

S. W. CARD.

Machines for Milling Twist Drills.

No. 141,760.

Patented August 12, 1873.

Fig. 1.

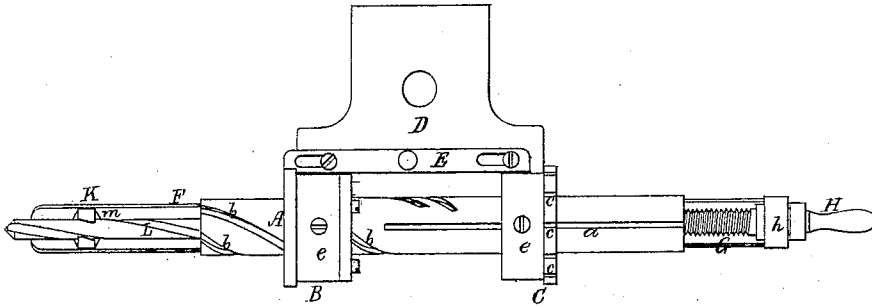


Fig. 2.

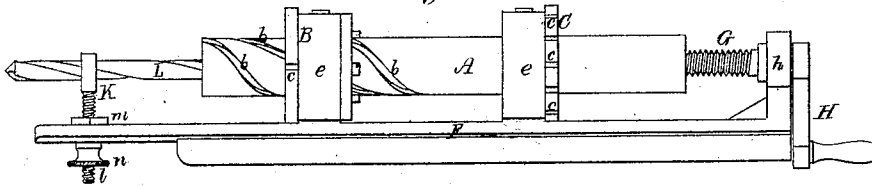
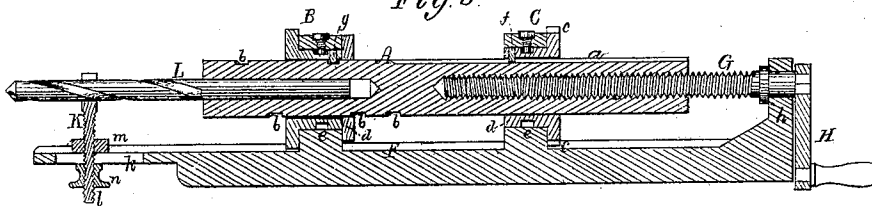


Fig. 3.



Witnesses
S. W. Card
L. N. Hollen

Simon W. Card.
by his attorney
R. H. Eddy

UNITED STATES PATENT OFFICE.

SIMON W. CARD, OF MANSFIELD, MASSACHUSETTS, ASSIGNOR TO HIMSELF
AND JOHN BIRKENHEAD, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MILLING TWIST-DRILLS.

Specification forming part of Letters Patent No. **141,760**, dated August 12, 1873; application filed
April 30, 1873.

To all whom it may concern:

Be it known that I, SIMON W. CARD, of Mansfield, in the county of Bristol and State of Massachusetts, have invented a new and useful machine for producing either rectilinear or helical motion of a shaft or spindle used in the making of twist-drills, reamers, or various other articles; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, and Fig. 3 a longitudinal section, of such machine.

In such drawings, A denotes a cylindrical arbor, shaft, or spindle, having a straight groove, *a*, formed in it lengthwise from one end of it, and also one or more helical grooves, *b b*, arranged in it lengthwise from its other end. Upon this arbor, and so as to encompass and fit to it, are two wheels, B C, formed as shown, and having notches *c* in their greater peripheries. These wheels have journals *d d*, which are supported in cylindrical bearings *e e* projecting from or making part of a bracket, D, on whose upper surface is a slide-bolt, E. This bolt is so fixed to the bracket as to be capable of being slid longitudinally into a notch of either of the wheels, or midway between the wheels and out of their notches. The object of the bolt is to lock to the bracket, as occasion may require, each wheel, so that it shall not revolve on the shaft A. From one of these wheels a stud, *f*, projects into the straight groove of the shaft, and from the other of such wheels another such stud, *g*, extends into a helical groove of the shaft. Furthermore, affixed to the lower parts of the bearings *e e* is a bar, F, it being extended from them in manner as represented. At its rear end is a standard, *h*, which supports a screw, G, that screws lengthwise into the shaft A, and is provided with a crank, H, all being as shown. The bar, near its other end, is slotted lengthwise at *k* to receive and support a Y or furcated work-supporter, K, on whose shank is a screw, *l*, furnished with clamp-nuts *m n*, all being as represented.

In the drawings, a twist-drill blank, L, is shown as projecting axially from the front end of the shaft A, and resting in and sup-

ported by the work-supporter. The work-supporter is to steady the work or prevent it from springing downward or laterally under the pressure or action of the cutter-wheel.

If we suppose a grooving cutter-wheel to be arranged over the drill-blank with the plane of revolution of the said wheel on the plane of the axis of the drill-blank, we can cut, by the wheel, either a straight or a helical groove in the drill-blank, or a series of straight or helical grooves, so as to convert the blank into a twist-drill or a reamer, as we may desire.

To accomplish the production of a straight or helical groove while the cutter-wheel may be in revolution we have only to slide the bolt into a notch of either wheel and to turn the screw so as to cause the shaft to advance longitudinally in a direction toward the wheel, and in accordance with the wheel which is bolted we shall cut a straight or a helical groove, the other wheel revolving with the shaft.

It is intended for the machine, when used, to be clamped upon the tool-stock of a lathe, and the cutter-wheel to be fixed to the lathe-arbor, so as to be revolved thereby.

I claim as my invention as follows, viz:

1. The combination of the shaft or spindle A, the straight and helical grooves *a b*, the notched wheels B C, the studs *f g*, and the slide-bolt E, all constructed, arranged, and applied together, and to the bracket D, substantially in the manner and to operate as set forth.

2. In combination with the shaft or spindle A, helical grooves *a b*, the notched wheels B C, the stud *f g*, and the slide-bolt E, the work-supporter K, applied to the support-rail F, as set forth.

3. In combination with the shaft or spindle A, the straight and helical grooves *a b*, the notched wheels B C, the stud *f g*, and slide-bolt E, the feeding-screw G, the support-rail F, and work-supporter K, all arranged essentially in manner and to operate as specified.

SIMON W. CARD.

Witnesses:

R. H. EDDY,
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