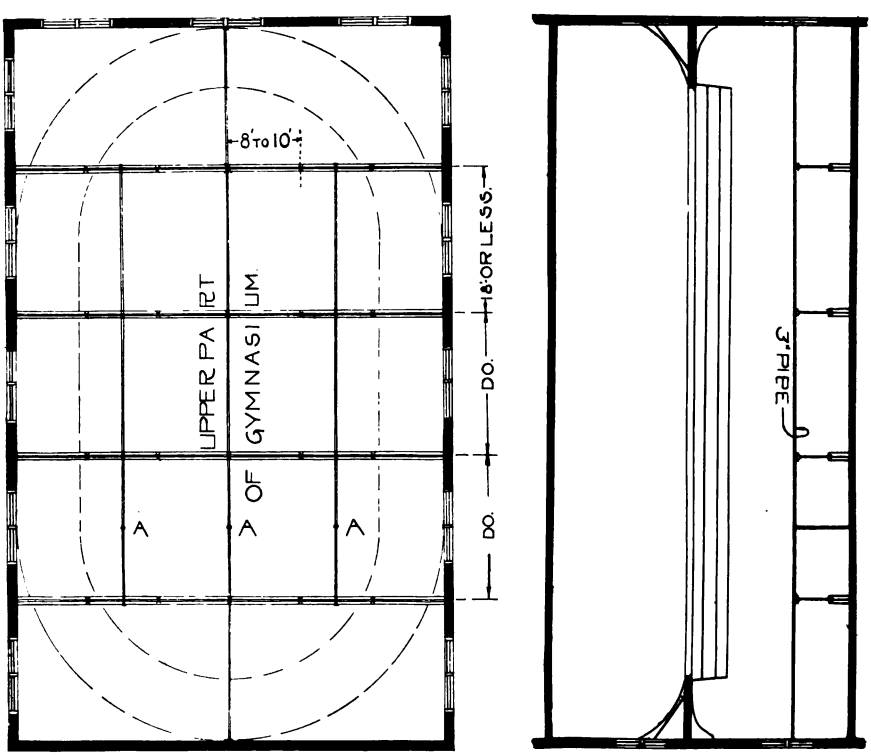
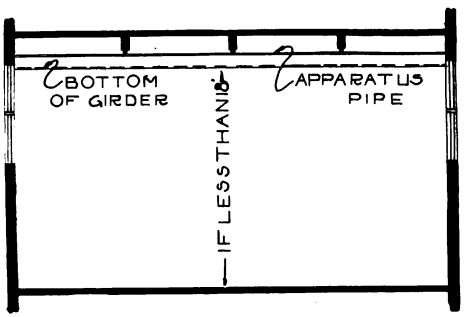


Fig. 10. Typical Apparatus Pipe Frame as applied to a Gymnasium in which the ceiling girders exceed the allowable maximum height for suspended apparatus.



In this case the girders are lower than permissible for suspended equipment. Apparatus pipe indicated as "A" or other beams (see Fig. 9) attached to higher beams or direct to the ceiling, are suggested to avoid the low girder limitations. If the beams to which apparatus pipe is to be attached, are concrete or enclosed, inserts for pipe support should be placed during building construction; this provision applies also if the apparatus pipe is to be attached to a flat ceiling in the event that such ceiling is concrete.

Inserts or hangers for supporting pipe beams should be spaced from 8 ft. to 10 ft. apart. All such attachment fittings should be malleable iron or mild steel. Various Standard fixtures are shown in Figs. 6 and 9.

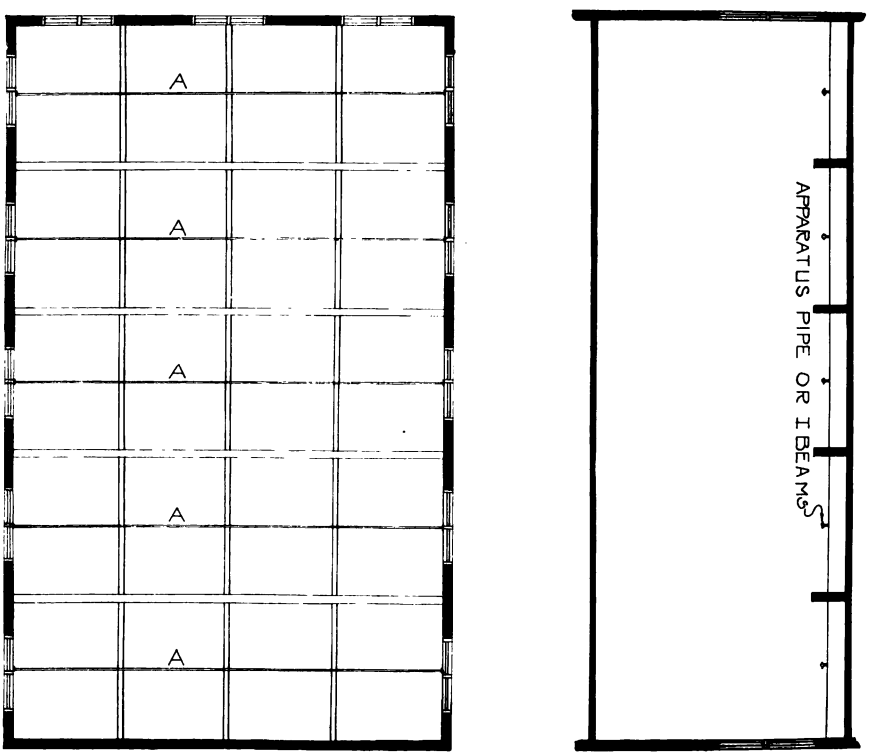
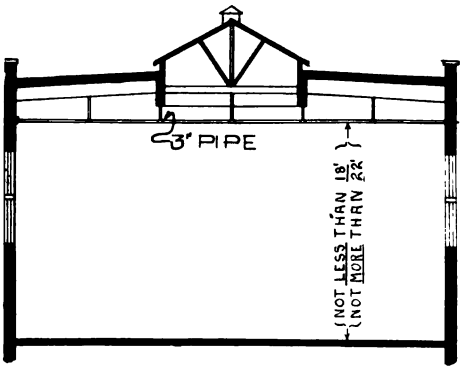
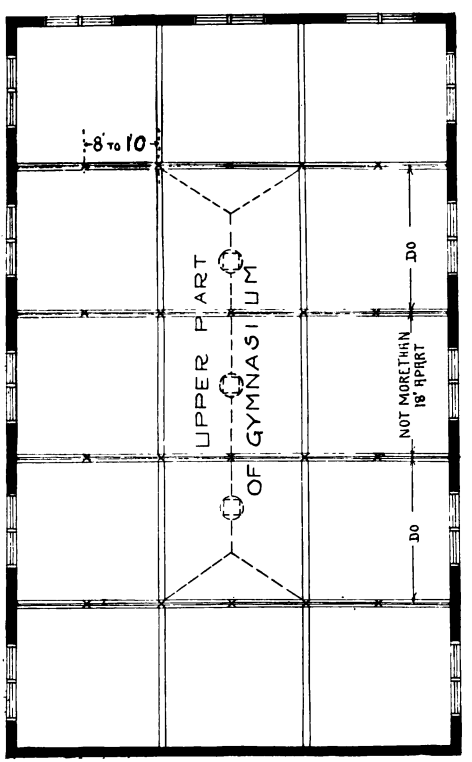


Fig. 11. **Low Girders.** A Condition Common to Many Basement Gymnasia. The above situation is the opposite of that shown in Fig. 10. The apparatus beam plan here shown would be necessary, also in a room having flat concrete or false ceiling without projecting girders.



If the overhead construction is concrete or fireproof, the inserts ("X") for supporting apparatus pipe, should be placed during construction. Such insert fixtures should be malleable iron or mild steel. For illustrations of our stock fixtures, see Figs. 6 and 9. In situations as here represented, several lines of longitudinal sway-bracing pipes (as in Fig. 10) or their equivalent, should be provided.



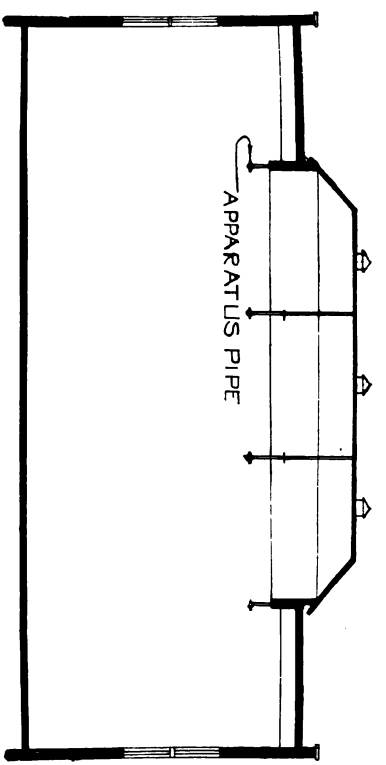
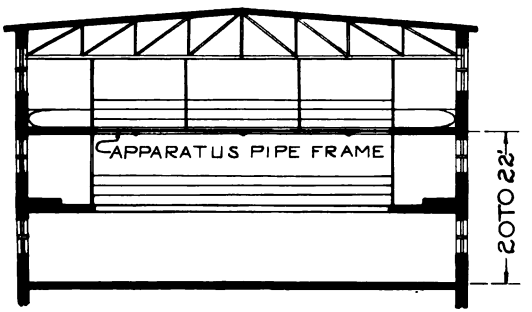


Fig. 12. **Apparatus Pipe Beams for Irregular or Sloping Overhead Construction.** There should be no slope or "pitch" to gymnasium ceiling girders. If this type of construction cannot be avoided, auxiliary beams for suspended apparatus, are imperative. This requirement applies also to sloping or irregular ceilings from which there are no projecting girders.



The drop or vertical pipes, by which the suspended frame is secured to the overhead construction, should consist of standard 2-in. pipe.

The longitudinal lines are clamped to and below the cross pipe lines. For standard fittings and details, see sketch "E" Fig. 9. If the truss or girder spacings exceed 18 ft. intermediate supports ("A") are necessary for all longitudinal lines.

In concrete or fireproof overhead girder construction, malleable iron vertical supporting pipes ("X"), should be placed during construction. Such supports should be spaced (laterally) from 8 ft. to 10 ft. apart.

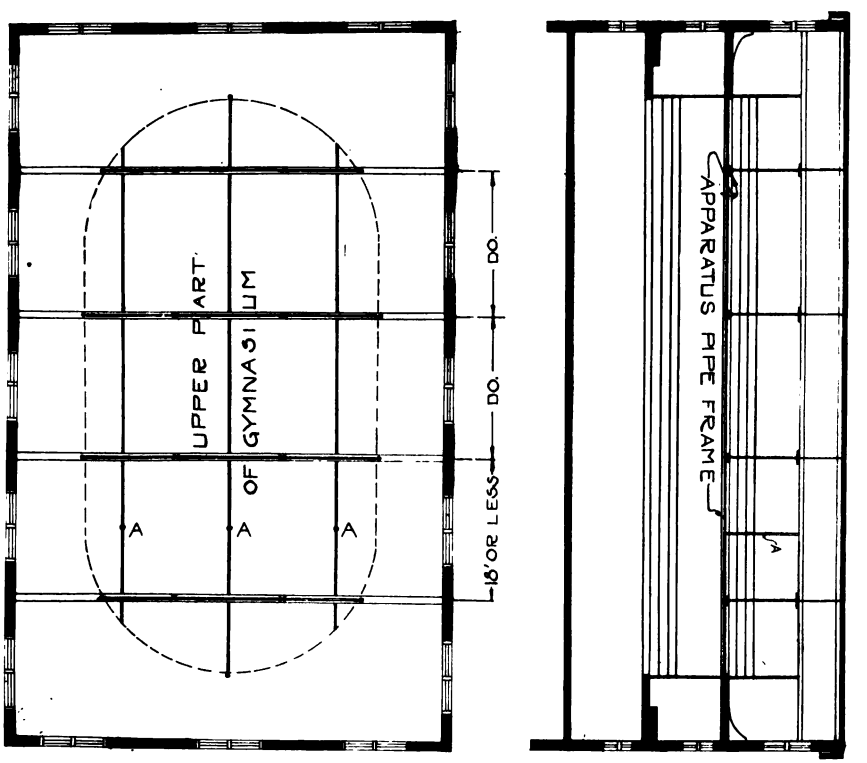
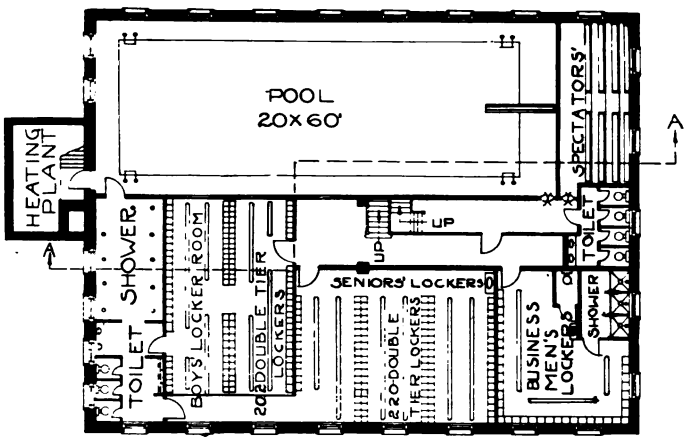
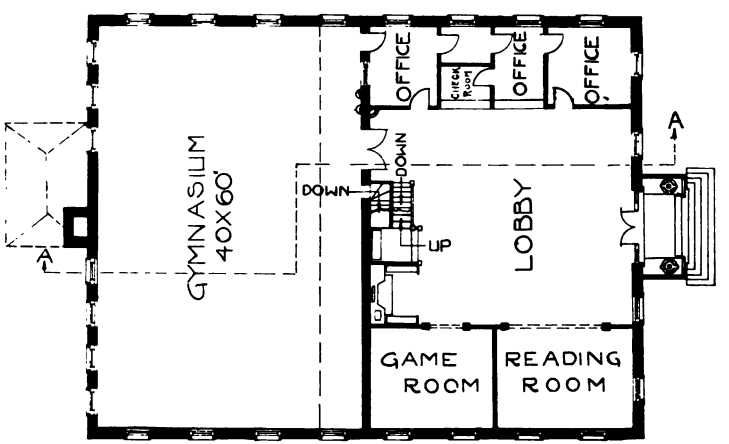


Fig. 13. **Apparatus Pipe Frame for Double Gallery Construction.**. The ends of all pipe lines should extend and be attached to the face of the track or upper gallery, thus providing necessary rigidity.

