

W. M. ELLISON.
Ratchet-Drills.

No. 149,108.

Patented March 31, 1874.

Fig. 1.

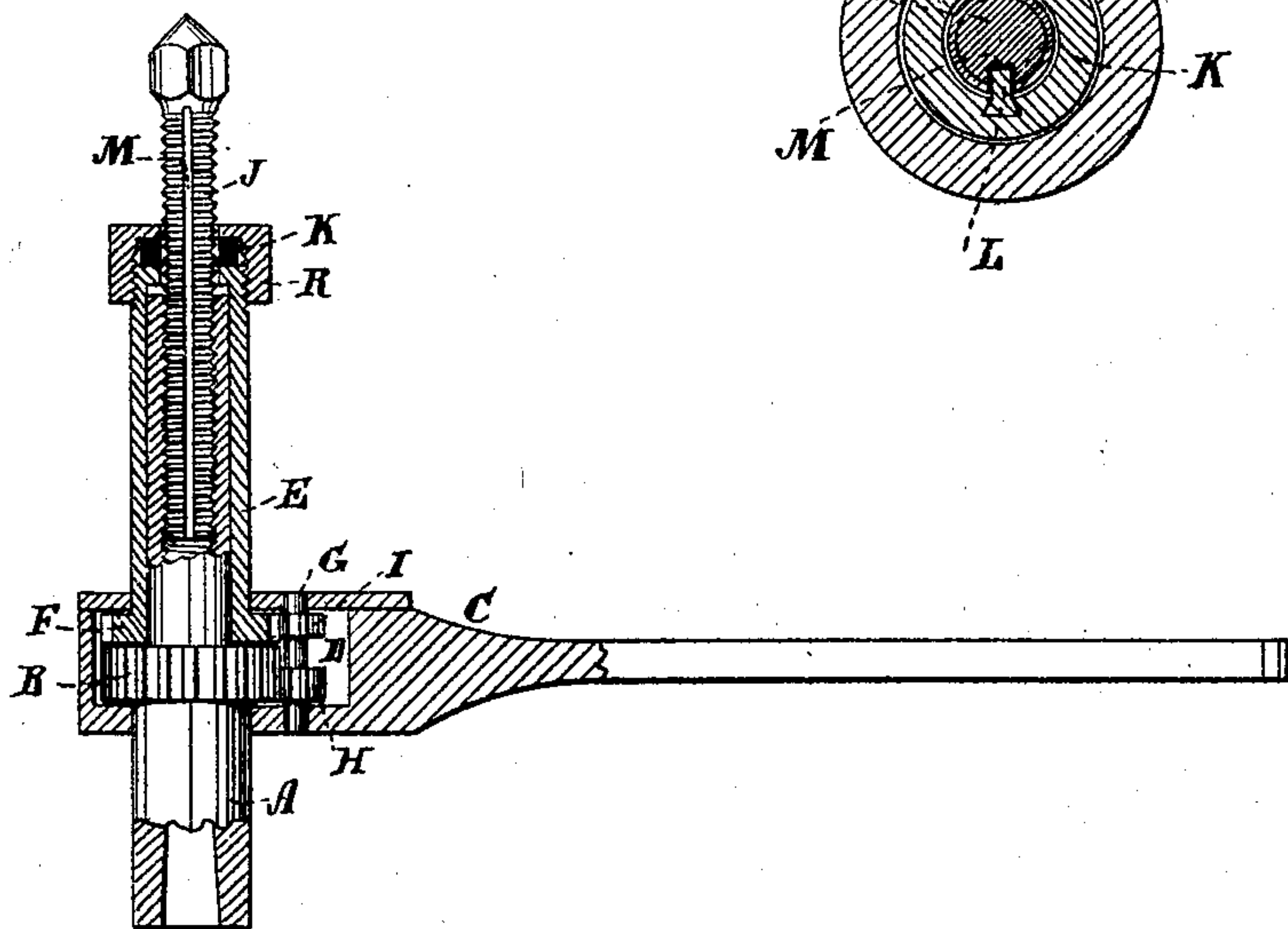


Fig. 3.

