July 3, 1928. 1,675,432

G. W. SMITH

TOOL RETAINER

Filed March 12, 1928 2 Sheets-Sheet 1

Fig. 1.

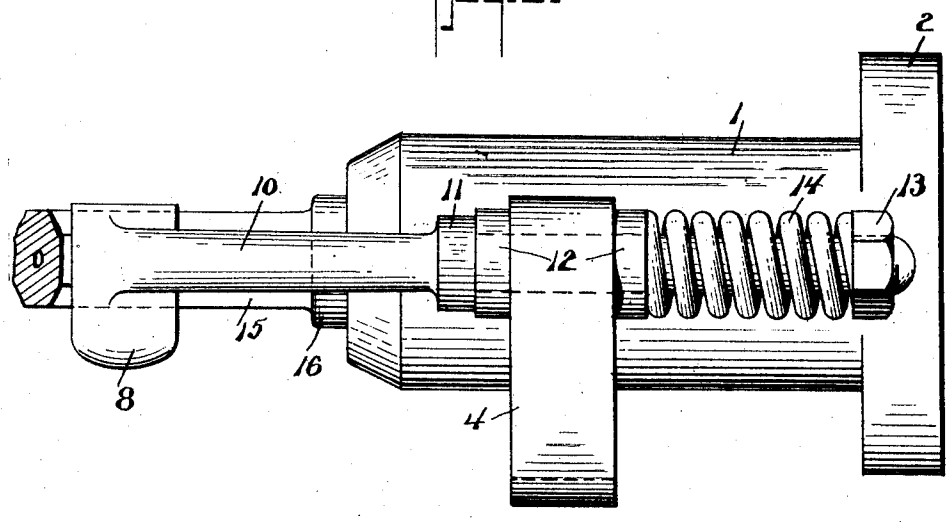
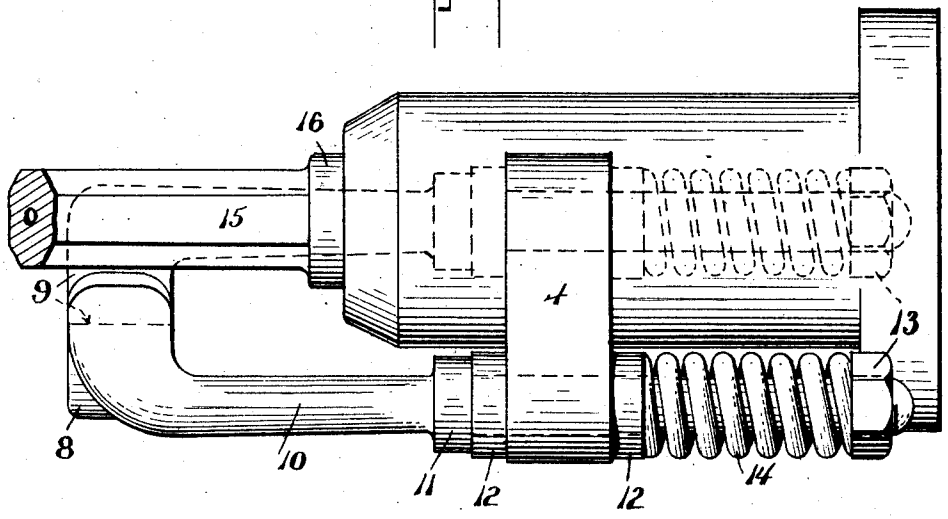


Fig. 2.



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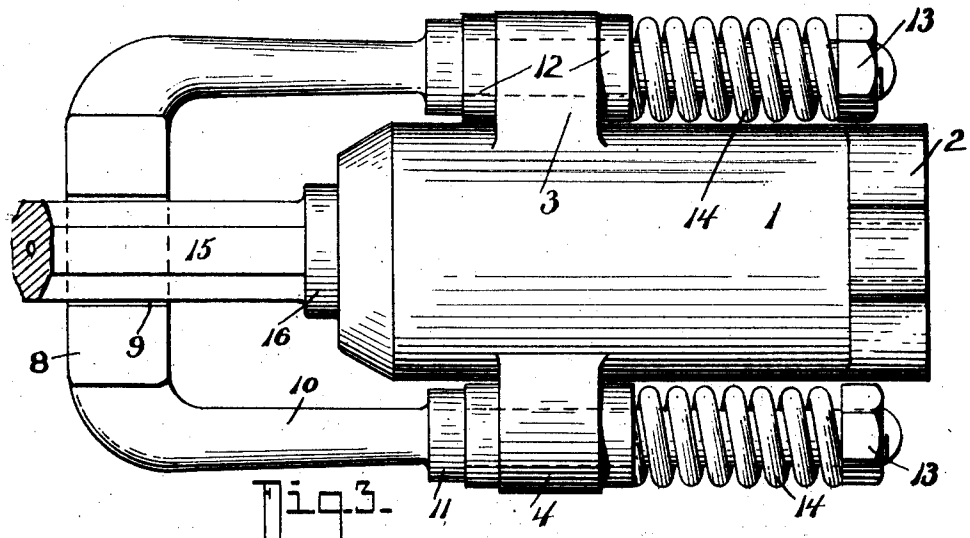


Fig. 3.

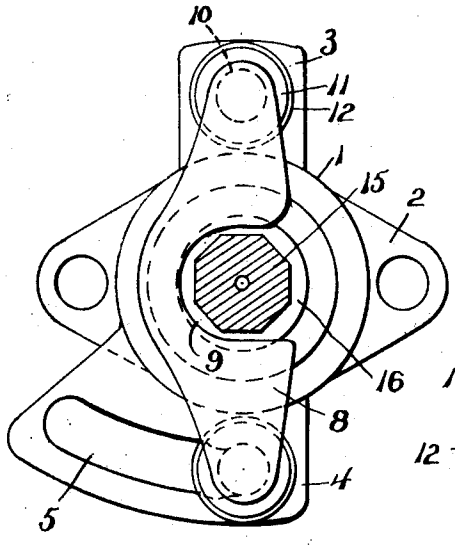


Fig. 4.

