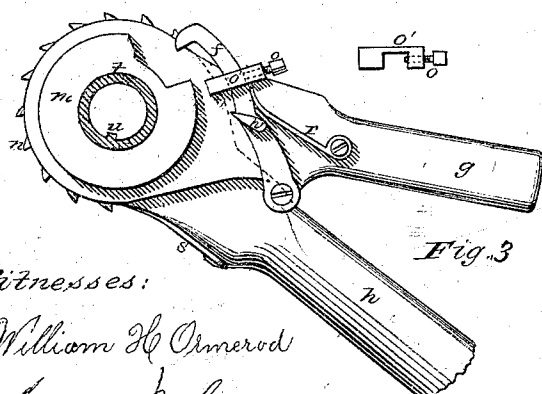
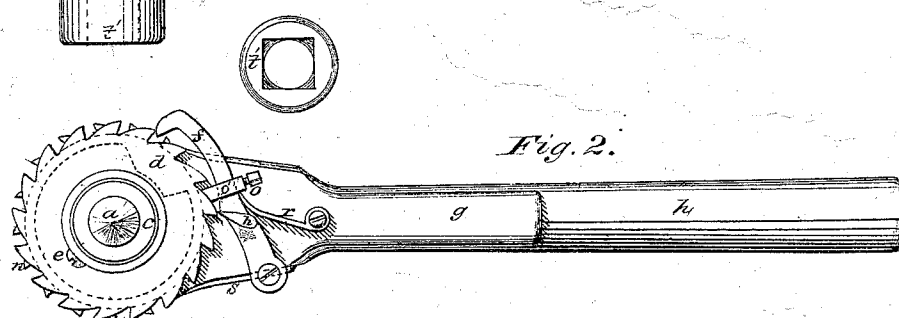
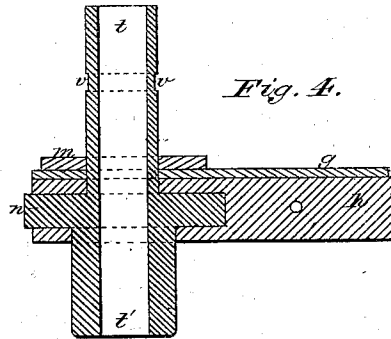
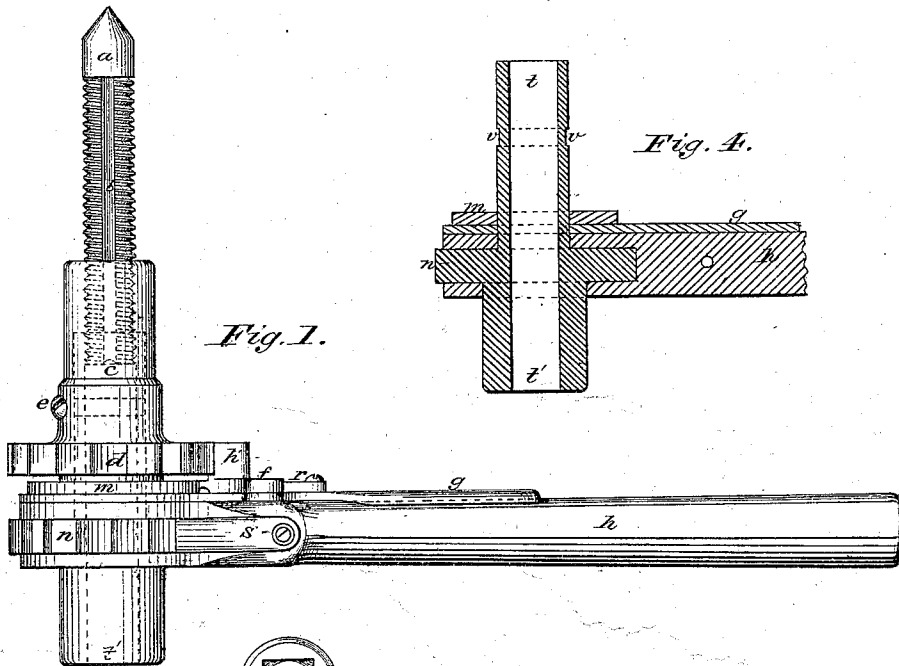


J. SWANK.
Ratchet-Drills.

No. 135,451.

