

Oct. 1, 1963

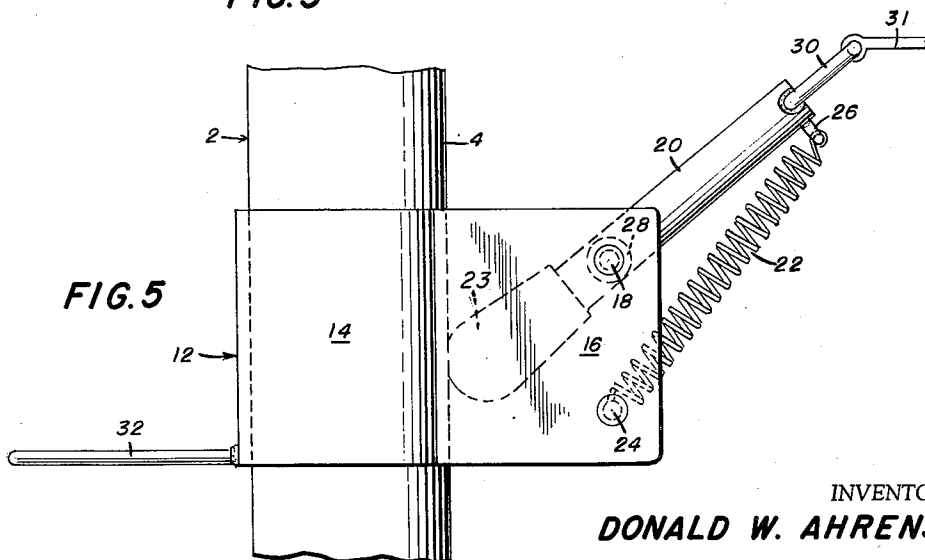
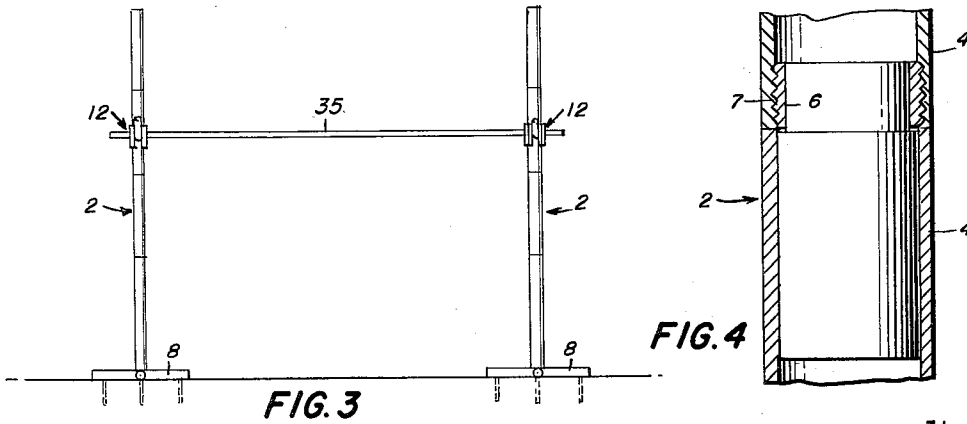
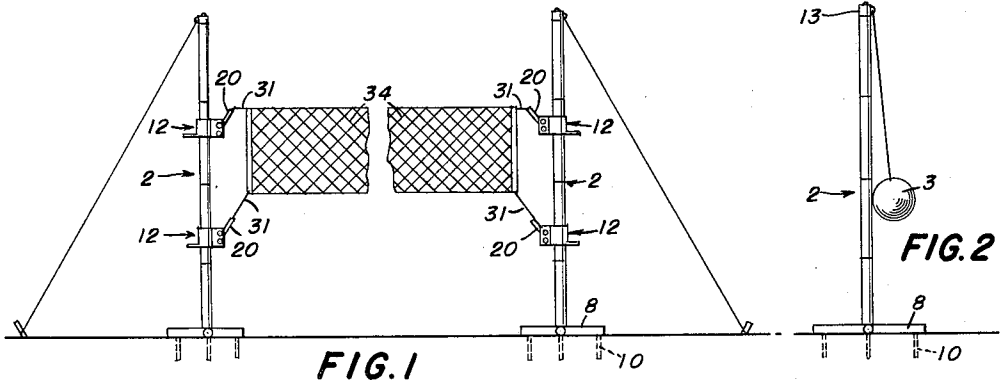
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3,105,682

