

[54] **EXERCISE APPARATUS FOR ATTACHMENT TO AN OVERHEAD FRAME**

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[58] Field of Search272/60, 62, 67, 79 R, 84, 85; 5/211

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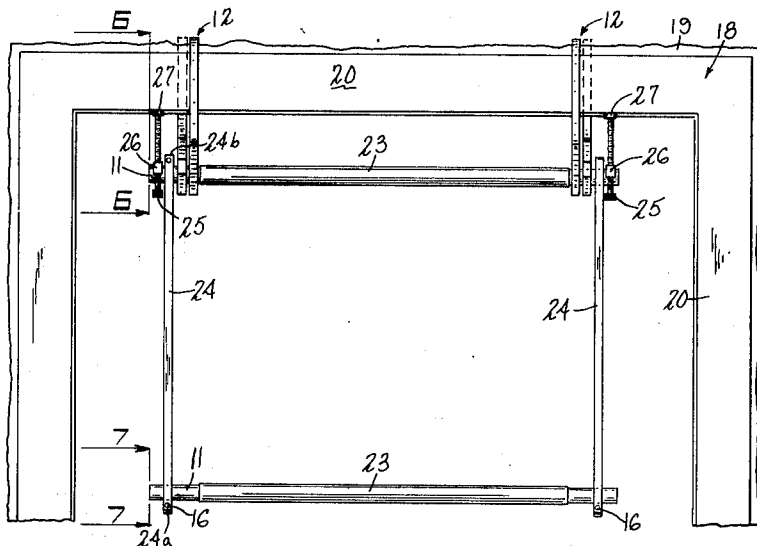
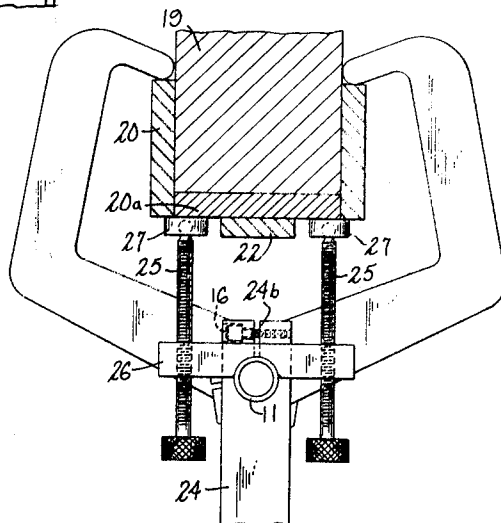
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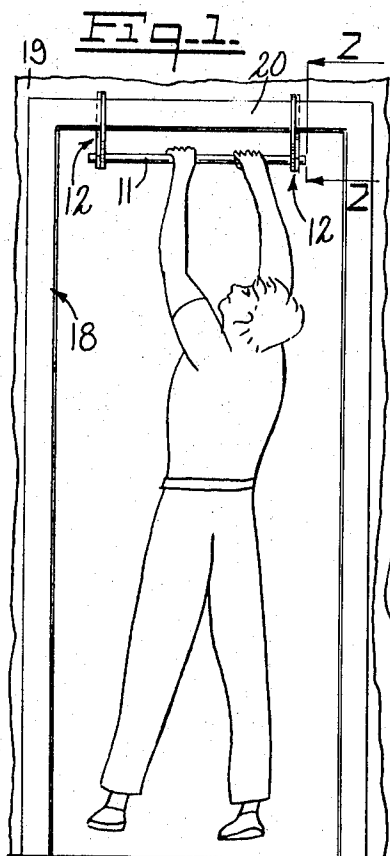
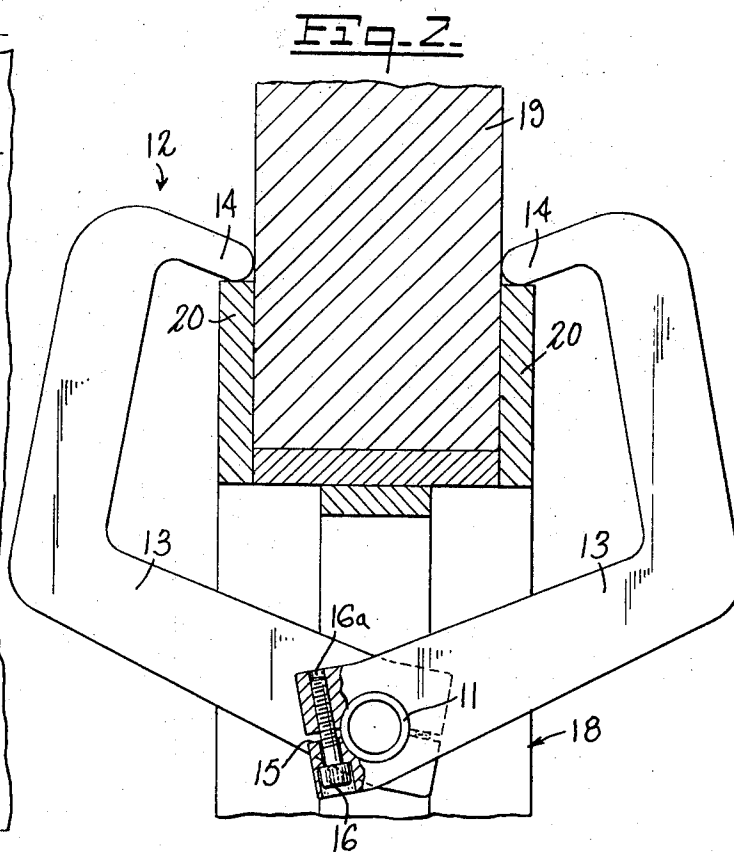
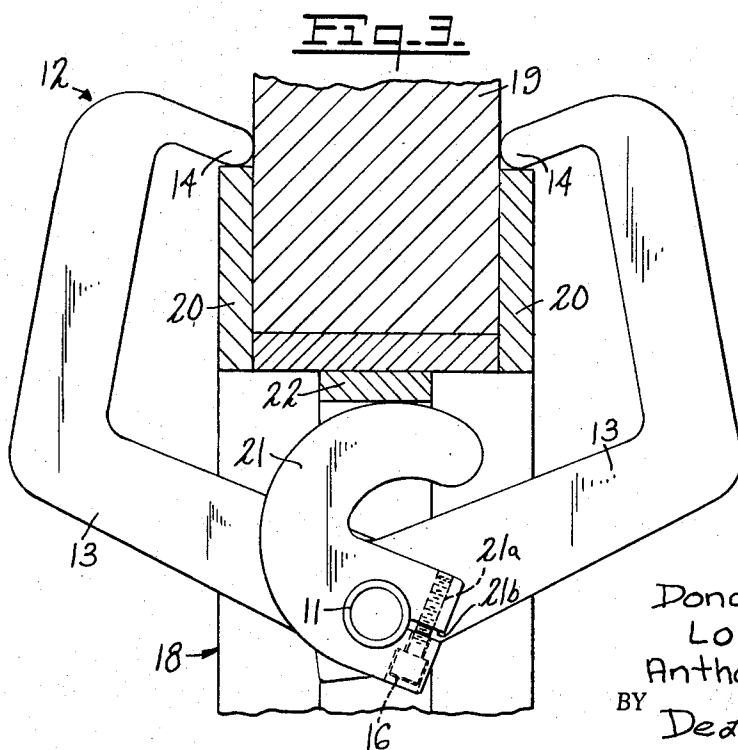
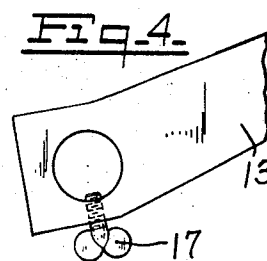
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[57] **ABSTRACT**

Exercise apparatus for attachment to an overhead support or frame comprising a pair of clamps and an elongated bar held horizontally at each end thereof by the clamps. Each clamp comprises a pair of support members having apertured lower ends concentrically overlapping to receive an end of the bar. Intermediate portions of the support members are angled such that the apexes of the angles point away from each other. The clamps are further secured on the bar by a pair of yokes disposed one across each end of the bar. A pair of set screws through each of the yokes about the underside of the overhead frame so as to stabilize the position of the clamps below the frame.