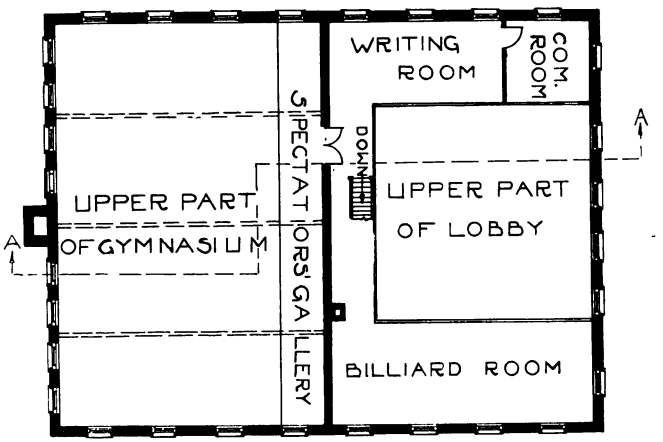


BASEMENT PLAN

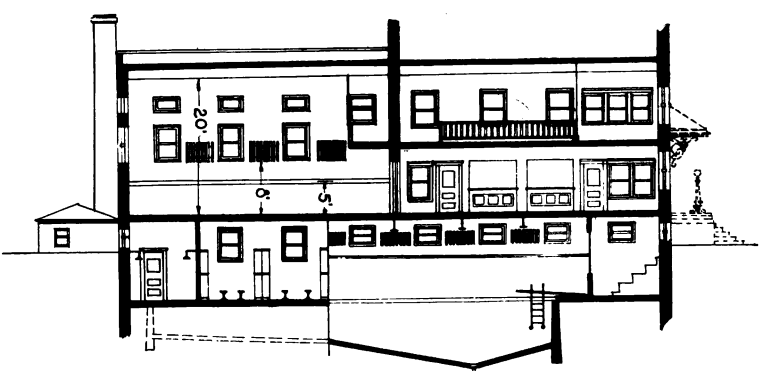


FIRST FLOOR PLAN

Fig. 14A. **Physical Department Suggestion suitable for small Y. M. C. A.**



MEZZANINE AND GALLERY FLOOR



SECTION-A-A-

Fig. 14B. This Gymnasium Represents the Smallest Size Advisable. Running tracks are not recommended in rooms less than 50 feet wide.

YOUNG MEN'S CHRISTIAN ASSOCIATION GYMNASIUM, TWENTY-THIRD STREET, NEW YORK CITY

II. RUNNING TRACK.

The indoor Running Track has been slowly evolved from the path marked out on the gymnasium floor of the seventies, to the banked gallery track of today. The narrow gallery, usually not wider than 3 or 4 feet, with narrow, canvas-covered running path, has been gradually superseded by wider galleries with concave floors, covered with cork linoleum.

The proper Incline, or Bank, is secured by placing curved sleepers on the rough floor of the gallery and flooring over them, thus forming a Concave Incline. The curvature of the sleepers, and their location, depend on the radius at the ends (or corners), of the track and the required speed.

SHAPE. The shape of most of the earlier track galleries (in plan) was rectangular with rounded corners of short radii. As the limitations of such tracks became apparent, the radii of corner curves were gradually lengthened until the present standard of efficiency was reached in tracks having true semi-circular ends (see Fig. 16). Elliptical (as compared with semi-circular) ends leave a slightly larger free room area for apparatus and games, but for maximum speed, safety and effect on the runner, the semi-circular end tracks are superior.

WIDTH. The width of the room should determine the width of the gallery. The following table shows the general rule.

Width of Room	Width of Gallery	Cover Width*
40 feet	4 feet 6 ins.	4 feet
45 "	5 " 6 ins.	4 " 6 ins.
50 "	6 "	5 "
55 "	6 " 6 ins.	5 " 6 ins.
60 "	7 to 8 "	6 to 7 "
65 "	8 to 10 "	7 to 9 "

*Unless full width cover is preferred.

Tracks less than 5 feet wide are now rarely constructed. They do not fulfill modern requirements and are therefore not recommended. The gallery widths given in the table are to be considered maximum and should not be exceeded except in special cases. The cover widths indicated apply more particularly to galleries having railings set on top of the track floor. If the railing is attached to the face or front of the gallery, the width of the cover may be 6 inches wider than the figures given in the table.

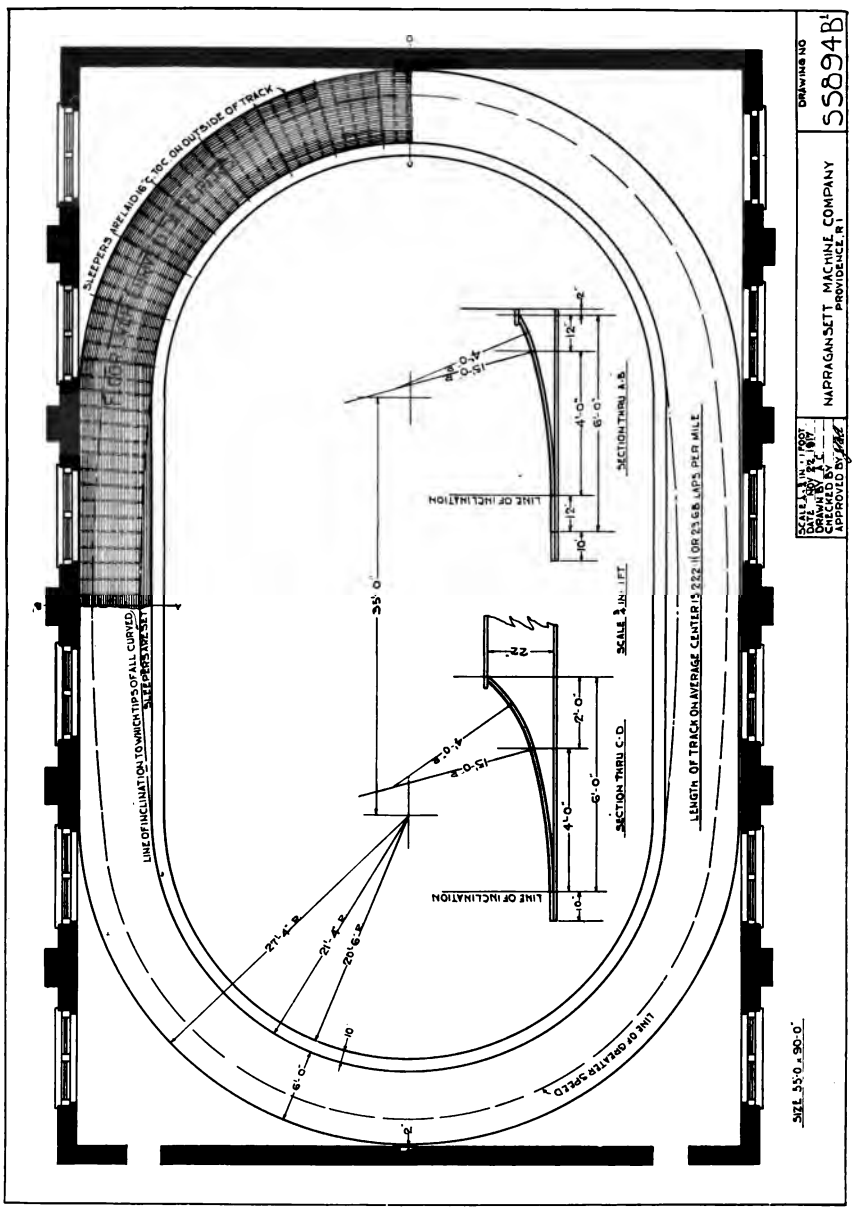


Fig. 16. **Typical Narragansett Machine Co. Track Plan.** These plans are furnished gratis to institutions on receipt of architect's plan showing size, shape and construction of the gallery. We also furnish banking plans showing the size, curvature and location of all curved sleepers. In instances where we furnish the apparatus or track cover, no charge is made for our detail plans.

WOMEN'S GYMNASIUM, NOYES HALL, UNIVERSITY OF CHICAGO

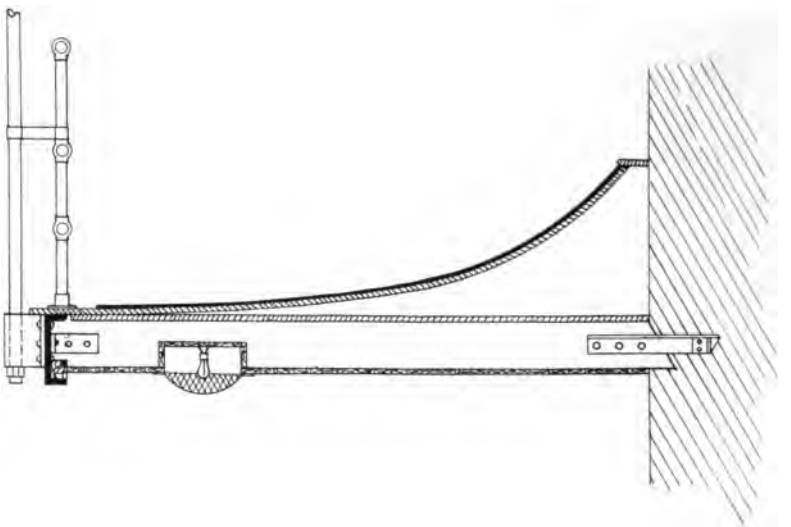


Fig. 17. **Typical Track Section.** Note space between supporting rod and railing; also recessed under-gallery light.

GALLERY SUPPORT. Galleries should be supported either by wall brackets or by rods from overhead beams. Brackets should be carefully planned to secure ample strength and proper spacing. At points where the brackets are anchored, the walls should be laid up in Portland cement. Brackets should be so designed and located as to leave a clear wall space of not less than 8 feet above the floor.

If rods instead of brackets are used, such rods should not form a part of the gallery rail. The rail and the supporting rods should be connected but there should be sufficient space between same to prevent accident in case a runner slides his hand along the rail as he proceeds. (See Fig. 17). The relative merits of inclined as compared to vertical supporting rods must be decided according to local conditions. Unless a track is unusually narrow, the value of inclined rods is more apparent than real. If inclined rods are necessary, the face of the gallery, as well as the complete gallery frame, must be firmly anchored to the walls. For many reasons bracket support fulfills gymnasium requirements better than rods. That principle is therefore strongly recommended.

GALLERY HEIGHT. As stated elsewhere, the height between the gymnasium floor and the under side of the gallery should be not less than 10 feet or more than 12 feet (See Fig. 1). The exact location, within this range, should be determined with regard to the height of the ceiling, or beams, above the gymnasium floor. If for any reason the ceiling beams must be more than 22 feet above the floor (though any greater height is not advisable) it must be remembered that the maximum height for the attachment of swinging apparatus is 22 feet and that adjustment and hoist ropes (See Fig. 4) for controlling such apparatus must extend across the track to the walls at that height. The track must therefore be located to provide headroom under such cross ropes at the maximum height above stated, instead of at a symmetrical point between ceiling beams and the gymnasium floor.

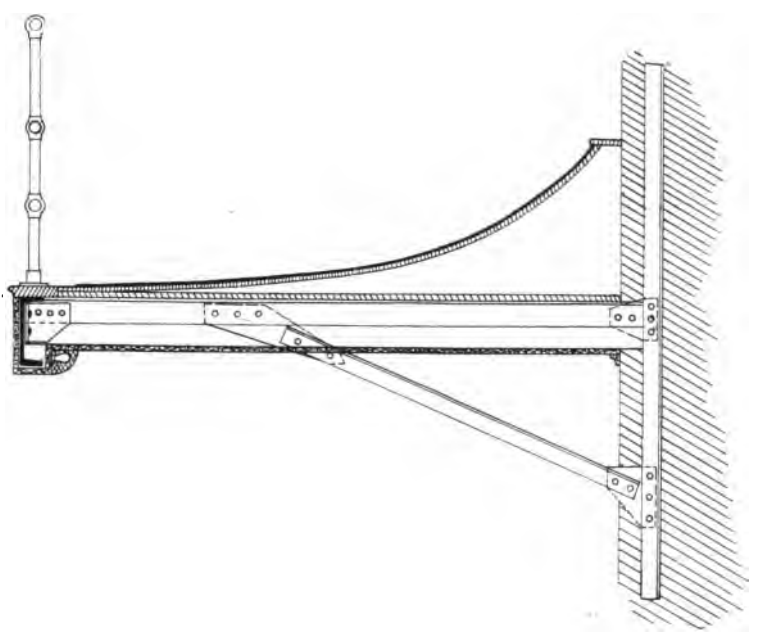


Fig. 18. **Steel Frame Work with Bracket Support.** This principle is preferable if the track is not too wide. Another treatment of under-gallery lights is here suggested.

CONSTRUCTION. In view of the fact that apparatus must be attached to the underside and to the front or face of gallery, and that control and hoist ropes for suspended apparatus must extend through galleries (close to walls), the preference is all in favor of wood construction or steel supporting frame with woodtop floor. If the under side of the gallery is ceiled, such ceiling should be attached *direct* to joists or steel cross-beams. (i. e., there should be no space between joists and ceiling). False or suspended ceilings cannot be used for apparatus attachments. If radiators or pipes must be suspended under the gallery they should be kept close to the wall and close to the ceiling, leaving the outer two-thirds of the underside of the gallery unobstructed. Also for various reasons it is important that the true gallery floor should be horizontal, not inclined. The gallery frame should be covered with a heavy wood floor. It must afford sufficient thickness and strength for proper attachment of the curved (wood) sleepers on which the concave top floor is laid.