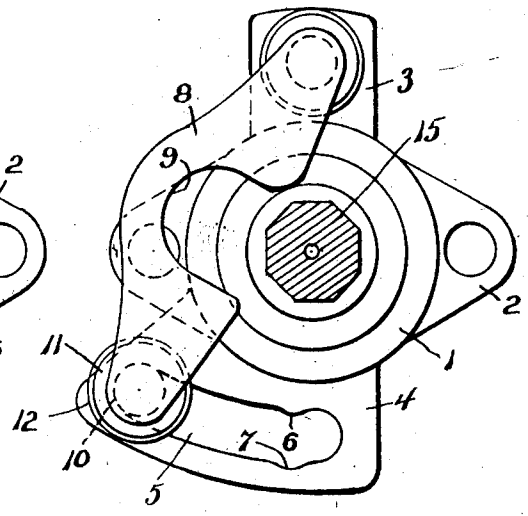


Fig. 5.

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UNITED STATES PATENT OFFICE.

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TOOL RETAINER.

Application filed March 12, 1928. Serial No. 261,042.

My invention relates to the art of drilling engines and especially it has for an object to provide means for holding the drill against coming out of the socket, particularly in pulling the drill from the hole.

Further it is an object of the invention to provide a drill retainer that can be readily moved into and out of place with respect to the drilling engine; to provide a retainer having a yoke for the drill, which yoke is placed or displaced by pivotal movement on an axis longitudinally parallel to the drill's axis; to provide an improved drill retainer of the longitudinally yieldable type which will obviate any tendency to breakage due to blows of the tool.

Further it is an object of the invention to provide a retainer having a laterally swingable drill receiving yoke, means being provided to latch or hold the yoke in its position of engagement with the drill against accidental displacement.

Further objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends, the invention resides in the novel features of construction, combination and arrangement of parts, all of which will be first fully described in the following description, then be particularly pointed out in the appended claims and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the front head of a drilling engine and a portion of the drill with the invention applied, the parts being shown in the drill retaining position.

Figure 2 is a view similar to Figure 1, the parts being shown in the released position.

Figure 3 is a side elevation 90° from that of Figure 1.

Figure 4 is an end elevation of the parts shown in Figure 1.

Figure 5 is an end elevation of the parts shown in Figure 2.

In the drawing, in which like numerals indicate like parts in all of the figures, 1 represents the front head of a drilling engine which has the usual ears 2 by means of which it is secured to the body of the engine (not shown). The front head of the drilling engine is provided with a drill retainer pivot ear 3 and with a slotted ear 4, through the slot 5 of which one of the arms 10 of the retainer yoke passes.

The slotted ear 4 has a hump 6 and opposing convexity 7 cooperating with the slot 5 for the purpose of holding the yoke in the drill retaining position as will be hereinafter more fully explained.

The drill retaining yoke 8 has a recess or slot 9 to straddle the drill 15. The yoke includes the arms 10 one of which, as before stated, passes through the pivot ear 2 and the other passes through the slotted ear 4. The arms 10 have shoulders 11 and are provided with washers 12 at each side of the respective ears 2 and 4 and these arms carry springs 14 and nuts 13 by means of which a continuous tension is applied to the yoke tending to hold the collars 11 and the washers 12 in frictional contact with the respective ears 2 and 4.

When the parts are in the position shown in Figures 1 and 4 the yoke will be held in relation to the drill in such manner that the drill 15 will not leave the head 1. Any tendency for the head and drill to separate will be arrested by engagement of the drill collar 16 with the yoke 8. When, however, the parts are moved to the position shown in Figures 2 and 5 the yoke 8 will be moved out of the drill retaining position and leave the drill free to be removed from the head 1.

When the drill is in the retaining position (see Figures 1 and 4) it will be prevented from jarring out of that position by reason of the hump 6. When it is to be moved to the nonoperative position it will spring over the hump 6 and pass into the left hand portion of the slot 5 (see Figure 5). It should be understood that there is enough play in the ear 2 to permit the rod 10 that works in the slot 5 to pass over the hump 6 in passing to and from the retaining position.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the complete construction, operation and advantages of my invention will be clear to those skilled in the art.

What I claim is:

1. In drill retainers, a drill head having a drill receiving portion, a pivot ear and a

slotted ear on said drill head; a yoke having arms passing through said ears with stops to limit movement of the arms and yoke in one longitudinal direction; springs and nuts on said arms to hold said stops against said ears.

2. In drill retainers, a drill head having a drill receiving portion, a pivot ear, and a slotted ear on said drill head; a yoke having arms passing through said ears with stops to limit of the arms and yoke in one longitudinal direction; springs and nuts on said arms to hold said stops against said ears, said slotted ear having provision to cooperate with said springs to retain said yoke in the drill retaining position against accidental displacement from that position.

3. In drilling engines having a drill head with a drill receiving portion; a tool retainer comprising a pivot ear and a slotted ear carried by the drill head, a yoke having parallel arms passed through said ears respectively, said arms having shoulders, washers on said arms at each side of said ears, coil springs on said arms and spring retaining nuts on said arms functioning continuously to tend to retain said yoke yieldably on said ears, one of said arms being pivotally mounted in said pivot ear and the other said arm having movement bodily laterally along the slot of said slotted ear, said slotted ear having a hump or lug adjacent one end to cooperate with said springs and retain said yoke in the tool engaging position only.

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