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 WATER ATTACHMENT FOR DRILL STEELS.
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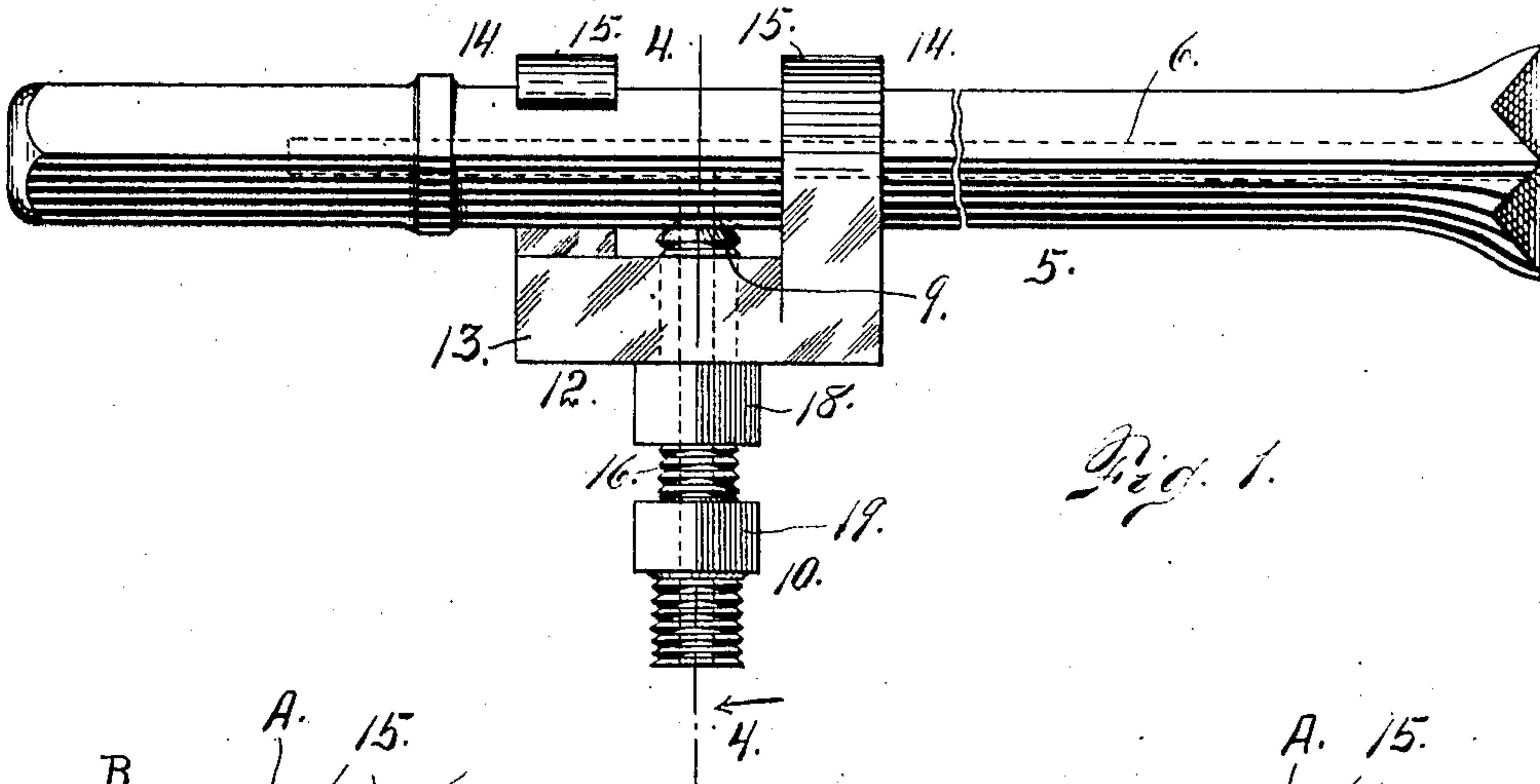


Fig. 1.