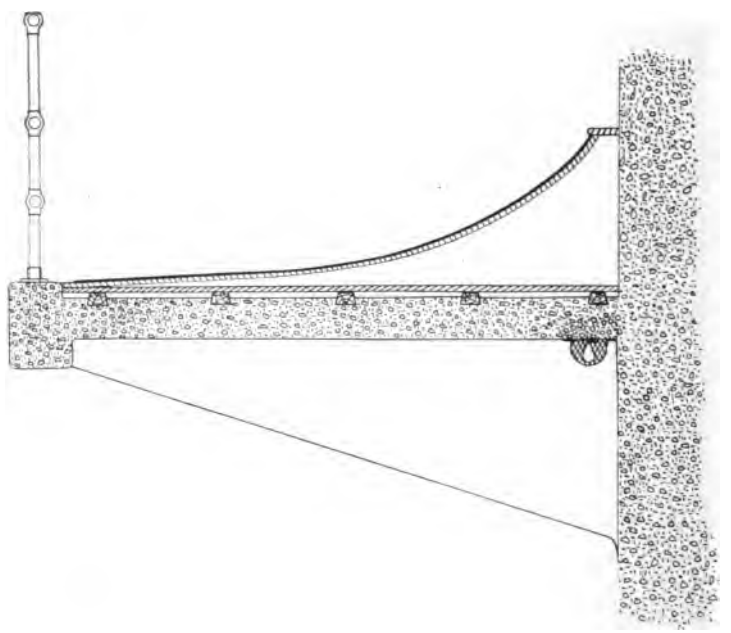


Fig. 19. Concrete Gallery Construction with Bracket Support. Note text above for special requirements.

Gallery floors of concrete are satisfactory for running track requirements provided proper furring strips are imbedded in the upper surface for receiving the rough floor on which the curved sleepers are set (Fig. 19). Such furring strips may run lengthwise around the gallery or may cross the gallery radially as preferred. They should be spaced 16 inches on centres and should be set when the concrete is poured. It is possible, but difficult, to set furring strips so as to receive the curved sleepers direct without laying or using a flat wood floor. This principle should not be attempted without first securing a track layout plan. At best, the omission of the rough board floor is productive of doubtful results and is therefore not recommended.

From the standpoint of apparatus attachment requirements and of the necessity for conducting "down" ropes through the gallery, concrete construction presents a number of difficulties.

In the first place, unless the steel beams which support the concrete slab, project below the underside of the gallery, no apparatus can be attached to the underside of same unless individual bolts are properly set (when the slab is poured), for every point of attachment required. No such bolt setting should be attempted without an accurate setting plan. The making of such plan requires that the amount and type of apparatus to be attached to the gallery be positively determined far enough in advance to permit its preparation by the apparatus manufacturer *before* the concrete slab is poured. Theoretically it may seem easier to drill the slab for apparatus attachments when the apparatus is installed. But as the apparatus cannot be installed until all construction is finished, this usually involves the tearing up of finished gallery floors and the patching of concrete or other finish on the underside of the gallery, to say nothing of the probability of striking and cutting re-enforcing rods when such later drilling is necessary.

Furthermore, when it is poured, proper openings should be left in the slab, close to the wall,—for the passage of apparatus "down" ropes. The spacing for such openings should correspond to the spacing of the ceiling beams. They may be circular or rectangular and must be lined with pipe (finished with smooth flanges), or wood, to prevent chafing the ropes. The size and location of such openings depend upon the requirements of individual construction details and the equip-

ment desired, and should be arranged exactly in accordance with a plan prepared by the apparatus manufacturer.

RAIL. Many types of rails have been used for running track galleries, but the pipe rails shown in accompanying illustrations have proved the most practical.

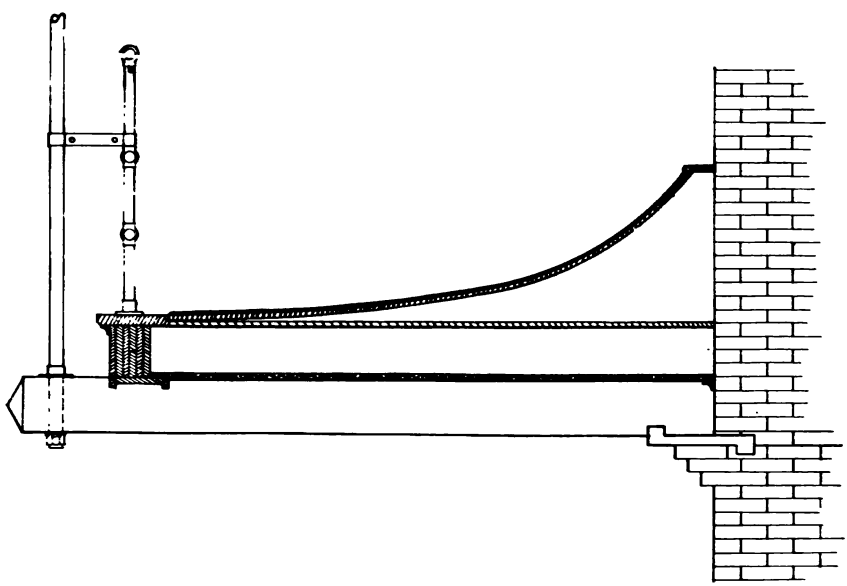


Fig. 20. **All Wood Gallery Frame.** A type of construction frequently adopted for extra wide tracks.

Railings should be composed of not less than three horizontal pipes spaced to produce a total height of 42 inches. The lower pipe should be low enough to prevent the slipping through of the runner who may have fallen. On the other hand the lower rail should be high enough to permit the passage of a basket ball, which is 10 inches in diameter. This provision will save many otherwise necessary trips to the track to recover basket balls. When the gallery is carried by supporting rods, the rail should be connected to such rods. The connections should

attach at the second, not the top pipe (See Fig. 20). The distance between the railing and supporting rods should be sufficient to avoid catching the hands of runners.

The seeming advantage gained by inclining the rail outward is frequently offset by disadvantages. In connection with the old style narrow track, the slightly increased width was necessary; but in the modern track, with properly constructed concave floor, the inside of the track is used only for walking and slow running. When a man gains sufficient speed to require inclination of the body, he must naturally run higher up the incline and will be automatically carried to the outer part of the track, away from the rail (See Fig. 21). Furthermore, as most tracks are used also as spectators' galleries, the inclined rail must be unusually strong to safely carry the weight of the many spectators who will crowd against it. The vertical rail is safer and more comfortable from the standpoint of the spectator.

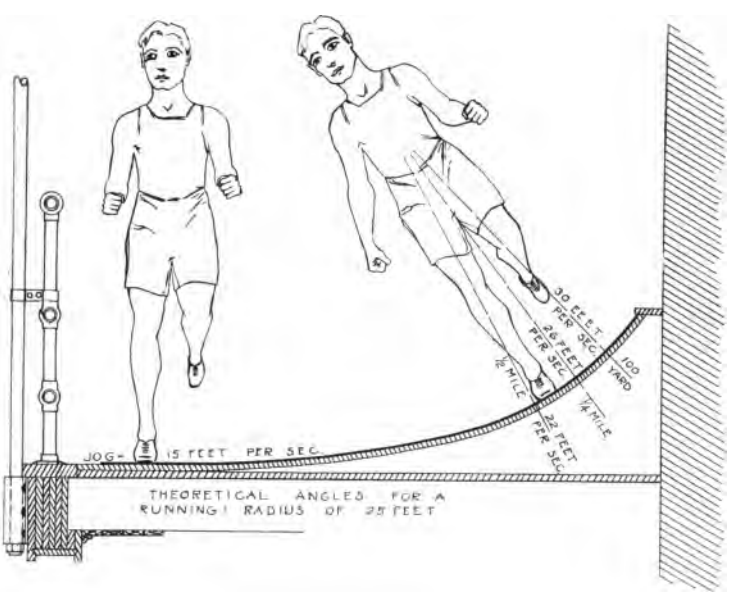


Fig. 21. **The Success and Benefits of Indoor Running Depend upon Correct Track Banking.** We plan the track to fit the room.

CONCAVE FLOOR. The running track should be considered a piece of exercising apparatus. To secure satisfactory results, the concave must be correctly designed to fit each particular building. The planning of the concave should not be attempted by any one unfamiliar with the scientific principles involved. Tracks designed by local contractors or by architects who have not had extensive experience with their construction are invariably failures. It has been the privilege of the Narragansett Machine Company to design most of the successful running tracks of the country. Complete plans showing full working details will be furnished gratis to any gymnasium for which we supply the apparatus equipment. These plans show the correct curve at all points and the size, shape and location of all curved sleepers. With such plans the contractor will be able to construct the incline as it should be and successfully lay the concave wood floor.

COVER. The earlier padded and canvas covered running path has been discarded in favor of the cork linoleum cover. Long experience proves that a particular quality of cork is necessary, and that no quality of cover will be satisfactory unless laid by men who are familiar with the peculiar differences involved in concave as compared to level floor requirements. It is a relatively simple matter to place a cover to pass initial approval, but it is an entirely different problem to lay it so it will *Stay* indefinitely, without bulging, cracking or drawing open at the joints. The track cover should be included with the order for gymnastic apparatus. It should be laid by the apparatus manufacturer when the equipment is installed. (For width of cover in relation to gallery width see page 29).

UNDER GALLERY LIGHTS. If such lights are recessed or located as suggested by accompanying illustrations (See Fig. 17, 18 and 19), they may be more easily protected. Such placing of lights does not impair desirable results and eliminates uncomfortable glare.

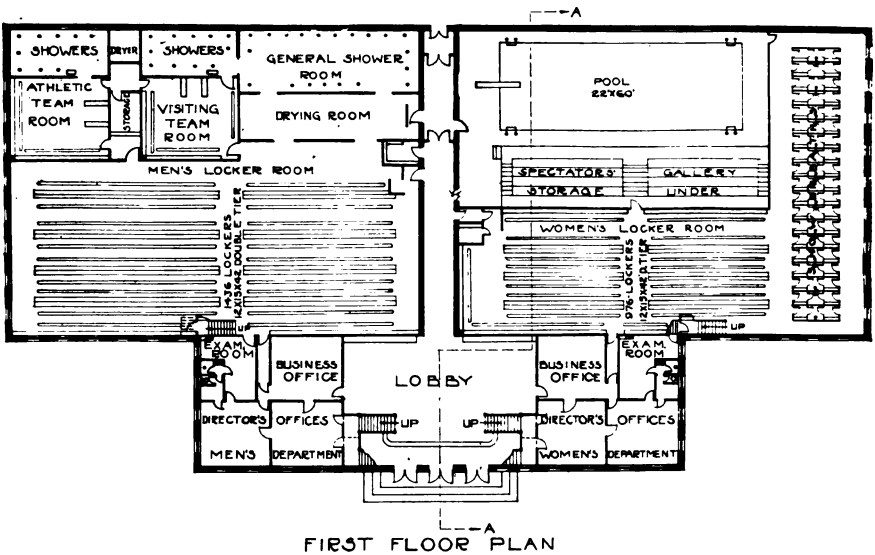
III. AUXILIARY EXERCISE AND GAME ROOMS.

A. SPECIAL EXERCISE ROOM. Should be located on the same floor level, and, if possible, directly adjoining the main gymnasium. (See Fig. 22).

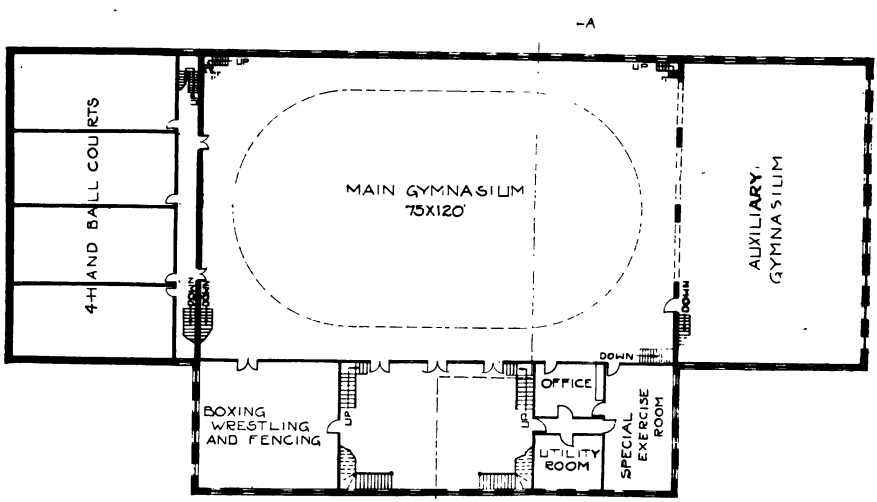
There is no adopted or standard size. It varies from anything large enough to be used in a most limited way by several individuals up to a room equal in size to the main gymnasium. This latter arrangement is growing in favor and should receive careful consideration in the planning of all gymnasia. Any special exercise room is better than none, but for all reasonable results, it should be not less than 15 feet or 20 feet square (or equivalent), and as much larger as activities justify. The floor and wall attachment requirements are the same as for the main gymnasium. Minimum ceiling height should be from 10 feet to 12 feet. If suspended apparatus is desired in this room the ceiling must be not less than 18 feet high with the same attachment facilities as for the main gymnasium. The doorway connecting this room with the main gymnasium should be not less than 6 feet wide in the clear. Such clearance will permit the passage of the large pieces of portable floor apparatus when it is desired to clear the main gymnasium. Sliding doors are preferable. Rolling partitions or accordion doors have been used to advantage.

B. APPARATUS STORAGE ROOM. This room should also join the main gymnasium and should have the same floor level. For this room also there is no fixed size. For the requirements of a single gymnasium equipment, it should be at least 12 feet by 15 feet square or equivalent. Double or larger gymnasium equipments require a proportionately larger storage room. The ceiling height should be not less than 10 feet and need not be more than 12 feet. The walls must withstand hard usage and at their intersection with the floor, should be fitted with a metal baseboard or angle as indicated for the main gymnasium. Unless the doorway between this room and the main gymnasium has a clearance of 6 feet, it will not admit some of the larger pieces of portable floor apparatus. There should be no threshold or door sill. Sliding doors are preferable. (See Fig. 27).

C. HAND BALL (FOUR WALL) COURTS. The size of the standard court is 20 feet wide by 40 feet long, with a service wall 18 to 20 feet high. (See Fig. 22).

