

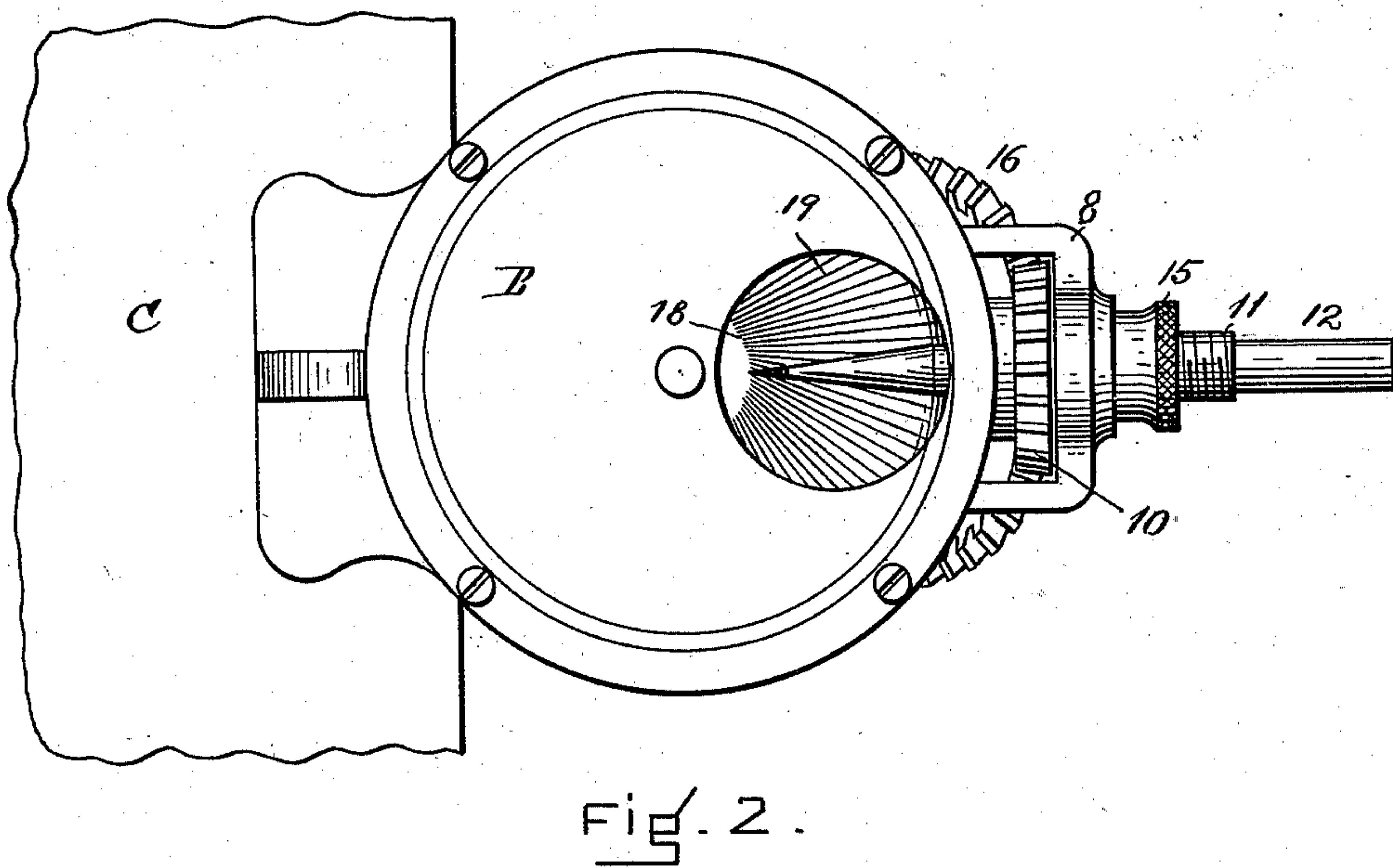
