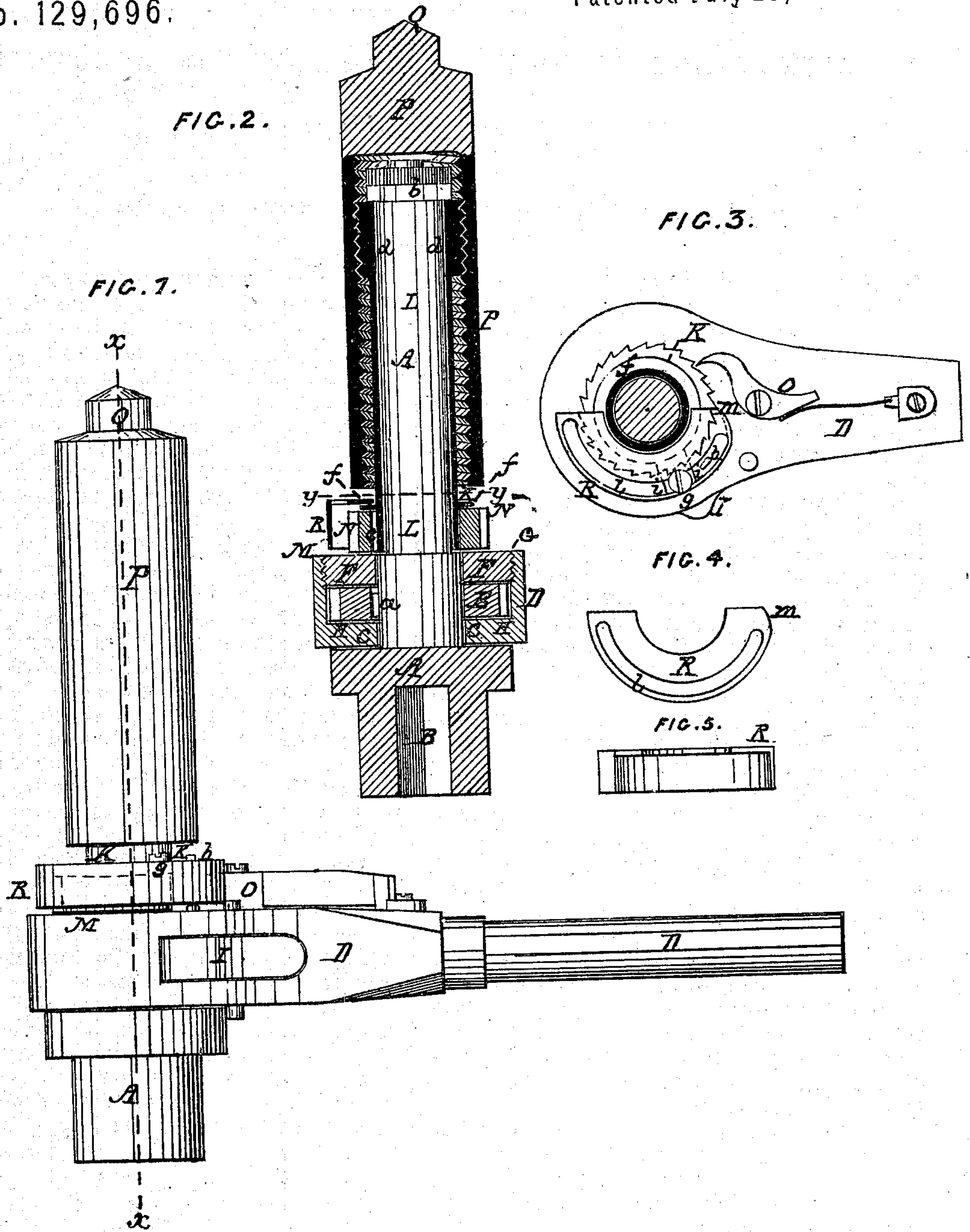


A. G. VOTTIER.

Improvement in Ratchet-Drills.

Patented July 23, 1872.

No. 129,696.



WITNESSES.

B. S. Bryant  
J. P. W. Choy.

INVENTOR.

Alexander G. Vottier  
per Brown Brothers  
Attorneys.



# UNITED STATES PATENT OFFICE.

ALEXANDER G. VOTTIER, OF CHARLESTOWN, MASSACHUSETTS.

## IMPROVEMENT IN RATCHET-DRILLS.

Specification forming part of Letters Patent No. 129,696, dated July 23, 1872.

*To all whom it may concern:*

Be it known that I, ALEXANDER G. VOTTIER, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Ratchet-Drills; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying plate of drawing.

