

M. C. Gardner.

Cutting Screws.

N^o 9,169.

Patented Aug. 3, 1852.

Fig. 1.

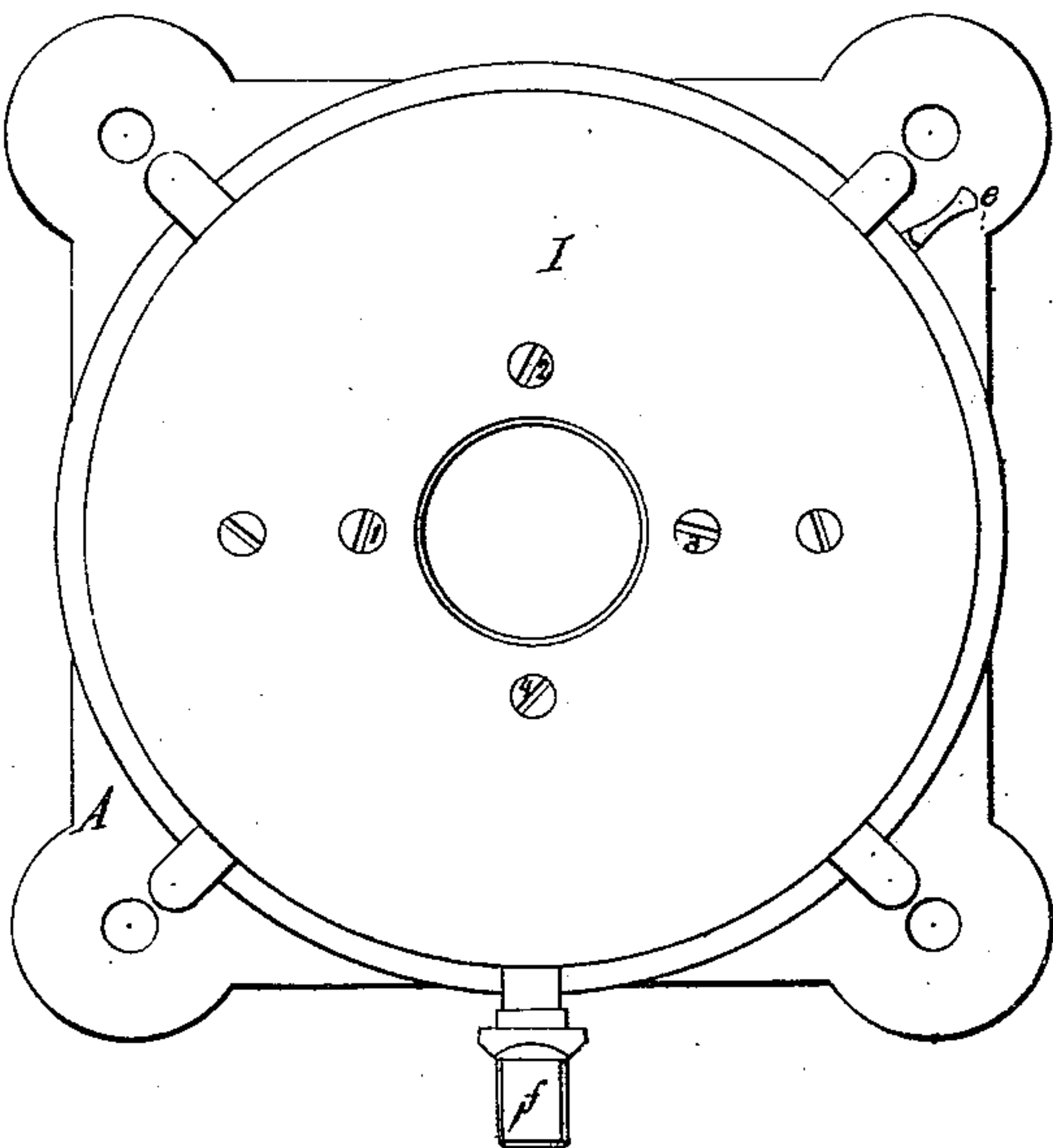


Fig. 2.

