

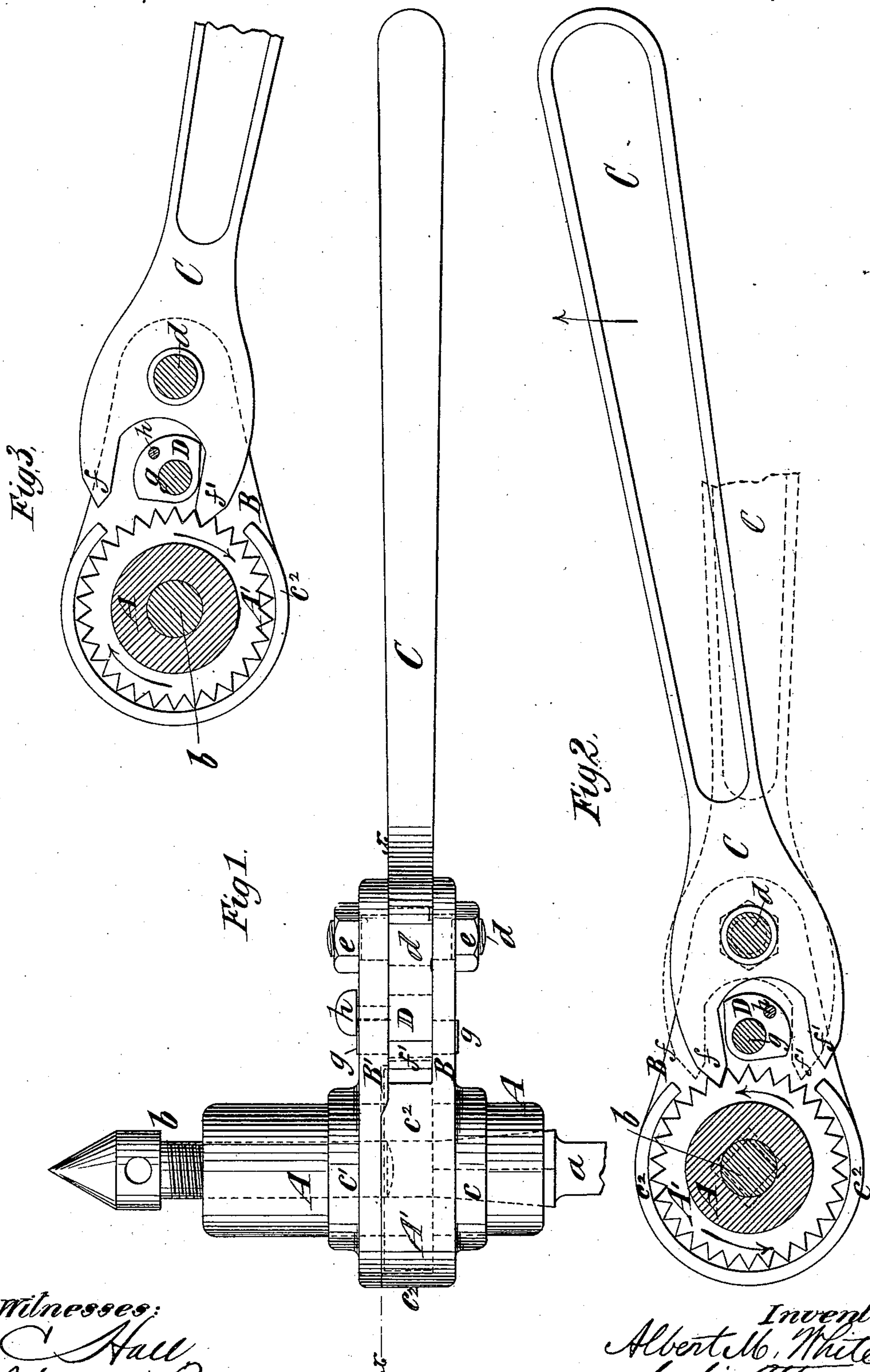
(No Model.)

A. M. WHITE.

RATCHET DRILL.

No. 306,886.

Patented Oct. 21, 1884.



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UNITED STATES PATENT OFFICE.

ALBERT M. WHITE, OF WATERBURY, CONNECTICUT.

RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 306,836, dated October 21, 1884.

Application filed February 11, 1884. (No model.)

To all whom it may concern

Be it known that I, ALBERT M. WHITE, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Ratchet Drills and Wrenches, of which the following is a specification.

My invention relates to ratchet-drills and ratchet-wrenches in which the socket receiving the drill, nut, or bolt, and provided with the ratchet wheel or hub, may be turned in one or the other direction by the engagement of one or other of two pawls, which are operated by the handle or lever; and an important object of my invention is to dispense with all springs in a ratchet drill or wrench of that class.

To this end the invention consists in novel combinations of parts, which are hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a side view of a ratchet-drill embodying my invention. Fig. 2 is a horizontal section on the plane of the dotted line *xx*, Fig. 1, showing the parts adjusted for turning the drill-socket in one direction; and Fig. 3 is a similar view, showing the parts adjusted for turning the drill-socket in the reverse direction.

