

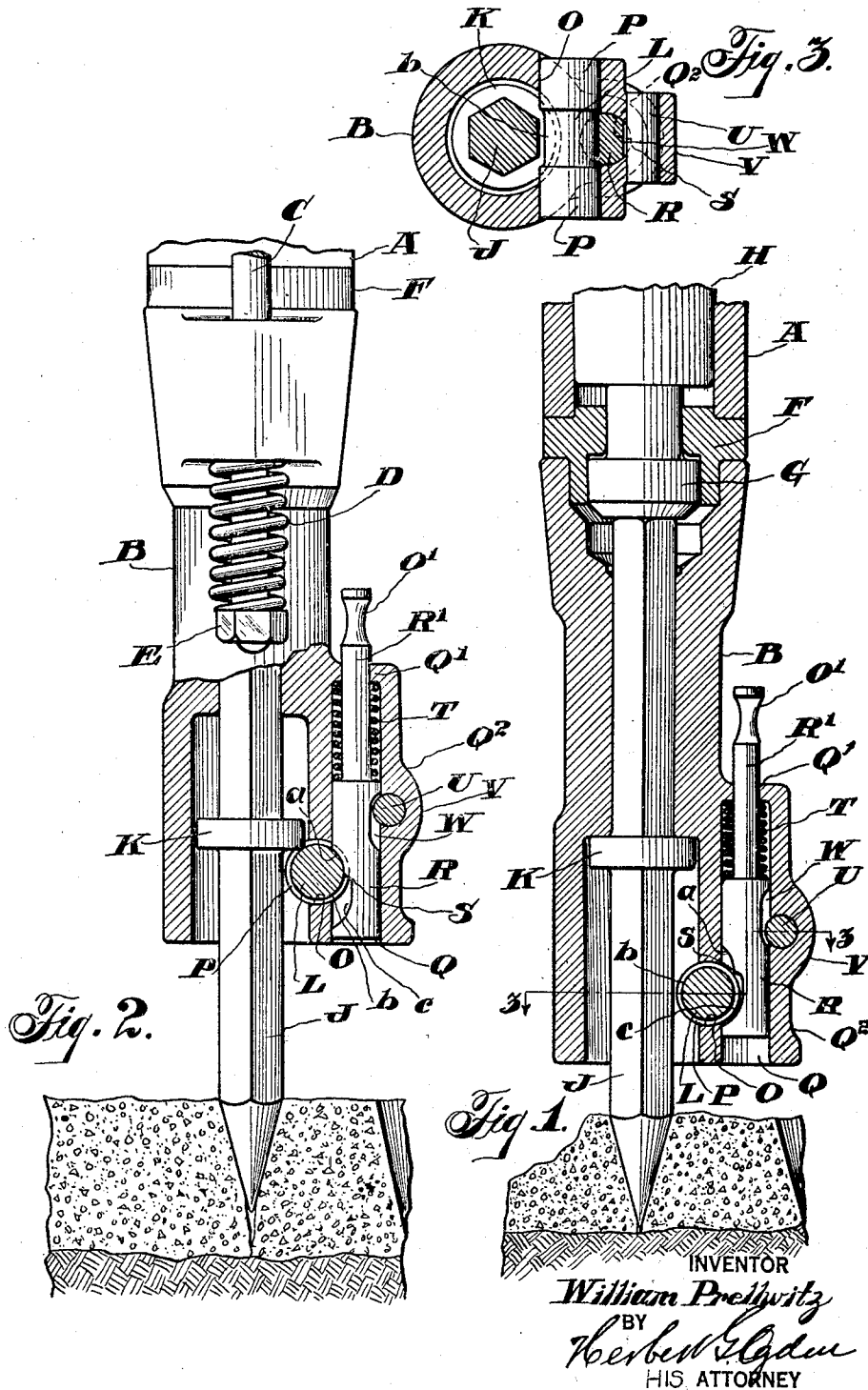
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STEEL RETAINER

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## UNITED STATES PATENT OFFICE.

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## STEEL RETAINER.

Application filed March 26, 1925. Serial No. 18,369.

*To all whom it may concern:*

Be it known that I, WILLIAM PRELLWITZ, a citizen of the United States, a resident of Easton, in the county of Northampton and State of Pennsylvania, have invented a certain Steel Retainer, of which the following is a specification, accompanied by drawings.

This invention relates to drill steel retainers adapted to be applied to the forward end of a hammer type rock drill for preventing removal of the steel from the machine while the machine is in operation, or while withdrawing the drill from the drilled hole.