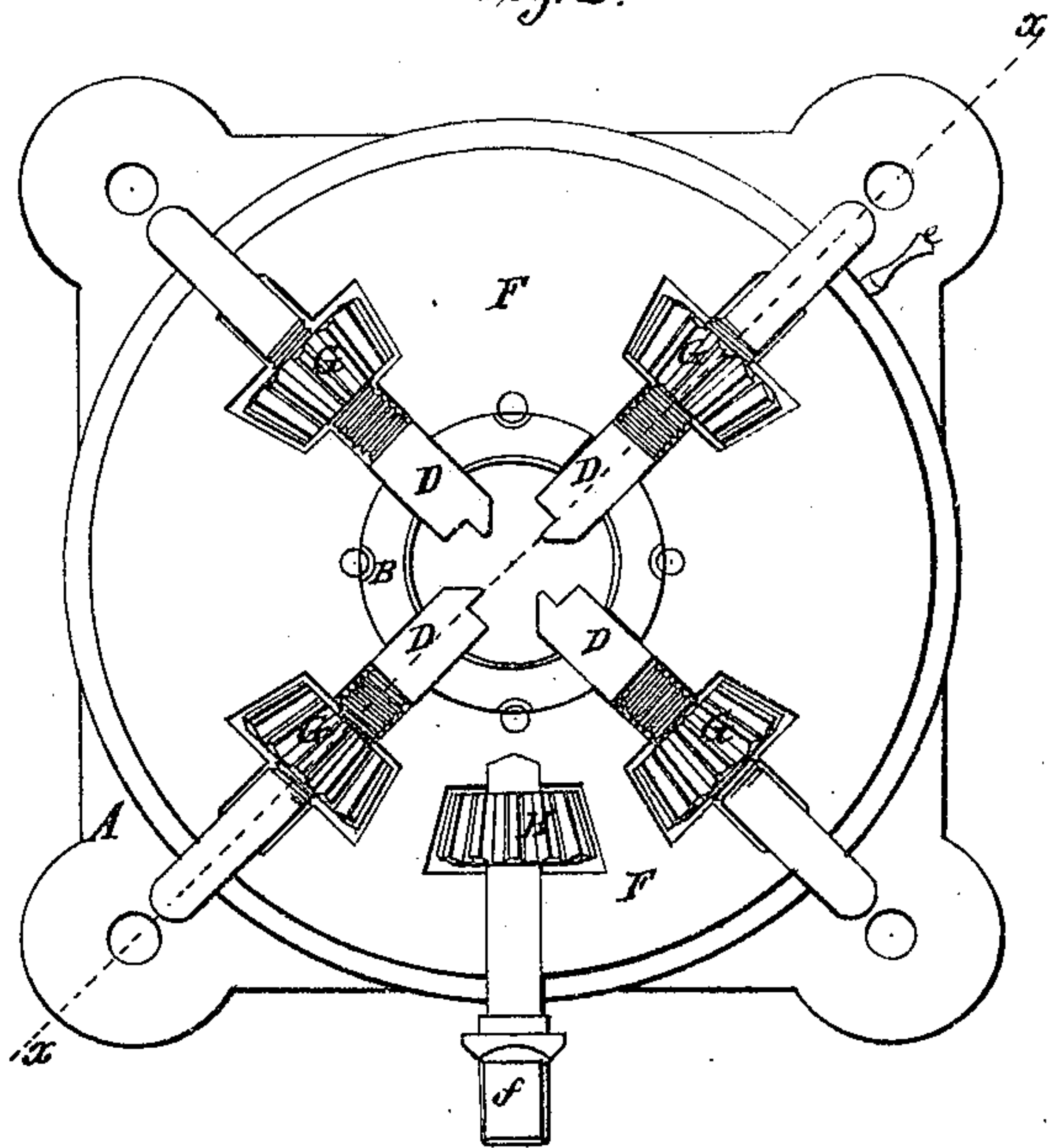


Fig. 4.