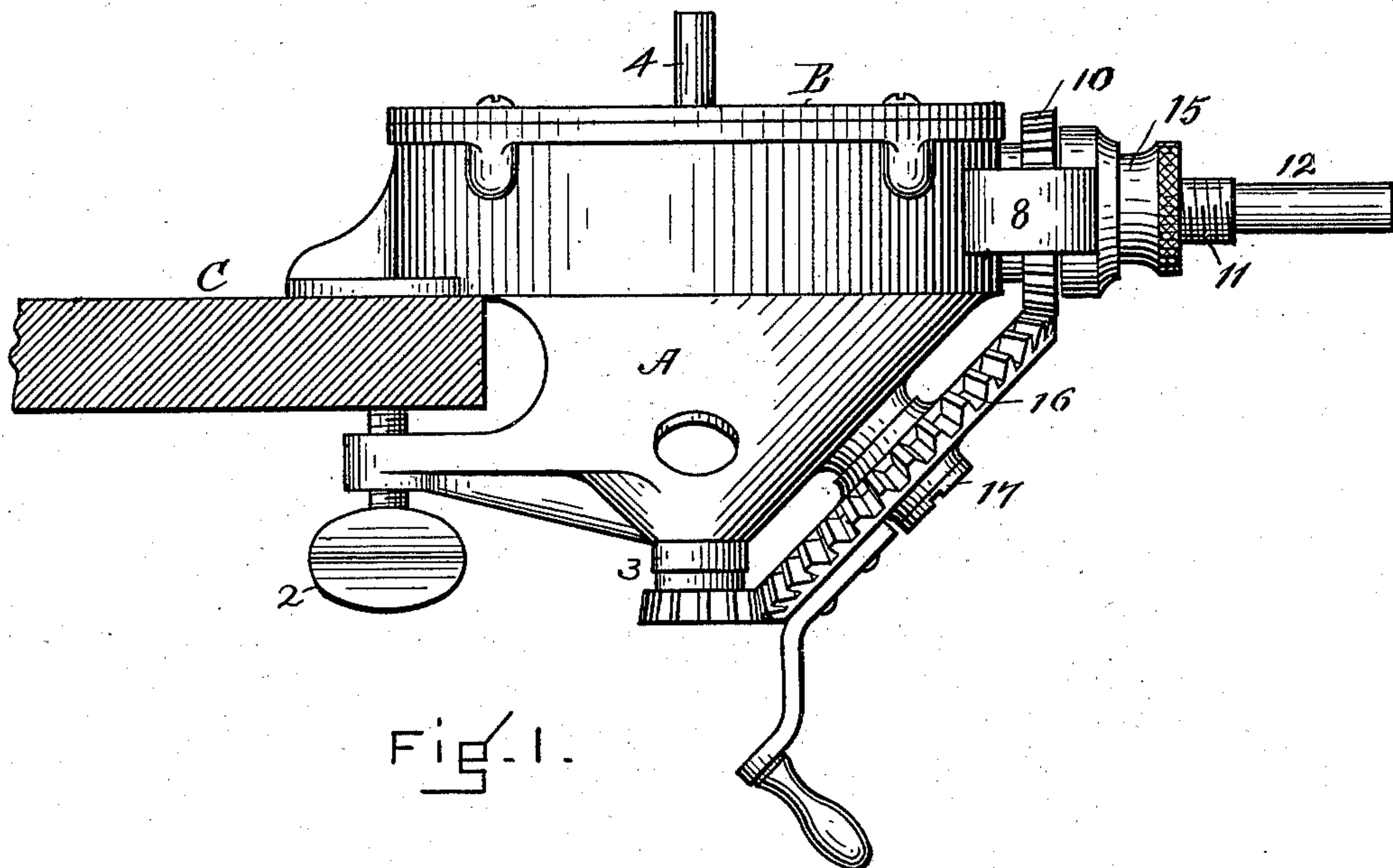
(No Model.)

