PLAY GYM CONSTRUCTION
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ABSTRACT OF THE DISCLOSURE
An improved play gym employs a horizontal tube having a plurality of squared-off sections thereon. At least two of these sections are situated adjacent the opposite ends of the tube and a pair of similar leg fittings engage around them. The remaining sections are oriented approximately 90° from the end sections and the active gym elements are suspended from the tube by brackets which removably engage over these remaining tube sections. Each bracket includes a pair of opposed chevron-shaped members which engage opposite sides of the corresponding section and are adjustable toward and away from each other to nonrotatively clamp different diameter tubes.

BACKGROUND OF THE INVENTION
Field of the invention
This invention relates to a gym set designed primarily for outdoor use. It relates more particularly to improvements in gym sets of the decorated variety which have a colored design applied to its load bearing elements.

The gym sets with which we are concerned here are very familiar items of play equipment. Generally, they comprise a bar horizontally supported above the ground by legs secured to the opposite ends of the bar. Various items of play equipment such as swings, ladders, glide rides, slides, rings, and the like, are suspended from the bar.

Description of the prior art
It is a usual practice with conventional gym sets to weld the brackets supporting the various play elements directly to the crossbar. Then, the crossbar and other elements of the gym set are spray-painted to protect them from the elements. Usually the paint cannot be applied easily to the crossbar after affixation of the various brackets because only one color is involved.

A relatively recent innovation has been the application of different color coatings to the crossbar and legs to decorate the gym set. For example, the entire crossbar may be coated red and then a white stripe superimposed on the red coating to give the crossbar a candy cane-like appearance. The overcoating is usually applied by appropriately masking the already coated bar and then spray-painting through the mask.

The application of such decorations to gym sets has presented some manufacturing problems. More particularly, no longer can the supporting brackets be welded to the crossbar. This is because if the brackets are welded to the crossbar prior to coating, then protrude out from the bar and interfere with the aforesaid masking operation. Needless to say, the brackets cannot be welded to the bar after it is already painted because the heat would ruin the coatings around the welds.

In practice, to overcome these problems, manufacturers have had to resort to various clamping arrangements to secure the various play elements to the crossbar. In one gym set of which we are aware, the crossbar is supported horizontally by legs attached to the crossbar in the usual way. The play elements are then suspended from the crossbar by means of a generally rectangular bracket which is slotted midway along its length so that it can engage over the crossbar. Opposite side portions of the crossbar are flattened to provide plane surfaces for engaging the sides of the slot in the bracket. A U-shaped clamp member extending up from below the crossbar is then secured to the bracket.

While these various prior clamping arrangements have enabled brackets to be installed on the already decorated crossbar, they have not performed entirely satisfactorily in use.

More particularly, these prior fixtures tend to loosen; they turn and twist relative to the crossbar so as to spoil the operation of the various play elements suspended therefrom. This is particularly so in the case of glide rides whose pendulum-like hangers must be balanced fairly critically in order for the ride to work properly.

Thus with the prior clamp-type bracket just described, only the relatively small area between the slot edges and the flattened surfaces of the crossbar prevent rotation of the bracket. After only a relatively short period of time, the edges of the slot bend and turn in, permitting the bracket to rock relative to the crossbar. If left unattended, this condition may continue until the bracket is twisted to a point where it actually interferes with proper operation of the particular play element which it supports.

Prior fixtures are disadvantaged also in that they have relatively large lever arms from the supporting crossbar to the connecting points to the particular play element. Thus, the bracket may bend under continued use and spoil the operation of the play element as described above. Simply strengthening these clamp elements by making them heavier increases the cost of the gym set. It must be mentioned at this point too that the crossbars for these gym sets commonly come in at least three different diameters. However, the prior fixtures are each able to fit only one size crossbar. This means that different brackets must be made for each of the three different size crossbars and separate spare-parts inventories thereof maintained for customers owning these sets. Needless to say, this is an expensive proposition.