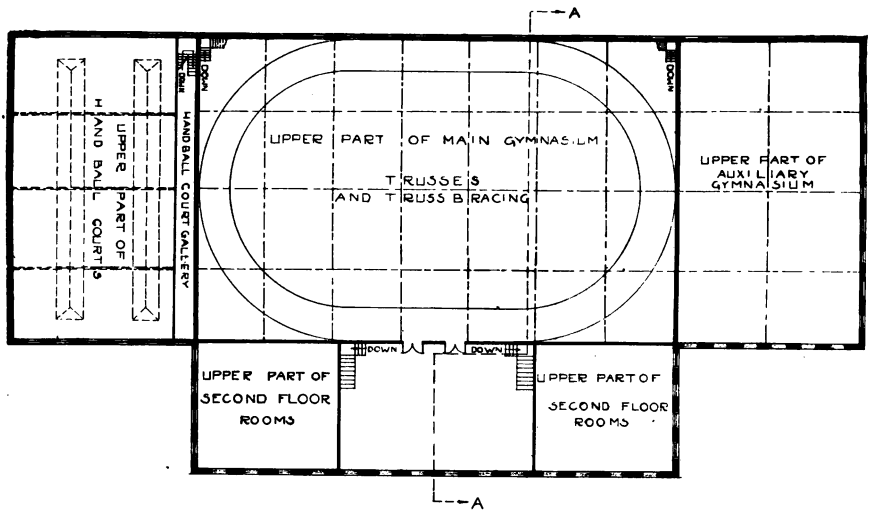


FIRST FLOOR PLAN

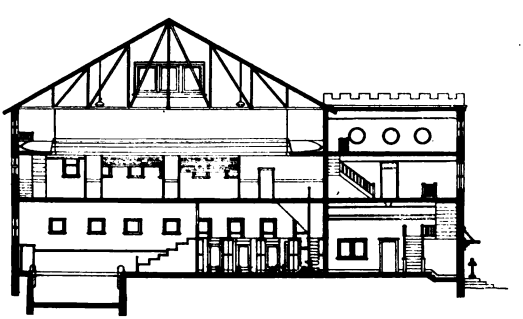


SECOND FLOOR PLAN

Fig. 22A. Suggestions for Large College or University Gymnasium.



TRACK FLOOR PLAN



SECTION-AA-

Fig. 22B. Provision for both men and women is shown. Note women's dressing rooms and shower bath arrangements.

Construction of the walls is important. They must be solid (not hollow), and have a hard, smooth finish. Walls of brick or concrete with a smooth cement finish have proven satisfactory, and practically constitute standard construction. There should be no base board. A wall finished in white or light-colored cement is desirable. A wood floor (maple) is preferable to cement, as it is easier on the feet of the players. There should be no wall obstructions of any kind. Flush finished doors and windows are imperative. There should be no doors or windows in the service wall. Except for high windows on the side or back walls, windows had better be omitted. From the standpoint of light, the best courts are those which receive all light from overhead sources. The logical place for the door is in the back wall near a corner. Artificial light should come from several rows or clusters of lights recessed in the ceiling in such a manner as to throw strong light on the service wall without producing shadows at any point in the court. These lights should be protected by flattest possible screen guards. Except in severe weather, no heat is needed in a hand ball court. Any necessary heat should enter the court through one or more perforated heavy metal plates set flush with the side or back wall (never in the service wall), close to the floor. A gallery for waiting players and spectators should be provided if possible. Such galleries should not overhang the playing floor unless they are at least 15 feet above the floor and project less than 4 feet. Good ventilation is important, but care should be exercised to prevent drafts. Several small sections of heavy, perforated metal plates set flush into the rear wall near the floor, with one or more skylight ventilators serving as outlets, will provide ample and easily controlled ventilation. Hand ball is becoming more popular every year. Provide as many courts as the institution can justify.

D. BOXING AND WRESTLING ROOM. The essential requirement for this room is that it is free from all pillars, projecting pilasters, and all wall or other obstructions. All windows should be 5 feet or more above the floor.

There is no fixed size and the ceiling need not be more than 10 or 12 feet high. The size of a standard Wrestling Mat is 16 feet by 16 feet. Obviously the room should be larger than the mat; 20 feet by 20 feet should be considered a fair minimum size. All columns and sharp corners which cannot be avoided should be well padded. The room should be well lighted and ventilated. It will also be found advisable

to install a recessed stationary wash stand, and a sanitary cuspidor in some out-of-the-way corner.

If this room is to be used also for fencing, the ceiling must be at least 12 feet high. The required floor space for conducting one bout is 10 feet by 20 feet. For fencing, good light is essential.

IV. PHYSICAL DEP'T (OR DIRECTOR'S) OFFICES.

The number and size of rooms should be governed by the size of the Physical Department and the type of work to be accomplished. As a rule, the space allotted for the Director's offices has been too small and cramped. Never less than two rooms should be provided,—an outer or general office and an adjoining private office. There should be also a connecting room for conducting examinations. The examination room should be at least 10 feet or 15 feet square. Nothing smaller than 8 feet or 10 feet should be considered. This room should be particularly clean, sanitary, orderly and quiet; to secure these results, definite planning, construction and finish are advisable. A stationary wash bowl with hot and cold water is an essential requirement. Good light and ventilation are necessary.

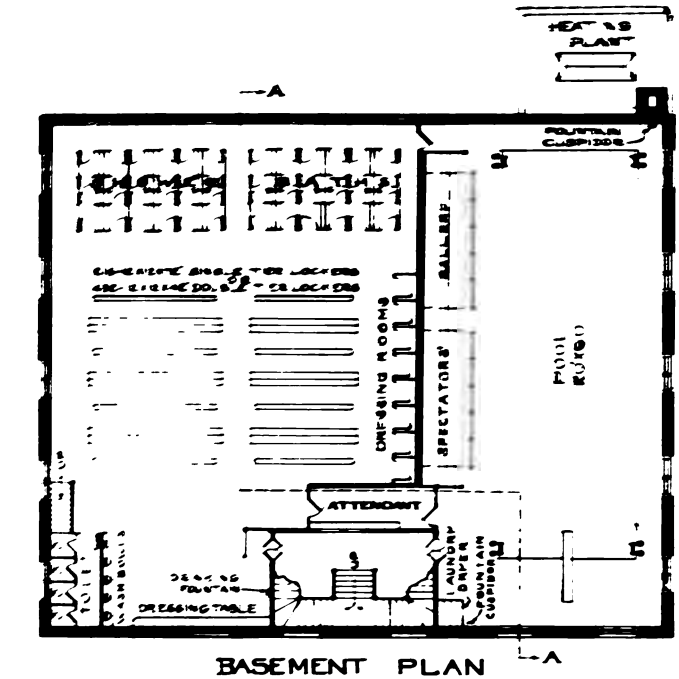
A well appointed Physical Director's office should include also a dressing room, private shower bath and toilet. (See Fig. 22).

For proper supervision, this office suite should adjoin the main gymnasium, a good part of the floor of which should be visible through a low, well screened window or a glass paneled door. Other important features to be considered in connection with the location, are accessibility to the public, private entrance (other than through the gymnasium),—for members coming from locker rooms for examination, consultation, etc.; supervision of locker room entrance, proximity to other administrative offices, reasonably quiet surroundings, good light and ventilation, etc.

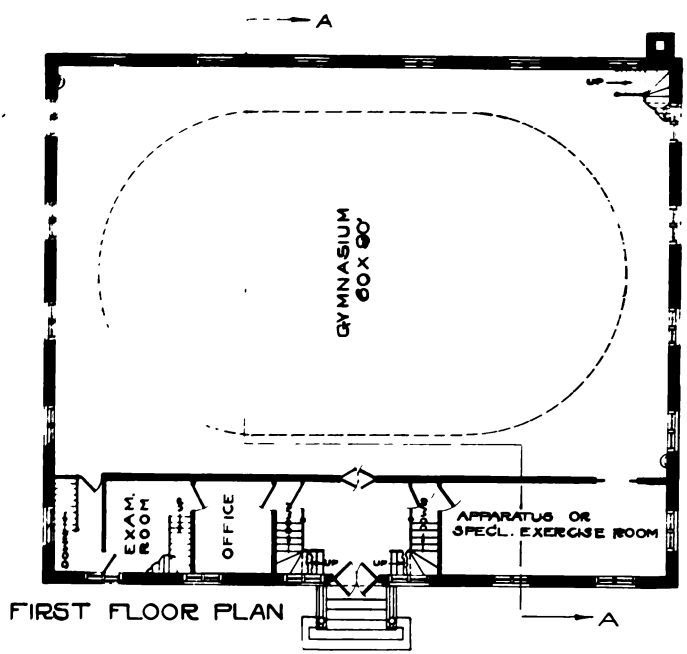
An adjoining room, or rooms, for committee meetings, leaders' club, and department reference library, greatly increases the efficiency of the whole department.

In gymnasia for women, a rest room of ample size should also adjoin or be closely connected with the Physical Director's offices.

Peculiar requirements (usually in the larger institutions) occasionally justify the location of the Director's offices at some distance from, or on another floor than the main gymnasium. In such cases, a small additional office connected with the main gymnasium is necessary.

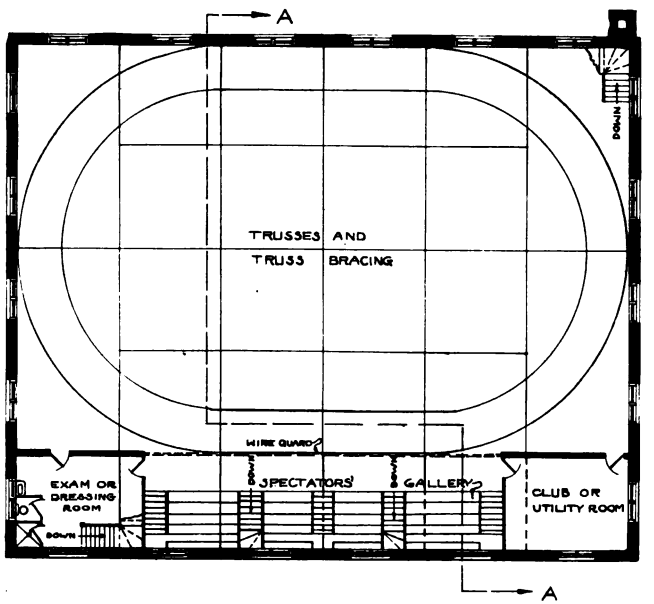


BASEMENT PLAN

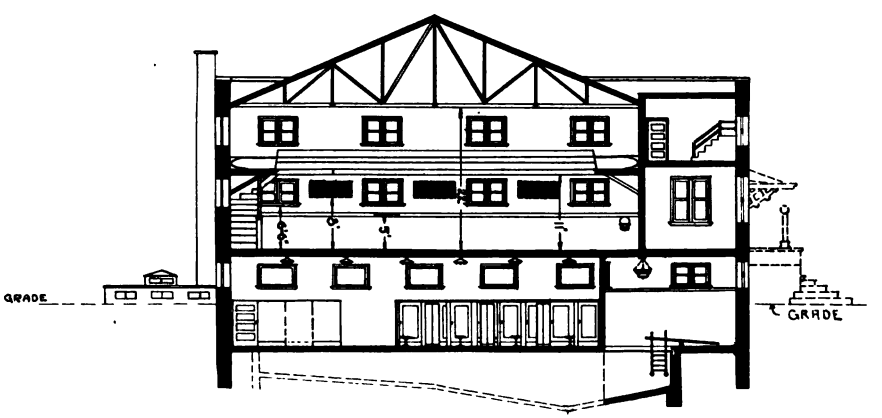


FIRST FLOOR PLAN

Fig. 23A. **Gymnasium Building for Girls' School or College.**



TRACK FLOOR PLAN



SECTION - A-A-

Fig. 23B. A Visitors Gallery (as in Fig. 29) may be substituted for the Running Track

V. LOCKER ROOMS.

Every building, every institution is a law unto itself in the matter of space and arrangement for locker facilities. Unless individual needs and modifying conditions are very carefully studied, in advance, the results will most likely prove inadequate. Structural requirements in general may be stated as follows:

All locker rooms should be located as close as possible to the general entrance of the building (or department) as consistent with necessary demands for privacy, supervision, etc. The avenues of approach should be convenient and direct as possible. All locker rooms should be close to the main gymnasium, and should be on the same floor with baths, toilet rooms and natatorium.

The size of various locker rooms must be determined to meet local requirements. They should have good natural light and ventilation. The most convenient shape for the room is rectangular or as nearly so as possible. Locker rooms should be free as possible from columns, posts, projecting pilasters and similar obstructions. If below grade, the floors should be of concrete with carpet, linoleum or equivalent covering for aisles. Wood floors are satisfactory if the locker rooms are above grade.

Walls should be smooth finished and as free as possible from such obstructions as radiators, water and steam pipes, electric switch cabinets, etc. Windows should be 6 feet or more above the floor; they should have florentine or frosted glass, and provision for opening same (for ventilation) without violating locker room privacy.

Ceilings should be at least 10 or 12 feet high. Bottoms of projecting beams should be not less than 8 feet above the floor.

Radiators or heating coils should be located on walls between windows, (6 feet 6 inches minimum above the floors), or attached to the ceiling. Steam risers should be well covered to a height of 6 feet above the floor.

Floor radiators should be wall recessed and the openings well screened.

Good ventilation without drafts must be provided.

All electric lights should be attached to the ceiling. They should be located over the centers of the aisles.

To estimate the approximate number of lockers the average room will accommodate, divide the net floor area by 2 1-2 for double tier, and by 5 for single tier lockers. This rule is based on lockers 12 inches wide by 12 inches deep, and allows required aisle space.

A. DIVISION OF LOCKER SPACE. Modern methods require a division of a total locker space into specialized rooms located, arranged and equipped to meet the particular needs of each general group. The usual scheme of division for various institutions is as follows:

SPECIAL ROOMS.

High Schools, Colleges and Universities.

(See Figs. 27, 24 and 22).

For Men	For Women
*Attendant's room	*Attendant's room
General room	General room
Home Team room	Individual Dressing rooms
Visiting Team room	Hair drying space or room
Faculty room	

*Other forms of supervision frequently obviate the need for attendant's rooms in High Schools.

Y. M. C. A's. and Y. W. C. A's.

(See Figs. 28 and 29).

Attendant's room	Attendant's room
General room	General room
Business Men's room (with club room)	Individual Dressing rooms
	Hair drying space or room
Boys' room	
Visiting Team room	
Limited or Special Membership room	

Municipal, Social Center and Church Gymnasia.

(See Fig. 26).

For Men	For Women
Attendant's room	Attendant's room
General room	General room
Visiting Team room	Individual Dressing room
	Hair drying space or room

Present sanitary standards demand clean gymnasium suits. Many, especially large institutions, consider a laundry a part of the regular equipment. Where laundering is handled by outside laundries, a laundry dryer at least will prove advantageous.

B. DIFFERENT TYPES OF LOCKER EQUIPMENT. There are at present three recognized locker schemes or types of equipment, which, considered briefly, are as follows:

1—"REGULAR" (individual). (See Fig. 14).