10 Claims, 7 Drawing Figures

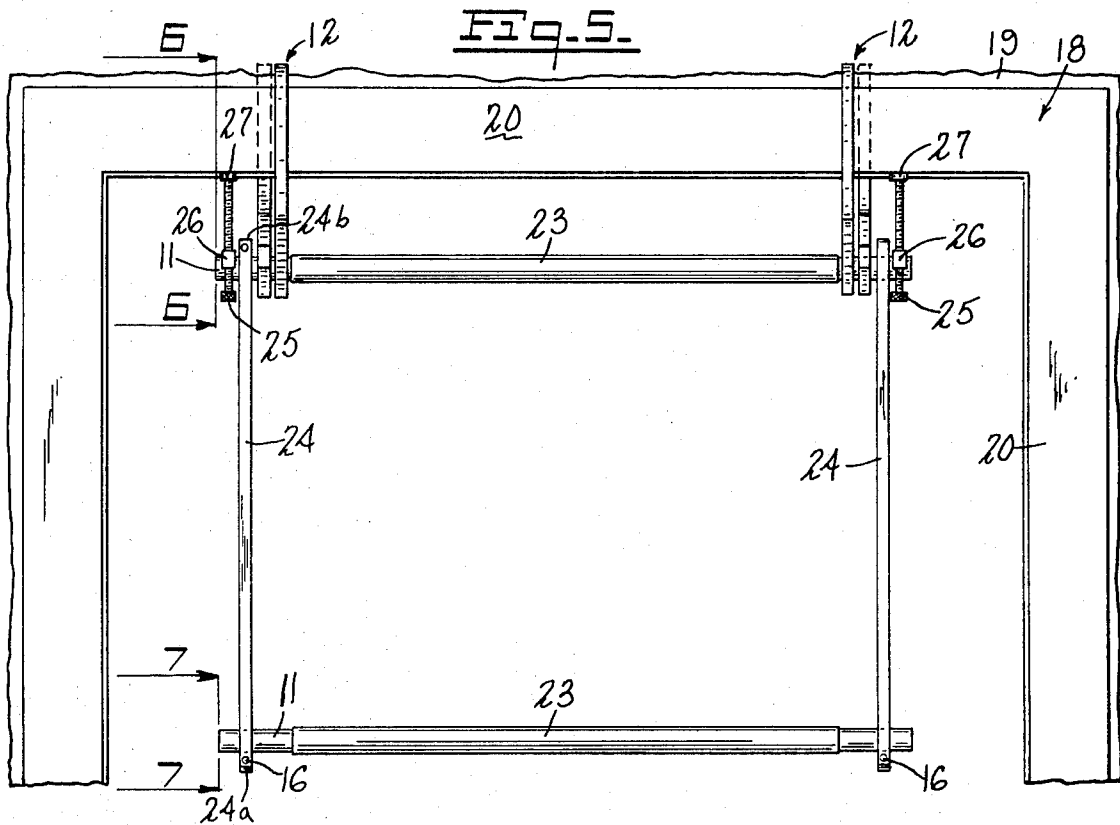
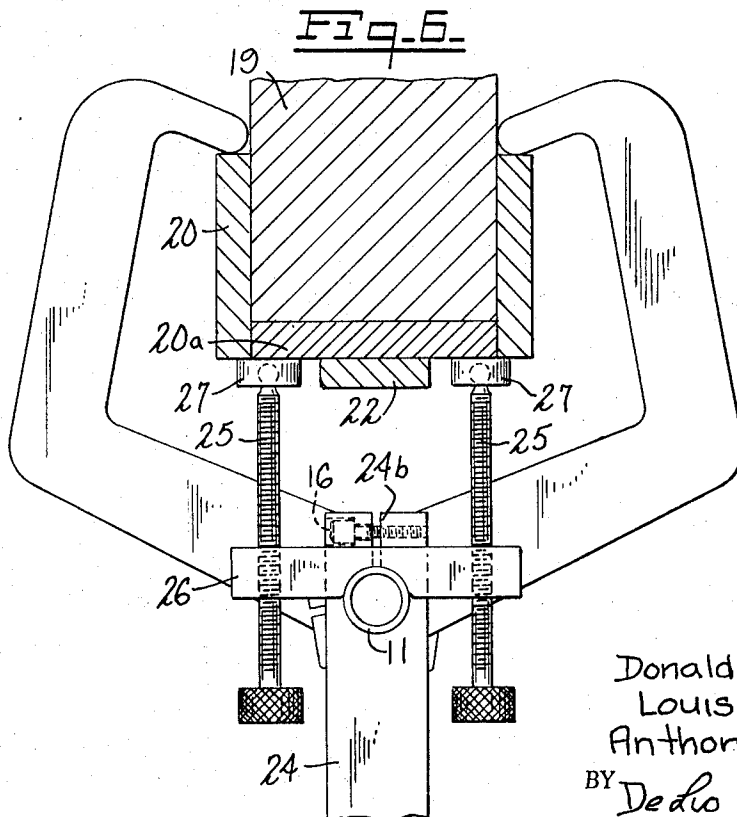
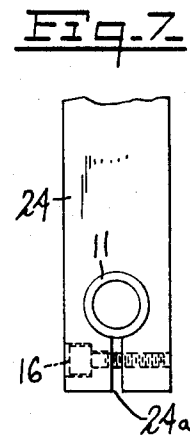