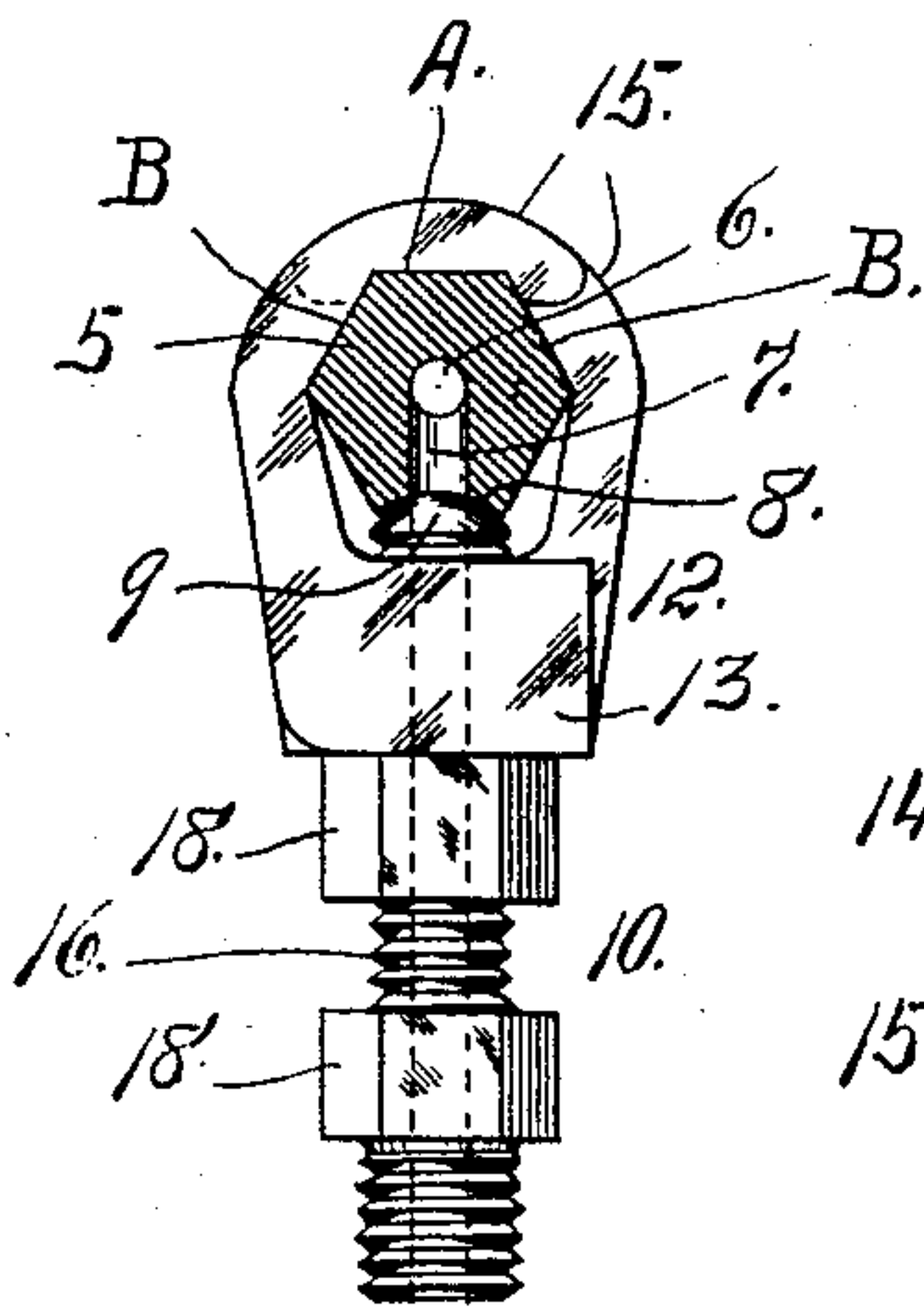


Fig. 3.