Finally, gym sets using these prior fixings tend to be hard to disassemble. In large part, this is because the various bolts holding the gym fittings together absorb much of the stress to which the set is subjected. This holds true not only for the brackets supporting the individual play elements, but also for the corner fittings to which the legs are attached. Consequently, the threads on the bolts become crushed and deformed and the bolts themselves may even become bent, all of which make it difficult to remove the bolts.

SUMMARY OF THE INVENTION
Accordingly, it is an object of this invention to provide an improved gym set of the decorated variety.

A further object of the invention is to provide a gym set whose fixtures do not become loosened with use.

Further objects of the invention are to provide an improved gym set which a customer can easily assemble and disassemble himself.

Another object of the invention is to provide an improved gym set whose top bar brackets can fit crossbars having a variety of different diameters.

A still further object of the invention is to provide a gym set of the decorated variety which is relatively easy and inexpensive to manufacture.

A still further object of the invention is to provide an improved gym set whose fixtures maintain the proper orientation for the various play elements which they support.

Other objects of the invention will in part be obvious and will in part appear hereinafter.
The invention accordingly comprises the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereininafter set forth, and the scope of the invention will be indicated in the claims.

Briefly, my improved gym set comprises a horizontal tube having squared-off sections spaced along its length. Two of these sections are located adjacent the opposite ends of the tube. Two or more different color coatings are then applied to the tube, including the squared-off portions thereof forming a decorative design thereon.

A pair of end fittings are secured to opposite ends of the tube. Each such fitting includes a pair of diverging sockets connected by a web. The web is squared off in conformance with the corresponding end of the tube. When each fitting is in place, its web snugly engages the coated squared-off tube portion over substantially the entire area of the web so that the fitting and tube are securely locked against relative rotation. Legs are then removably inserted into the sockets in the two end fittings to support the tube horizontally above the ground. Preferably, the squared-off tube portions between the end fittings are offset angularly from the squared-off portions at the ends of the tube so that in cross-section, they are diamond-shaped with their corners at the top and bottom of the tube. The various play elements are suspended from the tube by means of chevron-shaped brackets which engage over and conform to the remaining squared-off coated tube portions. Mating chevron-shaped clamp members engage the tube from below in the same conforming relationship. Each member has threaded extensions which protrude through the corresponding bracket and the bracket and clamp member are drawn together by nuts turned on the extensions. When each bracket assembly is in place, it conformedly engages around substantially the entire perimeter of the tube. Therefore, the two coat to offer maximum resisting relative rotation.

The conforming diamond-shaped configurations of the bracket assembly and tube portions enable the same assembly to fit tubes having a variety of different diameters. That is, when the bracket and clamp member are drawn together or spread apart, they still bear the same relative angular relationship to one another and also to the squared-off portions of the different diameter tubes. The same bracket-tube configuration also distributes the stresses acting on the brackets thereby giving them a longer useful life.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a fragmentary perspective view of a gym set embodying my invention;
FIG. 2 is an exploded perspective view of selected elements of the FIG. 1 gym set;
FIG. 3 is an exploded perspective view of other elements of the FIG. 1 gym set; and
FIG. 4 is a side elevational view with parts in section of the FIG. 3 elements in place.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1 of the drawings, the gym set includes an elongated tube 10 having a generally circular cross-section. Tube 10 has relatively long squared-off sections 12a and 12b near its opposite ends. Additional squared-off tube sections 14a, 14b and 14c are spaced along tube 10 at those places where certain play elements are to be suspended from tube 10. As seen in FIG. 1, however, the squared-off portions 14a-14c are displaced angularly relative to sections 12a and 12b so that in cross-section, they are generally diamond-shaped with corners at the top and bottom of tube 10. While we have shown only three such sections 14a-14c, it will be appreciated that there may be fewer or more depending upon the number and nature of the play elements included in the gym set.

In practice, all the squared-off sections 12 and 14 are formed in tube 10 simultaneously using conventional dies which strike the tube at those places. Then a first paint coating 16a of one color is sprayed onto tube 10. Next, tube 10 bearing the first paint coating 16a is masked and then spray-painted again through the mask forming a second different color coating 16b. In this way, a variety of decorative designs may be applied to tube 10 such as the striped design illustrated in FIG. 1. The helical stripes 16b can run the full length of the tube 10 because the squared-off portions 12 and 14 do not interfere with the masking process.