SELF-LOCKING COLLAR AND COOPERATING STANDARD

Filed Sept. 18, 1958

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

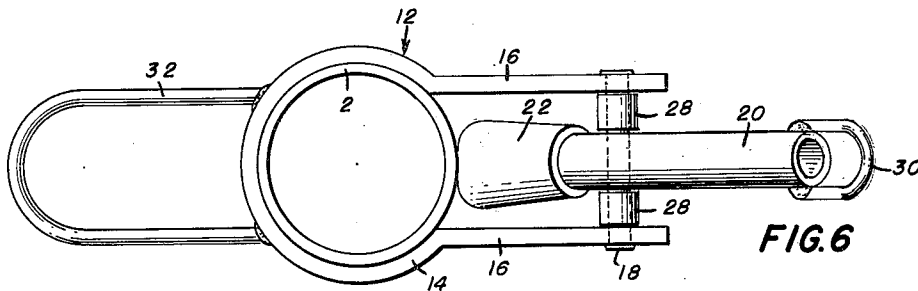


FIG. 6

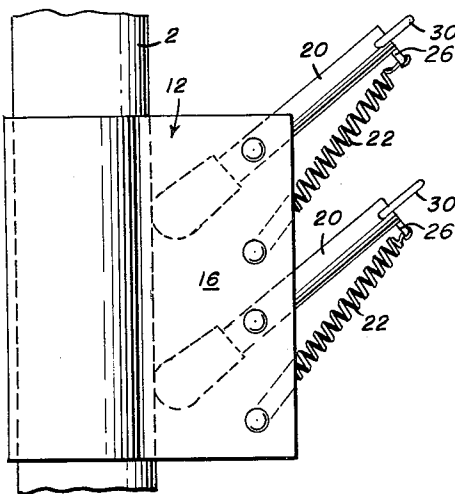


FIG. 7

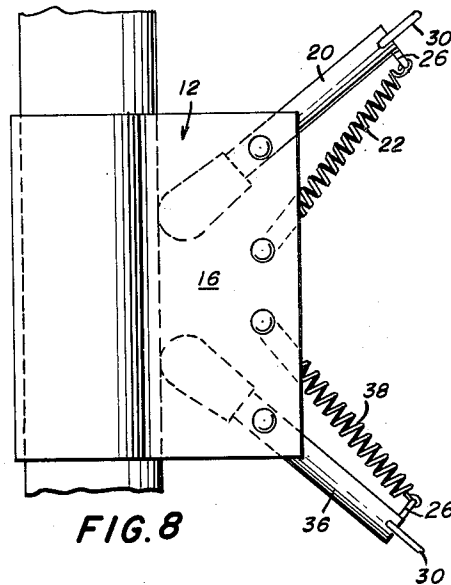


FIG. 8

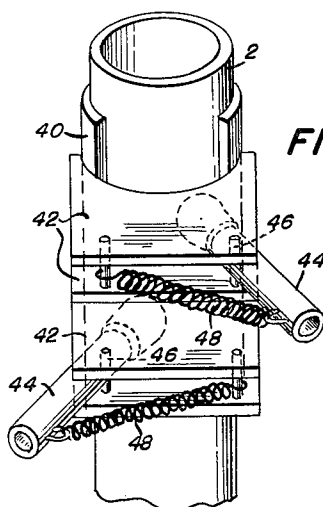


FIG. 9

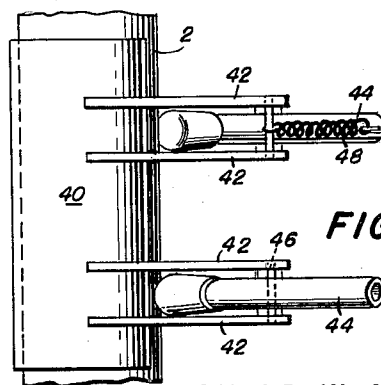


FIG. 10

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3 Sheets-Sheet 3

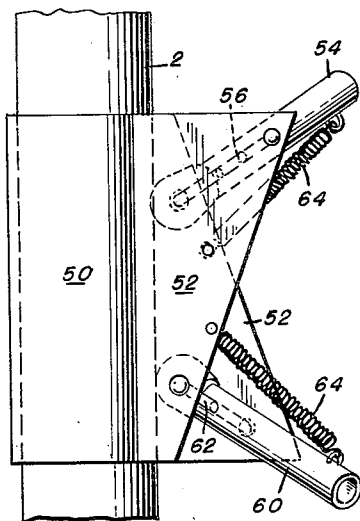


FIG. 11

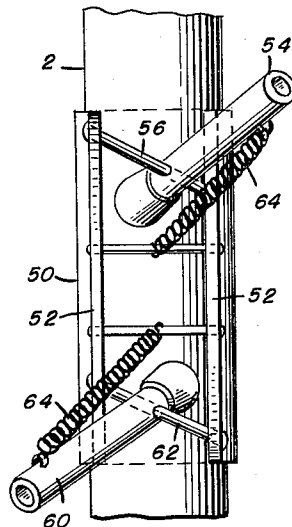


FIG. 12

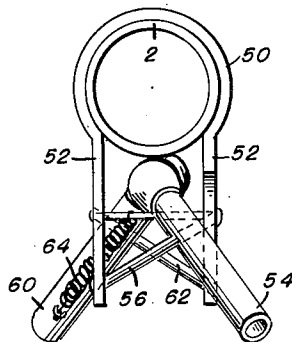


FIG. 13

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3,105,682 SELF-LOCKING COLLAR AND COOPERATING STANDARD

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5 Claims. (Cl. 272—59)

This invention is a variably positionable, self-locking collar; the invention also includes a cooperating standard. The combination of collar and standard is capable of various uses, where it is desired to position a vertically slidable collar on a standard at various heights. Possible uses are standards for various athletic contests, such as the high jump and pole vault; for use in supporting tennis and badminton nets; for tether ball; for clothes lines; for a drill press, etc.

The standard used is preferably in detachable sections, which can be coupled together to make a standard of the desired height. The several sections are of uniform outside diameter, so that the collar is readily slidable vertically thereon.

The principal object of the invention is to provide a collar which can be manually released from a particular place on the standard, moved upwardly or downwardly, to a new level, and released, whereupon the collar locks itself automatically at that level until it is desired to move it to another level.

More specifically, the collar comprises a body portion which encircles the standard, the body portion being extended into two parallel spaced apart plates.

Between these plates is pivoted a lock lever, one end of which engages frictionally with the standard; a spring or other force, when applied to one end of the lever, pulls the other end of the lever into engagement with the standard and holds it there. However, this lever is readily releasable by hand, to disengage the lever, to enable the collar to be moved to a new position, in which position, it locks itself when released.

In a simpler form, the lock lever extends diagonally upwardly, in which case, the collar is locked against downward movement, but may be readily moved upwardly; in another form, two lock levers are used, extending diagonally upwardly and downwardly, for locking the collar against upward and downward movement; in another form, one or two lock levers, extending diagonally both with respect to the vertical and transverse axes of the standard, so as to additionally lock the collar against rotary movement on the standard.