Similar letters of reference designate corresponding parts in all the figures.

A designates the drill-sockets wherein is fitted the drill *a*, and which is provided with a ratchet hub or wheel, *A'*, the teeth of which are preferably V-shaped, as shown in Figs. 2 and 3. In the upper end of the socket *A* is the usual feed-screw, *b*.

The head or stock of the tool consists of two plates, *B B'*, respectively provided with cylindric bearings *c c'*, which receive the drill-socket *A*, and are capable of turning thereon. The plate *B* is likewise provided with a flange or nearly circular shell, *c''*, which is of a depth equal to the depth of the ratchet-hub *A'*, and which forms a box for the reception and protection of said hub. The two plates *B B'* are rigidly secured together by a bolt, *d*, and this bolt forms the fulcrum on which the handle *C* may turn, the thickness of the inner portion of said handle being sufficient to fill the space between the said plates *B B'*, as shown in Fig. 1.

The portion of the bolt *d* on which the handle *C* works is slightly larger in diameter than those portions of the bolt which pass through the two plates *B B'*, as is shown in dotted lines in Fig. 1, and consequently the bolt has shoulders against which the plates *B B'* are held by the nuts *ee*, and which hold the said plates at such a distance apart as will permit a free movement of the lever or handle *C*.

The portion of the lever or handle *C* inward of the fulcrum *d* thereof is forked, so as to form two pawls, *f f'*, one or other of which will engage with the ratchet-hub *A'*, according to the direction in which said hub and the drill-socket are to be turned. Between the two pawls *f f'*, or, in other words, in the fork of the lever or handle, is a stop, *D*, (here shown as of sector-shape,) and which has pivots *g* fitting in holes or bearings in the plates *B B'*. The shoulders formed on the bolt *d*, as above described, also serve to hold the plates *B B'* at such a distance apart that the stop *D* may be turned somewhat on its pivot *g*.

In the stop *D* is fixed a pin, *h*, which projects upward through a slot in the plate *B'*, and by means of which the stop *D* may be turned from the position shown in Fig. 2 to that shown in Fig. 3, or vice versa.

As shown in Fig. 2, the stop *D* is adjusted to the position necessary to permit the turning of the ratchet-hub *A'* and drill-socket *A* in the direction of the arrow, and when the lever or handle *C* is moved in the direction of the arrow thereon the pawl *f* is engaged with the hub *A'*, and said hub and the socket *A* are turned in the direction of the arrow thereon. To provide for this the stop *D* is turned so as to bring a face or portion of least projection from the pivot *g* opposite the pawl *f*, and a portion of greatest projection opposite the pawl *f'*. When the lever or handle *C* is moved in the reverse direction, it and its pawls *f f'* assume the position shown by dotted lines in Fig. 2, and by reason of that arm of the fork on which is the pawl *f'* striking against the stop *D* said pawl *f'* is prevented from engaging with the ratchet-hub *A'*, and the return movement of the lever or handle and plates *B B'*, constituting the head or stock, is made independent of the ratchet-hub *A'* and drill-socket *A*.

In Fig. 3 I have shown the stop D adjusted to permit the operation of the pawl f' , and prevent the operation of the pawl f , and by the action of the lever or handle C the ratchet-hub A' and drill-socket A may be turned in the direction of the arrow, Fig. 3.

In the position shown in Fig. 3 the stop D is so adjusted that its portion of greatest projection is opposite the pawl f , and prevents the said pawl from engaging the ratchet-hub. The portion of least projection is opposite the pawl f' , and allows the latter to act on the ratchet-hub.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a drill or nut socket provided with a ratchet-hub, of a stock provided with bearings for said socket, a handle fulcrumed in the stock and forked to constitute two pawls, and a stop for controlling the operation of said pawls, arranged in the fork of the handle between the pawls, and capable of adjustment to prevent the engagement of either one of said pawls with said ratchet-hub, and to permit the engagement of the other pawl therewith, substantially as herein described.

2. The combination, with a drill or nut socket provided with a ratchet-hub, of a stock provided with bearings for said socket, a handle fulcrumed in the stock and forked to constitute two pawls, and a stop arranged in the fork of

said handle, pivoted in the stock and capable of being turned to bring portions of the stop having different degrees of projection from its center opposite said pawls, whereby either pawl may be allowed to operate on said ratchet-hub and the other pawl prevented from operating, substantially as herein described.

3. The combination, with a drill or nut socket provided with a ratchet-hub, of the stock consisting of the plates B B', provided with bearings for the said socket, and one provided with a flange or shell inclosing the said ratchet-hub, the handle or lever C, fulcrumed at d , and constructed with pawls $f f'$, and a stop arranged in the fork of the handle between said pawls, and capable of adjustment to prevent the engagement of either one of said pawls with said ratchet-hub, and to permit the engagement of the other pawl with said hub, substantially as herein described.

4. The combination, with a drill or nut socket provided with a ratchet-hub, of a stock wherein said socket is fitted, the handle C, fulcrumed in said stock, and provided with pawls $f f'$, and the adjustable sector-shaped stop D, pivoted in the stock between said pawls, substantially as herein described.

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