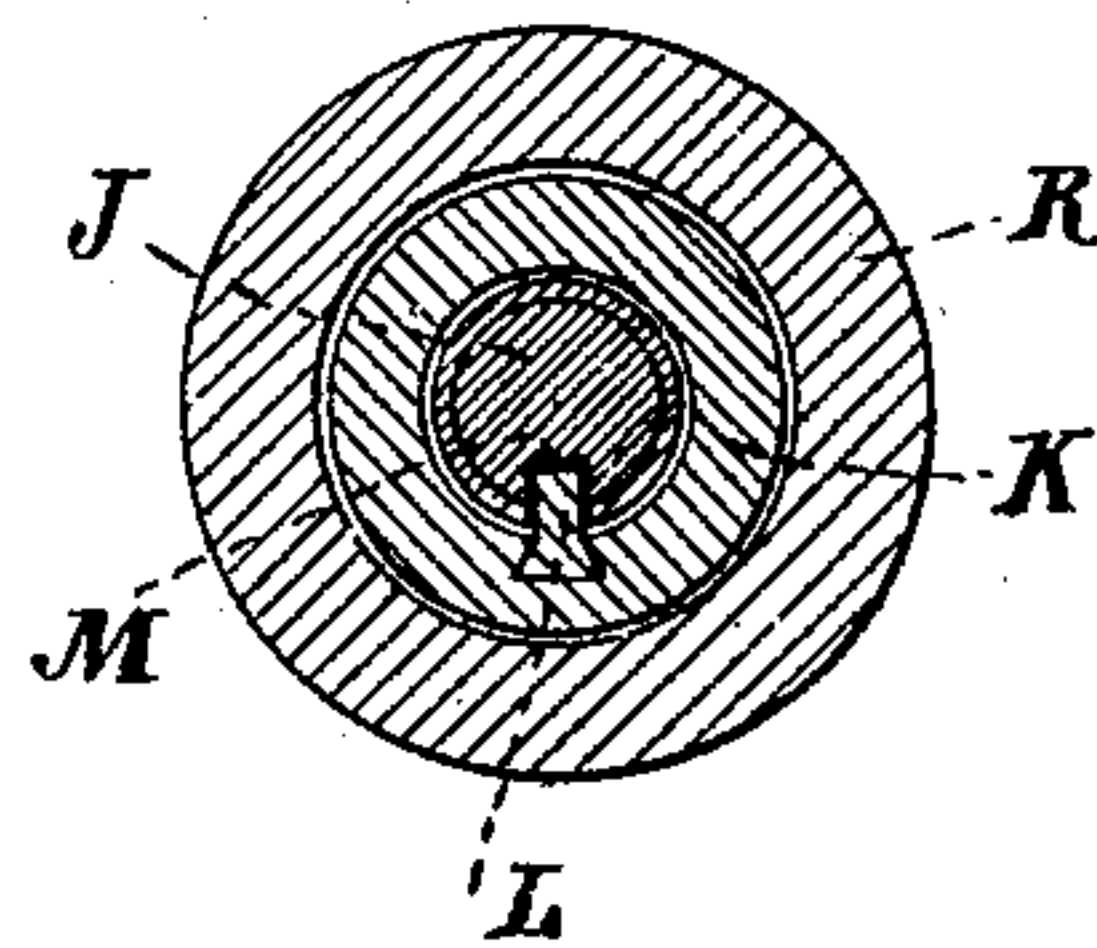
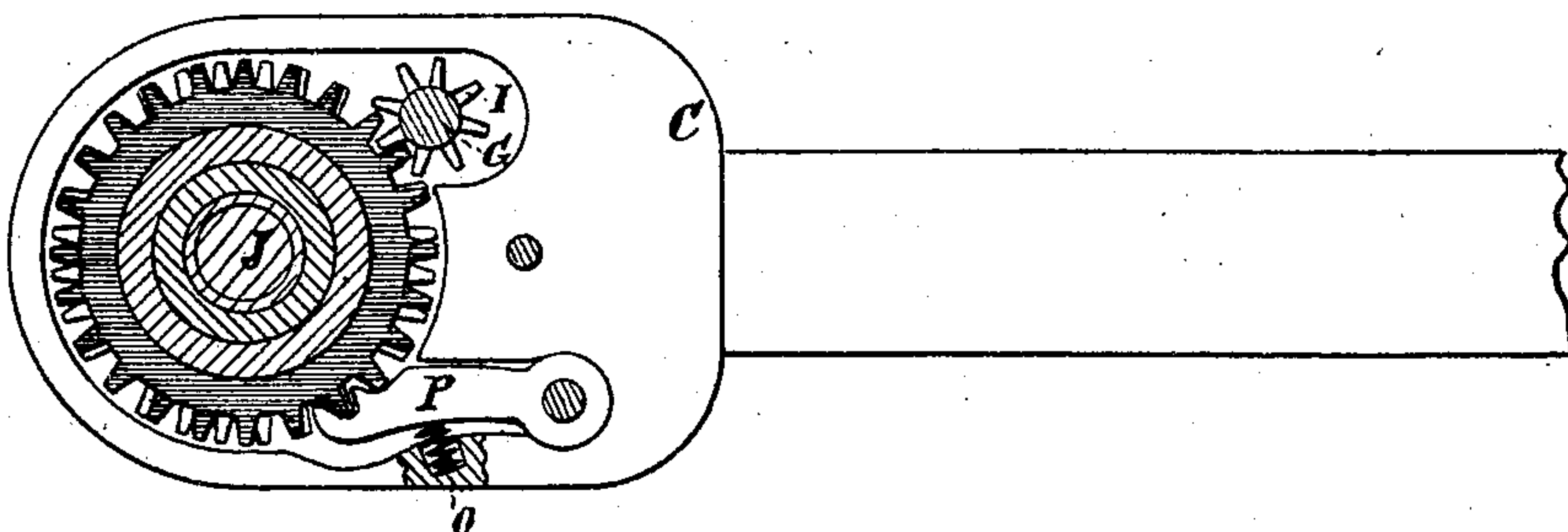