The invention will be further described in connection with the accompanying drawings, in which:

FIG. 1 is a side view of collars and standards of the present invention, in use as supporting a net.

FIG. 2 shows the standard used as a tether ball post.

FIG. 3 shows the standard and collars for supporting the horizontal bar for the pole vault or high jump.

FIG. 4 is a vertical cross-section of a joint for the standard.

FIG. 5 is an enlarged side view of the simpler form of collar of this invention.

FIG. 6 is a plan view of FIG. 5.

FIG. 7 and FIG. 8 are side views of two modifications.

FIG. 9 and FIG. 10 are perspective and top plan views of another modification.

FIGS. 11, 12 and 13 are side, edge and plan views of another modification.

Referring now to these drawings, in which similar reference characters indicate similar parts, the invention comprises a standard 2, preferably circular in cross-section; although, it could, for example, be square or hexagonal if desired; the standard is composed of a plurality of sections 4 all of the same outside diameter. One of the sections

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is provided with an exteriorly threaded collar 6 which engages with corresponding interior threads 7 on an adjacent section, as shown in FIG. 4. These standards are preferably provided with a ground anchorage comprising radiating arms 8, conveniently four in number, provided with prongs 10 for ground anchorage.

An important feature of the invention is the self-locking collar shown at 12 in FIGS. 5 and 6. This collar comprises a semi-cylindrical portion 14 forming the body portion of the collar, from which extend, preferably integral therewith, a pair of vertical parallel plates 16. Mounted on a pivot pin 18, passing through suitable apertures in the upper portions of these plates, is a locking lever 20 extending angularly upwardly, as shown in FIG. 5. A spring 22 has its lower end secured to a pin 24 carried by the plates 16, while its upper end is secured to a ring 26 at the upper end of lever 20. The lever 20 is positioned so that its lower end bears against the standard 2, this end preferably being tipped with a tip 23 of rubber, synthetic resin or the like, so that it frictionally contacts the standard under the influence of spring 22. Additional coiled springs 28 coiled around the pivot 18 may be provided for turning the lever 20 clockwise, as shown in FIG. 5.

The upper end of lever 20 is provided with a ring 30 and the body portion 12 of the collar may be provided with a horizontal extension 32 on the side opposite the plate 16, as shown in FIG. 5.

One use of the invention is shown in FIG. 1 where two collars are positioned at the desired level on the standards to support a badminton net 34. FIG. 2 shows the standard used for a tether ball 3, 13 being preferably a swiveled collar.

