J. M. HUNTER.

Stock for Grinding and Drilling Tool.

No. 220,290. Patented Oct. 7, 1879.

Fig. 1.

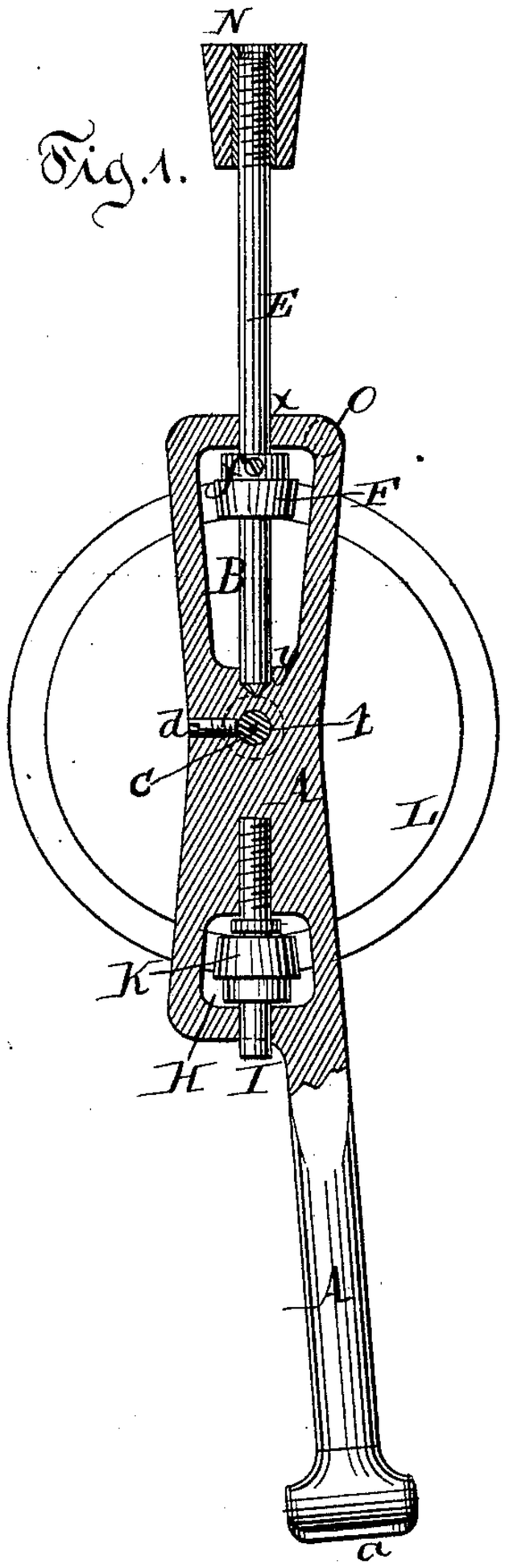


Fig. 2.

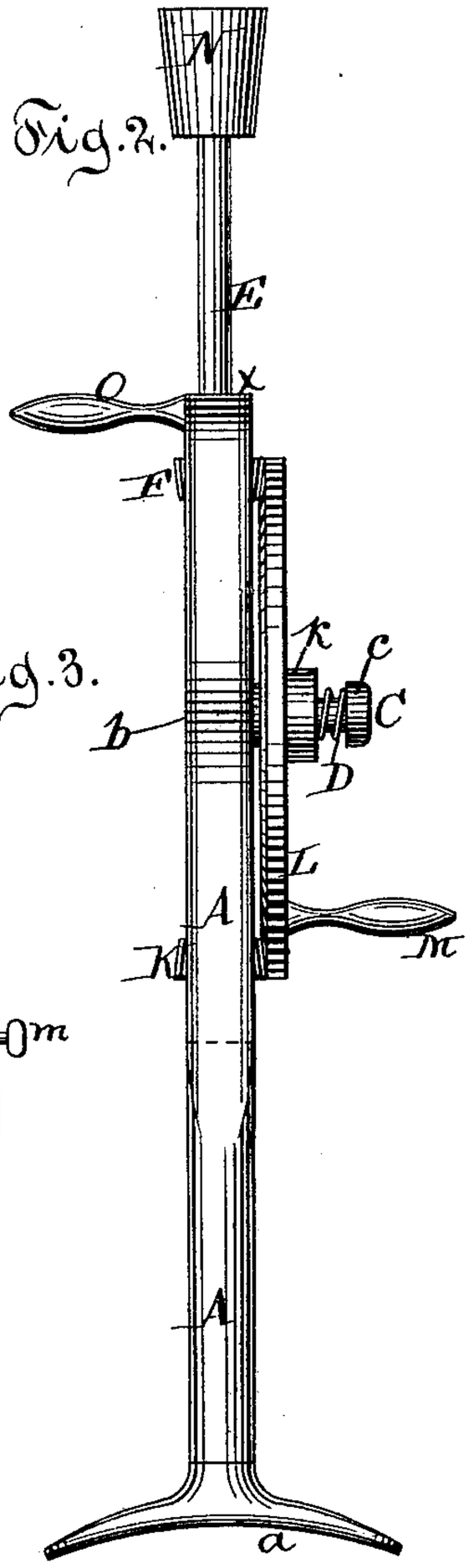
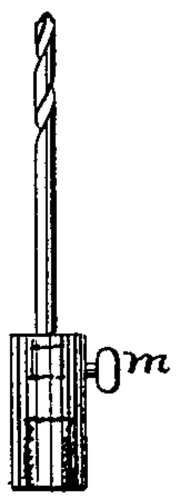


Fig. 3.