2 Sheets—Sheet 1.

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SHARPENING MACHINE.

No. 558,916.

Patented Apr. 21, 1896.



WITNESSES

Everett S. Chadwick.
Ellen B. Tomlinson.

INVENTOR

Holman K. Wheeler
by Alex. P. Browne,
attorney

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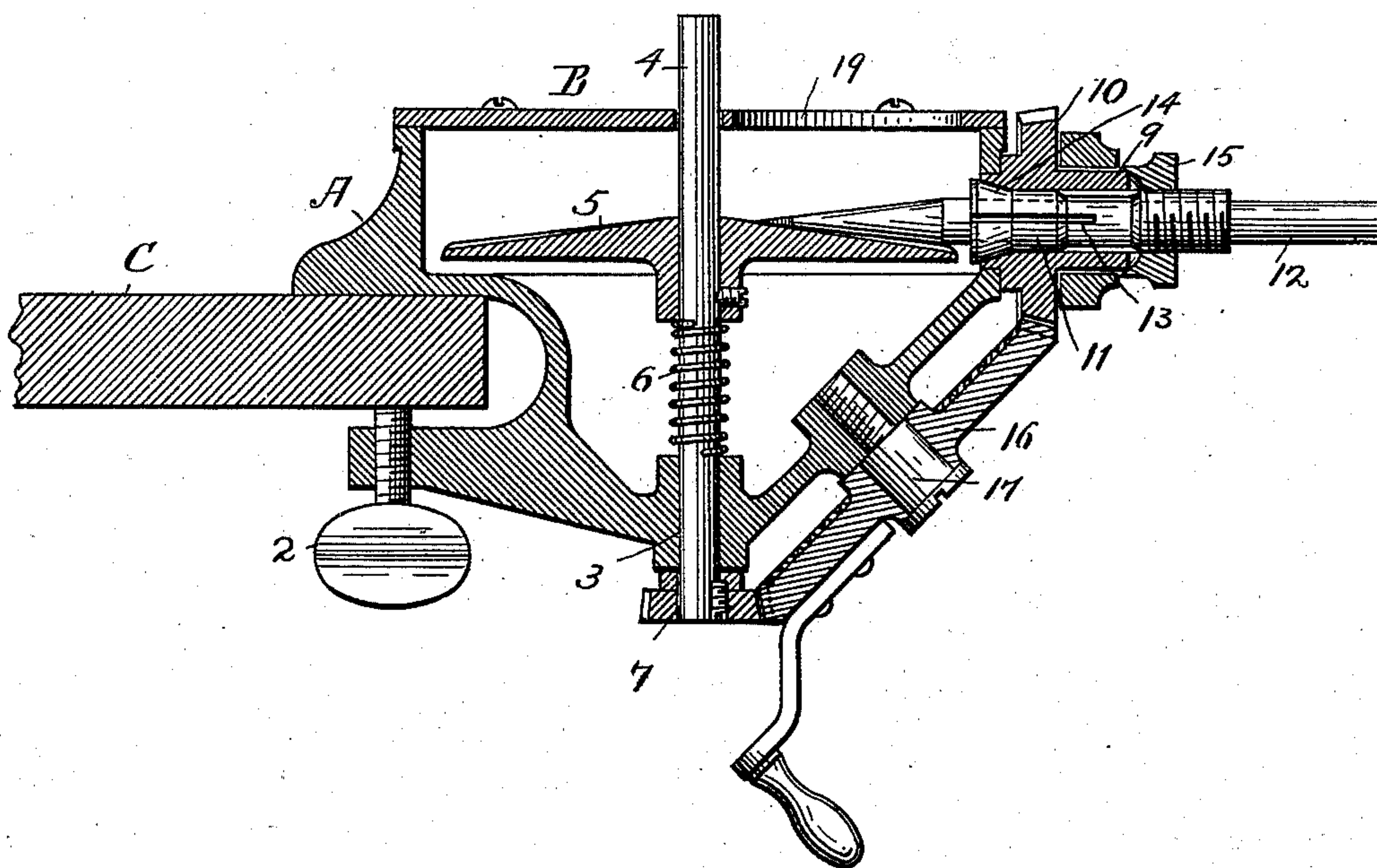


Fig. 3.

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INVENTOR

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UNITED STATES PATENT OFFICE.

HOLMAN K. WHEELER, OF LYNN, MASSACHUSETTS.

SHARPENING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,916, dated April 21, 1896.

Application filed May 15, 1895. Serial No. 549,358. (No model.)

To all whom it may concern:

Be it known that I, HOLMAN K. WHEELER, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sharpening-Machines, of which the following is a specification.

The object of my invention is to produce an improved device for sharpening or pointing the end of a cylindrical or approximately cylindrical article; and, as hereinafter represented and described, it is particularly adapted for sharpening or pointing pencils, although I do not conceive that my improvements are limited to devices adapted to this specific use.

Before proceeding to a specific description of the form of device herein particularly described and shown, I will first set forth what I conceive to be the generic features embodied in my improvements. These embrace a box or casing, an abrading-disk journaled therein to rotate and also to move axially, a work-holding chuck also journaled in said box, pinions located on the respective shafts of the abrading-disk and the work-holding chuck, and a crank-wheel journaled on said box or casing and meshing with the said pinions, whereby they may be simultaneously rotated.

It is very obviously desirable to have means whereby the sharpening or pointing operation may be stopped at the desired point, and preferably stopped automatically—that is to say, by the operation of the machine itself—thus eliminating labor and care of the attendant and insuring greater certainty in the work.

My invention also embraces an abrading-disk of peculiar construction, hereinafter fully described and claimed.

A preferred form of my device, specially adapted as a pencil-sharpener, is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine shown as secured to the edge of a table or similar support. Fig. 2 is a top plan view of the same, and Fig. 3 is a vertical central section thereof.

