

(No Model.)

3. Sheets—Sheet 1.

A. S. VEDDER.
PENCIL SHARPENER.

No. 350,330.

Patented Oct. 5, 1886.

Fig. 1.

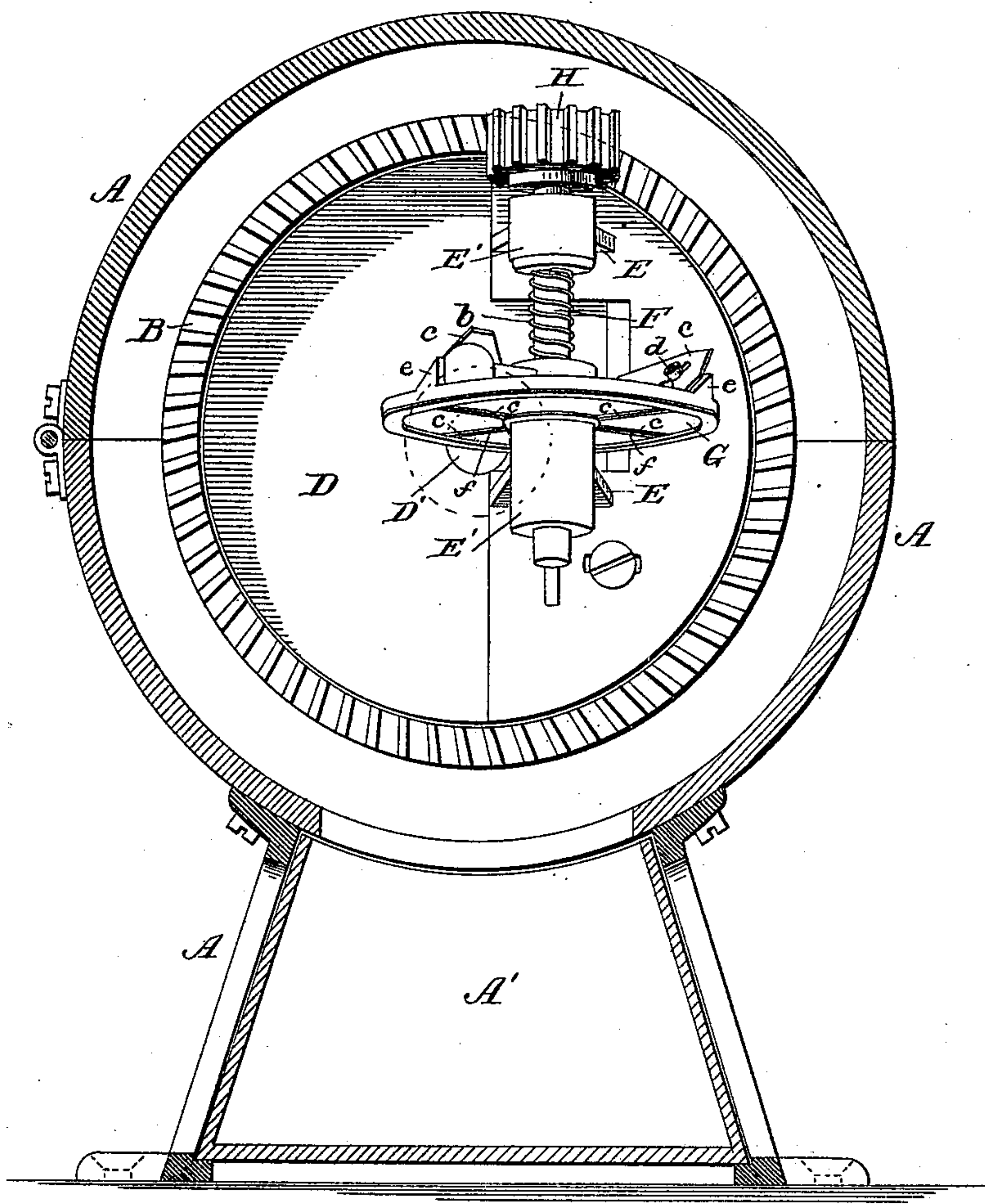