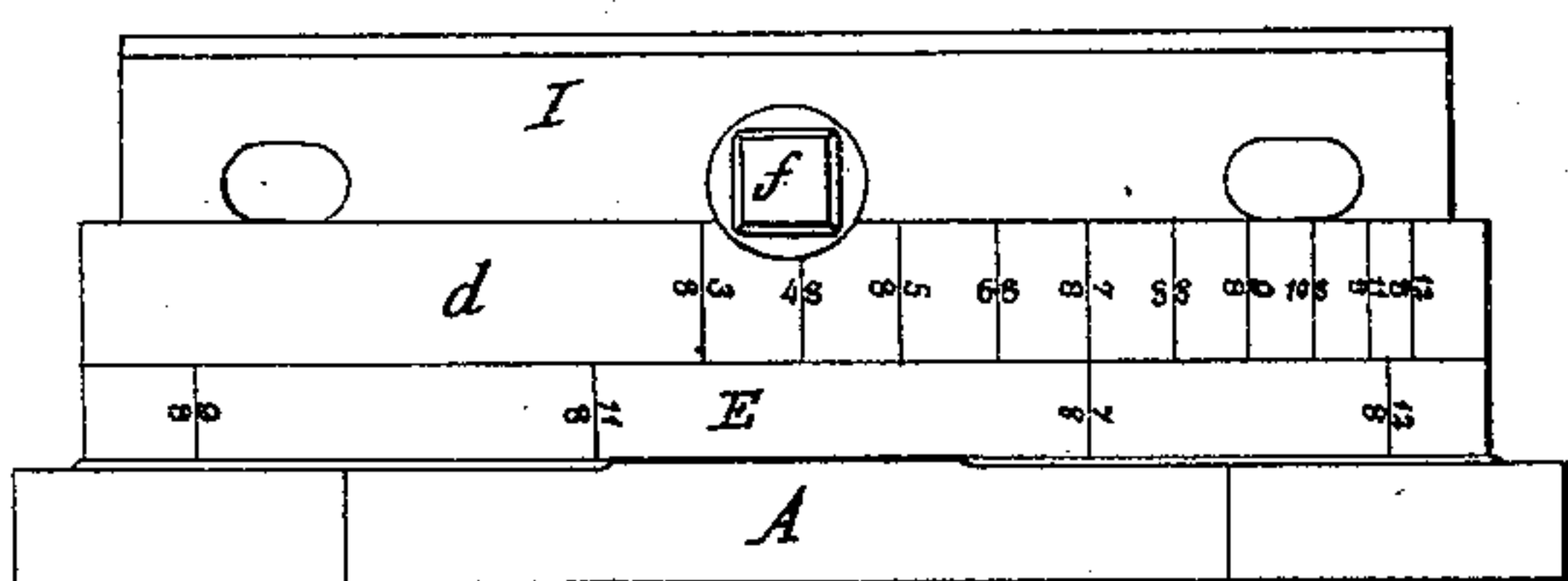


Fig. 3.

