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HANDLE FOR ROCK DRILLS

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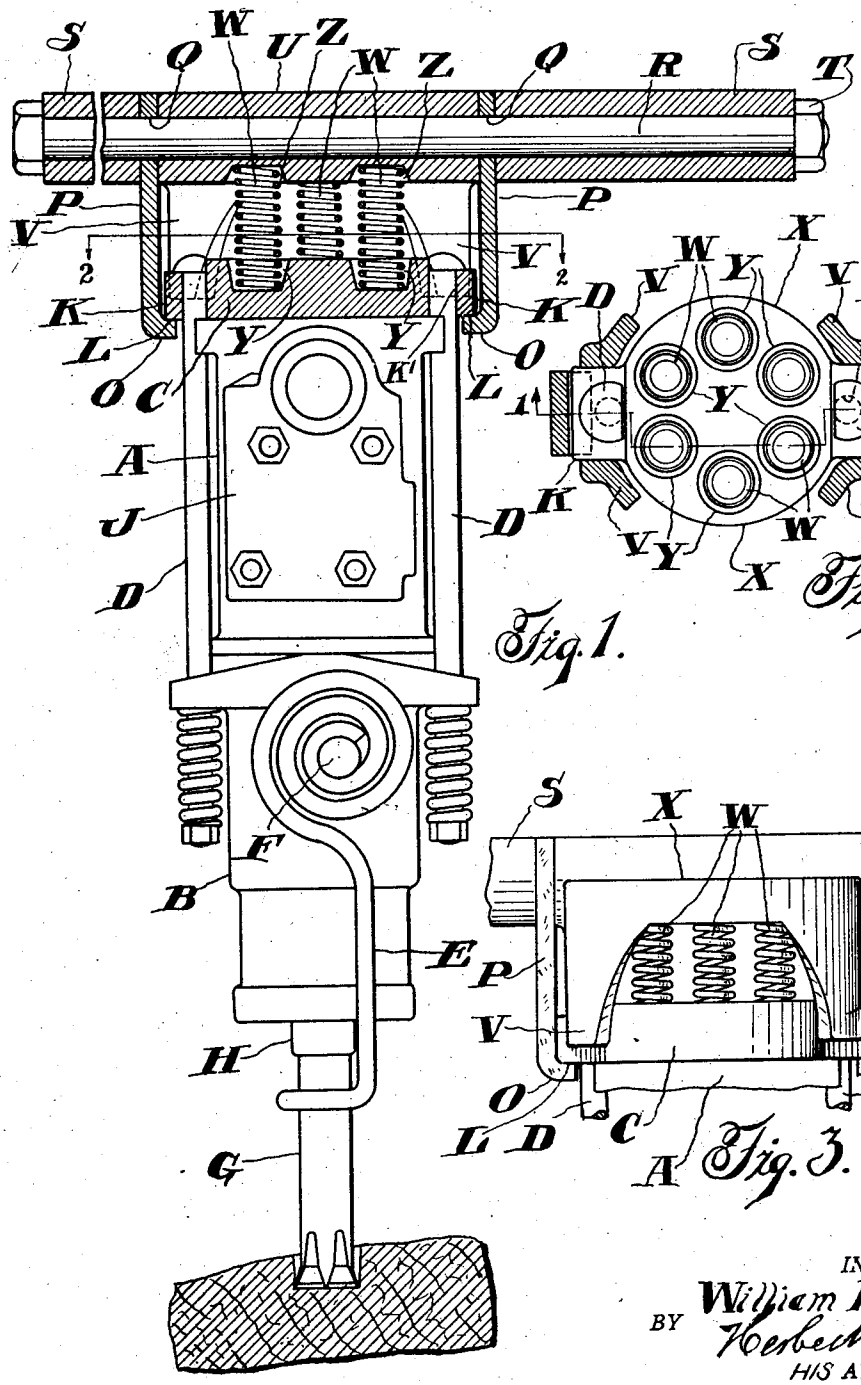


Fig. 1.

Fig. 2.

Fig. 3.

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HANDLE FOR ROCK DRILLS.

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This invention relates to rock drills, but more particularly to a handle for fluid actuated rock drills of the hand held type.

One object of the invention is to cushion the handle of the drill for the purpose of protecting the operator against the excessive shock and vibration set up in the rock drill during its operation.

Other objects will appear hereinafter.