Fig. 2.



WITNESSES:

A. Bennekenhof.
J. J. Quick

INVENTOR:

W. M. Ellison

BY

Munnell

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM M. ELLISON, OF KINGSTON, NEW YORK.

IMPROVEMENT IN RATCHET-DRILLS.

Specification forming part of Letters Patent No. **149,108**, dated March 31, 1874; application filed February 14, 1874.

To all whom it may concern:

Be it known that I, WILLIAM M. ELLISON, of Kingston, in the county of Ulster and State of New York, have invented a new and Improved Self-Feeding Ratchet-Drill, of which the following is a specification:

My invention consists of a sleeve on the upper part of the drill spindle or stock, with a screw-cap and a collar, so formed that when the feed-screw is adjusted to its bearing at the upper end it can be bound fast to the sleeve, and the sleeve extends down to a chamber in the head of the drill-handle, where it has a toothed wheel rising on another toothed wheel on the drill-stock, and geared with it by a little shaft and two pinions. The wheel of the sleeve has a few more teeth than the one on the drill-stock, so that it turns slower, and thus causes the feed-screw to turn slower than the spindle does, and thus slowly screw out of it and feed the drill. The pawl of the handle acts on the wheel of the spindle for turning it. By loosening the screw-cap at the top of the sleeve the screw is freed so as to be turned readily by hand for setting the drill and releasing it.

Figure 1 is a sectional elevation of my improved self-feeding ratchet-drill. Fig. 2 is a horizontal section through the head of the handle, and Fig. 3 is a horizontal section through the binding-cap and collar.

Similar letters of reference indicate corresponding parts.

A is the drill spindle or stock; B, the toothed wheel on it in the chamber D in the head of the handle C. E is the sleeve on the upper

part of the spindle; F, the toothed wheel on its lower end, and resting on wheel B in chamber D; G, the shaft, and H and I the pinions on it, gearing the wheels B and F together. J is the feed-screw; R, the screw-cap on the top of the sleeve, and K the collar for binding the screw and sleeve fast together. Said collar rests on the top of the sleeve under the screw-cap, and has a feather, L, working in a groove, M, in the screw.

The wheel F has, say, four more teeth than the wheel B, and the pinions each have an equal number, so that when the feed-screw is bound fast to the sleeve, by screwing the collar hard on it by the cap, it must turn as much slower than the drill-spindle as the difference between the movements of the wheels B and F, and thus feed the drill.

The gears may be proportioned to feed faster or slower, as may be required. In this example they are so as to feed about an inch to ninety turns of the drill.

P is the pawl for turning the drill; it acts on the wheel B. Q is the pawl-spring.

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

The combination, with the drill-spindle, of the sleeve E, cap and collar R K, the gear-wheel, the pawl, and the lever, substantially as set forth.

WILLIAM M. ELLISON.

Witnesses:

ANTHONY McCLUNG,
EPHRAIM G. LAWRENCE.