One object of the invention is to produce a rugged steel retainer having comparatively few parts, which is inexpensive to manufacture, and extremely efficient in operation.

Another object is to produce a retainer in which none of the parts extend in advance of the forward end or front head of the machine in either operative or inoperative position. Other objects of the invention will be in part obvious and in part pointed out hereinafter.

The invention consists of the combinations of elements, features of construction, and arrangement of parts having the general mode of operation substantially as hereinafter described and more particularly pointed out in the appended claims and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the front end of a rock drill showing the locking plunger of the retainer in releasing position,

Figure 2 is a longitudinal view partly in section showing the plunger in locked position, and

Figure 3 is a transverse sectional view taken through Figure 1 on the line 3—3 looking in the direction of the arrows.

Referring to the drawings, the invention is shown applied to a fluid actuated rock drill, in which a cylinder A and a front head B are held in operative position by side bolts C. In this instance, cushioning springs D are arranged on the forward ends of the bolts C and are held thereon by suitable nuts E. A front cylinder washer F forms a closure for the front end of the cylinder and centralizes the cylinder A and the front

head B. An anvil block G is in this instance shown guided within the washer F and is adapted to transmit the blows of a hammer piston H to a drill steel J. The drill steel J is in this instance shown in the form of a pick and is provided with a collar K for limiting longitudinal movement of the steel within the front head.

In accordance with the present invention, a retaining member or stop L is arranged slidably and rotatably within a transverse aperture O near the front end of the front head B, and extends across the path of the collar K. The retainer or stop L is preferably cylindrical in form and is provided with end heads P which, in this instance, serve as bearing faces for the stop. The aperture O is so arranged that one side of the stop projects transversely into the bore Q of the enlargement Q<sup>2</sup> at the side of the front head.

Means are provided for holding the stop in retaining position, and to this end, a plunger R is slidably arranged within the bore Q. A stem R' carried by the plunger and surrounded by the compression spring T extends through the end wall Q' and is preferably provided with a grip O' for manipulating the plunger. A recess S is formed in one side of the plunger R and the inner end portion a of the recess is shaped to conform to the surface of the intermediate portion b of the stop L and cooperates with the inner edges of the heads P for limiting endwise movement of the stop within the bore Q. The outer end portion c of the recess S is of sufficient depth to permit the passage of the heads P of the stop L when the plunger R is in releasing position, as shown in Figure 1.

Suitable means are also provided for limiting longitudinal movement of the plunger R in opposite directions within the bore Q, and for this purpose a pin U is inserted transversely through a wall V of the enlargement Q<sup>2</sup> on the front head so that one side of the pin extends into the bore Q. A recess W of suitable length is formed in the plunger R and is adapted to cooperate at its ends with the pin U for limiting longitudinal movement of the plunger.

In the operation of the device, the plunger R is normally forced outwardly by the

spring T which locks the stop L in position, and when the plunger is pulled rearwardly to the position shown in Figure 1, the stop L may be withdrawn and the drill steel J removed from the front head.

The advantages of this construction reside in the fact that few parts are required, and all the operative parts are protected inside the front head. None of the parts extend beyond the front end of the front head so that they cannot be driven against the rock or material being operated upon and breakage is reduced.

I claim:

1. A steel retainer for rock drills, comprising in combination with a front head, a collared drill steel adapted to be inserted into the front head, a cylindrical removable stop slidable transversely through the front head and offset from the longitudinal axis of the drill to cooperate with the collar on the steel for retaining the steel within the front head, heads on the ends of said stop, a spring pressed plunger normally in contact with the stop and cooperating with the inner faces of the heads to lock the stop, and

means for limiting longitudinal movement of the plunger in opposite directions.

2. A steel retainer for rock drills, comprising in combination with a front head having an enlargement at one side, a collared drill steel adapted to be inserted into the front head, a cylindrical removable stop slidable transversely through the front head and offset from the longitudinal axis of the drill to cooperate with the collar on the steel for preventing ejection of the steel from the front head, said stop being insertable from opposite sides of the front head, heads on the ends of said stop, a spring pressed plunger in the enlargement constantly in contact with the stop and cooperating with the inner faces of the heads to prevent removal of the stop, said plunger paralleling the longitudinal axis of the drill, a recess in one side of the plunger, and a pin in the enlargement to cooperate with said notch for limiting longitudinal movement of the plunger.

In testimony whereof I have signed this specification.

WILLIAM PRELLWITZ.