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EXERCISE APPARATUS FOR ATTACHMENT TO AN OVERHEAD FRAME

BACKGROUND OF THE INVENTION

This invention relates to a new and improved exercise apparatus or device. In another aspect, this invention relates to new and improved clamping means for conveniently securing a gymnastic or exercise bar below an overhead frame such as a doorway header or the like.

A principal object of the invention is to provide new and improved apparatus for exercising conveniently and safely in the home or other locations where there is available an overhead frame of the type normally found in the construction of a doorway frame or header.

Another object of the invention is to provide new and improved clamping means for securely and safely holding an exercise bar to an overhead frame.

Still another object of the invention is to provide a new and improved exercise apparatus which is easily secured and removed from the overhead portion of a doorway frame, in which the exercise bar member is prevented from rotating and other portions of the apparatus resist vertical or rocking motion.

An additional object is to provide a new and improved exercise apparatus in which the weight of the person exercising contributes to the tight and safe engagement of the apparatus with an overhead frame.

A further object is to provide new and improved exercise apparatus including means for placing an exercise bar within the reach of a smaller person such as a child, while also providing for exercising either by lateral movement of a lower exercise bar or by maintaining a lower exercise bar in a rigid position. Still other objects, features and advantages of the invention will in part be obvious and will in part be apparent from the following specification.

The invention accordingly comprises the features of construction, combinations of elements, and arrangements of parts which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

In summary, the exercise apparatus of the invention is adapted for attachment to an overhead frame and comprises a pair of clamps and an elongated first bar held horizontally at each end thereof by the clamps, each clamp comprising a pair of support members having apertured lower ends concentrically overlapping to receive an end of the bar, intermediate portions of the support members being angled such that the apexes of the angles point away from each other, and the upper ends of the support members defining means for gripping a horizontal surface of the overhead frame.

For a fuller understanding of the nature and objects of the invention, reference is had to the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a front elevational view, partly in fragment, of a conventional doorway frame showing attachment of an exercise apparatus of the invention and a person exercising thereon;

FIG. 2 is an enlarged sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is an enlarged sectional view similar to FIG. 2 showing another embodiment of the invention;

FIG. 4 is a fragmentary view of another means for securing the exercise bar;

FIG. 5 is a front elevational view of another embodiment of the invention;

FIG. 6 is an enlarged sectional view taken along line 6—6 of FIG. 5;

FIG. 7 is a fragmentary sectional view taken along line 7—7 of FIG. 5.