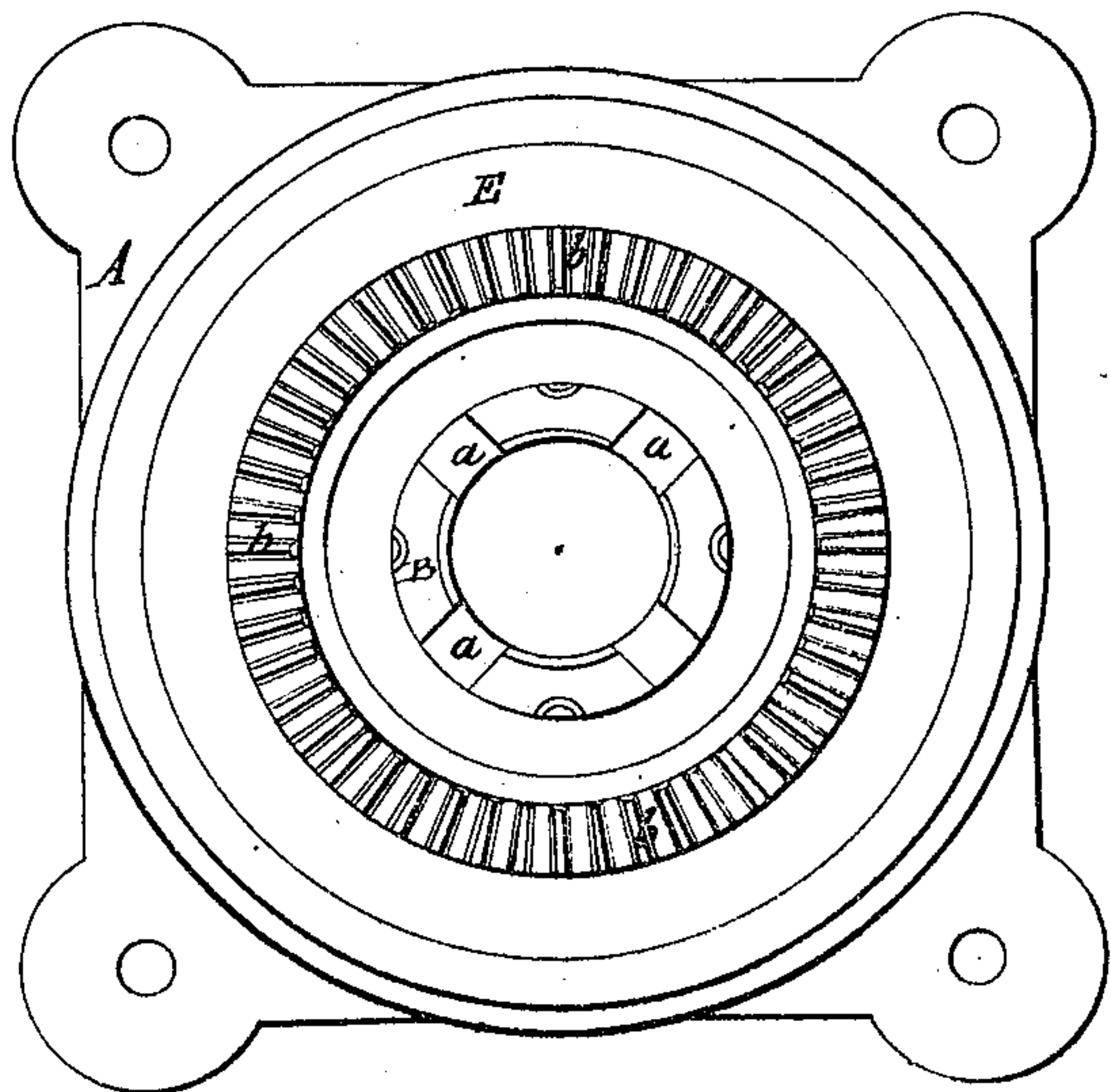
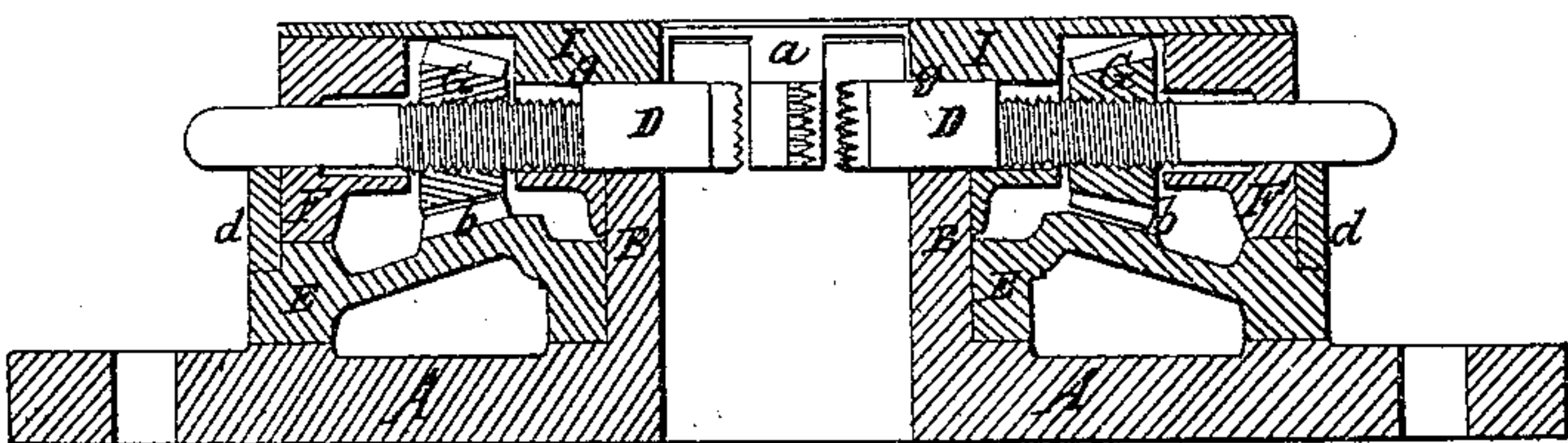


Fig. 5.



UNITED STATES PATENT OFFICE.

MITCHELL C. GARDNER, OF BROCKPORT, N. Y.

IMPROVEMENT IN ADJUSTING THE CHASERS IN SCREW-CUTTING STOCKS.

Specification forming part of Letters Patent No. 9,169, dated August 3, 1852.

To all whom it may concern:

Be it known that I, MITCHELL C. GARDNER, of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Screw-Cutting Machines; 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, making a part thereof, in which—

Figure 1 represents a top view of the machine with the cutting-points of the chasers omitted. Fig. 3 represents a top view of the machine with the top plate removed, and showing the position of the chasers. Fig. 3 represents the disk upon the bottom plate, upon which disk is cast the bevel-gear for operating the bevel-spur wheels upon the chasers for moving them forward and back. Fig. 4 represents a side view, showing the graduation for adjusting and regulating the size of the screw to be cut. Fig. 5 represents a transverse section through the red line *xx* of Fig. 2.

Similar letters in the several figures represent the same parts.