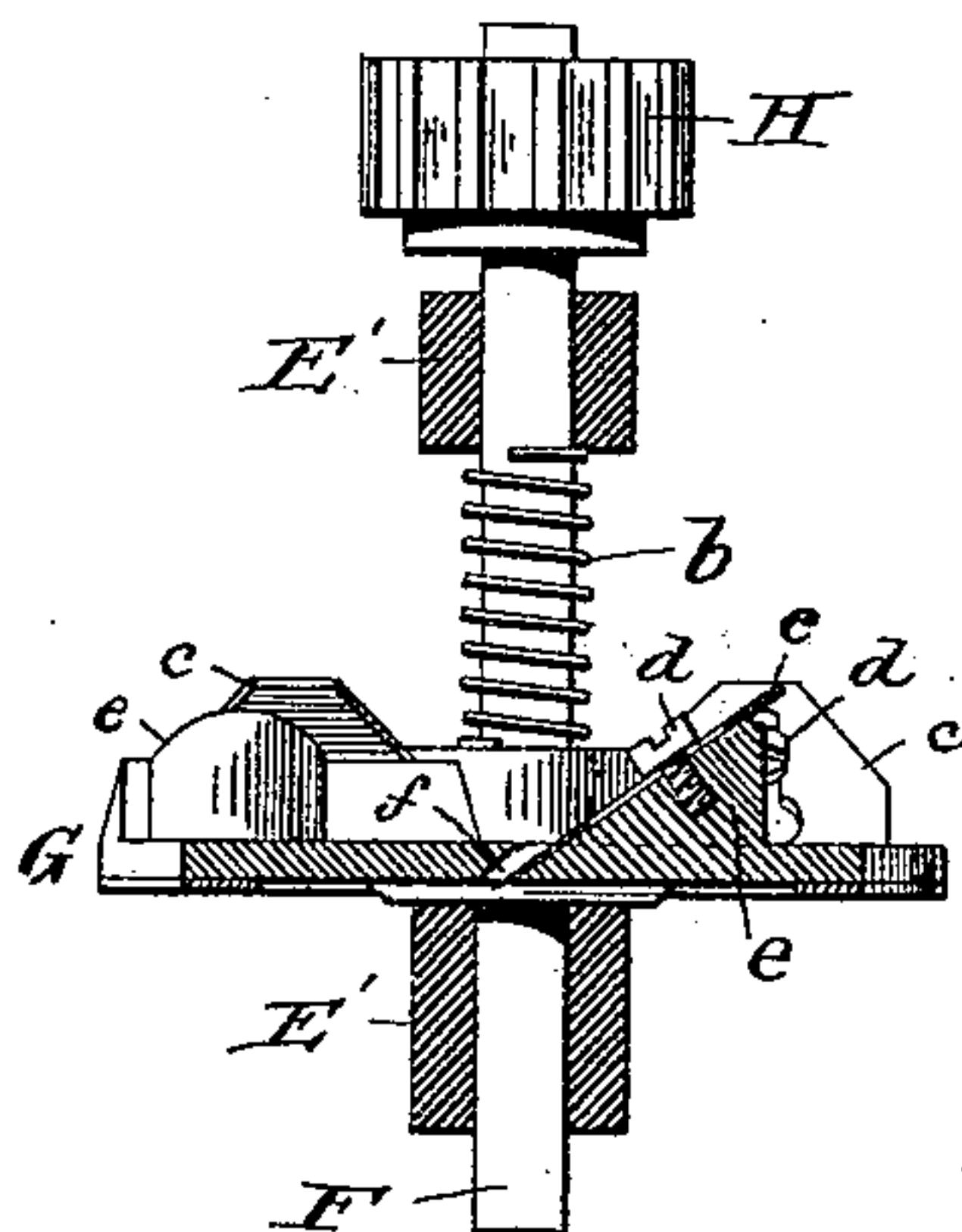


Fig. 2.



witnesses;

W. N. Low
E. A. Dick

Inventor:

Andrew S. Vedder
by Marshall Bailey
his attorney.