This invention relates more particularly to self-feeding ratchet-drills, or to those carrying two ratchet-wheels and pawls, respectively, to impart rotation to the drill or stock and to feed it forward. The invention consists, first, in a novel construction of the handle, to receive, hold, and secure the ratchet-wheel employed to turn the stock or drill; second, of a shield partially surrounding the teeth of the feed ratchet-wheel, which shield is arranged to turn loosely upon the shaft or axis of the feed-ratchet and to move backward with the handle, but to remain stationary in the forward movement of the handle, whereby, as may be desired, with a proper adjustment of the shield, can be secured a greater or lesser amount of feed by the feed ratchet-wheel with a given stroke or swing of the handle.

In the accompanying plate of drawing my improvements in ratchet-drills are illustrated, Figure 1 being a side view of a ratchet-drill constructed according thereto; Fig. 2, a central vertical section in plane of line *xx*, Fig. 1; Fig. 3, a horizontal section in plane of line *yy*, Fig. 2; Figs. 4 and 5, views in detail of shield to feed ratchet-wheel.

A in the drawing represents the stock of the ratchet-drill, provided at one end with a socket, B, to receive a drill. This stock, from end to end, is made of the form shown in the drawing, and is passed through an opening, C, at one end of the handle D. This opening C is enlarged about the stock A to receive a ratchet-wheel, E, which is keyed to the stock at *a* and by means of an annular screw-nut, F, screwed into the open end G of the handle-opening C, about the stock A, confined in place between such nut F and the shoulder H, at the other end of opening C. I, a spring-pawl arranged on handle D, in position to engage teeth of ratchet-wheel E, and to turn the same, as in ordinary ratchet-drills; K, a sleeve, arranged loosely on the extension L of stock A,

and confined from escape by a screw-nut, *b*, on outer end of stock A. This sleeve K ends at or near the face M of handle D, and at such end is keyed at C to a ratchet-wheel, N, which is the feed ratchet-wheel of the ratchet-drill. This ratchet N rests upon the face M of handle D, and by a spring-pawl, O, of the handle is adapted to be turned in the one or forward movement of the handle, the pawl in the other or backward movement of the handle passing freely over the teeth of the ratchet. The upper end of the ratchet-sleeve K is provided with a male screw-thread, *d*, to receive the female screw-thread of an outer incasing-sleeve, P, having a cone-point, Q, to rest against the support for the drill. The turning of the feed-ratchet N screws its sleeve out of its incasing-sleeve P and thus feeds the drill forward. R, a shield of a semicircular shape from end to end, or nearly so, the radius of its circle being somewhat greater than the radius of the ratchet-wheel N. This shield is arranged on and secured by a set-screw, *g*, to a collar, *f*, of the ratchet-sleeve K, which collar *f* is free to turn on said sleeve, and, by the shield R, the teeth of the ratchet-wheel N are shielded from the pawl D, as is plainly shown. *h*, a pin fastened in handle D within the shield R. By the abutment of this pin *h* against the partition *i*, which is of the collar to which the shield is attached, the shield R, as the handle is swung backward, is carried around with the handle, the pin playing in the forward and backward movements of the handle within the circular slot *l* of the shield R. The operation of the shield R, in connection with the feeding of the drill or stock, is as follows: Suppose the shield and other parts of the ratchet-drill to stand in the relative position shown in Fig. 3 of the drawing, and that then, for a quarter of a circle, the handle be turned backward, it is plain that, until the pin *h* of the handle abuts against the partition *i*, there is no movement of the shield R, but that then said shield moves with it till the quarter circle is completed, and that then, moving the handle forward to its original position, the pawl, O, after it has passed the end *m* of the shield R, interlocks with the ratchet-teeth, carrying the wheel N then forward.

Thus it will be seen that, according as the shield is moved backward by the handle a greater or lesser distance, the greater or lesser



number of teeth the ratchet will be carried forward in a given stroke, and that the more the shield is set forward of, or the less it is set back of the said plane of starting for the handle, the less number of teeth the ratchet-wheel will be moved in the given stroke.

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

1. The handle D, having opening C, wherein ratchet-wheel E is located, in combination with annular screw-nut F, substantially as described, for the purpose specified.

2. The shield plate R, in combination with the feed ratchet-wheel N and handle D, having pin h, all constructed and arranged relatively to each other and to the pawl O substantially as and for the purpose described.

The above specification of my invention signed by me this 23d day of February, A. D. 1872.

ALEX. G. VOTTIER.

Witnesses:

J. P. McELROY,

EDWIN W. BROWN.