The nature of my invention consists in arranging an adjustable band on which the index is lettered for adjusting the index to the chasers, the same being adjustable to the wear of the chasers or to chasers of different lengths, and in combination with suitable apparatus for causing said chasers to approach or recede from a common center.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The machine may be made entirely of metal. The bottom plate, A, is provided with lugs at each of its four corners, through which may pass screw-bolts for fastening it to the face-plate of a lathe or other equivalent machine, and has an opening through its center surrounded by a circular flange, B, which rises up to near the top of the cap-piece. The circular flange B is provided with a series of sunken slots, *a*, of which there may be any suitable number, (four being shown in the drawings,) in which the square part of the chasers D rest and are supported.

On the bottom plate, A, is placed a disk, E, which turns freely around the circular flange B of said bottom plate, and which disk is provided with a circle of beveled cogs, *b*, for op-

erating the chasers, as will be hereinafter described; and it is also further provided with a graduation or scale on its periphery, as seen in Fig. 4, for the purposes of adjustment.

Over the disk E is placed the plate F, which is countersunk to receive the rear end of the chasers, and form a support for them. It is also provided with openings *c*, through which the bevel-spur wheels G may protrude, so as to mesh into and be operated by the gear *b* below. On the periphery of the plate F is placed a graduated band, which extends down onto and covers a part of the periphery of the disk E, which band is secured to the plate F by means of the set-screw *e*. When the chasers are resharpened, or when a different set of chasers are placed in the machine, a gage should be held in the opening in the center of the machine and the chasers run out until they come in contact with it. The set-screw *e* is then loosened and the figures on the graduated band set to correspond with the figures on the disk E, so that said band or the scale thereon shall be the guide for adjusting or setting the chasers. It is intended that when the thread is cut, which is entirely accomplished by running the blank forward, that the chasers shall be run back to allow it to be taken out, instead of running it backward through the chasers again, which often cuts off or destroys the thread. There is also an opening through the disk F for the spur bevel-wheel H, which has its journals resting in said plate or disk, and which is furnished, where it projects beyond the periphery of the plate, with a square shank, *f*, for receiving a crank for operating it. This bevel-spur H rotates the plate below it, which in turn gives motion to the bevel-spurs G, which have a female screw cut through their centers, and by which they run upon a male screw cut on the chasers, so that as the bevel-gears G are rotated they either (according to the direction in which they move) run in or out the chasers, so as to diminish or enlarge the size of the screw, the machine herein represented being capable of cutting screws from one-fourth of an inch to two inches in diameter, but may be made either larger or smaller. When the disk E is in place and the chasers with their bevel-gears, &c., properly arranged, the cap I is put on and secured by screws 1 2 3 4, which pass down into holes cut one half in the circular projecting flange B of

the bottom plate, the other half cut in the top plate itself, and which holds the cap I and disk F perfectly tight, the plate underneath them and next above the bottom plate, A, turning freely around the circular projection, as above mentioned, and which forms its center. The chasers as heretofore represented are for cutting angular threads; but others for cutting a square thread may be substituted, the machine being capable of such substitution.

Before placing the chasers in the machine the bevel-gear on each of them should be run up to the shoulder on the chaser, and in this position should be placed in their seats. This insures, if the points are always at the same distance from the shoulder as they should be, a uniform starting-point for all the chasers, so that afterward they shall always preserve the same relative position to the screw or blank whether run forward or back. There are projections *g* on the under side of the cap-piece I which fit into the slots *a* and rest upon the top of the chasers, which gives them a firm position in their seats. The cap is also countersunk so as to fit over the rear of the chasers, thus holding them at front and rear, while they may be adjusted or run back or forth by the screw-bevel wheels placed on and working into similar screws cut upon the shanks of the chasers.

In using the straight and pointed chasers the thread of the screw may be cut close up to a shoulder, which cannot be done by chasing-wheels; these being limited in their operation also to the curve or concave upon the edge of the wheels, while the chasers herein represented are not limited to any size of screw.

I do not claim the index; but

What I do claim is—

1. The adjustable band *d*, Fig. 4, and *d d*, Fig. 5, on which the index is lettered for adjusting the index to the chasers, the same being adjustable to the wear of the chaser or chasers of different lengths, and in combination with suitable apparatus for causing said chasers to approach and recede from a common center for the purposes stated.

2. The shaft *f*, as shown in Figs. 2 and 4, and pinion H, Fig. 2, in combination with pinions G G' G G, Fig. 2, and the bevel-gear wheel E, Fig. 3, at the outer end of which shaft is attached a crank to drive the bevel-gear wheel E, Fig. 3, as hereinbefore set forth and described, and for the purposes stated.

M. C. GARDNER.

Witnesses:

A. B. STOUGHTON,
S. C. DONN.