

W. Brown,

Ratchet Drill,

Patented Oct. 1, 1867.

N^o 69,399.

Fig. 2.

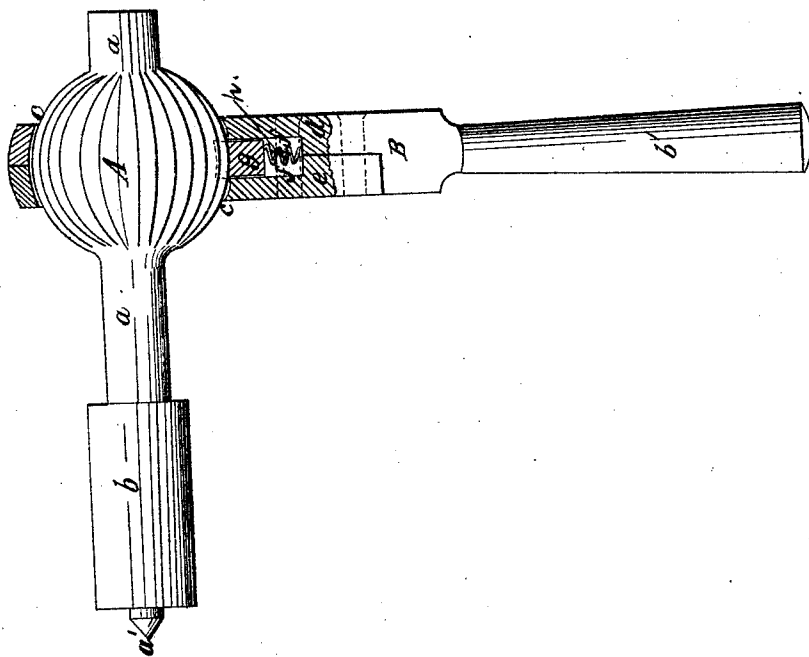
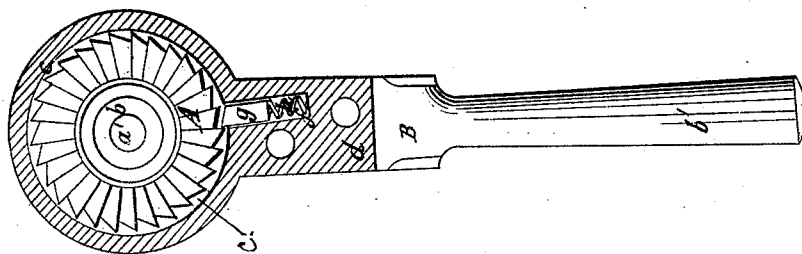


Fig. 1.



Witnesses.

G. W. Reed
A. Sellers

Inventor.

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WILLIAM BROWN, OF HOBOKEN, NEW JERSEY.

Letters Patent No. 69,399, dated October 1, 1867.

IMPROVEMENT IN RATCHET-BRACES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM BROWN, of Hoboken, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Ratchet-Braces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a portion of this specification, in which—

Figure 1 is a plan view of a ratchet-brace constructed according to my invention, with the top plate removed to show the interior thereof.

Figure 2 is a partial vertical longitudinal section of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in the construction of a ratchet-brace with a spherical ratchet operated by a suitable stock and pawl, whereby the ratchet may be turned with the handle at any required angle to the spindle of the brace, thus enabling the said brace to be employed under various circumstances where it would be impossible to use one constructed in the ordinary manner.

The ratchet is shown at A, and is made of spherical shape, and formed in one piece with the spindle *a*, the radial teeth of the ratchet being arranged concentrically thereon in a position longitudinal with that of the spindle *a*. A sleeve, *b*, is screwed upon the upper part of the aforesaid spindle, and has formed upon its upper extremity a "centre," *a'*, the said sleeve being used when the brace is used as a ratchet-drill for the purpose of feeding the drill to the work, the lower end of the spindle being furnished in the ordinary or any suitable manner with a socket for holding the drill or other article to be turned around. The stock of the brace is shown at B, and has its outermost portion formed into a handle, *b'*, while the opposite end thereof is made of annular form, and furnished with a socket, *c*, the said inner or socketed end being divided longitudinally into two parts *d e*, the lower one, *d*, of which is made in one piece with the main portion of the stock B, while the upper part *e* constitutes a top plate, which holds the ratchet in its place, (as will be presently set forth,) and which is secured to the main portion of the stock by means of suitable screws or rivets. The inner sides or circumferences of the socket *c* are made concave, as shown more clearly in fig. 2, in such manner as to correspond to the convex circumference of the ratchet A, and thus retain the said ratchet therein, the ratchet being placed in the socket previous to securing the top plate *e* to the other portion of the stock, as hereinbefore explained. By this means the stock may be moved in a different direction upon the ratchet to which it is thus attached in a manner similar to the movement allowed by a ball-and-socket joint. Formed longitudinally in the inner side of each of the parts *d e*, and communicating with the interior of the annular socket *c* is a groove, *f*, the said groove being so situated that when the top plate is secured in place, as hereinbefore described, they will conjointly constitute a longitudinal recess for the reception of the sliding pawl *g*, the forward end of which gears into the ratchet A, and for the reception of the spiral spring *h* situated behind the pawl *g*, and operating to push the aforesaid pawl forward into gear with the ratchet, as aforesaid. By these means when the stock B is turned in one direction the pawl will act upon the teeth of the ratchet to turn the same, while, when moved in an opposite direction, it will cause the pawl to slip back over the ratchet-teeth the same as in an ordinary ratchet-brace, at the same time that the stock may be moved to any desired angle with reference to the spindle *a*, or, in other words, with regard to the axis of the ratchet A, the pawl *g* following the longitudinal curvature of the teeth of the ratchet and thus keeping in gear therewith.

The ratchet-brace, as thus constructed, may be used in substantially the same manner as the ordinary ratchet-brace, except that inasmuch as the stock B is capable of turning the ratchet A at whatever angle the said stock may be with regard to the spindle of the ratchet, as hereinbefore fully explained, with as great facility and effectiveness as if the movements of the stock were confined to a plane at right angles to the axis of the ratchet, as in the common brace, it may be used for many purposes and under many circumstances where the employment of an ordinary brace would be entirely inadmissible.

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

The spherical ratchet A, in combination with the socket *c* and pawl *g*, substantially as described.

WILLIAM BROWN.

Witnesses:

A. LE CLERC,

G. W. REED.