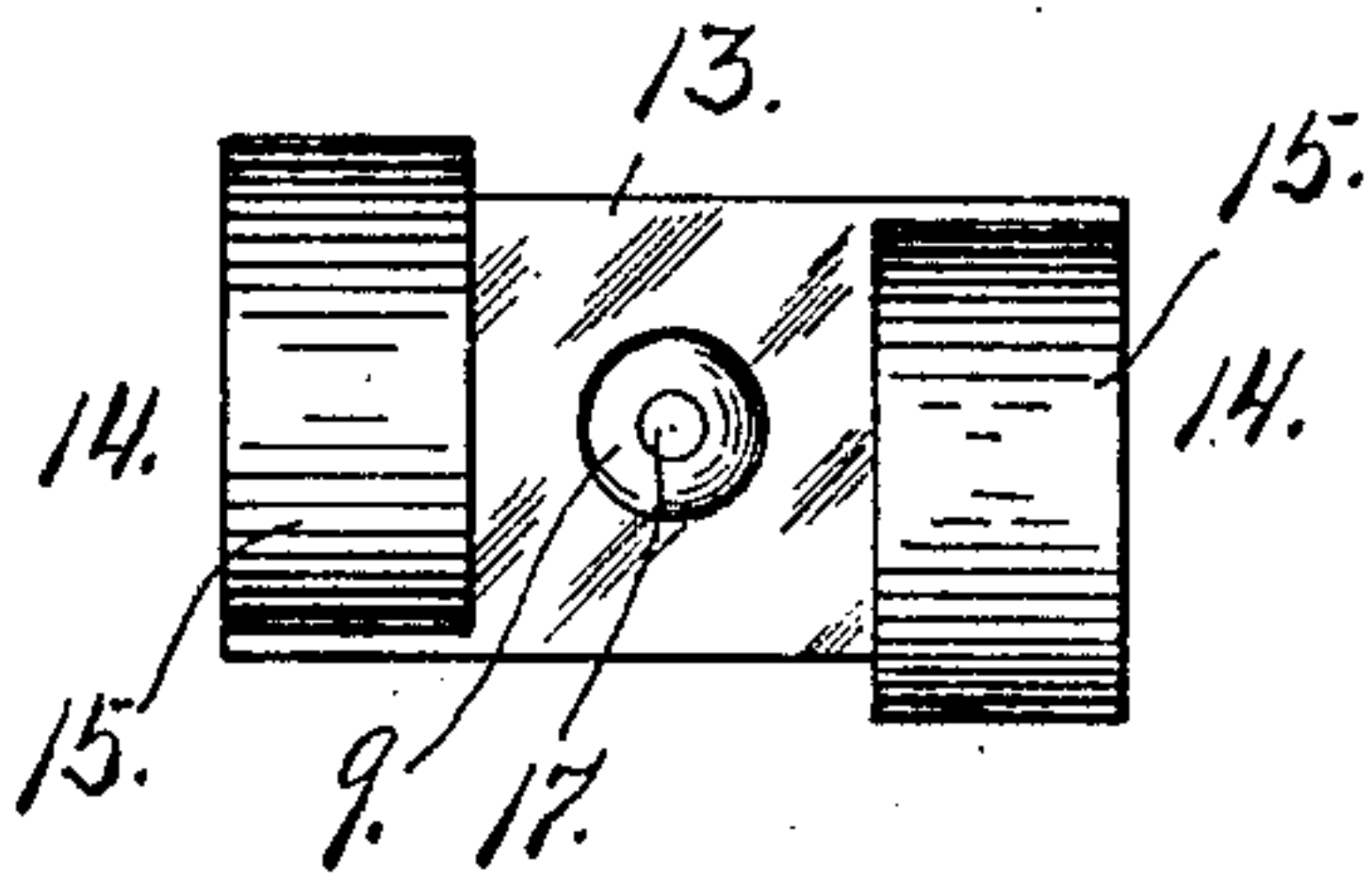


Fig. 2.

