H. C. HART.

Ratchet Brace for Metal Drills.

No. 167,897. Patented Sept. 21, 1875.

Fig. 1.

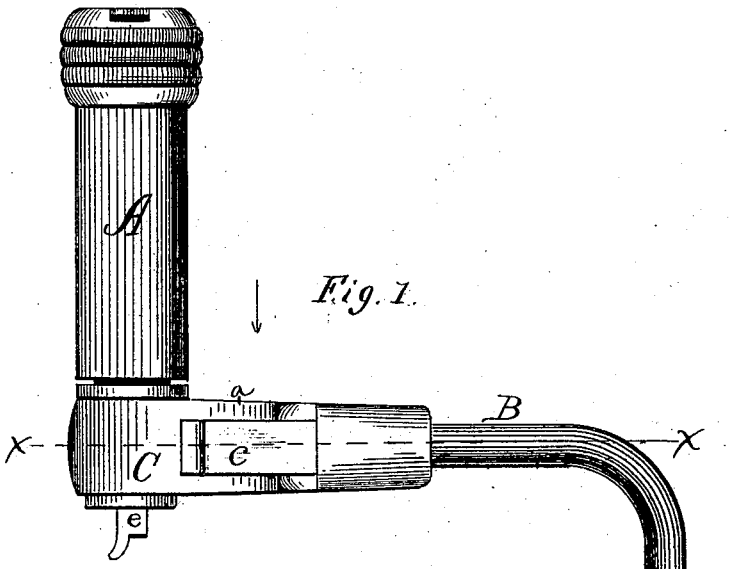


Fig. 2.

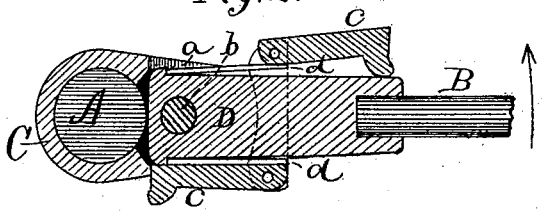
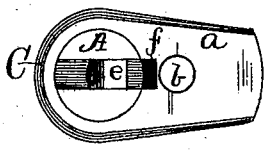


Fig. 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

HUBERT C. HART, OF UNIONVILLE, CONNECTICUT, ASSIGNOR OF ONE-HALF HIS RIGHT TO A. S. UPSON, OF SAME PLACE.

IMPROVEMENT IN RATCHET-BRACES FOR METAL DRILLS.

Specification forming part of Letters Patent No. **167,897**, dated September 21, 1875; application filed May 20, 1875.

To all whom it may concern:

Be it known that I, HUBERT C. HART, of Unionville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Ratchet-Braces, of which the following is a specification:

My invention consists of the peculiar construction and combination of devices, as hereinafter described.

The invention relates to what may be termed a ratchet-brace, and is also equally adapted to ratchet-drills.

In the accompanying drawing, Figure 1 is a side elevation of a brace which embodies my invention. Fig. 2 is a horizontal section of the same on line *x x* of Fig. 1, and Fig. 3 is a view of a detached portion thereof.

The bit-holder A may be of any known style, and the brace proper B of any ordinary kind. Upon the end of the bit-holder A there is a socket, C, so fitted thereon that when left free the bit-holder will readily turn within said socket. Upon one side of the socket C there is a slotted extension, *a*, within which the end D of the brace B is hung by means of a pin, *b*, Fig. 2, so as to form a joint which allows the socket C to swing or turn relatively to the head or end D of the brace B, either to the right or the left, until one corner of the end D strikes against the body of the bit-head A. Upon the sides of the bit-brace B there are two stops, *c c*, hung upon pins so that they may be swung backward, as shown at the upper side of Fig. 2, or forward, as shown at the lower side in said figure. Under the stops *c c* springs *d d* are placed to hold the stops either forward or backward, as may be desired. In the ratchet end of the bit-holder A there is a spring-catch *e*, and in the socket C there is a recess, *f*, Fig. 3. When the spring-catch is thrown outward, as shown in Figs. 1 and 3, it will not prevent the bit-holder from turning within the socket; but when thrown down and into the recess *f* the bit-holder is prevented from turning within the socket C.

The object of ratchet-braces or ratchet-drills is well known, to wit, to bore holes by a vibrating motion of the brace or lever in places where and when it is inconvenient to turn the brace or lever a complete revolution.

The operation is as follows, to wit: The spring-catch *e* is thrown out so as to leave the head free to revolve in the socket C, as shown in Figs. 1 and 3. If desired to turn the tool-holder A left-handed or backward, the right-hand stop *c* (the upper one in Fig. 1) is thrown backward, as shown, and the brace B turned in the direction indicated by the arrow in Fig. 2, when the joint of the socket and brace yield until the right-hand corner of the end D strikes the body of the bit-holder with such force that the friction created thereby will cause the bit-holder A to move with the brace B so far as the brace can be moved (or it is desired to move it) in that direction, when the motion of the brace is reversed, and the joint again yields until stopped by the end of the left-hand stop *c* abutting against the socket, as shown in Fig. 2, when the joint can yield no farther and the corner of the end D cannot advance in that direction far enough to come in contact with the body of the bit-holder A; therefore the bit-holder will remain stationary, and the brace and socket may be moved upon it back to their starting-point. Motion is again imparted to the brace in the direction indicated by the arrow in Fig. 2, and the corner of the end D will again embrace the bit-holder and carry it with it, as before described. To reverse the motion of the bit-holder it is only necessary to throw the right-hand stop *c* forward and the left-hand one backward, when a reciprocating motion of the brace will drive the bit-holder in the opposite direction. By throwing both stops *c c* forward neither corner of the end D can impinge against the bit-holder, and the stops hold the joint of the socket and brace immovable in either direction, when, by throwing the spring-catch into the recess *f*, the parts are all locked together, so that the brace may be used in the ordinary manner.

I am aware that a ratchet upon a bit-holder and two pawls upon the brace to engage with the teeth of said ratchet are old; but my stop-pawls *c c* are not designed to engage with the bit-holder, but merely to lock the parts when desired, and prevent them from working.

I claim as my invention—

1. In combination with the body of a bit or tool-holder, the socket C, end D of a brace or lever, and stops *c c*, all operating together substantially as described, and for the purpose set forth.

2. In combination with the body of a tool-holder, the socket C, recess *f*, and spring-catch *e*, all substantially as described, and for the purpose set forth.

HUBERT C. HART.

Witnesses:

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