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JOHN J. SWITZER.
Improvement in Ratchet Drills.

No. 122,677.

Patented Jan. 9, 1872.

Fig. 1.

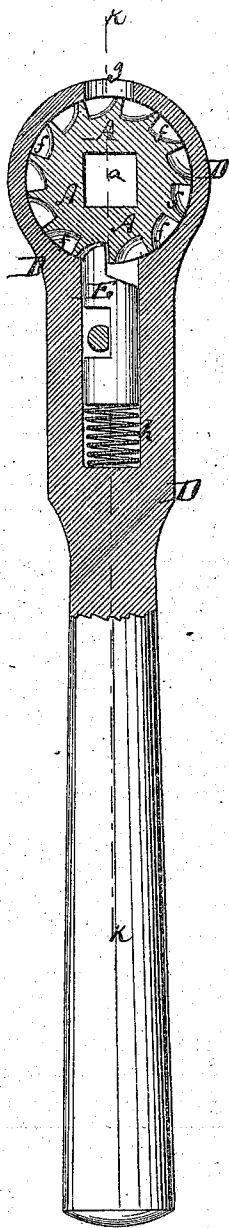


Fig. 2.

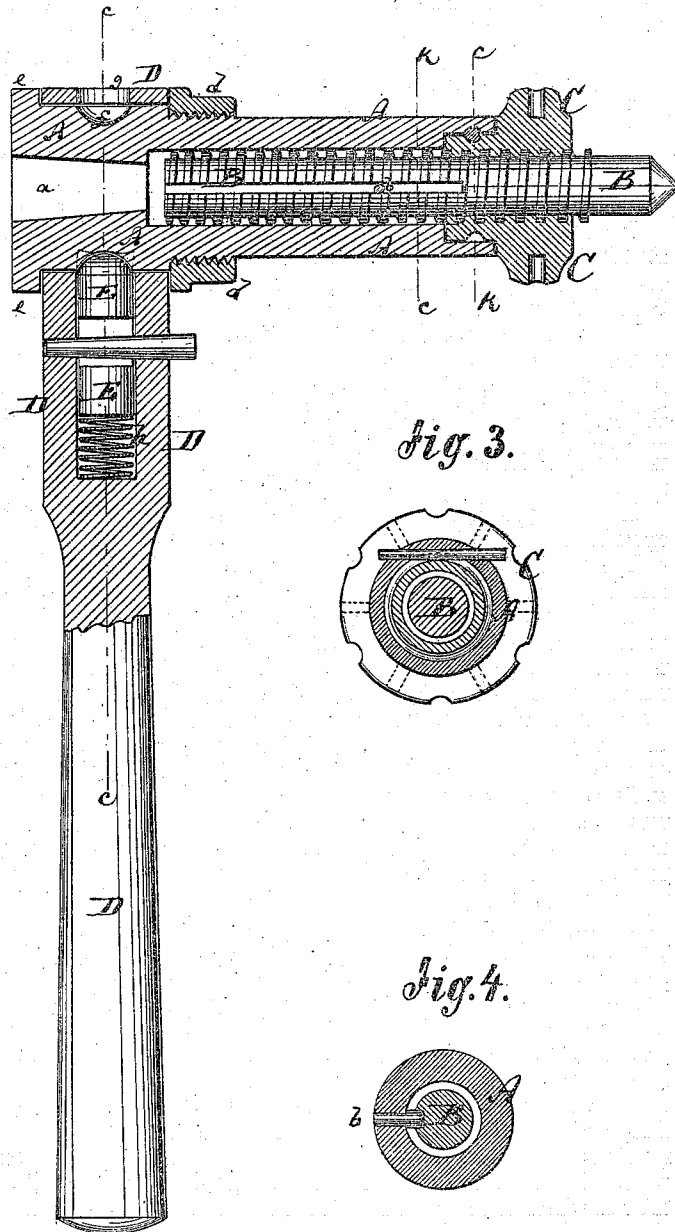


Fig. 3.

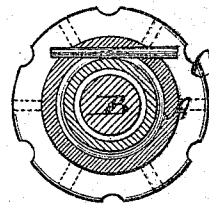
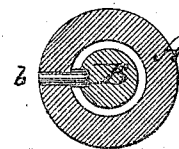


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN J. SWITZER, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN RATCHET-DRILLS.

Specification forming part of Letters Patent No. 122,677, dated January 9, 1872.

Specification describing a new and Improved Ratchet-Drill invented by JOHN J. SWITZER, of Williamsburg, in the county of Kings and State of New York.

Figure 1 represents a vertical transverse section of my improved ratchet-drill, the line C C, Fig. 2, indicating the plane of section. Fig. 2 is a longitudinal section of the same on the line K K, Fig. 1. Figs. 3 and 4 are transverse sections on the lines C K and K C, Fig. 2, respectively.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then clearly pointed out in the claims.

A in the drawing represents the drill-stock or tube, containing a socket, *a*, for the reception of the drill, and containing also the "center" B, which projects from its other end. The "center" is a screw, entering the hollow stock A and grooved lengthwise to receive the end of a pin, *b*, which projects inwardly from A, and prevents the screw from turning. The feed nut C is swiveled to the end of the tube A and is threaded to fit the screw *b*, so that by turning said nut the screw will be caused to slide in or out, but without turning. This feature of a sliding center I consider a valuable improvement of the feeding device now in use, as it is plain and simple and admits of considerable length of feed. D is the handle of the drill, formed with an eye at the upper end to embrace the tube A. A nut, *d*, and shoulder *e* serve to confine the handle on the tube, allowing it, however, to turn thereon. The nut *d* is screwed upon the tube. Whenever it is removed the handle can be drawn out, not otherwise. That portion of the circumference of the tube A which is contained within the eye of the

handle D is provided with a succession of notches or depressions, *f f*, which constitute the ratchet-head. The spring pawl *g* is contained within the handle and entirely connected with the same. It is introduced through an aperture, *g*, of the eye before the handle is applied to the tube A. The end of the pawl E is, by the spring *h*, forced against the ratchet-head, and slips in the notches of the same when the handle is turned in one direction, while, when the handle is turned in the other direction, it takes firm hold and turns the tube and drill with it.

The forming the ratchet-head in the body of the tube A by depressions is a great advantage over the usual method of forming projecting teeth. It is stronger and protects the bearing surface of each tooth at the sides, similar to a flanged ratchet-wheel, but is much cheaper to make than the same. The forming the handle and eye in one piece and providing a chamber in the handle for the pawl and spring is also a more economical and simple plan than any hitherto in use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An ordinary handle, D, provided with a spring-pawl, *h* E, combined with a tube, A, provided with nut *d*, shoulder *e*, and notches *f*, to hold the tube and handle, as described.

2. A sliding feed-center, B, threaded and longitudinally grooved, combined in a ratchet-drill with a swiveled nut, C, and tube A, having pin *b*, as and for the purpose described.

JOHN J. SWITZER.

Witnesses:

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