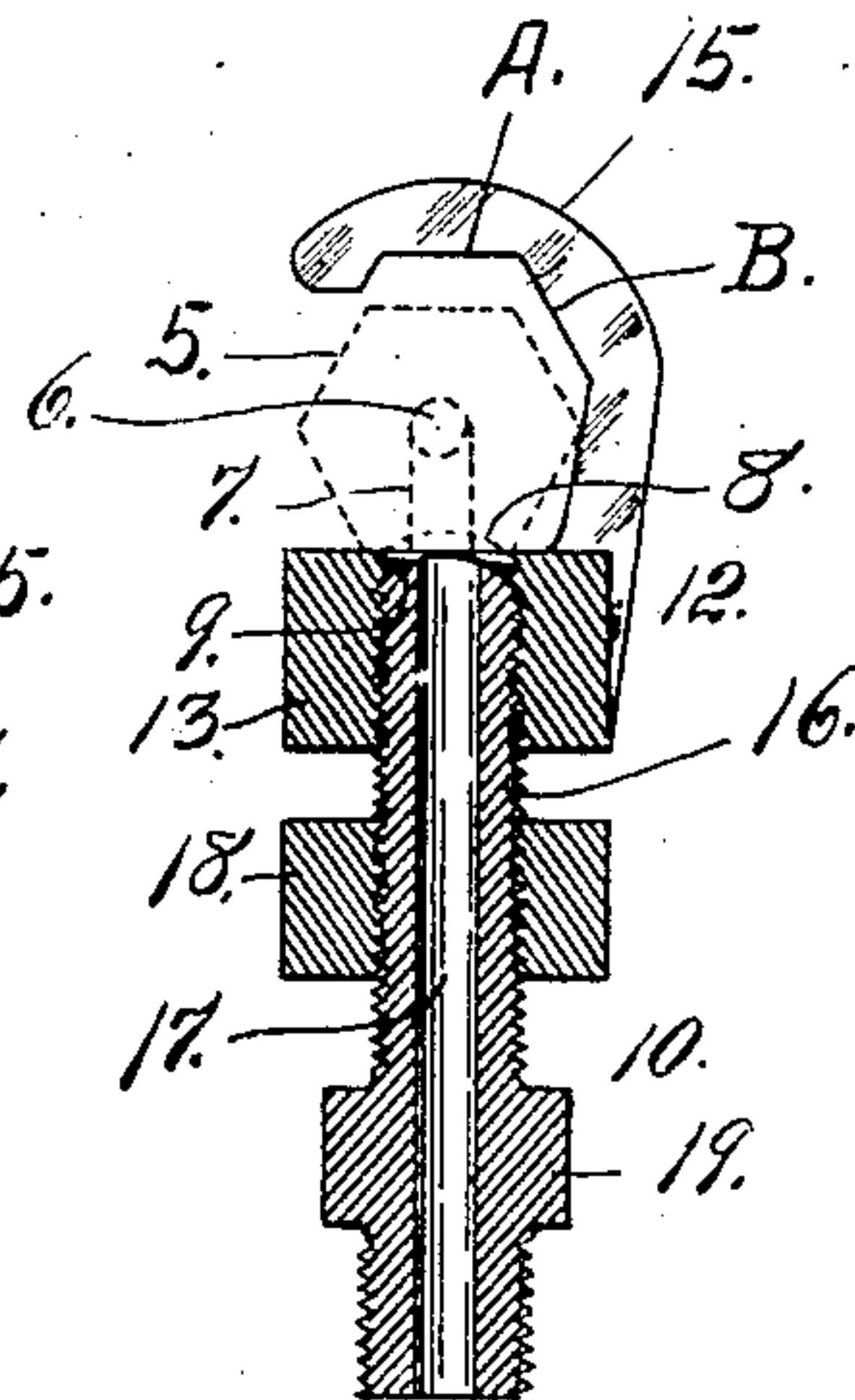


Fig. 4.

