March 29, 1932. W. A. SMITH, SR 1,851,599

PULLER FOR WORKING IMPLEMENTS

Filed Nov. 1, 1929

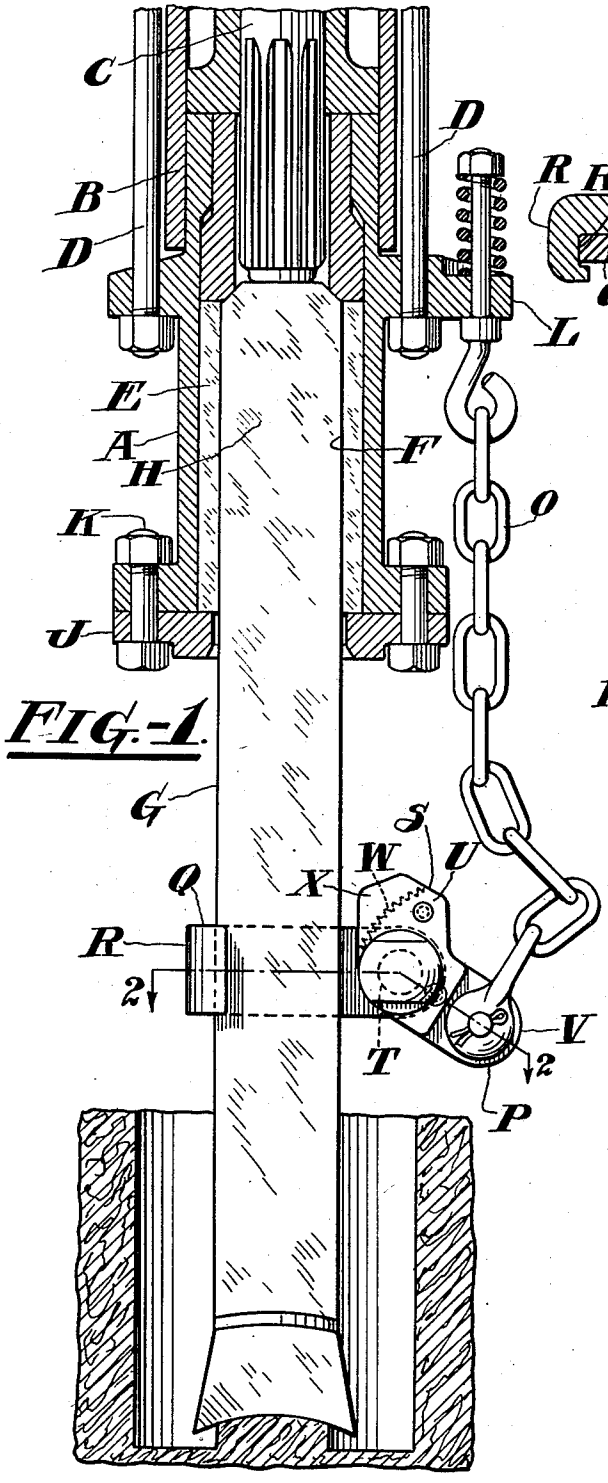

FIG.-1.

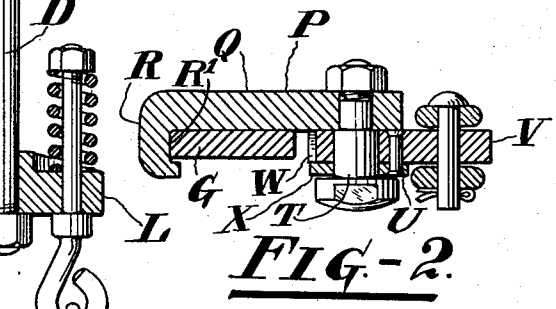

FIG.-2.

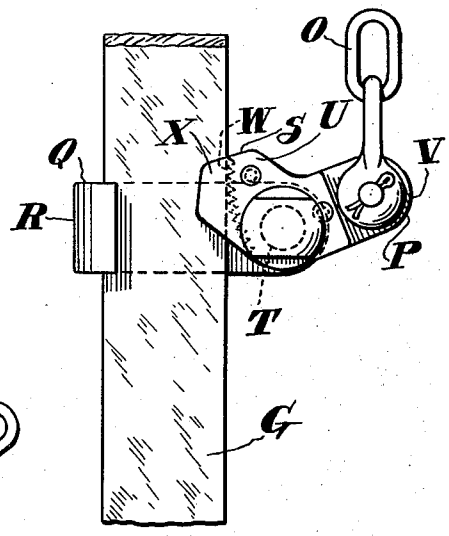

FIG.-3.