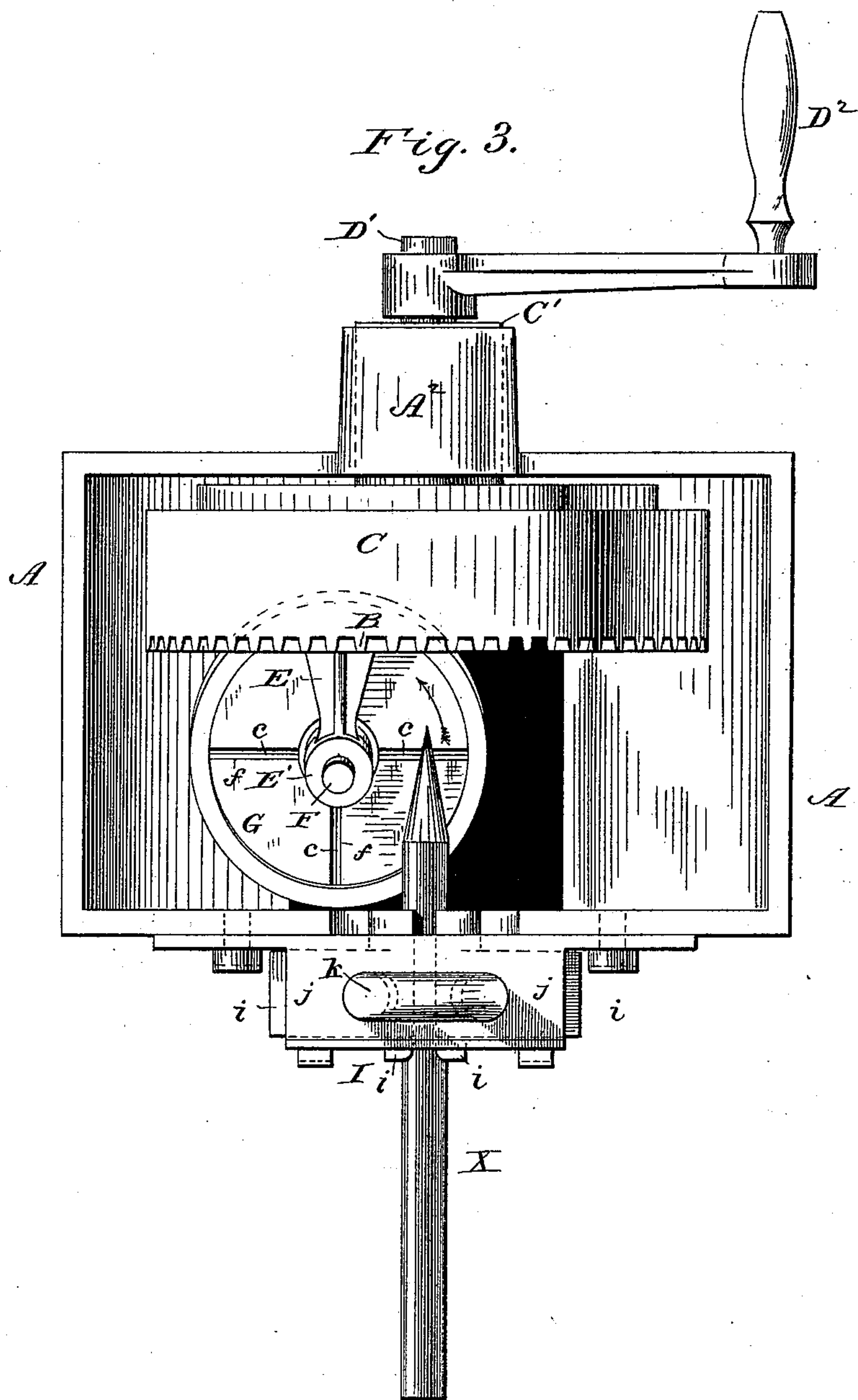
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3 Sheets—Sheet 2.