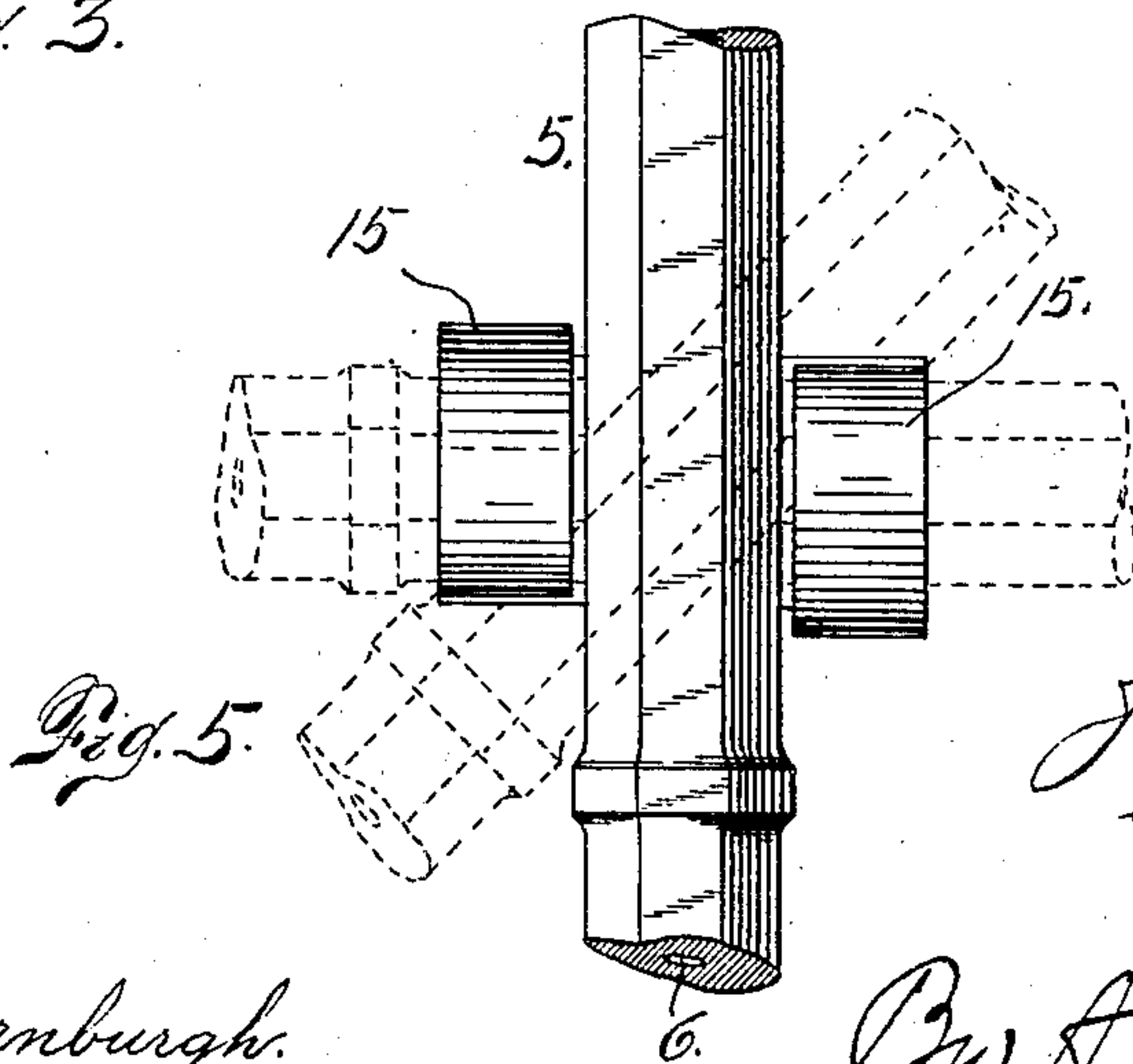


Fig. 5.