In order to position the collar 12 at any desired level, the lever 20 is manually moved counter-clockwise to disengage it from the standard and the collar moved upwardly or downwardly as desired, and then lever 20 is released, whereupon spring 22 and springs 28 cause lever 20 to frictionally lock against the standard 2 to hold the collar at that level.

Where the collar is used to support a net, clothes line or the like, the cable or line is secured to loop 30 and the pull of the cable 31 helps to hold the lever in locking position.

Where the collar is used to support a horizontal bar 35 for the pole vault or high jump, such bar rests on extensions 32, as shown in FIG. 3.

In FIG. 7, the locking levers 20 are provided in duplicate where for any reason the load to be supported is rather heavy and where it is necessary to avoid any slippage whatever of the collar.

Referring to the modification in FIG. 8, the upper locking lever 20 and cooperating spring 22 are provided as before. A second downwardly and outwardly extending locking lever 36 is provided, having a cooperating spring 38, this lever being otherwise similar to lever 20 except that it extends diagonally downwardly instead of diagonally upwardly. This arrangement gives a positive lock against movement of the collar in either direction. With the lever shown in FIG. 5, the collar could be pushed upwardly manually without releasing lever 20.

Referring now to FIGS. 9 and 10, this modification shows the body portion 40 of the collar provided with laterally extending plates 42. Between each pair of plates 42 is a locking lever 44 pivoted on pins 46. One of the levers 44, as shown in FIG. 9, extends laterally in one direction while the lower one extends laterally in the other direction, so that their respective operating springs 48 cause the inner ends of the lever to press against the standard 2 to lock the collar to the standard against movement in either clockwise or counter-clockwise direction, as well as against up and down movement.

In the modifications shown in FIGS. 11, 12 and 13, the

collar 50 is provided with laterally extending plates 52. The upper locking lever 54 is pivoted between the plates on the pivot 56 and is provided with an actuating spring 58. The lower locking lever 60 is pivoted on the pin 62 and is provided with an actuating spring 64. These locking levers extend diagonally upwardly and diagonally downwardly, and they also extend diagonally laterally so that they are diagonally disposed with respect to a plane through the longitudinally axis of the standard 2 and also diagonally disposed with respect to a plane perpendicular to the longitudinal axis of the standard 2. Such an arrangement locks the collar 50 against upward and downward movement, as well as against any clockwise or counter-clockwise movement.

While the invention has been described in detail, it should be understood that the invention is not limited to the precise details illustrated, but may be carried out in other ways.

I claim as my invention:

1. A self-locking collar, comprising a body portion adapted to partially encircle a standard, two substantially parallel, outwardly extending plates carried by said body portion, a pair of lock levers, pivotally mounted between said plates, each positioned with its inner end adapted to bear against and lock against the standard, spring means cooperating with each of said lock levers for urging each of them into locking position, one of said levers extending diagonally upwardly and outwardly from said standard, while the other extends diagonally downwardly and outwardly from said standard, whereby the levers and their cooperating springs hold the collar against either up or down movement.

2. The combination of claim 1, wherein the inner ends of said levers are tipped with resinous material for binding frictionally against the standard.

3. A standard, a lock collar having a body portion adapted to partially surround the standard, two substantially parallel outwardly extending plates extending laterally from said body portion, a lock lever pivoted between said plates, on an axis inclined at an angle to the axis of the standard, and positioned to have its inner end to bear against said standard, spring means cooperating with said

lever for causing its inner end to press against the standard, said lever extending diagonally with respect to both the horizontal and vertical planes passing through the longitudinal and transverse axes of said body portion.

4. A standard, a lock collar having a body portion adapted to partially surround said standard, two substantially parallel outwardly extending plates extending laterally from said body portion, two lock levers pivoted between said plates and having their inner ends adapted to bear frictionally against said standard, spring means cooperating with said levers for causing their inner ends to bear against the standard, one of said levers extending diagonally upwardly, the other of said levers extending diagonally downwardly, each of said levers also extending diagonally with respect to a vertical plane passing through the longitudinal axis of said standard.

5. In combination with a vertical standard, a variable positionable collar substantially encircling said standard, a horizontal extension carried by said collar at one side for supporting a horizontal bar for use in the high jump or pole vault, said collar, on the side opposite said extension, being provided with a pair of spaced parallel plates, a locking lever pivoted between said plates on a horizontal axis and extending diagonally upwardly, a ring carried by the outer end of said lock lever for supporting a badminton net, and a spring cooperating with said parallel plates and the upper end of said locking lever, for urging the inner end of said locking lever into frictional engagement with said standard.

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