This is the oldest and probably the largest type. It means simply

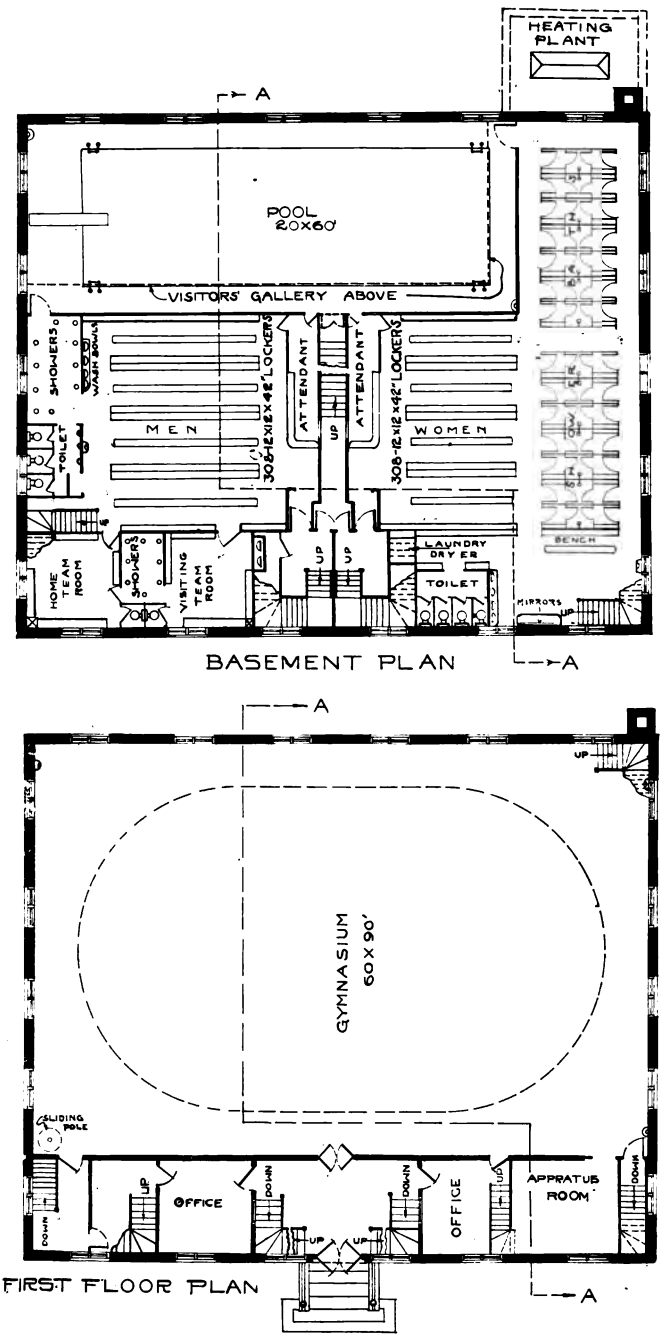
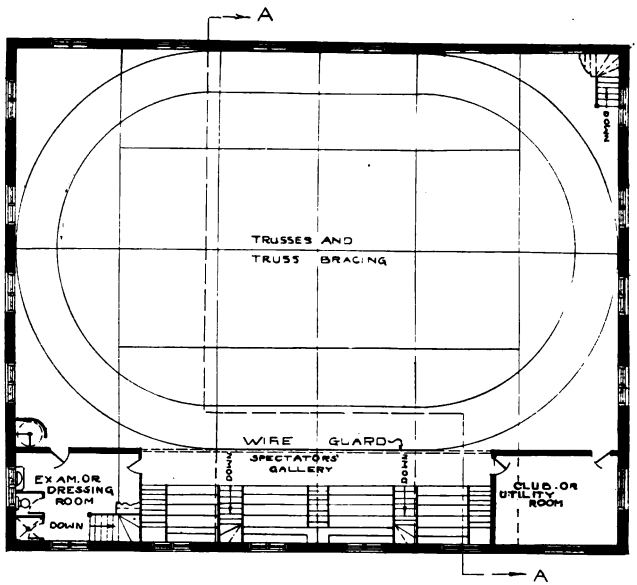
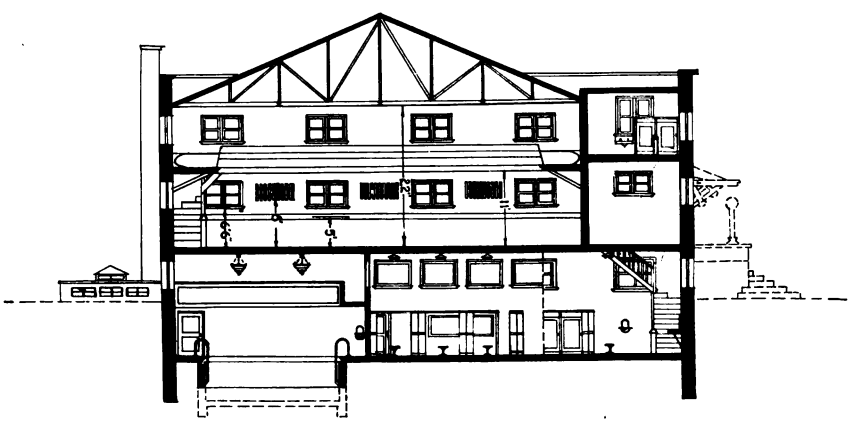


Fig. 24A. **Outline of Building for Both Men and Women.**



TRACK FLOOR PLAN



SECTION - A-A-

Fig. 24B. Arranged for the Requirements of Small Schools or Colleges. With the addition of an assembly room this layout may be expanded to serve as a community center.

a permanent individual locker for each person using physical department privileges. Such lockers may be equipped with attached key or combination locks, or key or combination padlocks, whichever best serves the particular requirements.

2—CHECK ROOM OR "KANSAS CITY" Plan. (See Fig. 27—Boys' Locker room).

With this system, there are no permanently assigned or rented lockers. Each member's gymnasium clothing is stored in a small fibre box or wire basket, and stacked on series of shelving in the attendant's room, which must be especially planned for this purpose. Each member on entering the department proceeds to the attendant's counter, and, on identification, is given his box or basket and the key to a vacant locker, which he uses only during his stay in the department. Lockers for this system require a depth of 15 inches. On leaving the department, he returns his box and locker key to the attendant, whose duty it is to see that each suit is laundered or at least dried after each using. Thus it will be seen, only enough lockers are required to accommodate the greatest number of individuals using the department at the same time.

The Kansas City System requires the smallest actual locker space, but the largest attendant's (storage) room of any system. If all locker rooms cannot be served from a common attendant's or storage room, a separate attendant and store room is required for each locker room. Unless each member is supplied with an individual combination padlock (the same one always using the same lock), this system requires lockers having attached key locks. It is most frequently used for boys and men, but may be employed also for girls and women.

3—SELF SERVICE (or Box Locker) System. (See Fig. 27—Girls' Locker room).

Like the Kansas City scheme, this system also requires only a sufficient number of dressing lockers to accommodate the maximum number of individuals using the locker room at the same time. The essential difference between this and the check room system is that each member is provided with a small locker (12 inches wide by 15 inches deep by 12 inches high, built in cabinets six tiers high), in which he keeps his box (or basket) containing his gymnasium suit. These small lockers are therefore, called box lockers. Each box locker door is secured by means of a combination padlock. The regular or dressing lockers must be 15 inches deep and may be single or double tier in height. The dressing lockers have no attached locks, but are fitted for padlocks.

With the self service system each member on entering the department gets his box or basket from his box locker and takes same to any vacant dressing locker, which he locks with the same combination padlock brought from his box locker. After exercising, bathing and dressing, he returns his box to his box locker, which he again locks with the combination padlock, thus having served himself and avoided the inconvenience of carrying a key during exercising, bathing and swimming.

To enable an attendant (or night man) to remove the soiled gymnasium suits for laundering or drying, and for replacing same, without operating each individual combination lock, each cabinet of box lockers is provided with a master locking mechanism, whereby as many as 72 box locker doors may be unlocked or locked by the shifting of a single control lever. Attached to the inside of each box locker door, there is a signal device which the member automatically shifts in opening the door. In this manner, the attendant on making his rounds, sees at a glance just which box lockers contain used clothing requiring his attention. On returning each cleaned suit, the attendant sets each signal to "unused" position and by means of the master locking device, again locks all doors, ready for use the next day. If a clean towel is replaced with each clean suit, towel service is accomplished without the means of a towel clerk. The self service plan is more expensive to install but more ecomomical in operation than the check room system.

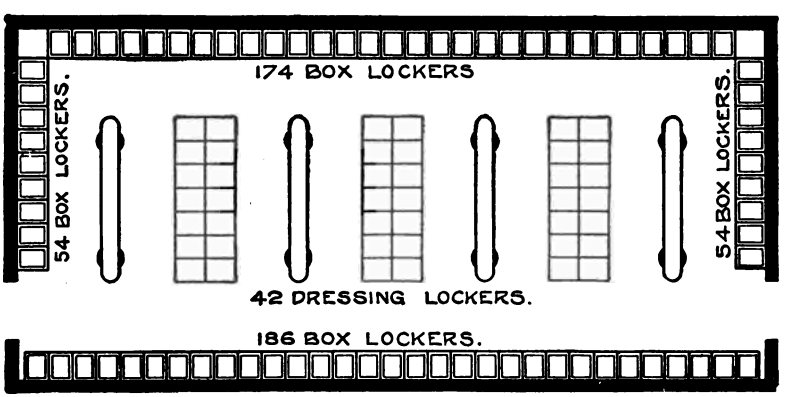
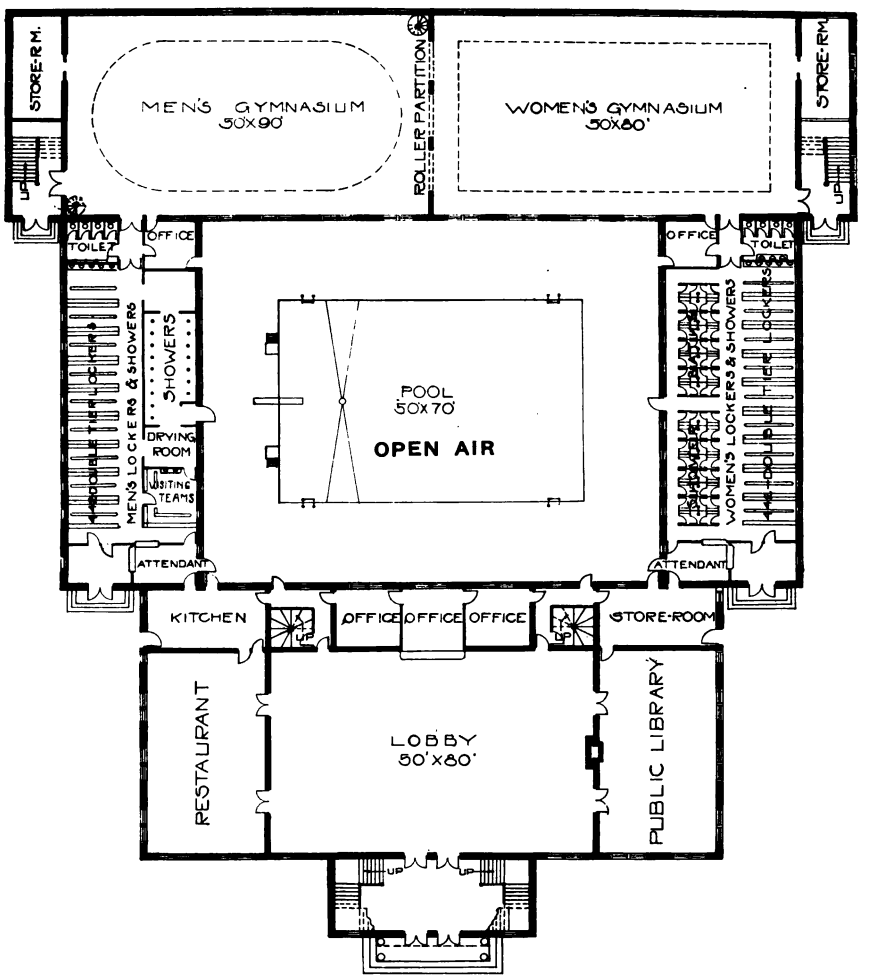
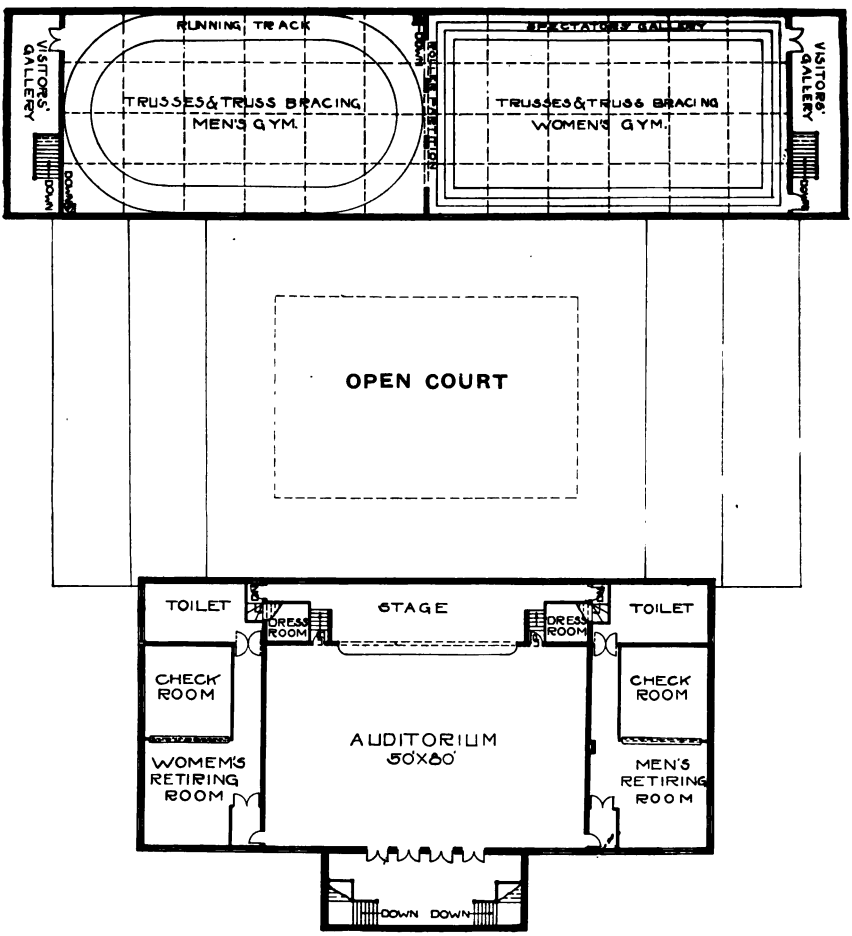


Fig. 25. A Self Service Equipped Locker Room. 468 Box Lockers and 42 Single Tier Dressing Lockers. This space would accommodate 120 ordinary one-tier Lockers,—240 two-tier.



