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Nov. 2, 1926. 1,605,435

C. C. HANSEN

STEEL RETAINER

Filed March 19, 1926

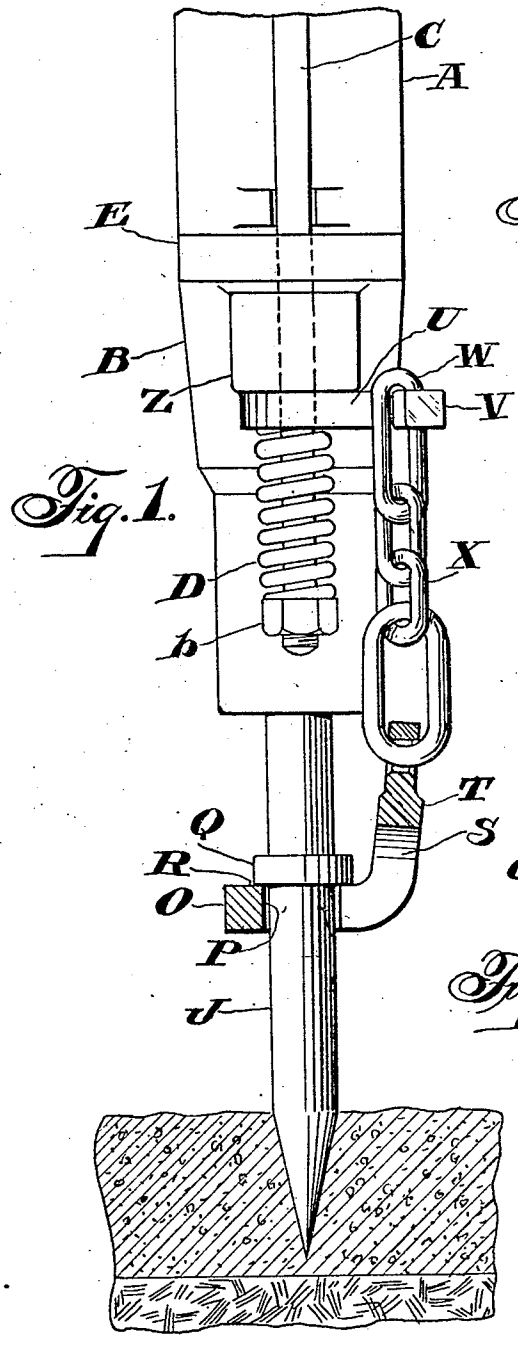


Fig. 1.

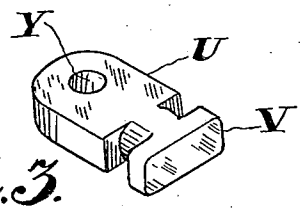


Fig. 3.

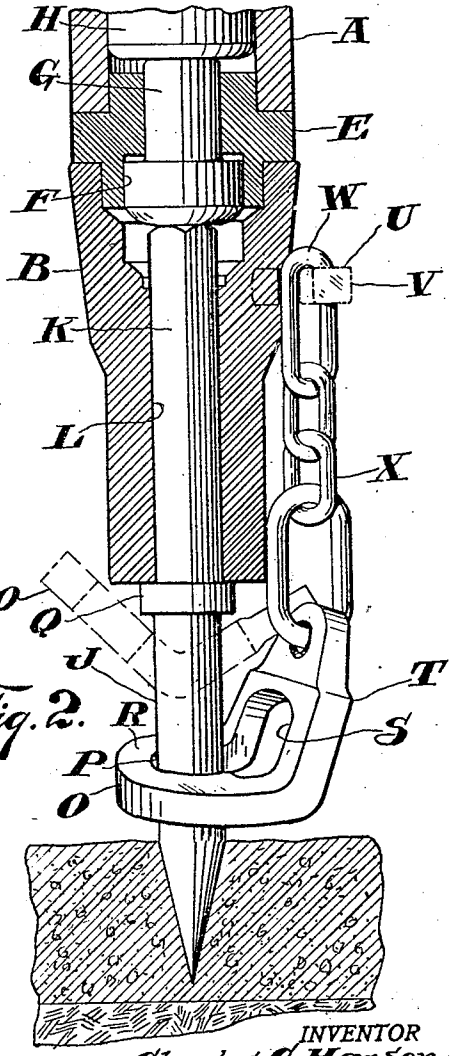


Fig. 2.

