

T. M. Howard,
Metal Drill,

N^o 53,981.

Patented Apr. 17, 1866

Fig: 1.

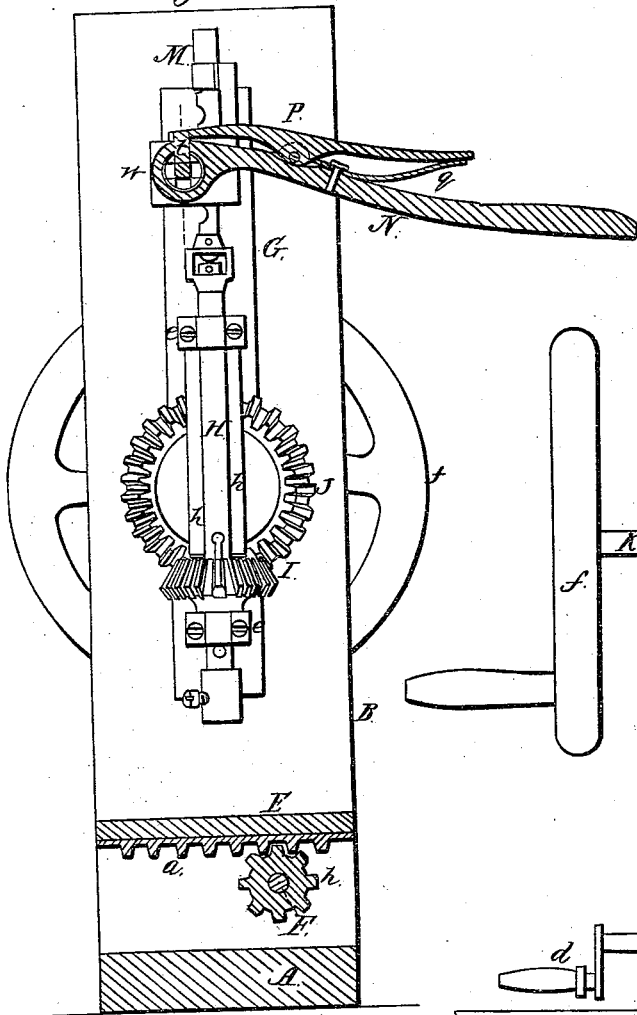
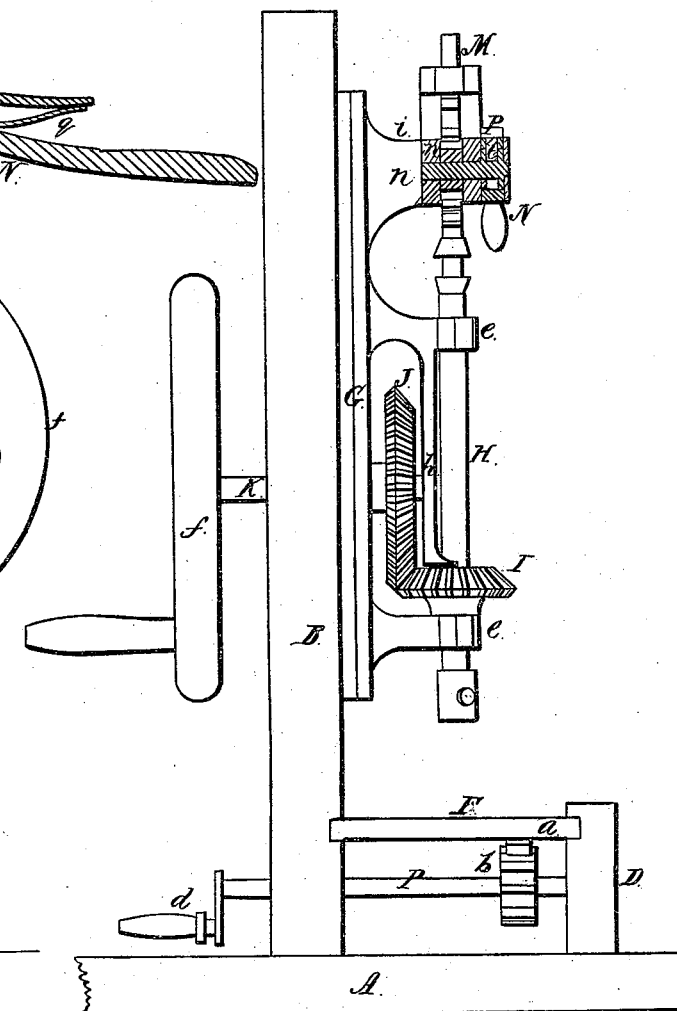


Fig. 2.



