

A. F. CHAMPLIN.

TOOLS FOR SHARPENING DRILLS.

No. 183,798.

Patented Oct. 31, 1876.

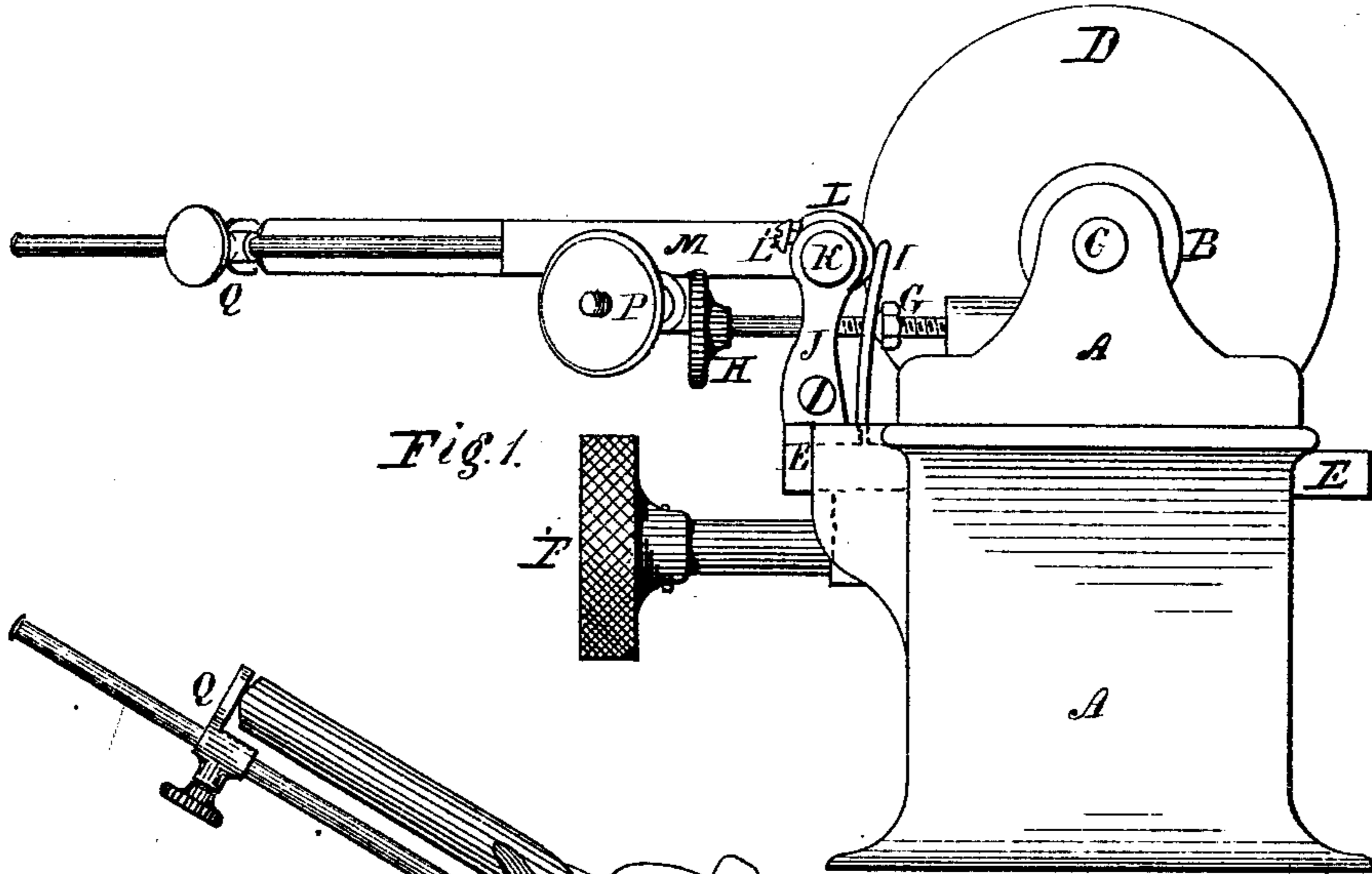


Fig. 1.

