WEIGHT SECURING MEANS ON A BAR BELL ASSEMBLY

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

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This invention relates to exercising devices of the barbell type, and more particularly to improvements in the means used to hold weights in a secure position on the bar.

The bars, weights and clamps customarily used for such devices are made of cast iron or steel and become rusty and do not appear clean and attractive. The clamp which retains the weights on the bar is bulky and usually requires an additional wrench for tightening a set screw or other locking means. The entire assembly is also noisy when it falls against the floor, due to the many points where there is metal-to-metal contact. The various parts are extremely hard and their edges are sharp. Consequently, they badly mar wall and floor coverings.

A primary object of this invention is to provide a colorful, attractive barbell assembly which has a simple and convenient clamp which retains the weights on the bar. This object is realized partially by enclosing the weights and the bar with a clean, colorful organic polymer such as vinyl, polyethylene or nylon.

Another object is to simplify the manner in which weights are retained on the bar during use. An abutment held between plastic sleeves which are slipped over the bar, prevents the weight from going to the center of the bar; while a contractible clamp is located outside the weights to prevent weights from falling off the bar. Still another object is to provide efficient means in a barbell for retaining a contractible clamp on the bar to hold the weights thereon. Particularly, this object is satisfied by structure including a plastic covered bar and a contractible clamp provided with an inwardly extending projection which penetrates or otherwise deforms the plastic material on the bar, so that the clamp is held securely in position on the bar. This combination enables the use of lighter materials and less critical tolerances than would be necessary if a metallic contractible clamp were simply placed over a solid metal bar.

A further object is to provide a barbell assembly which enables a user to change weights quickly and easily, without the use of any special wrenches or other tools.

Additional objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawings:

FIGURE 1 is a perspective view of the assembled exercising device.

FIGURE 2 is a partial sectional view of one end of the device showing the clamp, weight and abutment collar positioned on the bar.

FIGURE 3 is an elevational sectional view of the clamp only, taken along the lines 3–3 of FIGURE 2.

FIGURE 4 is a similar sectional view showing the clamp in an open condition.

FIGURE 5 is an enlarged sectional view of the cylindrical encircling band of the clamp, taken along the lines 5–5 of FIGURE 3.

Referring now specifically to the drawings the numeral 10 designates the elongated metal bar, preferably cylindrical in shape, upon which the radially enlarged abutment collars 11, weights 12 and clamps 13 are mounted to constitute the complete device.

The bar 10 is covered with an organic polymer in tubular sections separated by the collars 11. As shown in FIG. 2, the middle portion of the bar is covered by the section 14; and each end portion is covered with a section 15 which extends from its respective collar 11 toward the end of the bar, and a tip piece 16. The collars 11 are molded plastic, slantly fitting the bar 10, and held in their desired axial positions by selecting appropriate lengths for the plastic sections 14 and 15. The inside diameter of each of the collars is, as shown, approximately equal to the diameter of the bar 10. Of course, the purpose of the collars 11 is to prevent the weights from sliding onto the mid-portions of the bar.

The weights 12 are toroidal shells of an organic polymer filled with a heavy solidified material 17 such as concrete. One face of each of the collars 11 is curved slightly inwardly at 18 to snugly engage the rounded or recessed inner edges of the weights 12.

The clamping devices 13 are molded plastic and consist of the cylindrical band 19 longitudinally slitted at 20, with the radial projection 21 on one side of the slit and the parallel arms 22, 23 extending from the other side of the slit. The cam lever 23 with the cam portion 24 and handle part 25 is pivotedly mounted between the arms 22 by the pivot pin 26. An annular projection 27 is provided on the inner surface of the band 19 to compressively deform the plastic cover 15 when the clamp 13 is closed, thereby securely holding the clamp in the desired position on the bar. The materials of the plastic cover 15 and of band 19 are both resilient to some extent; but the material of the band 19 must be harder than that of the cover, so that projection 27 will deform the cover as shown without actually cutting the material of the cover.

The simple operation of the clamp will best be seen in FIGS. 3 and 4. In FIG. 4, the clamp is shown in its open position, which it tends to maintain due to some resilience in the band 19. When the handle 25 is moved in a counterclockwise direction, the nose of the cam portion 24 rides along the projection 21 which acts as a cam follower to urge the band 19 to its contracted position. At the end of its travel, the cam 24 has slightly passed its over-center position and is prevented from moving further due to the fact that the integral handle 25 has then contacted the band 19. In this position, the projection 27 of band 19, shown in FIG. 5, deforms the plastic covering on the bar to secure the clamp 13 firmly in a given position on the bar.

The parallel arm 22 which is nearer to the weight is axially spaced from at least one annular end surface 19a of the cylindrical band 19 to insure an even circumferential contact between the clamp 13 and the weight 12, and also to permit the cam lever 23 to be moved without contacting the weight.

From the foregoing description, it will be appreciated that a clean, attractive barbell set has been provided which enables a user to easily and quickly change the weights. Moreover, the particular combination of elements and materials makes it possible to use lightweight materials and more liberal tolerances than if other materials were used.

While the invention has been shown and described with reference to specific structural features of only one possible embodiment, it will be appreciated that changes may be made in the elements as well as the general organization. Such modifications and others may be made without departing from the spirit and scope of the invention set forth in the appended claims.
We claim:
1. An exercising device comprising, a cylindrical bar, resilient means covering said bar, an abutment spaced inwardly from an end thereof, a weight encircling said bar and lying adjacent to and outwardly of said abutment, clamping means including a band encircling said bar and lying adjacent to and outwardly of said weight, said clamping means having means for contracting said band circumferentially to firmly grip said bar, said band having inwardly extending projection means, said projection means significantly compressively deforming said resilient means when said clamping means is in a closed position.
2. An exercising device comprising, an elongated bar having a radially enlarged abutment spaced inwardly from the end thereof, a weight encircling said bar and lying adjacent to and outwardly of said abutment, a resilient tubular covering means surrounding said bar and extending outwardly beyond said abutment toward the end of said bar, clamping means including a band means encircling said resilient covering means and lying adjacent to and outwardly of said weight, said clamping means having means for contracting said band circumferentially to significantly compressively deform said resilient covering means on said bar when said clamping means is in a closed position.
3. The exercising device of claim 2 wherein said abutment is an annular body separable from said tubular covering with a central aperture having an inside diameter approximately equal to the diameter of said bar, and said tubular covering means lies in contacting relationship with both sides of said abutment to retain said abutment in a fixed axial position on said bar.
4. The exercising device of claim 2 wherein said band of said clamping means has inwardly directed projections indenting said resilient covering means.
5. The exercising device of claim 2 wherein said clamping means comprises a band which has an axial slit therein, said means for contracting said band including a cam surface connected to one side of said slit and a cam follower surface for contacting said cam surface located on the other side of said slit, and lever means for urging together said cam surface and said cam follower surface.
6. The exercising device of claim 5 wherein said clamping means includes means for contacting said weight.

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