March 31, 1942. H. K. KATH 2,278,320

LOCKING TURNBUCKLE

Filed May 10, 1941

Fig. 1.

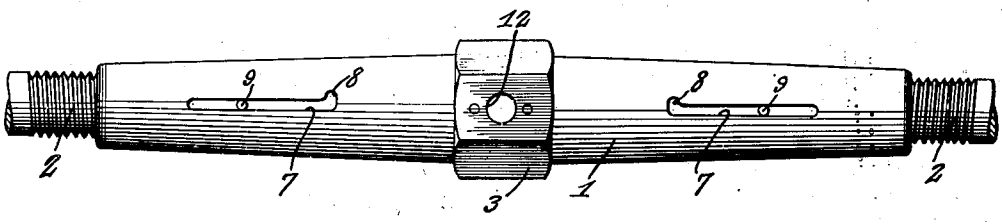


Fig. 2.

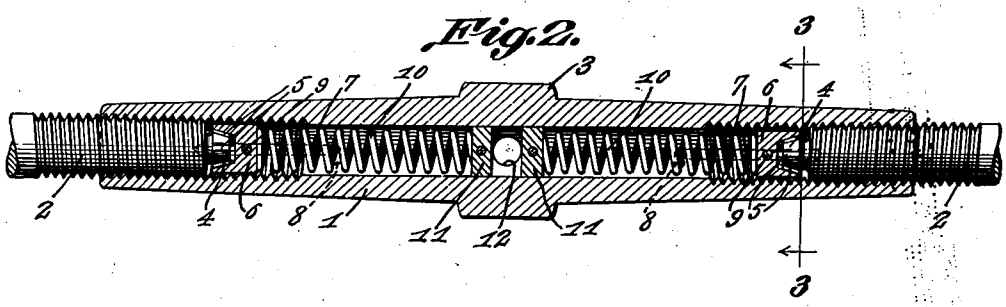


Fig. 3.

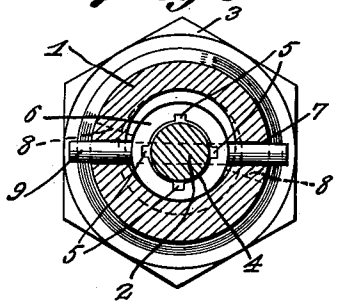


Fig. 4.

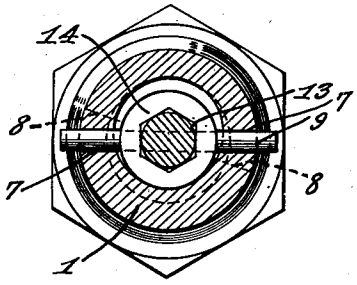


Fig. 6.

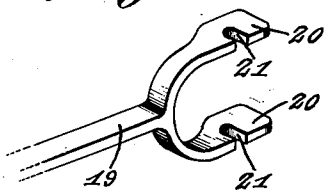
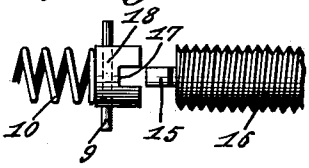


Fig. 5.



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LOCKING TURNBUCKLE

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Application May 10, 1941, Serial No. 392,984

3 Claims. (Cl. 287—60)

This invention relates to locking turnbuckles, and its general object is to provide a turnbuckle which together with the rods or stems coupled thereby are normally held locked together against any possibility of casual rotation or adjustment relative to each other, but can be easily and expeditiously released or unlocked, to allow manual adjustment in the usual manner, or in other words by rotating the turnbuckle on the rods or stems.

A further object is to provide a turnbuckle including locking means for the purpose set forth, that is simple in construction, inexpensive to manufacture, and extremely efficient in operation, use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a fragmentary side elevation of one form of my locking turnbuckle.

Figure 2 is a longitudinal sectional view taken therethrough, with the stems in elevation.

Figure 3 is a sectional view taken approximately on line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a transverse sectional view taken through a modified form of locking means.

Figure 5 is a fragmentary side elevation of another modified form of locking means.

Figure 6 is a fragmentary perspective view of a tool for moving the locking means to unlocked position.

Referring to the drawing in detail, and particularly to the form of Figures 1 to 3, it will be noted that I have illustrated a turnbuckle of the type that includes a body in the form of a sleeve 1 which is interiorly threaded for a portion of its length from its ends to threadedly receive stems 2 that have eyed or headed outer ends not shown, for connecting cables or the like thereto, through the medium of coupling means, as will be apparent. The sleeve is tapered outwardly toward its center which is formed to provide an enlarged flat faced portion 3 to receive a wrench or the like for adjusting the turnbuckle in the usual manner, it being obvious that the adjustment is brought about by rotating the sleeve on the stems, for threading the latter inwardly or outwardly of the sleeve, and for that purpose right hand threads are provided at one end of the turnbuckle and left hand threads at the opposite end thereof.