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WATER ATTACHMENT FOR DRILL-STEELS.

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To all whom it may concern:

Be it known that we, JAMES H. SINCLAIR and GUY D. NEILL, both citizens of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Water Attachments for Drill-Steels; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention relates to a water attachment for drill steels and consists of a holder for the drill steel in combination with a nozzle attached to the holder and connected with the drill steel for introducing water to the latter through a transverse opening formed in the drill and communicating with a longitudinal opening extending to its cutting extremity and having its rear extremity closed at a point beyond the nozzle.

In the drawing we have illustrated a special construction of holder consisting of a base having a threaded opening adapted to receive a nozzle for delivering water to the drill steel. Upon this base are mounted two members terminating at their outer extremities in hooks adapted to project over the top of the drill steel in opposite directions, the said hook-shaped members being separated a sufficient distance to permit the insertion of the drill steel between them. After this is done a quarter turn of the drill steel will bring it into position beneath the hooks of the holder members. Then as the nozzle is screwed into place, the drill steel is caused to tightly engage the hooks of the holder. At the same time, the inner extremity of the nozzle enters a recess in the drill steel, and the nozzle opening is caused to register with the transverse opening in the steel which communicates with the central longitudinal opening as aforesaid.

Having briefly outlined our improved construction, we will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a side elevation of a drill steel equipped with our improved attachment for supplying water thereto. Fig. 2 is what may be termed a

top plan view of the device shown in detail. Fig. 3 is a section taken through the drill steel cutting its transverse orifice, the water attachment, however, being shown in end elevation. Fig. 4 is a section taken on the line 4—4 Fig. 1 viewed in the direction of the arrow. In this view, however, the nozzle is not screwed inwardly a sufficient distance to fasten the drill steel against movement in the holder. Fig. 5 is a top view of the device showing the drill steel in full lines in the position between the hook-shaped members of the holder. The dotted line positions indicate the movement of the drill steel from the full line position to its position when the water attachment is applied to the drill in operative relation.

The same reference characters indicate the same parts in all the views.

For the purposes of this specification, it may be considered that the hook-shaped members of the drill steel holder project upwardly from the base of the holder. It is evident, however, that it is not necessary for this holder to be in a vertical position or in such position that its base is lowermost. This position, however, is assumed in the brief description of the figures and this assumption will be continued throughout the description unless otherwise stated.

Let the numeral 5 designate the drill steel which as shown in the drawing is of the ordinary hexagonal construction in cross section. This steel is provided with a central longitudinal opening 6 open at the forward or cutting extremity of the drill and closed at its rear extremity. Intermediate the extremities of the opening 6, the drill is provided with a transverse orifice 7 communicating with the central opening. At the outer extremity of the transverse opening 7, the drill steel is recessed as shown at 8 to receive the outer extremity 9 of a water delivery nozzle 10 which is connected in operative relation with the drill steel by a special construction of drill steel holder 12. This drill steel holder is provided with a base 13 upon which are mounted two upwardly projecting members 14 whose upper extremities are hook-shaped as shown at 15, the hooks, however, project in opposite directions. These hook-shaped members are separated a sufficient distance to permit the easy insertion of the drill steel between them when occupying a position at right angles to its normal position when assembled in operative relation with the water

attachment (see Fig. 5). The base 13 of the drill steel holder is provided with a threaded opening of sufficient size to receive a reduced threaded portion 16 of the nozzle which is adapted to enter the recess 8 of the drill steel as heretofore explained. The central longitudinal opening 17 of this nozzle registers with the orifice 7 of the drill steel when the nozzle is screwed to position as shown in Figs. 1 and 3. A lock nut 18 is mounted upon the threaded portion of the nozzle and may be screwed upwardly against the base of the drill steel holder after the nozzle has been screwed inwardly to its limit of movement (see Figs. 1 and 3).