FIRST FLOOR PLAN

Fig. 26A. **Building Scheme for Large Community Center or Playground Field House.**



SECOND FLOOR PLAN

Fig. 26B. The Buildings are Arranged to Screen and Afford Control for the Open Air Swimming Pool.

C. STANDARD LOCKER SIZES.

There is no fixed size of lockers for any particular group. Lockers are made in 16 standard sizes. The following table indicates the locker sizes most commonly furnished for various groups:

STD. LOCKER SIZES	GROUPS.						
DOUBLE TIER.	BOYS	YOUNG MEN	ATHLETIC TEAMS	BUSINESS MEN	GIRLS	WOMEN	
12 x 12 x 36"	—	—			—		
12 x 15 x 36"	—	—			—		
15 x 12 x 36"		—			—		
15 x 15 x 36"		—			—		
12 x 12 x 42"		—			—	—	
12 x 15 x 42"		—			—	—	
15 x 12 x 42"		—			—	—	
15 x 15 x 42"		—			—	—	
SINGLE TIER.							
12 x 12 x 60"		—	—	—	—	—	
12 x 15 x 60"		—	—	—	—	—	
15 x 12 x 60"		—	—	—		—	
15 x 15 x 60"		—	—	—		—	
12 x 12 x 72"			—	—		—	
12 x 15 x 72"			—	—		—	
15 x 12 x 72"			—	—		—	
15 x 15 x 72"			—	—		—	

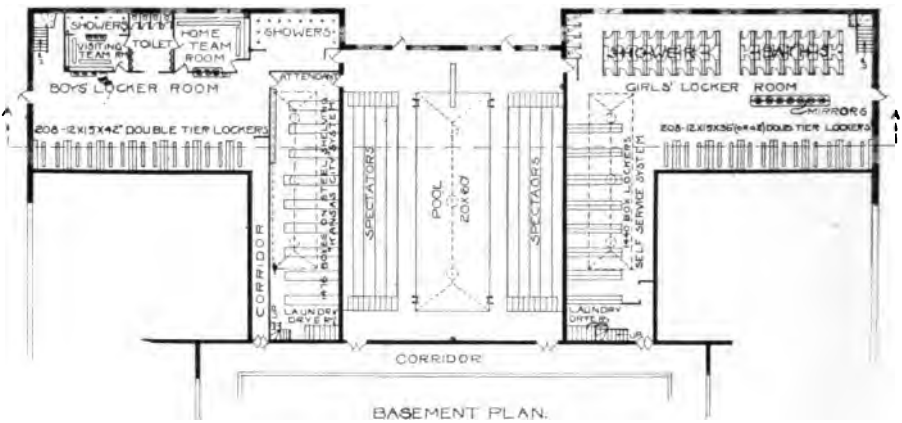
The wide range of sizes here indicated for each group is due to the various combinations of space and financial limitations. Without these limitations, and except for boys' use, probably no double tier lockers would ever be selected.

Advisable aisle widths vary with varying situations. Between cabinets composed of lockers 12 inches wide, the aisle should never be less than 3 feet 6 inches. Wider lockers (having wider doors), require proportionately wider aisles. For average conditions a uniform aisle width of 4 feet 6 inches or 5 feet is recommended.

Aisles used as passage ways (not as dressing space) should not be less than 4 feet wide. Aisles serving both as passage ways and dressing space should be at least 6 feet wide.

Long benches (supported by special iron pedestals,) permanently attached to the floor, have proven more satisfactory than portable benches or stools. However, portable stools are preferable for faculty and business men's rooms. Aisles 6 feet wide or more will accommodate two parallel benches. The space between benches arranged in this manner and the fronts of lockers should be not less than 18 inches. Aisles less than 6 feet wide will take only one central bench. Bench seats or boards should be from 7 inches to 8 inches wide with a height of 16 or 17 inches above the floor.

D. WOMEN'S (LOCKER ROOM) DRESSING ROOMS. Locker rooms for women should be provided with individual dressing rooms. They should be about 4 feet by 4 feet square and never less than 3 feet 6 inches by 3 feet 6 inches. Each individual dressing room should be provided with clothing hooks, a seat or stool, and a door, though curtains will sometimes serve instead of doors. The number of such dressing rooms should depend upon the size of the largest class to be handled. For classes averaging forty, there should be at least twenty dressing rooms; one for each member is ideal. Dressing rooms connected with individual shower baths are preferable when such arrangement is possible. (See Fig. 23).



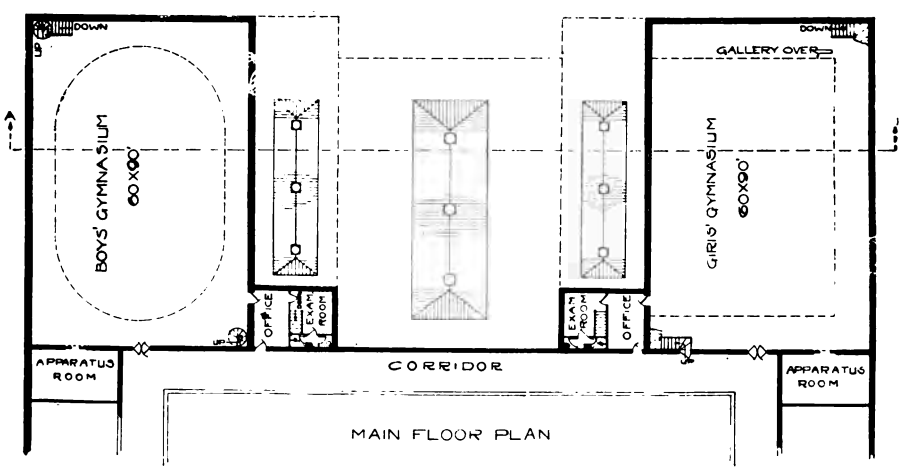
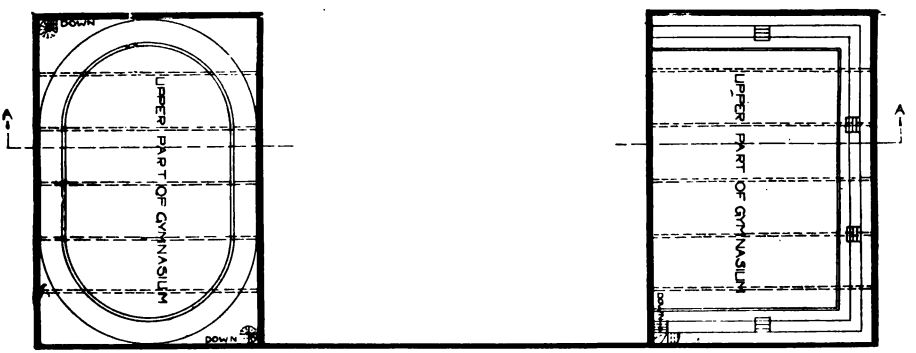
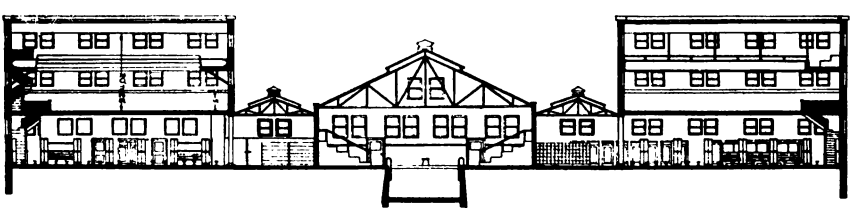


Fig. 27A. **Department of Physical Training for Large High Schools.**



TRACK AND GALLERY PLAN



SECTION - AA -

Fig. 27B. The Boys' Locker Room Illustrates the Check Room,—or Kansas City,—Plan; the Self Service System is Shown on the Girls' Side.

VI. BATHS.

A. GENERAL REQUIREMENT. The only type of bath here considered is the shower. Tub baths are obsolete. Turkish baths are advisable in some institutions, but the electric light cabinet has largely supplanted the steam and hot rooms.

As a rule, a separate bath room must be provided for each group of individuals for which a separate locker room is needed. If gymnasium attendance and bathing privileges can be limited to one group or class of individuals at a time, one bath room may serve for more than one group.

Each bath room should be located with regard to the locker room it serves and the entrance to the Natatorium. The best arrangement is to have the shower room open direct from its locker room, serving as a connection between the locker room and the Natatorium. (See Figs. 7 and 28). The next best is the shortest possible distance from both its particular locker room and the Natatorium. Bath rooms should be so located as to receive outside light and ventilation through windows or skylights. It is a great mistake to put baths in whatever dark, misfit space is left over. They merit the careful planning necessary to make them light, attractive and sanitary. All bath rooms should be entirely closed; otherwise steam and moisture will permeate locker and other rooms.

No single rule for bath room size is possible. It depends on individual requirements. An open room will accommodate more showers and bathers than one with a stall for each shower. Except for women, and possibly a few for business men, the stall arrangement is unnecessary and is being discarded. If possible, have a drying room (furnished with seat and towel hooks), between the locker and shower room. There should be no seats in the shower rooms.

Bath rooms should embody only those appointments and characteristics which are conducive to cleanliness. Floors, walls and ceiling should be finished white, for which the best materials are tile, glazed brick and marble, the floor tile having an effective, non-slip finish. Many serious accidents have resulted from falls on wet, soapy smooth finished tile floors. Instead of the ordinary central floor drain, arrange the pitch of the floor so the water will drain from the center of the floor toward the walls, at which intersection there should be narrow drain troughs or gutters. If properly developed, this plan will be found far superior to a central floor drain.

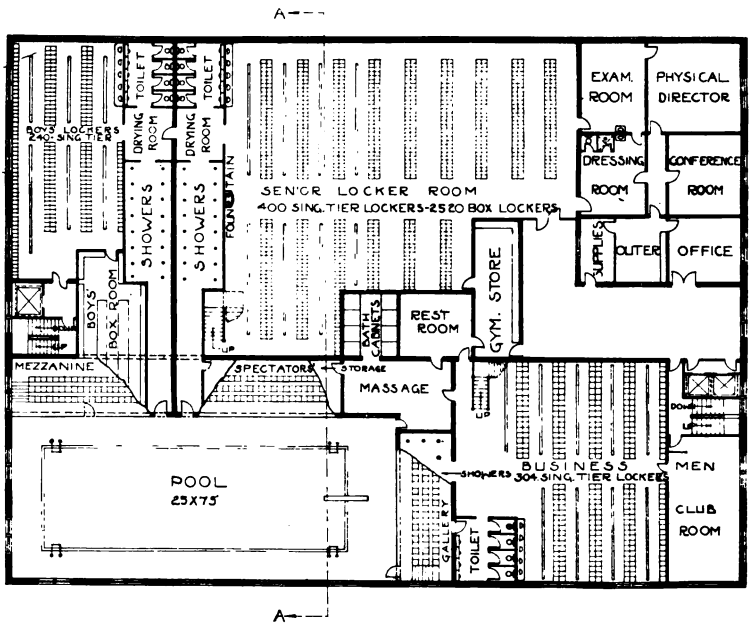
The lower sills of all windows should be at least 6 feet above the floor. Unless wood trim is exceptionally well treated and covered it will soon swell and rot. For this reason, as little wood as possible should be used in bath rooms. Metal window frames and sash, metal door frames and metal covered doors are relatively expensive, but deserve investigation before selecting wood. It should be possible to open windows for ventilation without violating bath room privacy. Radiators and heating coils, if exposed, should be placed on the walls 6 feet or more above the floor, or attached to the ceiling. The certainty of rapid rusting, of exposed radiators and other ordinary pipe and fittings, constitute a very good reason for the adoption of some heating method which does not require exposed radiators in the bath rooms.

All metal shower fixtures should be brass, with nickel or polished finish. Porcelain valve handles usually break and cause trouble. If possible, no parts of the showers should be exposed except the head and valve controls. This treatment requires a pipe space behind shower room walls large enough to permit inspection and repair of enclosed parts. If water pipes must be exposed, they should extend from the ceiling (or overhead) down to the point of control, instead of up from the floor. Shower control handles are usually located too low. They should be set about chest height above the floor.

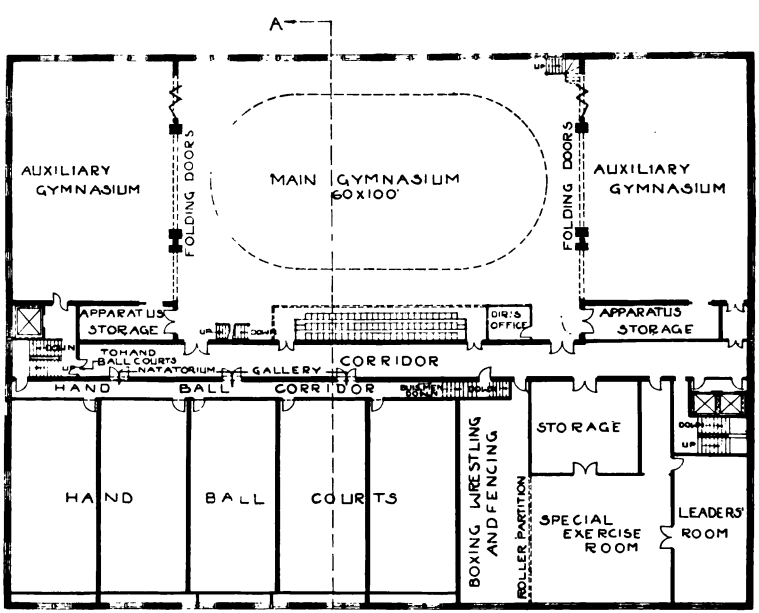
For the great majority of institutions, the individual control of water temperature by each bather is more satisfactory and practical than by a central or master control system operated by an attendant. There are many arguments for and against single control, anti-scalding valves. Where such valves are not used, the water heating plant should be provided with one of the several devices whereby water above a safe bathing temperature cannot enter the main or feed pipes supplying the individual showers. With such provision, the use of ordinary bath tub valves is safe. Shower heads of the "rain" variety use more water but do not clog as quickly and easily as the "needle" type. The outlet face of all shower head should be detachable for cleaning and the removal of sediment accumulation. Shower heads with swivel or ball joint connections are unnecessary (at least for men and boys) and are sure to leak.