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Fig. 4.

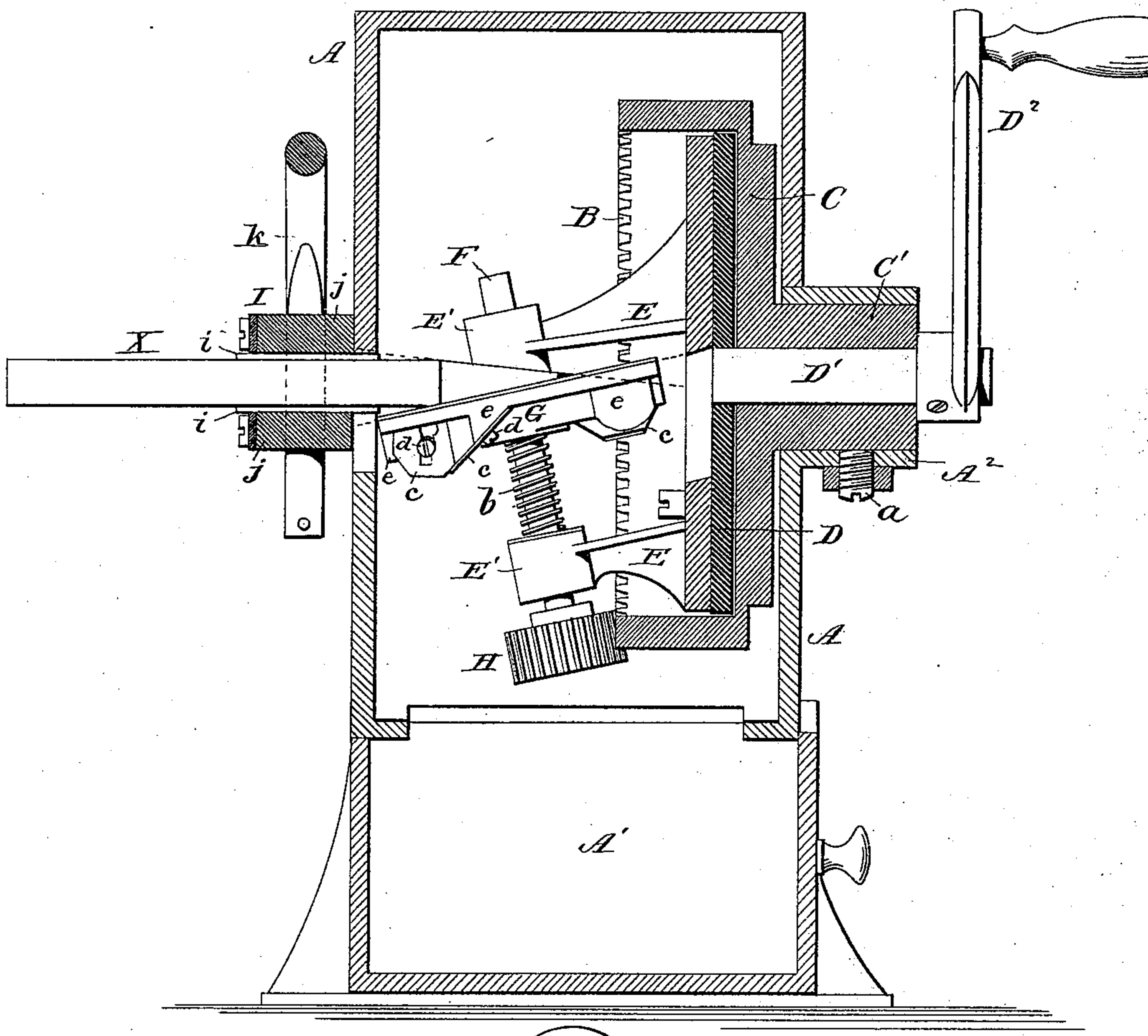
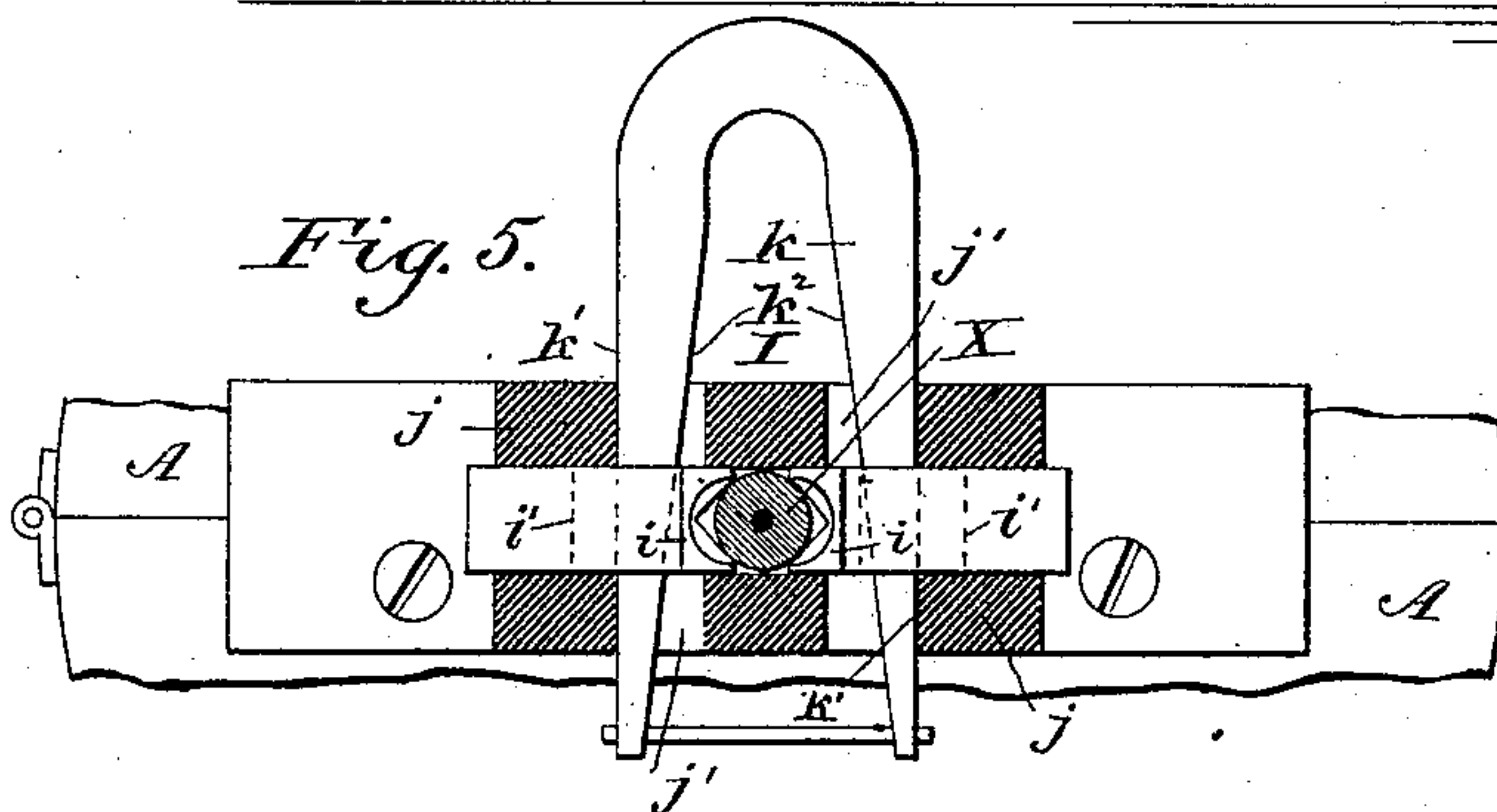