Still referring to FIG. 1, special end fittings 18 are removably secured to tube 10 at the squared-off sections 12a and 12b thereof. Fixtures 18 conformingly engage sections 12a and 12b so that the fittings and tube cannot rotate relatively as will be described in more detail later.

Legs 20 are removably secured to fittings 18 to support tube 10 generally horizontally above the ground. Like tube 10, legs 20 may also carry a striped decoration.

Play elements such as a lawn swing (not shown) and a glide ride (not shown) are suspended by means of pendulum-like hangers 22 from bracket assemblies 24 secured to tube 10 at the squared-off portions 14a-14c thereof in a manner to be described later.

Other toys such as a swing may be suspended by chains indicated at 26 secured to tube 10 in the usual way.

Referring now to FIG. 2, each end fitting 18 comprises a pair of diverging sockets 32 and 34 connected together by a web 36. Web 36 is squared off in conformance with tube sections 12a and 12b so that it has a pair of substantially flat, spaced, parallel side walls 36a and 36b and a flat top wall 36c.

Web 36 is dimensioned to slide down over the top of the squared-off portions 12a or 12b of tube 10 in this, the webs 36a-36c of web 36 are brought into close gripping engagement with walls 35a, 35b and 35c, respectively, of portions 12a or 12b. This engagement over such large areas prevents fixture 18 from rotating relative to tube 10, even without additional securing means.

Once fixture 18 is in place on tube 10, as seen in FIG. 1, bolts 40 are inserted through openings 42 in walls 36a and 36b of fixture 18 and through openings 44 in the opposite walls 38a and 38b of portions 12a and 12b. Nuts 46 are threaded onto bolts 40 to firmly fasten fixture 18 to tube 10. Similar bolts 48 are inserted through openings 50 in the opposite sides of sockets 32 and 34 and through openings 52 in the opposite sides of legs 20. Nuts 54 turned down on bolts 48 securely legs 20 within their respective sockets.

It should be emphasized, at this point, that bolts 40 do not materially add to the nonrotative securement of fixture 18 on tube 10. Therefore, they are not subjected particularly to forces tending to bend them or to distort their threads.

Referring now to FIGS. 3 and 4, each bracket 24 comprises a chevron-shaped main section 60 and a generally V-shaped clamp section 62. In use, the two sections are drawn together and secured by means of nuts 64.

Main section 60 has a fairly wide roof-like top wall 66 and a pair of opposite side walls 68 and 70. Side walls 68 and 70 are both relatively short near the peak of section 60. However, their height increases as they proceed in both directions away from the peak and walls 68 and 70 are terminated at their opposite ends by relatively large cars 72 and 74, respectively.

Also, both legs of side wall 70 are formed with relatively large area depending tabs 76 which are turned under parallel to top wall 66 so as to form a partial bottom wall on bracket section 60. The legs of side wall 68 also
have turned-under tabs 78 which partially complete the bottom wall of section 60.

An approximate 90 degree angle between the two legs of bracket section 60 enables section 60 to nest down nicely on the diamond-shaped, squared-off tube sections, e.g. 14a. The flat bottom wall formed by tabs 76 and 78 engages section 14a over a relatively large area thereof providing a firm seat for bracket section 60. When section 60 is properly in place on section 14a, as seen in FIG. 4, the two legs of section 60 overhang tube 10. More particularly, ears 72 and 74 protrude out sideways from tube 10. Hanging brackets (FIG. 1) are swingingly mounted on pivots (not shown) installed in in-line passages 80 in ears 72 and 74.

Still referring to FIGS. 3 and 4, each bracket section 62 includes a pair of legs 62a and 62b connected on end to make an included angle of approximately 90 degrees. Legs 62a and 62b themselves have threaded leg extensions 62c and 62d, respectively, which extend parallel to one another and make an included angle of approximately 45 degrees with their corresponding leg.