Witnesses.

Henry R. Wells

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UNITED STATES PATENT OFFICE.

JAMES M. HUNTER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STOCKS FOR GRINDING AND DRILLING TOOLS.

Specification forming part of Letters Patent No. **220,290,** dated October 7, 1879; application filed March 3, 1879.

To all whom it may concern:

Be it known that I, JAMES M. HUNTER, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Combined Grinding and Drilling Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved stock for operating an emery-grinder, drill, or other rotating tool; and it has for its object to provide an implement for rough work that will not be liable to be rendered useless by the accumulation of dirt between its working parts; and to this end it consists in the combination, with the revolving shaft or mandrel of a tool-stock, of a rotating disk or plate pivoted thereto and a beveled wheel upon the shaft or mandrel, the said plate being held against the beveled wheel with a yielding pressure by means of a spring, as more fully hereinafter specified.

Figures 1 and 2 represent elevations of my invention; Fig. 3, the drilling attachment.

The letter A represents a stock or frame, provided at one end with a plate, *a*, of any form adapted to be applied to the breast to receive the pressure of the body. The other extremity of A is enlarged for half its length, as shown in Fig. 1, and pierced with two orifices, B and H, as shown, all of which will more clearly appear from the drawings than from any description.

The stock A is perforated at *b* to receive the arbor C. C is formed with a head, *c*, having a shoulder on the side opposite the stock to serve as a bearing for one end of the spring D. C is provided near its extremity, within the stock, with a recess to receive the screw or pin *d*, as shown in Fig. 1. This pin retains C in position, yet readily permits its removal to replace the spring D, when desired.

A metal shaft, E, passes through the stock A at *x* and pivots at *y*, as shown in Fig. 1. The shaft E is provided with a beveled pinion, F, of the form shown. This pinion is placed on the shaft E, after it has been passed through the stock A, at *x*, and is secured immovably to the shaft by a pin or screw, *f*.

The orifice H is traversed by the shaft I, bearing in the stock A, as shown. This shaft serves as an arbor for the beveled pinion K, which revolves upon it. The pinion K is exactly like the pinion F in form. The bevel of each of these pinions is set toward C.

The beveled driving-wheel L is placed on the arbor C, upon which it revolves. A boss, *k*, surrounds the central orifice, upon which boss one extremity of the spring D bears. The beveled face of L is set toward the stock A. Its bevel corresponds to the bevel of the pinions F and K, against which L is forced by the spring D.

The contiguous surfaces of the driving-wheel and pinions are smooth and without gearing. The circumference of the driving-wheel L should greatly exceed that of the pinions F and K, so as to impart a rapid rotation to the shaft E. The proportion of six to one will answer; but it may be exceeded with advantage.

L is provided with a handle, M, as shown in Fig. 2, through which motion is imparted to L. The outer extremity of the shaft E terminates in a screw, by which an emery-grinder, N, in shape like a frustum of a cone, and having a metal threaded core, is attached.

The emery-grinder N may at any time be removed and the drill-chuck (shown in Fig. 3) screwed on in its place. This chuck consists of a metal cylinder perforated longitudinally and provided with a thread through about one-half its length, to enable it to be secured onto the outer end of the shaft E. A thumb-screw passes through the wall of the cylinder, near the extremity opposite the threaded end, entering the cavity within to confine the drill. Instead of this drill-chuck, any of the numerous devices for that purpose may be used by simply providing means to screw it onto the extremity of the shaft E.

Instead of having the bearing-surfaces of the driving-wheel L and the pinions F and K smooth, as shown and described, and relying on friction alone to impart motion from one to the other, they may be provided with cogs; but the form described is much cheaper in construction and works far smoother and better, and, unless great power is required, is fully as effective.

The stock A is provided with a handle at O.

My device is operated as follows: The handle O is grasped in the left hand, and the handle M with the right. The breast-plate is placed

against any convenient portion of the body, and the grinder or drill is pressed and held firmly against the work. Upon turning the wheel L motion is imparted to the pinion F, and through it to the shaft and grinder or drill, as the case may be. The pinion K serves only to steady the driving-wheel L, and keep it in one plane as it revolves.

What I claim as new, and desire to patent, is—

In a portable grinding or drilling apparatus, the combination of the shaft or mandrel E, its beveled wheel F, the driving-wheel L, and spring D, by which it is held with a yielding pressure against the beveled wheel F, substantially as and for the purpose specified.

In testimony that I claim the foregoing improvement in combined grinding and drilling machines, as above described, I have hereunto set my hand.

JAS. M. HUNTER.

Witnesses:
G. G. MANN,
A. F. CURTIS.