INVENTOR.
William A. Smith Sr.
BY
HIS ATTORNEY.

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UNITED STATES PATENT OFFICE

WILLIAM A. SMITH, SR., OF EASTON, PENNSYLVANIA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY

PULLER FOR WORKING IMPLEMENTS

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This invention relates to implement pullers, but more particularly to a puller for working implements of the type used in connection with fluid actuated rock drills in which the percussive element or hammer piston moves independently of the working implement.

One object of the invention is to enable a working implement to be readily withdrawn from the work through the medium of the rock drill.

Another object is to enable the puller to be quickly and easily connected to or detached from the working implement, and still another object is to assure a firm grip of the puller on the working implement.

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

In the drawings forming a part of the following specification and in which similar reference characters refer to similar parts,

Figure 1 is a sectional elevation of a rock drill equipped with a puller constructed in accordance with the practice of the invention and showing the manner in which the puller may be connected to the working implement,

Figure 2 is a transverse view taken through Figure 1 on the line 2—2 looking in the direction indicated by the arrows, and

Figure 3 is a side view of the puller in the closed or gripping position.

Referring more particularly to the drawings, the invention is shown applied to a rock drill, only the front end of which is shown.

The portion of the rock drill illustrated comprises a front head A which extends in this instance with its rearward end into a cylinder B wherein is disposed a reciprocatory hammer piston C. The front head and the cylinder may be clamped together by means of side bolts D or otherwise suitably secured, and in the front head A is disposed a chuck E which may consist of a pair of half sections to form a guideway F for a working implement G illustrated in this instance as a flat rectangular broaching steel.

The broaching steel G may be of a type in which the rearward or shank portion H is of the same conformation as the main body portion of the steel. The shank H interlocks with the chuck E only to prevent relative rotation between these elements but is capable of unlimited endwise movement with respect to the chuck.

The chuck mechanism may be retained in the front head A in any suitable manner as for instance by a cover plate J secured to the front end of the front head A by means of bolts K to form a seat for the front end of the chuck E.

In accordance with the practice of the invention, means are provided to enable the rock drill to be employed as a means for loosening and removing the working implement from the work. To this end the front head A is provided with a lug L to form an anchor for one end of a chain O which is connected at its other end to a puller designated generally by P.

The puller P comprises a solid plate Q having an integral reversely bent portion R the inner end surface R′ of which constitutes a flat seating or gripping surface to bear against one side of the working implement. At the opposite end of the plate Q is an oscillatory gripping member S which is pivotally secured to the plate by means of a bolt T. The grip member S may be in the form of a bell crank in which one arm U thereof may be termed a jaw member and other arm V a lever to which is attached the chain O.

One side of the arm U is preferably formed eccentrically with respect to the pivot whereby the gripping member is secured to the plate Q and in this side are formed teeth W arranged parallelly to the gripping surface R′ and which, when the gripping member is in the closed or gripping position, are adapted to engage the side of the working implement. Any suitable means may be provided for preventing lateral movement of the puller with respect to the working implement, as for instance, a plate X secured to the side of the gripping member S and which, in the closed position of the puller, will overlie the face of the working implement.

In practice, while the working implement is being actuated to form a cut, the puller P may hang suspended from the lug L until the

required depth has been drilled or cut. If then it be desired to remove the working implement from the work, the puller may be disposed on the working implement in such a manner that the reversely bent portion R will engage one side thereof. Upon retracting the rock drill by means of the usual feeding devices the chain O will be tightened and the gripping member S will be rocked to the closed position in Figure 3.

In this position the puller tightly grips the working implement and the continued movement of the rock drill will be transmitted through the chain and the puller to the working implement. After the working implement has been freed from the rock, the gripping member S may be rocked to the releasing position and the puller may then be readily removed from the working implement.

As will be readily observed, the puller may be attached to or detached from the working implement at any point intermediate its ends and therefore without requiring the working implement to constantly operate through the puller.

I claim:—

A puller comprising a solid plate, an integral reversely bent portion at one end of the plate having a flat gripping surface, a gripping member in the form of a bell crank having an arm whereby said gripping member is manipulated, teeth on the gripping member arranged parallelly to the gripping surface, and means for pivotally securing the gripping member to the other end of the plate.

In testimony whereof I have signed this specification.

WILLIAM A. SMITH, SR.