Fig. 5.



Witnesses:

H. A. Low
E. A. Dick

Inventor:

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by Marshall Bailey
his Attorney.

UNITED STATES PATENT OFFICE.

ANDREW S. VEDDER, OF BROOKLYN, ASSIGNOR TO THE EAGLE PENCIL COMPANY, OF NEW YORK, N. Y.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 350,330, dated October 5, 1886.

Application filed August 9, 1886. Serial No. 210,432. (No model.)

To all whom it may concern:

Be it known that I, ANDREW S. VEDDER, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Pencil-Sharpeners, of which the following is a specification.

My invention has reference to that kind of pencil-sharpening machines in which the sharpener or cutter proper is actuated by "sun-and-planet" gearing—that is to say, has a rotary movement upon its own axis, and at the same time revolves or travels as a whole in a path whose center is coincident with that of the stationary circular rack from which its rotary movement on its own axis is derived. In all machines of this character heretofore devised of which I have knowledge—such, for instance, as that shown in Letters Patent No. 291,597, of January 8, 1884, and in Letters Patent No. 230,338, of July 20, 1880—the cutter acts or cuts in a direction nearly if not transverse to the grain of the wood of the pencil, the consequence being that the fibers are torn or broken rather than smoothly cut, and the lead itself by the same action is cracked and broken. So pronounced, indeed, are these defects that they practically forbid any extended use of such machines, the consequence being that few, if any, of them are now found in the market. Rotary movement is necessary to secure uniform, even, and efficient action of the cutter, and if, in addition thereto, the cutting mechanism should be so arranged and organized that it shall cut lengthwise of the grain, in the same direction and in substantially the same way as a pencil is sharpened by hand with a knife, with a spring or yielding pressure, whereby it will be held up against the pencil as the latter is gradually reduced or cut away, and will automatically conform to the same and do its work gradually and easily, and at the same time adapt itself to the varying conditions of the work to be performed, then the defects above referred to would be removed and pencils could be sharpened as effectively by machinery as by hand.

It is the object of my invention to effect this result.

The characteristic features of my improvement are, first, that the axis of the rotary cutting-disk is set at such an angle to the axis of the pencil (when the latter is inserted in place in the machine) as to bring the face of the disk in a plane corresponding in inclination to the bevel which is to be given to the point of the pencil; second, that the cutters or knives are on the face instead of on the edge or periphery of the disk; third, that they are so placed with reference to the position assumed by the pencil in the machine that they cut lengthwise of the pencil, that portion of the disk on which the cutters are when acting on the pencil traveling in the path of the cone into which the front end of the pencil is to be sharpened; and, fourth, that the cutting-disk is movable in a direction to cause its acting face to approach and recede from the pencil, and is combined with a spring, whereby it is held or pressed with yielding pressure toward the pencil, so as to automatically follow up the pencil as the latter is cut away, and to otherwise adapt itself automatically to the varying conditions of the work which it is designed to do. The feature last named, while of more particular moment in a machine possessing the other recited characteristics, is applicable to other known types of pencil-sharpening machines, and, so far as I am informed, is new with me. A machine embracing these features is shown in the accompanying drawings, which will now be referred to in order to better enable those skilled in the art to understand and use my improvement.

Figure 1 is a sectional front elevation of the machine, the front of the frame or case being removed so as to expose the parts within. Fig. 2 is a plan, partly in section, of the cutter head or disk, its shaft, and the bearings therefor. Fig. 3 is a plan of the machine with the top or cover of the inclosing-case removed. Fig. 4 is a vertical axial section of the machine from front to rear. Fig. 5 is a sectional front elevation, detached, of the pencil-holding chuck and centering mechanism.