Patented Feb. 4, 1873.



Witnesses:

William H. Omerod
James P. Swartz

Inventor:

Josiah Swank.

UNITED STATES PATENT OFFICE.

JOSIAH SWANK, OF DELANO, PENNSYLVANIA.

IMPROVEMENT IN RATCHET-DRILLS.

Specification forming part of Letters Patent No. **135,451**, dated February 4, 1873.

To all whom it may concern:

Be it known that I, JOSIAH SWANK, of Delano, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Ratchet-Drill; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing and to the letters of reference marked thereon, which form a part of this specification.

My invention consists in the combination, with a ratchet-drill, of an automatic feeding device, by which the drill-bit is kept constantly and evenly pressed against the object being operated upon, and in the novel construction of said automatic feeding device.

In the drawing, Figure 1 is a side view of a ratchet-drill with my automatic feeding device attached; Fig. 2, a plan of same; Fig. 3, a plan view with arm *g* of the feeding device turned off from the lever *h* of the drill; Fig. 4, a section through the tube of drill, a part of the feeding device being removed.

t is the tubular body of the drill, firmly attached to which is a ratchet-wheel, *n*, into which takes a spring-pawl, *s*, attached to the lever *h*. In one end of the tubular body is a square socket, *t'*, for the reception of the drill-bit; in the other end, which is round, is a tooth, *u*. *a* is the feed-screw, a slot, *b*, in the side of which fits over the tooth *u* when the screw is inserted into the body. *c* is a sleeve having upon the upper part of its interior surface a screw-thread for the reception of the screw *a*, while the lower portion is of such size as to fit over the end of the body *t* in which the tooth is located, and plays freely upon the body, being secured thereto by a screw, *e*, which plays in a groove, *v v*. By the side of the lever *h* is an arm, *g*, arranged to work freely around the body *t*. This arm *g* has pivoted to it a smaller arm, *f*, as shown in the drawing, in such position that a hook on its end will rest upon the edge of a cam, *m*, and a tooth, *h'*, on its lower portion will take into the ratchet *d*, which is rigidly attached to and forms a part of the sleeve *c* when the

hook is in the recess of the cam. The arm *f* is held in position by a spring, *r*. Upon the arm *f* is a clamp, *o'*, one end of which rests upon the cam *m*, and may be adjusted so as to cause the arm *f* to be raised by the cam and the tooth *h'* withdrawn from the ratchet as desired, thereby serving to regulate the feed.

The operation of my invention is as follows: The drill being placed in position as ordinarily, the arm *g* is worked to bring the bit against the work, which is effected by tooth *h'* causing the ratchet *d* to turn, and thus cause the screw *a* to be run out. The arm *g* is then brought even with the lever *h*, and both are taken hold of and worked together, each vibration causing the bit to cut its way and be pressed up to its work by the feed-screw just so much as is regulated to be done by placing the clamp *o'* so that the tooth *h'* may be sooner or later withdrawn from the ratchet *d*, by the turning of which, as is plainly shown, the screw *a* is run out.

Having now described my invention, what I claim is—

1. The hooked arm *f* and clamp *o* in combination with the cam *m* for regulating the feed, substantially as shown and described.

2. The sleeve *c* having the ratchet *d*, the hooked arm *f*, tooth *h'*, clamp *o'*, and arm *g*, in combination with the cam *m*, substantially as shown and described.

3. The tube *t* and screw *a* in combination with the sleeve *c* having ratchet *d*, constructed and arranged substantially as shown, for the purpose set forth.

4. The combination of the arms *h g*, hooked arm *f* having tooth *h'*, tube *t* having ratchet *n*, and sleeve *c* having ratchet *d*, substantially as described.

5. The sleeve *c* having ratchet *d*, cam *m*, hooked arm *f*, and arm *g*, or their equivalents, in combination with the ratchet-drill.

In testimony that I claim the foregoing, I have hereunto set my hand this 11th day of November, 1872.

JOSIAH SWANK.

Witnesses:

WILLIAM H. ORMEROD,
JAMES P. SWARTZ.