The stems have substantially conical heads 4 formed on the inner ends thereof, and formed on the heads along their length are equidistantly spaced ribs 5 that fit grooves in the sockets of locking members 6, the latter being of cylindrical form and fittingly and slidably mounted in the bore of the sleeve, and the sockets thereof are also of substantially conical shape to fittingly receive the heads, as clearly shown in Figure 2.

Extending longitudinally of the sleeve substantially centrally between the outer ends thereof and the flat faced wrench receiving portion 3 are pairs of registering slots 7 of the bayonet type, in that the inner ends of the slots are offset as at 8, and the locking members 6 have pins 9 secured to and extending transversely therethrough with the outer ends of the pins mounted for slidable movement in the slots, to allow free sliding movement of the locking members but preventing rotation thereof, as will be apparent.

The locking members 6 are normally urged and held in locking position against the heads 4, with the latter mounted in the sockets and of course with the ribs 5 in the grooves, so that the stems and sleeve are locked together to prevent rotation thereof relative to each other, and for that purpose the locking members are spring pressed, there being a spring 10 for each member 6, and the springs have one of their ends bearing against the members 6, while their opposite ends bear against abutment blocks 11 which are pinned to the sleeve substantially centrally thereof and upon opposite sides of registering openings 12 disposed through the flat faced portion 3 for receiving a rod or the like that can be used in place of a wrench for rotating the sleeve.

In the modified form of Figure 4, the head 13 on the inner end of the stem is of hexagon shape to fit within a like shape socket in the locking member 14, and while the head 13 and the socket of the locking member 14 are of the shape shown, they can be of octagon or any other shape to prevent rotation of the stem and sleeve relative to each other.

In Figure 5, the head 15 is in the form of a rectangular lug extending transversely of the inner end of the stem 16, and the head 15 is received in a rectangular recess or socket 17 extending throughout the diameter of a cylindrical locking member 18.

In Figure 6 I have illustrated a tool of the spanner wrench type and which includes a handle 19 having jaws 20 formed thereon, the jaws being provided with relatively wide flat parallel outer end portions, with slots 21 extending inwardly from one of the side edges thereof, to receive the extending ends of the pins 9, to move the locking members against the action of the spring 10 to unlocked position, and the locking members are held accordingly by disposing the pins 9 in the offset portions 8 of the slots 7, as will be apparent upon inspection of Figure 1. When the locking members are in unlocked position, it will be obvious that the sleeve can be freely rotated on the stems to bring about adjustment thereof and when the desired adjusted position is reached, the pins 9 are moved out of the offset portions 8 for the springs to return the locking members to their locked position, as best shown in Figure 2.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. In a locking trunbuckle, a threaded body, headed means threaded in the body for the latter to provide a coupling therefor and the head of said means being disposed within the body, said head being of substantially conical shape and provided with grooves, spring pressed means slidably mounted in the body and having a substantially conical socket therein for receiving the head, ribs on the head and fitting the grooves to lock the spring pressed means to the head, said spring pressed means being normally urged to locked position, said body having slots therein provided with offset portions, means secured to and extending laterally from the spring pressed means and through the slots to hold the spring pressed means against rotation, and said laterally extending means being receivable in the offset portions for holding the spring pressed means in unlocked position to allow rotation of the body to bring about adjustment of the headed means.

2. In a locking turnbuckle, an interiorly threaded sleeve, a headed stem threaded in the sleeve for the latter to provide a coupling therefor, and the head of said stem being disposed within the sleeve, said head being a rectangular lug extending diametrically of the stem, spring pressed cylindrical means slidably mounted in the sleeve and having a rectangular recess extending diametrically thereof for fitting and receiving the head to lock the spring pressed means thereto, said spring pressed means being normally urged to locked position, said sleeve having slots therein provided with offset portions, means secured to and extending laterally from the spring pressed means and through the slots to hold the spring pressed means against rotation, and said laterally extending means being receivable in the offset portions for holding the spring pressed means in unlocked position to allow rotation of the sleeve to bring about adjustment of the headed means.

3. In a locking turnbuckle, a sleeve interiorly threaded from its ends for a portion of its length, stems threaded in the sleeve for the latter to provide a coupling therefor, heads formed on the inner ends of the stems, a pair of locking members slidably mounted in the body and having sockets therein for receiving the heads, said heads and sockets being shaped to lock said members to the heads against relative rotation, abutment members fixed within and disposed substantially centrally of the sleeve, coil springs between the locking members and the abutment members to urge and hold the locking member to locked position, said sleeve having slots therein provided with offset portions, pins secured to and extending laterally from said locking members and through the slots to hold the locking members against rotation, said pins being receivable in the offset portions for holding the locking means in unlocked position to allow rotation of the sleeve to bring about adjustment of the stems, and said sleeve being provided with tool receiving means to facilitate rotation thereof.

HILBERT K. KATH.