Elongated passages 84 and 86 are provided near opposite ends of top wall 66 of bracket section 60 to accommodate the threaded leg extensions 62c and 62d, respectively of bracket section 62. As best seen in FIG. 4, when the two bracket sections 60 and 62 are in place, legs 62a and 62b tightly engage the undersides of tube section 14a and leg extensions 62c and 62d protrude through passages 84 and 86 at angles spaced out sideways from tube 10.

Nuts 64 are turned down on legs extensions 62c and 62d until the two bracket sections are clamped tightly together on opposite sides of tube section 14a. Preferably, portions of top wall 66 around passages 84 and 86 are cocked slightly by striking them to form ribs 88 on the downhill sides of the passages. This provides a relatively level seat for each nut 64 as seen in FIG. 4.

The top bar bracket construction disclosed herein is particularly advantageous because it can be accommodated to tube 10 having a variety of different diameters. More particularly, as best seen in FIG. 4, bracket sections 60 and 62 can also nonrotationally clamp the equal angle of section 92 indicated in dotted lines belonging to a much larger diameter crossbar. To accomplish this, nuts 64 are loosened sufficiently to enable bracket section 62 to assume the dotted line position 94. Because of the angles involved, bracket sections 60 and 94 still engage tube section 92 around substantially its entire perimeter, so there is little or no chance of bracket 24 tilting or cocking relative to the larger diameter crossbar. This feature is very desirable because, in practice, manufacturers make gym sets with crossbars having as many as three different diameters. For example, current gym sets employ crossbars having outside diameters of 2, 2 1/4 and 3 inches. The present bracket construction minimizes the cost of manufacturing gym sets because the manufacturer need only make one die to form brackets that will fit all diameter crossbars. Moreover, the need only maintain a single supply of brackets to provide replacement parts for customers. Thus, there is a saving not only in initial cost of these sets, but also of space, and therefore overhead.

Thus, as seen from the foregoing, the present gym set is easily assembled and disassembled by the customer. Moreover, it requires very little attention as far as balancing the various rides are concerned because of the novel bracket and end fitting constructions. Much of the stress imposed on the brackets is tensile, i.e. along the legs thereof instead of being substantially all shear stress as is the case with prior constructions. This prolongs the life of the set components.

Also, now, play gym can be decorated with fanciful designs without materially increasing the cost of the play gym. The disclosed fittings and brackets can be installed after the components of the play gym are already decorated by either the manufacturer or the customer without marring the decoration. Finally, the present construction means a cost saving for the manufacturer.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. An improved gym set comprising
   (A) a tube (10) having
      (1) a generally circular cross section, and
      (2) a plurality of squared-off sections (12, 14a)
      therealong, at least two of said sections (12a, 12b) being located adjacent the opposite ends of said tube, the squared-off sections (14a) intermediate the ends of said tube being oriented relative to the axis of said tube so that opposite corners thereof are located substantially at the top and bottom of said tube, and
   (B) a pair of end fittings (18) removably secured to the sections at opposite ends of said tube, each of said fittings comprising
      (1) a pair of diverging leg-supported sockets (32, 34), and
      (2) a web (36) connecting said sockets together, said web being squared-off in conformance with said flattened sections adjacent the ends of said tube.

2. An improved gym set as defined in claim 1 and further including brackets (24) removably secured to said tube at the squared-off sections (14a) thereof, each said bracket comprising
   (A) a chevron-shaped upper section (60)
      (1) having a pair of legs making an included angle of about 90 degrees, and
      (2) engaging over the top of said flattened section,
   (B) a bottom section (62)
      (1) having a pair of legs (62a, 62b) making an included angle of about 90 degrees, and
      (2) having a pair of threaded leg extensions (62c, 62d) making an included angle of about 45 degrees with their respective legs.
    (3) engaging the underside of said flattened section with said extensions passing through said upper section, and
   (C) threaded means (64) turned down on said extensions so as to draw said bracket sections together and clamp said flattened section between them.

3. An improved gym set as defined in claim 2 and further including plural color coatings on said tube forming a decorative design along substantially its entire length, including said flattened sections.

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