The upper portions of the hook-shaped members 14 of the drill steel holder, are shaped to fit the drill steel or rather to fit two of the six sides thereof, namely the uppermost side A and one of the adjacent inclined sides B of the hexagonal tool (see Figs. 3 and 4). As these hook-shaped members project over the drill steel in opposite directions, it is evident that when the nozzle is screwed to position whereby both hook-shaped members are brought into such relation with the drill steel that the latter fits the counterpart faces of both of said members, the steel is locked securely in place against movement in any direction. For convenience of manipulation, the nozzle is provided with a collar 19 adapted to receive a wrench.

From the foregoing description the use of our improved water attachment for drills will be readily understood. In attaching the drill steel, it may be placed in position between the two hook-shaped members 14 as shown in Fig. 5. It is then given a quarter turn whereby it is brought into position resting on the upper surface of the base 13 and below the hooks 15 of the members 14. The nozzle may then be screwed into the opening in the base of the holder whereby its outer rounded extremity is caused to engage the recess 8 of the drill steel into which it fits closely causing its passage 17 to register with the lateral orifice 7 of the drill. When this occurs the drill steel is caused to fit the faces A and B of each of the hook-shaped members thus locking the drill steel securely in place. The nozzle must be connected with a suitable conduit for supplying water to the drill steel. As the rear extremity of the longitudinal opening 6 of the drill steel is closed, the water introduced must pass out at the forward or cutting extremity of the drill whereby the rock cuttings are washed from the drill hole.

Having thus described our invention, what we claim is:

1. In a water attachment for drills, the combination with a drill steel having a longitudinal opening and a transverse orifice communicating with the opening, of a holder comprising hook-shaped extremities projecting in opposite directions adapted to re-

ceive and support the drill steel, and a nozzle screwed into a threaded opening formed in the holder, whereby its passage is caused to register with the transverse orifice of the drill, the said nozzle being threaded in the holder and made to engage the drill steel whereby the latter is locked in the holder, substantially as described.

2. A drill steel holder comprising a base and two members projecting outwardly from the base and having hook-shaped extremities projecting over the drill steel in opposite directions, the base of the holder having a threaded opening, and a nozzle adapted to be screwed into said opening, substantially as described.

3. A water attachment for rock drills, comprising a holder composed of a base having a threaded opening and two outwardly projecting members having hooks projecting in opposite directions, the said members being separated to receive the drill steel when occupying positions at right angles to its position when assembled in operative relation with the holder, and a nozzle screwed into the opening formed in the base of the holder, substantially as described.

4. In a water attachment for rock drills, the combination with the drill steel having a central longitudinal passage open at the forward or cutting extremity of the steel, its rear extremity being closed, the steel having a transverse orifice communicating with the longitudinal opening, and a drill steel holder comprising a base having a threaded opening and two outwardly projecting hook-shaped members projecting from opposite sides of the base, their hook-shaped extremities projecting over the drill steel in opposite directions, and a nozzle screwed into the opening in the base of the holder and arranged to engage the drill steel whereby its passage is caused to register with the transverse orifice of the drill steel, substantially as described.

5. In a water attachment for rock drills, the combination with the drill steel having a longitudinal opening and a transverse orifice communicating with the said opening, of a holder having a base and members projecting outwardly therefrom on opposite sides of the base and terminating in oppositely projecting hooks having faces adapted to fit faces of the drill steel, and a water delivery nozzle threaded into the base of the holder and adapted to engage the drill steel between the hook-shaped members whereby the passage of the nozzle is caused to register with the transverse orifice of the drill steel, substantially as described.

6. In a water attachment for rock drills, the combination with the drill steel having a longitudinal passage and a transverse orifice, and a drill steel holder having a base provided with a nozzle opening, and members projecting outwardly from the base and ter-

minating in oppositely projecting hooks
adapted to occupy positions beyond the
drill steel, and a nozzle inserted in the open-
ing of the base for delivering water to the
5 longitudinal passage of the drill steel through
the transverse orifice, substantially as de-
scribed.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

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Witnesses:

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