The question of hot water supply heaters, etc., are technical matters and should be handled by specialists.

B. WOMEN'S SPECIAL REQUIREMENTS. Small individual shower rooms are necessary for girls and women. They should be about 4 feet square, arranged between corresponding rows of communicating dressing rooms. (See Fig. 23 and 27).

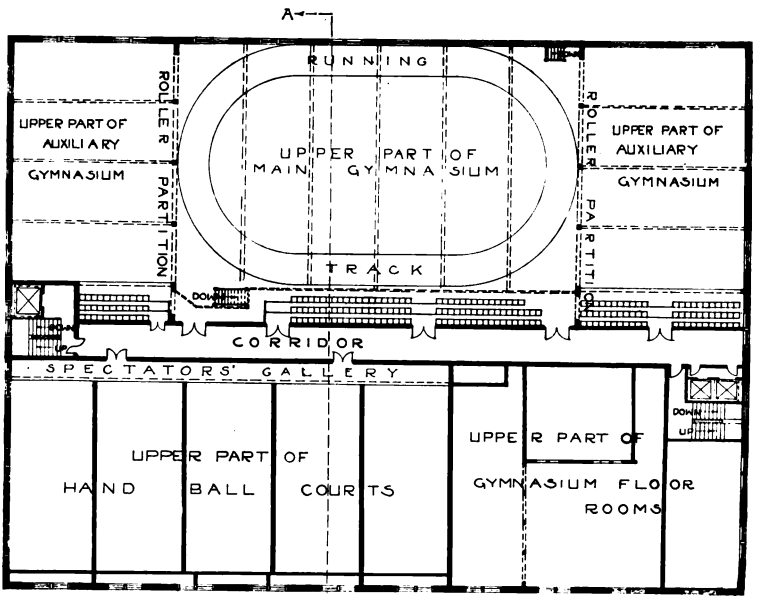


LOCKER FLOOR PLAN



GYMNASIUM FLOOR PLAN

Fig. 28A. **Suggested Physical Department Layout for a Large Y. M C. A.**



TRACK FLOOR PLAN

SECTION -A-A-

Fig. 28B. For comparative purposes, the recognized three distinct locker systems are here shown; Business men,—Regular (individual); General Room,—Self Service; Boys' Room,—Check Room Plan.

Valves for controlling such enclosed showers should be located on one of the sides or partitions, about chest height above the floor. Also the heads of showers for women should be adjustable or set at an angle so the bather stands in front of, rather than under the shower. This is necessary to keep the bather's hair dry.

VII. NATATORIUM.

Here again is the call for sunlight and cleanliness. If possible, locate the Natatorium out from under the rest of the building, with a skylight roof, or if it must be under another floor, place it on the sunny side of the building. One of the most gratifying developments in gymnasium construction is the large percentage of sunlit swimming pools. Many buildings may be arranged with a large central light court which, though the Natatorium be in the basement, allows a large skylight area over a good portion of the pool. The growing popularity of aquatics is indicated by the increasing number of swimming pools having commodious spectators' galleries.

In point of location, proximity to all bath rooms is essential. Except for spectators, there should be no way to get into the Natatorium other than through a shower room. A thorough bath should precede every swim. There should be no baths in the Natatorium.

The size of the pool proper is practically standardized at 60 feet long by 20 feet to 30 feet wide. A larger pool is sometimes advisable while a pool less than 40 feet long is too short for practical results. The Natatorium (or room in which the swimming pool is located) should be not less than 12 feet longer and 10 feet wider than the size of the pool. (See Fig. 30). A clear floor space of 15 feet between the deep (or spring board) end of the pool and the wall at that end of the room, with a uniform floor space 10 feet wide around the other three sides closely approximates the ideal.

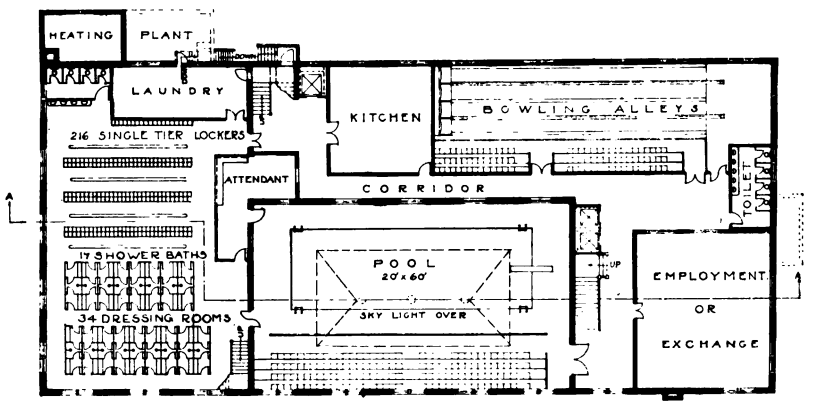
The ceiling (or beam) height should be not less than 12 feet. A ceiling high enough to accommodate a spectators' gallery and the provision of such gallery, are both advisable. The day of the odoriferous pool in a dark, damp room with an oppressively low ceiling, is past.

The Natatorium requirements for white tile floors, walls, and ceiling are identical with those of the shower room, previously described. Here again, the floor tile must be of the non-slip finish. The rule for window and radiator heights and their treatment is also the same as for shower rooms. Floor radiators should be recessed into, and flush with walls, with all such wall openings carefully screened. If exposed radiators cannot be avoided, they should be located on the walls (not less than 6 feet above the floor), or on the ceiling. Exposed steam risers should be carefully covered to a height of 6 feet above the floor. All projecting corners should be given a generous round

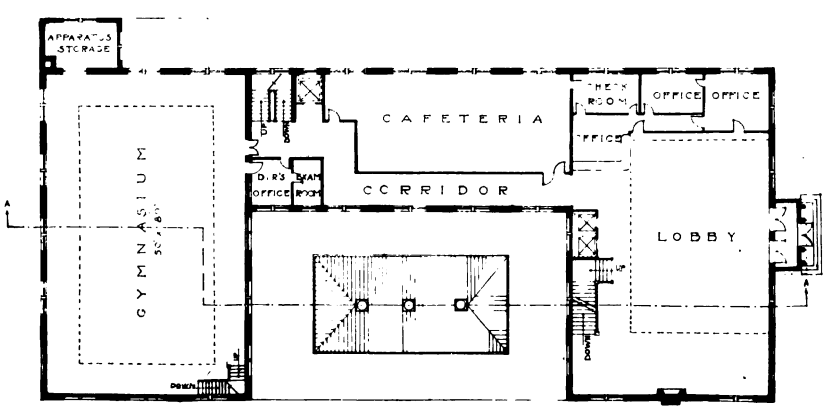
The floor around the pool should have only sufficient pitch to carry off the water which would otherwise accumulate. The direction of drainage is preferably toward the walls (away from the pool) to a narrow drain trough or gutter, as suggested in connection with shower room drainage. If possible, there should be no elevated curb around the pool.

The necessity for unusually heavy water proofed concrete construction for the pool bottom and walls is generally well understood. An open space or tunnel all around outside the walls of the pool will prove valuable for various reasons. The pool should be lined with white tile or glazed brick. All around the walls and slightly above water level, there should be a recessed scum or drain trough, molded into the heavy porcelain tile sections specially constructed for this purpose. (See Figs. 30 and 31). The bottom of this drain trough should have frequent (screened) connections with a good-sized drain pipe connecting with the sewerage system. This trough should also be deep enough to prevent the contents of same being washed back into the pool.

The deepest point of the pool should be from 2 to 3 times the distance of the spring board overhang,—in from the wall at the deep end, which, in a 60 foot pool usually amounts to from 12 to 15 feet with the average closer to 12 feet. (See Fig. 30). The shorter the pool, the farther back the board may be set with a correspondingly shorter distance between the deep point and the wall at the end. The depth of water usually averages from 3 feet 6 inches or 4 feet at the shallow end to 8 feet at the deepest point, with a depth of about 6 feet at the deep end wall.

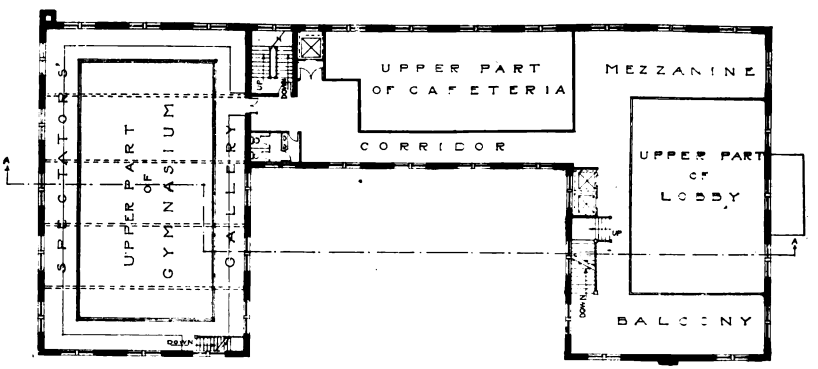


BASEMENT PLAN



FIRST FLOOR PLAN

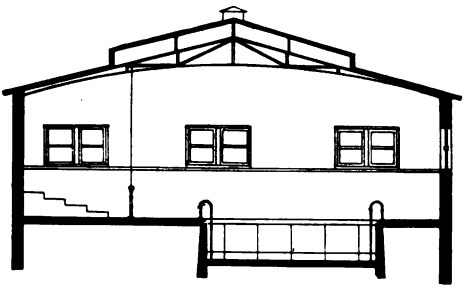
Fig. 29. The Above Sketches are Designed to Show Typical Y. W. C. A. Requirements.



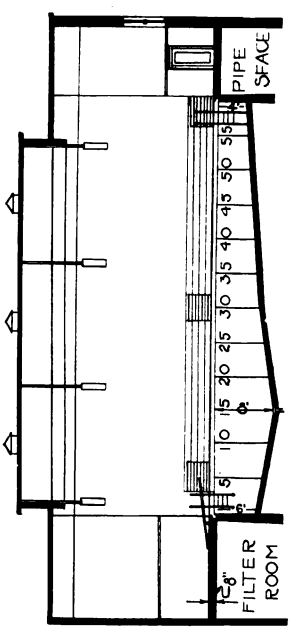
MEZZANINE FLOOR PLAN

SECTION A-A

Fig. 29B. We Furnish Suggested Apparatus Lists and Equipment Plans adapted to any of the Gymnasia Represented in this Book. See pages 72 and 73.



SECTION



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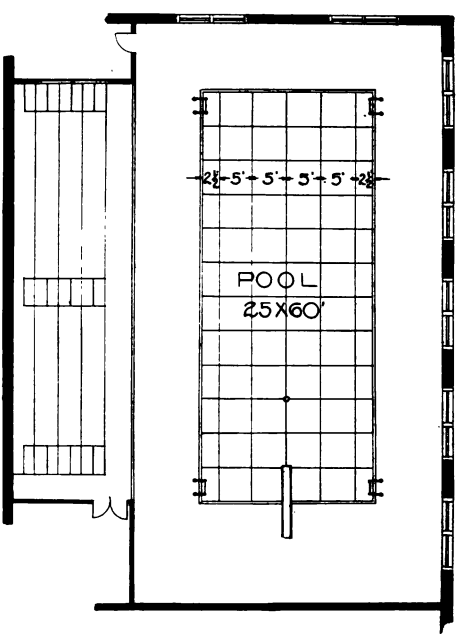


PLAN

Fig. 30. **Various Natatorium Details.** Spring Board anchors should be set when the concrete floor is poured. Note direction lines on the bottom and on end walls, and the distance markings on the side walls of the Pool.

Direction and warning lines (see Fig. 30) formed by black tile or other good contrasting color, should run lengthwise the bottom of the pool. Along the side margins of the pool, there should be distinct depth readings in different colored tile, every five feet. Also for competitive swimming purposes it is convenient to mark the sides of the pool just above the water in yards or feet, starting at the deep end.

In each corner of the pool (or at least at each end) and attached to the side walls, there should be a strong brass ladder with flat brass scored treads; or a series of recessed openings in specially formed tile, to serve instead of brass ladder.

The length of the standard spring board, for pools in general, is 10 feet 6 inches. (See Fig. 31). The official Intercollegiate Spring Board is shown in Fig. 32. Strong floor attachment is effected by means of specially constructed anchors, set flush with the top of the finished floor. The board is bolted to the anchors with heavy brass machine bolts, by the removal of which the board may be easily taken away for special occasions. All exposed metal parts of the board are brass. (Any exposed iron fittings will rust and stain the pool). The spring board anchors require a floor thickness of 8 inches. They should always be secured in advance and carefully set according to plan, *when the floor is poured.*

An overhead swimming instruction cable, or track, with trolleys for suspended belts (to support beginners), is a valuable piece of equipment. (See Fig. 33).

Another recent development is the so-called Shepherd's Crook—a very effective life-saving device,—surer than throwing a life preserver. It consists of a long, light pole, to one end of which is fitted a hook large enough to go around the body. The length of the pole (usually 14 feet) should be a little longer than half the width of the pool. If the pool is not accessible from both sides, a jointed or extension pole is necessary.

The installation of a trapeze or rings over the water is not advisable. The circumstances under which they are used involve too great an element of danger. However, where such equipment is required, the demands for overhead attachment facilities are the same as previously covered under the heading of attachment for suspended apparatus from the ceiling or beams in the main gymnasium. A fountain cuspidor should be recessed into one or both end walls of the Natatorium.