With reference to FIG. 1, there is shown in position on a conventional door frame 18 an exercise apparatus of the invention comprising a pair of clamps 12 holding an elongated bar 11 near the ends thereof. The clamps releasably engage the overhead horizontal cross member 20 of frame 18 in a manner to be further described hereinafter. FIG. 1 further illustrates an exercise position relative to the location of the exercise apparatus in the doorway frame 18.

With reference to the form of the invention shown in FIG. 2, it will be noted that clamp 12 comprises a pair of support members 13 which preferably are rigid or semi-rigid. Each support member has an aperture at the lower end thereof, which apertured ends are concentrically overlapped to receive an end of elongated bar 11. Additionally, each of the lower ends of the support members 13 are split to form slits 15 running from the end of the support member to the apertures thereof. This construction provides a split binding arrangement including an Allen screw 16 threadably engaged in channel 16a across slit 15, thereby providing tight closure of the ends of support members 13 around bar 11.

As clearly shown in FIG. 2, support members 13 are each angled at intermediate portions to form elbows or apexes which point away from each other, and the upper ends of the support members are angled inwardly towards each other to form means such as angled extensions or hooks 14 for gripping or engaging horizontal cross member 20 supported on wall 19. The angled intermediate portions of support members 13 operate to direct a portion of the downward force, exerted on cross members 20 by the weight of the person exercising on bar 11, against the sides of wall 19. This provision of a force component acting against wall 19 contributes significantly to the firm engagement of the clamps 12 with overhead frame 18, the firmness of the engagement increasing with the weight of the person exercising. The degree to which the intermediate portions of support members 13 are angled may be substantially varied as desired provided at least some inward clamping effect is obtained.

The exercise apparatus is conveniently fixed in position below overhead frame 18 by tightening Allen screw 16. At the same time bar 11 is prevented from rotating. It will thus be apparent that vertical as well as lateral movement of the exercise apparatus is prevented, thus contributing to the safety of its use.

In the alternate embodiment of FIG. 3, support members 13 additionally are overlapped by involute cam surface 21 which engages bar 11 and is held thereon by tightening of an Allen screw 16 threadably engaged in a channel 21a across a slit 21b cut in the end of the cam surface in a manner similar to that of the split ends of support members 13. Cam surface 21 is positioned to engage the underside of horizontal cross member 22 of overhead frame 18 so as to force clamp 12 to an equilibrium locking position on overhead frame 18. It will thus be seen that cam surface 21 cooperates with the split bindings on the lower ends of support members 13 to further reduce any tendency of the clamp to move after positioning on overhead frame 18.

FIG. 4 illustrates alternate means for tightening support members 13 against bar 11 in order to prevent rotation of the bar as well as to affix clamp 12 to the overhead frame. Illustrated in FIG. 4 is a tap screw 17 which may be an Allen screw or, as shown, wing-headed. This type of screw eliminates the need for slits in the support members 13 such as slit 15 and, especially if wing-headed, contributes to convenience in locking the clamp in position below the overhead frame. While FIG. 4 shows the use of tap screw 17 in conjunction with a support member 13, the same type of screw may be employed with cam surface 21 in place of the split binding construction of the cam surface.

FIGS. 5, 6 and 7 illustrate additional means for stabilizing the position of clamps 12 below overhead frame 18 as well as means for conveniently placing an exercise bar within the reach of a smaller person such as a child. With reference to FIG. 5, there is shown a first exercise bar 11 positioned below an overhead frame 18 by clamps 12 substantially as described with reference to the preceding figures. Additionally, however, there is provided a pair of yokes 26 positioned one across each end of bar 11. A pair of set screws 25 threadably engages each end of yoke 26 to force a pair of stops 27 against the underside horizontal cross member 20a of overhead frame 18. It is thus apparent that the combination of yokes 26 and set screws 25 provides stabilization of the exercise apparatus in a manner similar to that provided by the embodiments of the preceding figures.