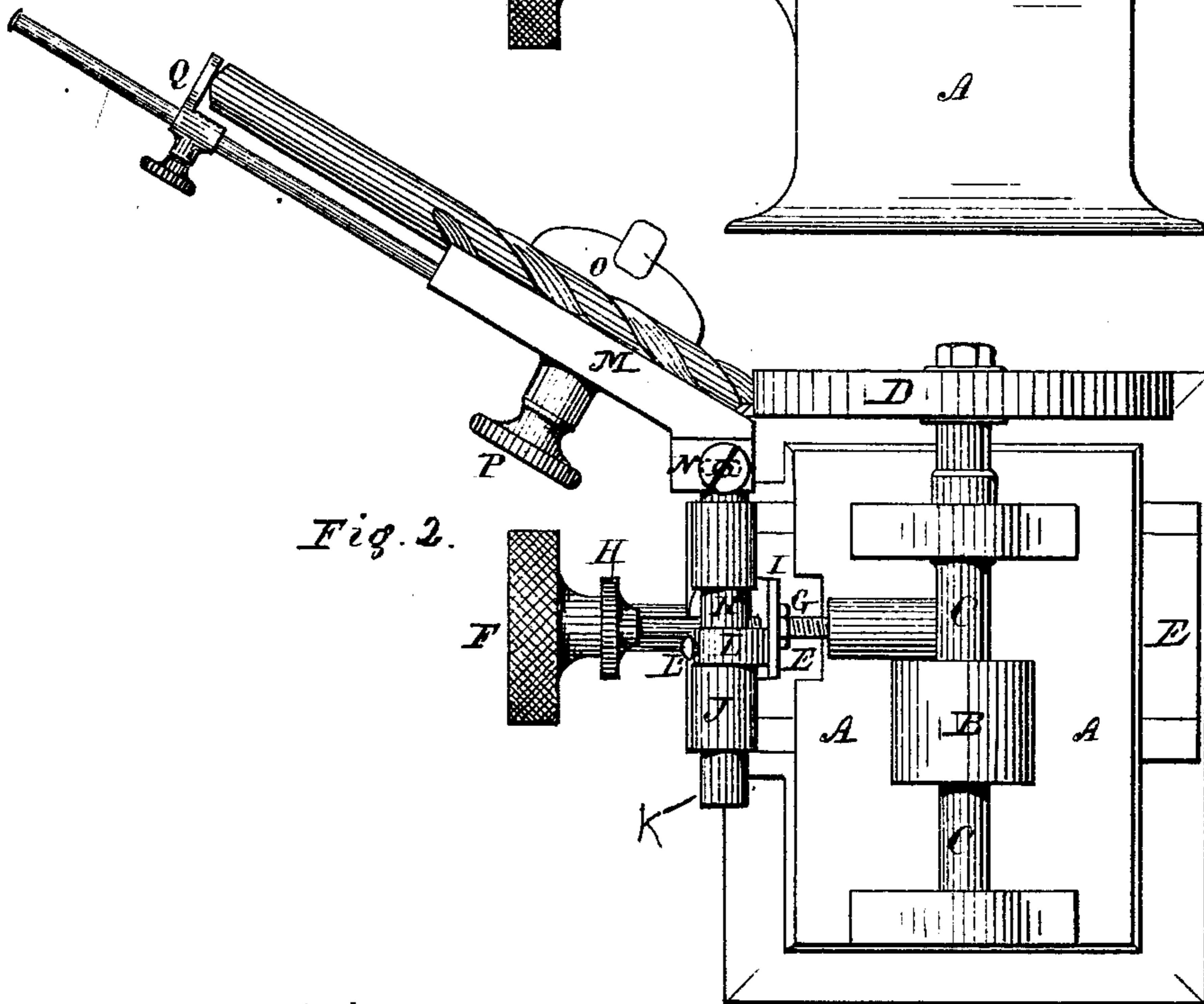


Fig. 2.

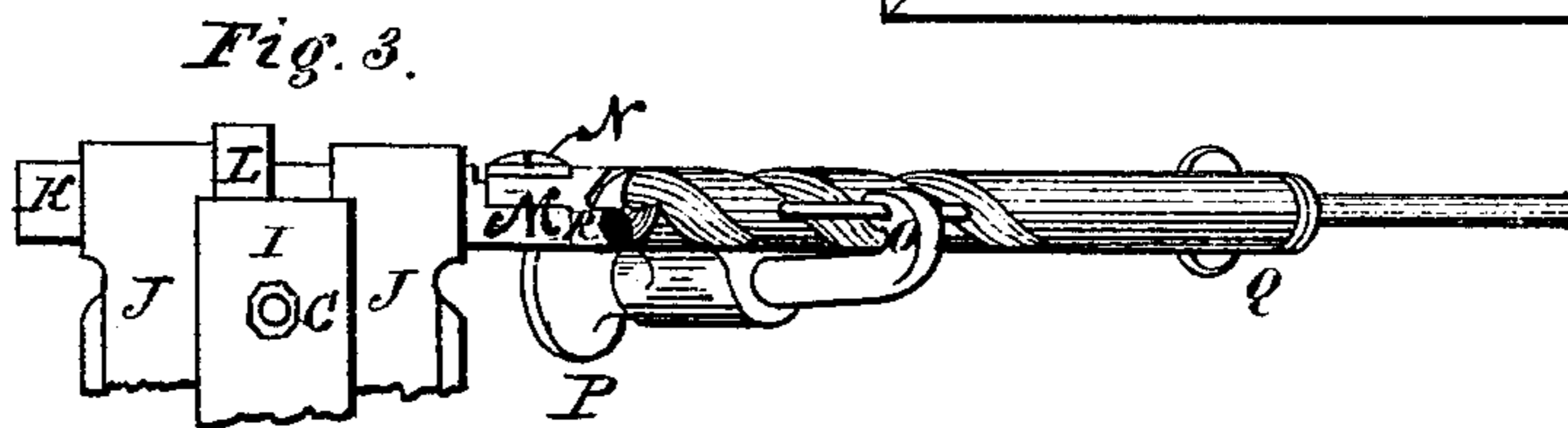


Fig. 3.