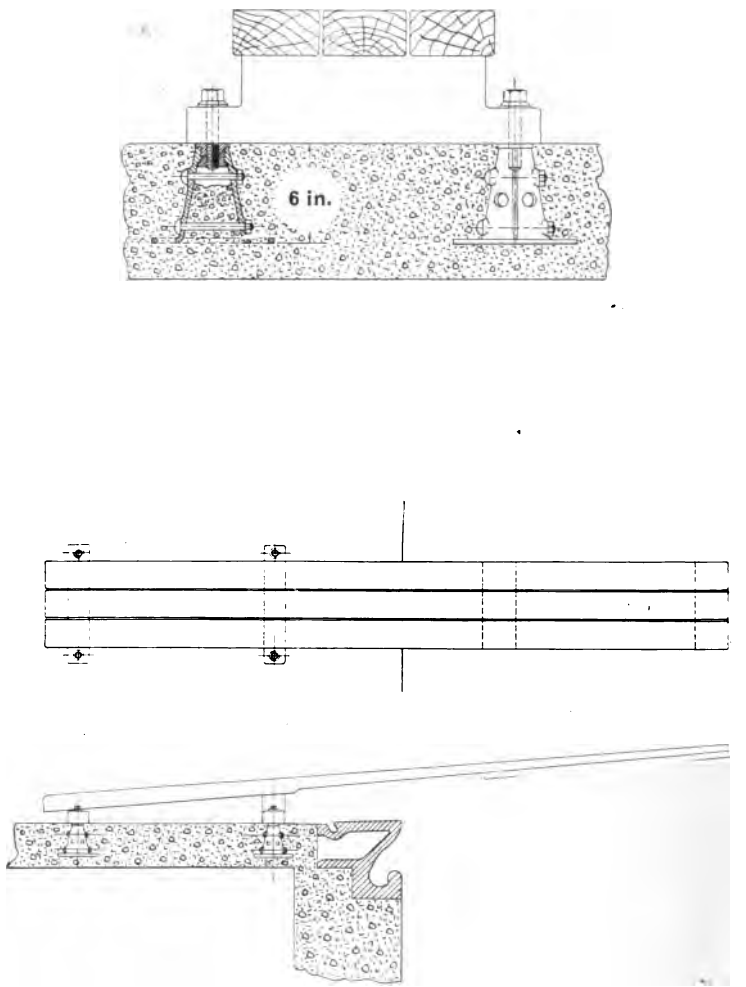
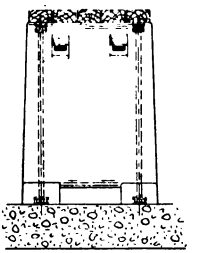


Fig. 31. **Standard Natatorium Spring Board.** The Board should be ordered in time to permit the setting of the anchors when the concrete floor is poured.



SECTION-A-A

Anchors are set 6 in. deep. Floor should be 8 in. thick.

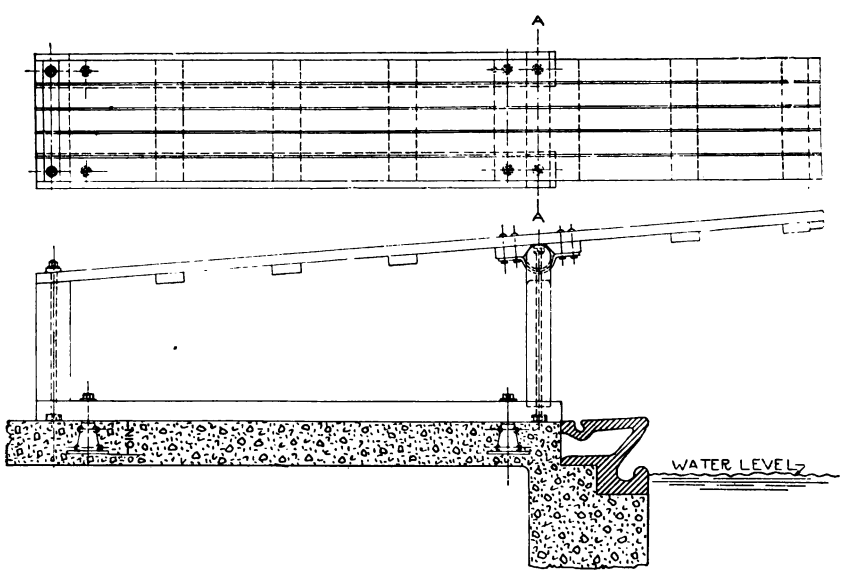


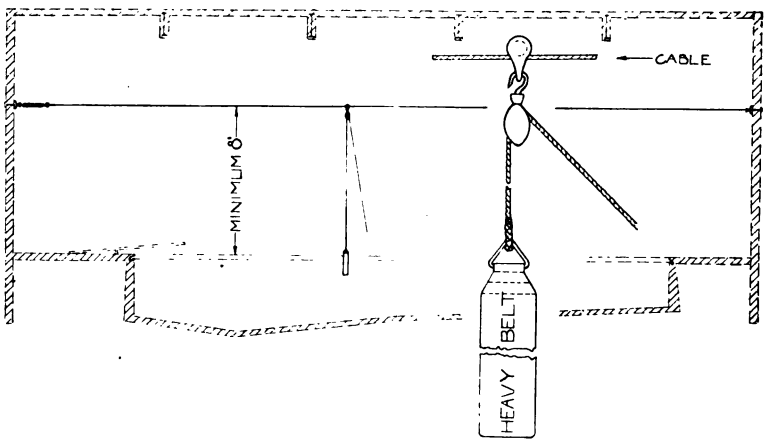
Fig. 32. **Official Intercollegiate Spring Board.** The use of this board requires a clear ceiling height of 12 feet minimum.

Architects have at hand or can secure necessary information to properly handle such technical matters as hot water supply, heaters, filters, sterilization, etc. The demand for clean, transparent water is so general that the use of filtered water should not be questioned. A filtration or refiltration system is recommended as part of standard equipment. In the long run it is usually an economy. Water sterilized by the Ultra Violet Ray process and cleaned by circulation through a refiltering plant, produces the finest results to date. At all hazards, swimming pool water should be clean and safe at all times. In this day and age, unsanitary, bacteria-laden water amounts to almost criminal negligence. Any institution which does not keep its swimming pool clean, should be closed and investigated by the Board of Health as a probable source of disease and infection. Unless an adequate system for refiltration of the pool water is installed, *and effectively operated*, swimming pool water should be changed once a week. In case of failure of filtration system, the following treatment will keep the water safe and free from a dangerous percentage of bacteria; One pound of chloride of lime (one-third available) to every forty thousand gallons (five thousand cubic feet) or one-quarter pound to each average foot of depth in a 25 foot by 60 foot pool. The less sunshine reaching the pool, the higher will be the percentage of bacteria.

Unless the overhead beams are unusually high, electric lights should be attached to, or suspended from the ceiling. The use of indirect or semi-indirect lighting fixtures will greatly increase the attractiveness of the lighting system. In rooms having mezzanine galleries projecting from the walls, it will probably be necessary to have additional lights on the under side of such galleries.

VIII. TOILET ROOMS.

The only consideration of this subject here necessary is to urge that a sufficient number be supplied. There should be an adequate toilet room closely connected with each separate locker and bath room. A general toilet, (usually one for each sex) will be found necessary for most gymnasium buildings.



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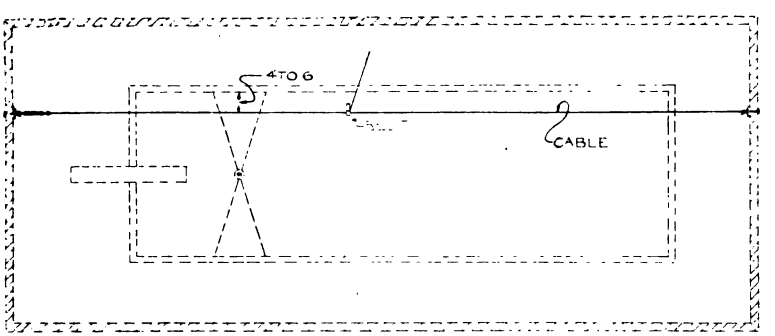
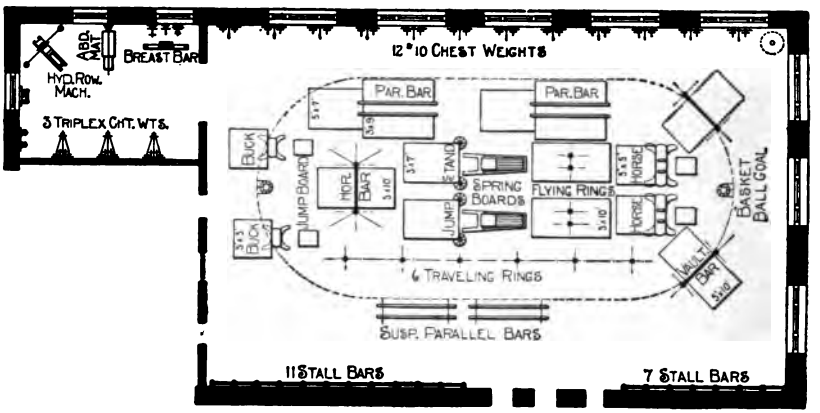


PLAN

Fig. 33. **Swimming Instruction Belt on Cable.** The belt is made of heavy webbing and fitted with shoulder straps. The pulleys which ride the cable and support the control rope, are brass. A turn buckle supplies necessary tension to the galvanized cable.

Rigid Track for Swimming Belts. An elliptical steel track, instead of the straight cable, is preferred by many Instructors. The track is usually "I" beam in section; the size corresponds in general to that of the Pool. Such tracks are not furnished as an item of Gymnasium equipment. Each one must be made to fit the particular requirements of each Pool and should be handled as part of the building.

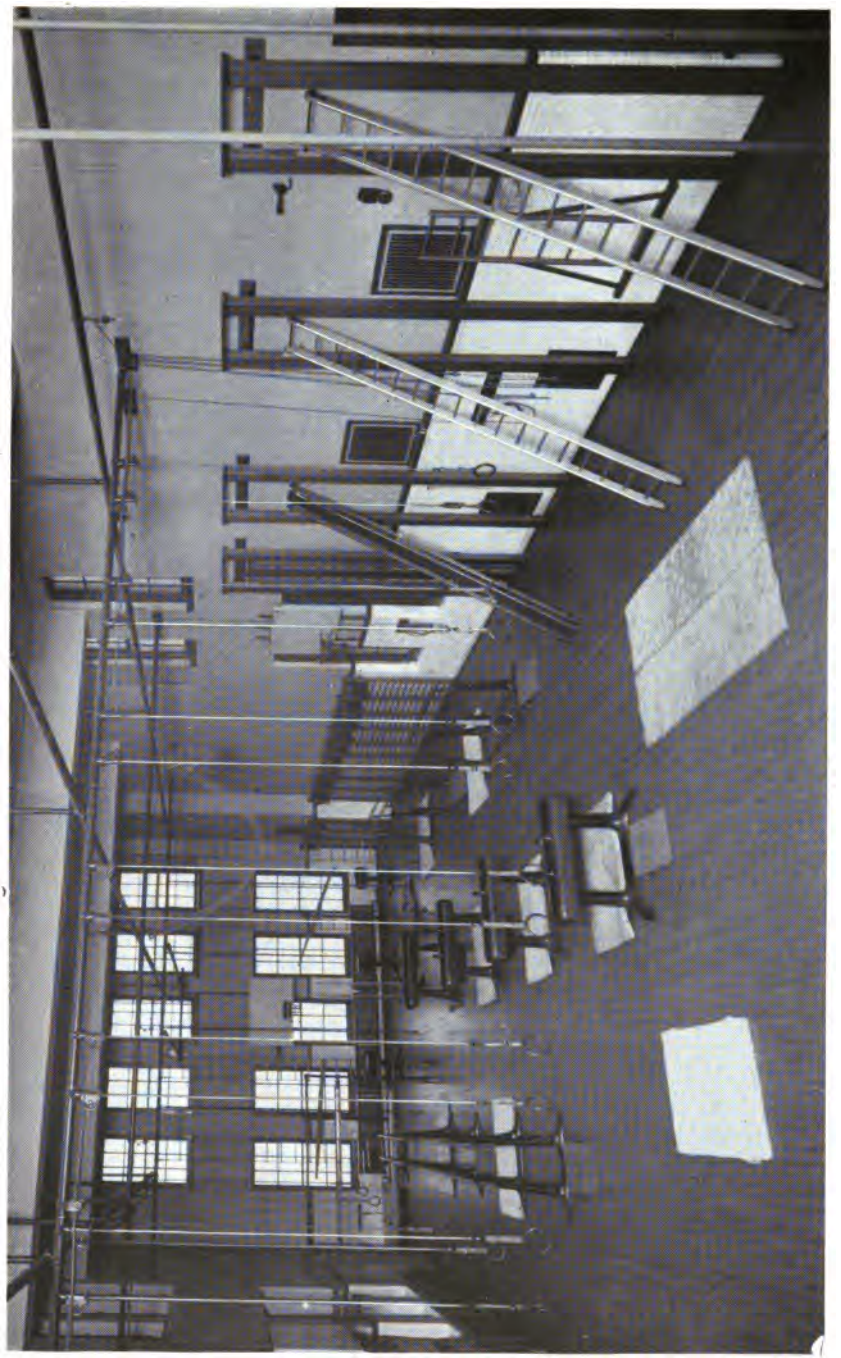


SPECIAL PLANS AND LISTS.

These Special Plans embody the experience of several years in fitting Gymnasia, and although they are gotten up at considerable expense to us we will furnish them free of charge, only asking that our claims for superiority of our apparatus be given careful consideration. They enable the matter of Gymnasium furnishing to be placed in convenient form before a committee for their consideration, revision, etc.

To make these plans we require full dimensions of the Gymnasium, height of gallery and railing, the location of the beams overhead and all windows, doors, etc. Generally the architect's plans contain all we need, and if desired, copies sent to us could be returned next day. The more complete the information we receive, the more value our plans and lists will have to intending purchasers.

When ready for Estimates on Equipment, send us plans as noted above, and we will make Plans showing the arrangement of Apparatus, Lockers, Alleys, or Running Track, with Detailed Estimates, in the best possible form for placing before directors or purchasing committees.



GIRLS' GYMNASIUM, MARSHALL HIGH SCHOOL, CHICAGO

HARDING SQUARE GYMNASIUM, SOUTH PARK COMMISSION, CHICAGO

STANDARD TWO-TIER LOCKERS

The regular lockers used in connection with the Standard Box Lockers as Dressing Lockers.

A Box Locker Cabinet of the same size would have three times as many lockers.

STANDARD BOX LOCKERS

Have six times as many Lockers as the one-tier locker, or three times as many lockers as the two-tier locker it is used in connection with.

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NOTE.

The Building Sketches presented herewith are not architects' plans. They are intended to convey suggestions based on our many years of contact with the progress of Gymnasium Buildings.

RENSSELAER POLYTECHNIC INSTITUTE GYMNASIUM, TROY, N. Y.

C. A. Hack & Son Inc., Taunton, Mass.