Optionally, bar 11 is provided with a gripping surface 23 in the form of a plastic or synthetic rubber annular coating, covering or sheath tightly adhered to or frictionally engaging the surface of bar 11. Alternatively, bar 11 may be manufactured with a gripping surface such as cross hatching or the like.

Also shown in FIG. 5 is a second elongated bar 11 suspended below the first bar 11 by vertical members or hangers 24 which may be straps, chains, rods, or the like, but preferably are rigid or semi-rigid members provided with split binding ends 24a and 24b similar to those of the previous figures. Vertical members 24 may be of any length sufficient to bring the lower bar 11 within the reach of a shorter person. Furthermore, lower bar 11 may be loosely fixed on upper bar 11 so as to provide a swing or trapeze bar, or lower bar 11 may firmly engage or be locked in position on upper bar 11 by means of an Allen screw passing across a split end in a manner similar to the lower ends of support members 13 in the preceding figures. Of course, in place of Allen screw 16, other tightening means may be employed such as the tap screw 17 of FIG. 4. FIG. 7 shows in detail the construction of a lower end of vertical member 24 along line 7-7 of FIG. 5. While an Allen screw is shown as the means for tightening split binding end 24a around bar 11, it will be apparent that other means for engaging lower end 24a with bar 11 may be employed, such as the tap screw 17 of FIG. 4.

It will be apparent from the foregoing description that bar 11 is only representative of elongated horizontal members. The bar may be a solid member such as a rod, or a hollow member such as a tube, and may be constructed of any suitable material such as steel, heavy-duty aluminum, or heavy-duty plastic. Similarly, the material of construction of clamps 12 may be steel, heavy-duty aluminum or heavy-duty plastic although a

metal is preferred. By virtue of the new and improved exercise apparatus of the invention, a convenient and safe mode of exercising is provided for use in the home or at other locations, particularly since the apparatus is conveniently removable and portable.

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 constructions set forth without departing from the spirit and scope of the invention, it is intended that all matter contained in the descriptions and shown in the accompanying drawings shall be interpreted as illustrative and not necessarily in a limiting sense.

It is also to be understood that the following claims are intended to cover all the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language might be said to fall therebetween.

What is claimed is:

1. Exercise apparatus for attachment to an overhead frame comprising:

a pair of clamps and an elongated first bar held horizontally at each end thereof by said clamps, each clamp comprising a pair of rigid support members having apertured lower ends concentrically overlapping to receive an end of said bar,

intermediate portions of said support members being angled such that the apexes of the angles point away from each other,

the upper ends of said support members defining means for gripping a horizontal surface of said overhead frame,

screw means operatively connected to each of said lower ends below and laterally of said bar, whereby rotation of said bar in said clamps is prevented and said clamps are securable on said surface,

said apparatus further including a pair of yokes disposed one across each end of said bar and a pair of set screws threadably engaging each yoke and abutting the underside of said overhead frame, whereby said clamps are further securable on said horizontal surface.

2. The exercise apparatus of claim 1 wherein said lower ends of said support members below said apertures are split and adapted to receive said screw means for biasing the split ends towards each other.

3. The exercise apparatus of claim 2 wherein said screw means comprises an Allen screw.

4. The exercise apparatus of claim 1 wherein said screw means comprises a tap screw.

5. The exercise apparatus of claim 1 further including a second elongated bar and a pair of hangers for suspending said second bar from said first bar.

6. The exercise apparatus of claim 5 including means on said hangers for locking said second bar in position below said first bar.

7. The exercise apparatus of claim 6 wherein said locking means comprises a split binding on the upper end of at least one of said hangers.

8. The exercise apparatus of claim 5 wherein the lower ends of said hangers below said second bar are split and adapted to receive an Allen screw for biasing the split ends towards each other whereby rotation of said second bar is prevented.

9. The exercise apparatus of claim 8 wherein said bars are each provided with a non-slip surface.

10. The exercise apparatus of claim 1 wherein said bar is provided with a non-slip surface.

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