WITNESSES.

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IMPROVEMENT IN TOOLS FOR SHARPENING DRILLS.

Specification forming part of Letters Patent No. 183,798, dated October 31, 1876; application filed August 12, 1876.

To all whom it may concern:

Be it known that I, AMOS F. CHAMPLIN, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Tools for Sharpening Drills; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My invention relates to a machine for sharpening drills, in which the drill can be placed and ground in such a manner that the proper angle is given to the inclined sides of the point, and the cutting-edges are made at the desired angle by the mechanical action of the machine.

The object of my invention is to grind drills on their cutting-edges rapidly and accurately, without requiring any peculiar skill in the workmen.

My invention consists in the construction and arrangement of the several parts of the machine, as will be hereinafter described.

In the accompanying drawing, Figure 1 shows an end view of my improved machine. Fig. 2 shows a top view of the same. Fig. 3 is a detached view, showing the front of the axis on which the drill is supported, and the devices by which the drill is held in position.

A is the frame of the machine. B is a pulley for driving the shaft C and the grinding-wheel D. E is a slide-rest for moving the drill-holding mechanism to and from the grinding-edge of the wheel D. This slide is operated by the screw F. G is a set-nut on the screw H, which acts upon the standard I, to limit the motion inward of the slide E. This can be set at any point desired. J is a rocking standard, which supports the horizontal arbor K. This standard is jointed to the slide E, and is provided with a spring, which presses it toward the fixed standard I. L is a cam upon the arbor K, which acts against the fixed standard I in such a manner that when the arbor K is turned the rocking standard is moved back and forth. This cam is held in place by the set-screw L'. M is the drill-

holder. This is furnished with a grooved bed, in which one side of the drill lies while the drill is being ground. The drill is held in place by means of the clamp O, which is operated by the screw P. Q is a gage sliding upon a bar extending outward from the drill-holder M. The end of the drill rests against this gage to fix its position longitudinally. The drill-holder M is attached to the arbor K by the clamp-screw N. This screw moves in a slot in M, so as to permit of an adjustment of the drill-holder at right angles to the axis of the arbor K, so as to make the point of the drill describe a greater or less arc—that is, with a longer or shorter radius. R is a projection in the grooved bed of the drill-holder, near the end where the cutting-edge of the drill comes when in the machine. This is for the purpose of fixing the position of the drill so that the edge to be ground will come always in the same place. One lip of the drill rests against this projection while the opposite edge is being ground, and serves as a gage to fix its position exactly.

The operation of my improved machine is as follows: A drill is placed in the holder, with one of its lips resting upon the projection R. It is then clamped in this position by means of the clamp G, and the gage Q is set against its outer end, and set by means of its screw. The drill is then advanced against the grinding-wheel D, and ground while the drill-holder is rocked upon the arbor K. The cam L operates against the standard I, and moves the drill at the proper time to and from the wheel D, so as to give the cutting-edge the proper angle. When one edge is sufficiently ground, the drill-holder M is brought to a level position, and the stop G brought against the standard I by means of the screw H. The slide E is then moved out again and the drill turned half-way round on its axis, with its end resting against the gage Q. The slide is then again advanced, the drill-holder is rocked as before until its advance is stopped by the nut G, when the two edges will be found to be ground exactly alike, with the point of the drill in the center.

With the same shape and set of the cam L a greater or less angle can be given to the cutting-edge of the drill by the adjustment at N.

As the drill-holder is set forward, so as to give a longer radius from the axis of K, the cam operates less for the same amount of distance moved by the edge of the drill, so that the cutting-angle will be more obtuse.

What I claim as my invention is—

1. The gage R, for fixing the position of the drill by resting against one of its lips while being ground, substantially as herein described.

2. The grooved drill-holder M, in combination with the gage Q, operating against the end of the drill, substantially as herein described.

3. The combination of the tool-holding mechanism with the arbor K and cam L, substantially as herein described.

4. The combination of the slide E, the rock-

ing standard J, the fixed standard I, the arbor K, the cam L, and a rocking tool-holding mechanism attached to the arbor K, substantially as herein described.

5. The combination of the gage Q, for fixing the position of the drill upon the drill-holder, with a stop, G, to gage the length at the end which is cut off, substantially as herein described.

6. In a drill-sharpening machine, the adjustment at N, in combination with the tool-holding mechanism and the arbor K, substantially as herein described.

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Witnesses:

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