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UNITED STATES PATENT OFFICE.

CHARLES C. HANSEN, OF EASTON, PENNSYLVANIA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STEEL RETAINER.

Application filed March 19, 1926. Serial No. 96,102.

This invention relates to rock drills, but more particularly to a steel retainer for rock drills of the hand held type.

The objects of the invention are to prevent accidental ejection of the drill steel from the front head, to construct a simple and durable retainer comprising a minimum number of parts, and to enable the retainer to be quickly attached to the rock drill and removed therefrom.

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

The invention consists of the combination of elements and arrangement of parts substantially as hereinafter described and more specifically pointed out in the appended claim and illustrated in the accompanying drawings, in which

Figure 1 is an elevation of the front end of a rock drill equipped with a steel retainer constructed in accordance with the practice of the invention, the retaining member being shown in section;

Figure 2 is an elevation in section of the front end of a rock drill; and

Figure 3 is a perspective view of the anchor which supports the retaining member.

Referring to the drawings, the invention is shown embodied in a rock drill of which only a front end of a cylinder A is shown. A front head B which may be of any suitable type is shown secured to the front end of the cylinder A by means of side bolts C which in this instance are provided at their forward ends with springs D whereby the cylinder A and the front head B are held yieldably in operative position.

A convenient means for centralizing the front head with respect to the cylinder is provided in the form of a front cylinder washer E. The washer E is interposed between the cylinder and the front head and has a bore F to receive slidably an anvil block G which serves to transmit the blows of a piston H reciprocable in the cylinder A to a drill steel J supported by the front head. A shank K of the steel J is preferably hexagonal in form to cooperate with a corresponding bore L in the front head B for preventing relative rotation between the steel and the front head. The invention, however, is not limited in its use to any particular type of steel and may be applied to rock drills in which the drill steel is being rotated mechanically.

In accordance with the present invention, an angular retaining member O having an aperture P is arranged about the drill steel J forwardly of a collar Q carried by the drill steel. The collar Q is of somewhat larger diameter than the aperture P in the retaining member O so that when the drill steel is withdrawn from the work, the collar Q may seat against a surface R of the member O for retaining the drill steel in the front head.

In order that the collar Q may be readily inserted through the retaining member O the aperture P is enlarged at one end as at S. The enlarged portion S of the aperture P in this instance is formed in a leg T of the member O and in the normal position of the retaining member O is removed from the path of the collar Q. To the end that the retaining member O may be conveniently supported in retaining position, an anchor U is mounted on one of the side bolts C, and has an angular projection V, in this instance of T-shaped form, to cooperate with an end link W of a chain X connected to the leg T of the retaining member O. The anchor U has a hole Y for the reception of the side bolt C and is preferably interposed between the lug Z formed on the front head and one of the springs D so that when said spring is placed under a tension, as by means of the nut *b*, the anchor U will be pressed yieldably against the lug Z. The anchor U is preferably so formed that it may be oscillated on the side bolt C to permit of it being adjusted with respect to the positions which the retaining member may assume during the drilling operation.

To mount the retaining member on the rock drill it is merely necessary to remove the nut *b* and the spring D from one of the side bolts C, the anchor U may then be mounted on the said side bolt and the spring D and the nut *b* may again be placed in position.

The manner in which the drill steel may be inserted through the retaining member O is illustrated in Figure 2 by the dot and dash lines. In this showing it will be noted that the enlarged portion S of the aperture P in the retaining member O is directly in line with the collar Q of the drill steel. With the retaining member O in this position the drill steel may be either inserted into the front head or removed therefrom and after

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the drill steel is in position the retaining member may be released to drop to its retaining position.

I claim:

The combination with a rock drill having a cylinder, a front head for the cylinder, side bolts for securing the cylinder and the front head together, springs on the side bolts, a drill steel extending into the front head and having a collar, of an angular retaining member encircling the drill steel forwardly of the collar, a chain secured to the retaining member, and an anchor pivoted on one of the side bolts between the front head and a spring and having an angular projection, one end of the chain for supporting the retaining member being removably connected to said angular projection of the anchor.

In testimony whereof I have signed this specification.

CHARLES C. HANSEN.