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

Figure 1 is an elevation of a rock drill equipped with a handle constructed in accordance with the practice of the invention, the handle and the back head being shown in section,

Figure 2 is a transverse view partly in section taken through Figure 1 on the line 2—2 looking in the direction of the arrows, and

Figure 3 is a side elevation of the back head and a portion of the handle.

Referring to the drawings, the invention is shown embodied in a rock drill of the hand held type in which a cylinder A, a front head B and a back head C are held in assembled relationship with respect to each other by suitable spring pressed side bolts D. A steel retainer E supported by trunnions F formed on the front head B partly encircles a drill steel G in the front head B forwardly of a collar H wherewith it cooperates for preventing ejection of the drill steel from the front head. A valve chest J is in this instance bolted to the cylinder A to accommodate a distributing valve (not shown) whereby the distribution of pressure fluid to the ends of the cylinder A for reciprocating the hammer piston (not shown) is effected.

In accordance with the present invention, a pair of diametrically opposed lateral projections K are formed on the back head C and have suitable apertures K′ for the reception of the side bolts D. The bottom faces L of the projections K act as abutments for inwardly extending hooks O formed on extensions P. The extensions P in this instance are of flat rectangular cross sectional area and are provided with holes Q at their upper or rearward ends for the reception of a bolt R. This bolt R is of sufficient length to extend well on opposite sides of the extensions O and is provided at its ends with grip portions S which comprise the handle for manipulating the rock drill. A nut T screwed on the bolt R serves to clamp the grips S and the extensions P in assembled position.

Suitable means are provided for preventing relative rotative movement between the back head C and the handle. To this end a body portion U is mounted on the bolt R between the extensions P thus acting as a spacer for the extensions and has a pair of integral guide arms V at each end which extending downwardly to cooperate slidably with the sides of the projections K. The guide arms V are preferably so positioned that during the normal operation of the drill they will be held out of contact with the back head C.

In order to cushion the movement of the handle and thus protect the operator against excessive vibration set up in the rock drill during its operation, a plurality of springs W are interposed between the handle and the back head to abut with one end a flange X formed integrally with the member U and with their other ends the back head C. In the present instance sockets or depressions Y are formed in the rearward face of the back head C to receive one end of the springs and similar sockets Z are formed in the flange X to receive the other ends of the springs. This is a preferred construction, if desired, however, buttons or other equivalent means may be provided for holding the ends of the springs in the desired position. The springs illustrated in the drawings are preferably formed of wire of relatively small cross sectional area, thus rendering the springs flexible as compared with the usual type of spring employed in devices of this type.

In order to obtain an adequate cushioning effect a relatively large number of springs are employed, six springs being shown in the present instance. The springs are preferably equally spaced on a large circle concentric with the longitudinal axis of the back head to prevent the handle from tipping with respect to the drill when greater pressure is applied to one end of the handle than to the other.

The foregoing described invention has been found to be unusually efficient in operation. Owing to the large number of light springs employed the handle is at all times adequately cushioned to prevent the transmission of shock thereto. These springs, however, are of sufficient strength to hold the handle normally firmly in retracted position so that when the rock drill is being used for prying purposes, the handle will be held against too free movement with respect to the rock drill. Another desirable feature of the present invention is that there are no rigid connections between the rock drill and the handle and there are therefore no parts subjected to undue strains when greater pressure is applied to one end of the handle than to the other end.

I claim:

1. In a fluid actuated rock drill, a back head, lateral projections on the back head, a handle for the drill having a body portion, extensions separate from the body portion carried by the handle, hooks on the extensions to cooperate with the projections for limiting rearward movement of the handle with respect to the back head, guide arms on the handle integral with the body portion to cooperate slidably with the sides of the projections for preventing relative rotation between the handle and the back head, and springs for cushioning the handle and holding said handle in a normally retracted position.

2. In a fluid actuated rock drill, a back head, lateral projections at each side of the back head having apertures, side bolts in the apertures for securing the back head to the cylinder of the rock drill, a handle, extensions carried by the handle, and lying opposite the ends of the said lateral projections inwardly extending hooks on the extensions to cooperate with the projections for limiting upward movement of the handle with respect to the back head, downwardly extending guide arms on the handle cooperating slidably with the sides of the projections for preventing rotation of the handle with respect to the back head, and springs between the back head and handle for cushioning the handle.

In testimony whereof I have signed this specification.

WILLIAM PRELLWITZ.