A is a casing or box, preferably cast of metal, and provided with a cover B and also with means, such as a clamping-screw 2, whereby it may be detachably secured to an

object C, such as a table or desk. At the lower central part of the box A, I provide a bearing 3, in which is journaled a shaft 4. Upon said shaft, within the box A, an abrading-disk 5 is firmly secured, and it and the shaft 4 are normally pressed upward by means of a spring 6, located between the disk and the bearing 3. The upward movement of the shaft 4 is limited, for a purpose to be hereinafter described. It may be conveniently determined by a pinion 7, secured to the lower end thereof, whereby it is rotated, as will be presently described. On one side of the box A a supplementary framework 8 is provided to carry a suitable work-receiving and rotating device. I have shown for this purpose a thimble 9, provided with a pinion 10. A chuck 11 occupies the axis of the thimble and is itself hollow, so that a pencil, as 12, may be slipped longitudinally through it. The chuck 11 may be constructed in any form suitable for clamping the pencil tightly within itself. A convenient form is the one shown, which is split at its inner end, as at 13, forming spring-arms, which, by means of the bevel shown at 14, are made to grasp the pencil tightly when the chuck is drawn outwardly by means of the nut 15, which is mounted thereon and bears against the outer end of the thimble 9.

The pinions 7 and 10 are caused to rotate simultaneously by any suitable means, such as the crank-wheel 16, journaled on a screw 17, secured to the box A, as shown. I have shown the upper surface of the abrading-disk 5 as beveled to correspond to the desired taper to be given to the point of the pencil 12.

I prefer to form the abrading-disk with the especial arrangement of cutting edges shown in the drawings—namely, diverging and deepening from near the center of the disk toward its circumference and set upon its face at an angle to the radius of the disk. This may readily be accomplished by making the lines of the cutting edges tangential to a small circle concentric to the disk itself, as shown in the drawings. The valuable feature of such a relative location of the cutting edges is that each in succession passes over the work with a drawing motion, thereby not only giving a drawing cut, but also tending to withdraw the shavings and thereby assist

in keeping the cutters clear. Any other suitable form of abrading-surface may, however, be employed.

In fine work, and particularly when sharpening an article readily broken—as, for example, a lead-pencil—it is desirable that the cutting action of the disk should cease when a perfect point is obtained. This end I accomplish by providing a device (in the machine shown as the upper face of the pinion 7) whereby the progressive presentation of the work to the cutting-surface is stopped when the latter has intersected the longitudinal axis of the point. This stop, although not so shown, might be made adjustable if it were desired to vary in a given machine the precise limit of its action.

The parts are so proportioned that when the shaft 4 and its disk 5 are thrown upward to the highest point by means of the spring 6 the inner edge 18 of the abrading-surface is on a line with the axis of the pencil 12. In this manner it is impossible for any breaking strain to be applied to the lead point of the pencil, and the same may be successfully ground to a very fine point.

In operation the pencil is slipped through the chuck until its end is brought to the edge 18 of the abrading-surface, the disk 5 being pressed downward at the same time sufficiently to allow this. The pencil is then clamped in the chuck and it and the disk are caused to rotate, whereby, as will be obvious without further description, the pencil will be quickly and easily pointed, the disk 5 being forced upward by its spring as the sharpening progresses. The pinion 7 is of sufficient thickness to allow of its being moved downward the requisite amount to admit the pencil without becoming disengaged from the gear 16. A hole 19 in the cover B permits a constant inspection of the operation, and a suitable discharge-orifice for shavings, dust, &c., may also be provided in the box.

I claim—

1. In a sharpening-machine, the combination of a box or casing, an abrading-disk journaled therein to rotate and also to move axially, a work-holding chuck also journaled in said box, pinions located on the respective shafts of the abrading-disk and the work-holding chuck, and a crank-wheel journaled on said box or casing and meshing with the said pinions, whereby they may be simultaneously rotated, all substantially as described.

2. In a sharpening-machine, the combination of a box or casing, a beveled abrading-disk journaled therein to rotate and also to move axially, a work-holding chuck also journaled in said box to rotate at right angles to the axis of the abrading-disk, and a crank-wheel journaled on said box and meshing with suitable pinions located on the shafts of the abrading-disk and the work-holding chuck, all substantially as described.

3. In a sharpening-machine, a rotary abrading-disk, having between its center and circumference a plurality of divergent and deepening abrading teeth or blades, located substantially in the plane of the abrading-face of the disk and arranged tangentially to a small circle concentric with said disk, all substantially as described.

4. In a sharpening-machine, a beveled rotary abrading-disk, having between its center and circumference a plurality of divergent and deepening abrading teeth or blades, located substantially in the plane of the abrading-face of the disk and arranged tangentially to a small circle concentric with said disk, all substantially as described.

In testimony whereof I have hereunto subscribed my name this 10th day of May, 1895.

HOLMAN K. WHEELER.

Witnesses:

EVERETT D. CHADWICK,
ELLEN B. TOMLINSON.