Witnesses:
J^{rs} Albert Steel
John Parker

T. M. Howard
Inventor By his Atty
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UNITED STATES PATENT OFFICE.

THOMAS M. HOWARD, OF CHARLESTOWN, PENNSYLVANIA.

IMPROVED DRILLING-MACHINE.

Specification forming part of Letters Patent No. **53,981**, dated April 17, 1866.

To all whom it may concern:

Be it known that I, T. M. HOWARD, of Charlestown, Chester county, Pennsylvania, have invented an Improved Drilling-Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of a drilling-machine constructed and operated in the manner described hereinafter, the machine being simple in construction and well adapted for use in a blacksmith's or other shop, where a more expensive machine for accomplishing the same duty would be out of place.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a front view of my improved drilling-machine, and Fig. 2 a side view.

The frame of the machine consists of the base A, the standard B, and shorter standard D, all of which I prefer to make of wood.

A platform, E, is arranged to slide between the two standards, which have grooves for the reception of the edges of the said platform, and on the under side of the latter is a rack, *a*, into which gear the teeth of a wheel, *b*, on a shaft which turns in the two standards, and which is furnished with a suitable handle, *d*. To the front of the standard B is secured a plate, G, from which project bearings *e e'*, adapted to the vertical drill-spindle H, which can move up and down in the hub of the bevel-wheel I, but cannot turn independently of the said wheel, the latter gearing into a bevel-wheel, J, on a shaft, K, which turns in the plate G, and in another plate secured to the back of the standard B, and which is furnished with a handled fly-wheel, *f*. The bevel-wheel I is maintained in its proper vertical position in one direction by the bearing *e*, and in the other direction by a bar, *h*, which forms a part of the plate G.

In a projection, *i*, of the plate G slides a rack, M, into the teeth of which gear those of a cog-wheel, *m*, on a spindle, *n*, the latter turn-

ing in lugs on the same projection *i*, and this rack is so coupled to the drill-spindle H that the latter can revolve freely, but can have no vertical movement independent of the rack. The front end of the spindle *n* is enlarged, and on this enlarged end a lever, N, is hung loosely, another lever, P, being hung to the lever N, and a spring, *q*, on the latter tending to force the outer end of the latter upward. The inner end of the lever P is provided with a pin, *t*, which passes through the hub of the lever N, and into one of four holes, *u*, in the enlarged end of the spindle *n*.

A drill having been adjusted to the lower end of the spindle H, and the object to be operated on having been placed on the platform E, the attendant with one hand turns the fly-wheel *f*, and with the other depresses the lever N, and consequently the spindle H and its drill. When the lever N cannot be further depressed without inconvenience to the operator, he places his thumb on the outer end of the lever P and depresses the same, thereby withdrawing the pin *t* from that hole *u* in the enlarged end of the spindle *n* in which it had hitherto occupied a position. The lever N is then elevated until the pin *t* coincides with another hole, *u*, when the lever P is released and the lever N depressed, and the depression of the drill continued, as before.

It will be seen without further description that the machine is of the most simple construction, and well adapted for use in blacksmiths' and other shops, where a more expensive machine for accomplishing the same duties would be out of place.

I claim as my invention and desire to secure by Letters Patent—

The combination of the lever N, lever P, with its pin *t*, spindle *n*, with its holes *u*, wheel *m*, sliding rack M, and drill-spindle H, the whole being arranged and operating substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOS. M. HOWARD.

Witnesses:

JOHN WHITE,
W. J. R. DELANY.