A represents the frame and inclosing-case of the machine. In the lower part of it is a drawer, A', to catch the pencil-shavings, and

the upper part of the case may, if desired, be united by a hinge to the lower part or be made otherwise detachable, so as to form a cover that can be swung back or removed from over the interior working parts of the machine. Inside of the case is the circular rack B, formed upon the front edge of the cup-shaped casting C, which is fixed to the rear wall of the case, being provided with a tubular central hub, C', which extends rearwardly into the bearing-sleeve A² in the case, and is there fastened by a set-screw, *a*. Within the casting C is the rotary plate D, provided with a central or axial stem, D', which extends out through hub C', and has fastened upon its projecting end a crank-handle, D², by which said plate can be rotated. This plate carries the cutting mechanism, and for this purpose is provided with two bracket-arms, E, the outer ends of which form tubular bearings E', through which passes the shaft F, which carries the cutter head or disk G, and at one end (the end nearest the circular rack) has fixed to it a pinion or spur wheel, H, which meshes with the rack. The chuck for holding the pencil is shown on the front side of the machine at I, and the pencil inserted therethrough into the machine and so as to be brought into operative relation with the cutter-head is shown at X. (See, particularly, Fig. 4.) The shaft F stands at an inclination to the axis of the chuck, and is set at such an angle thereto that the face of the cutter head or disk on which the cutting-edges project stands at an inclination coincident with the taper which it is desired to impart to the pencil in the act of sharpening it. The cutter head or disk rotates with the shaft F, but can also slide longitudinally thereon, being pressed toward the pencil by a spring, *b*, encircling the shaft and confined between one of the bearings E' and the hub of the cutter-disk. In this way the cutter-head is always held up against the pencil with a yielding pressure, which is very essential in order to permit the cutter to do its work gradually and easily.

The unsharpened pencil, when first inserted and pushed, say, as far as the sharpened pencil in Fig. 4, forces back the cutter-head upon its shaft. The cutter acts first upon the edges of the blunt end, and then, as the range of cut gradually increases as the pencil is cut away, the cutter by its spring keeps continually pressed against the pencil until finally it brings its point to the sharpened condition shown in the drawings.

The cutters proper are radial blades *c*, which are adjustably secured, by set-screws *d*, upon beds *e*, formed on the back face of the cutter-head, and are so set that their cutting-edges will project through radial slots or throats *f* in said cutter-head. Under this arrangement it will be seen (by reference more particularly to Fig. 3) that the cutting-edges, when the cutter-head rotates on its axis in the direction of the arrow in the figure referred to, will meet

the pencil at a time when they will cut both the wood and the lead in a direction substantially lengthwise of the pencil, the cut being to all intents and purposes the same as that usually given in sharpening a pencil by hand with a knife.

By turning the crank D² the plate D and the whole of the cutting mechanism will revolve bodily and together. At the same time the cutter-head will have an independent rotary movement of its own upon its own axis by reason of the engagement of the moving pinion H with the circular rack B, this being the well-known sun-and-planet motion hereinbefore referred to.

The chuck I is typical of any suitable chuck for receiving, holding, and centering the pencil. In this instance it is composed of two horizontal jaws, *i*, adapted to slide in guide-blocks *j*, and moved to and from one another by means of the yoke *k*, the legs of which can move up and down in vertical guide openings or ways *j'* in the blocks *j*, against the exterior opposite walls of which their straight exterior opposite faces *k'* bear. The legs of the yoke also pass through openings *i'* in the jaws, against the interior opposite walls of which the interior opposite inclined or beveled faces, *k''*, of the legs of the yoke act, so as to cause the jaws to move together and close upon the pencil when the yoke is pressed downwardly. In lieu of this yoke, a lever arrangement can be used, and the device can obviously be otherwise modified in many respects.

Having described my improvement and the best way now known to me of carrying the same into effect, I desire it to be understood that I do not restrict myself to the details herein described and illustrated, for obviously the same can be modified in many respects without departure from the principle of the invention, for it would be practicable, for instance, in lieu of having the cutter-head travel in a path around the pencil, to cause the pencil to rotate upon its axis; but

What I claim as new and of my own invention is—

1. In a pencil-sharpening machine, a rotating cutter or sharpener movable to and from the pencil to be sharpened, in combination with spring mechanism whereby said cutter is held against or pressed toward the pencil with yielding pressure, as and for the purposes hereinbefore set forth.

2. The combination of the chuck or pencil-holding device, the rotating cutter-head shaft having its axis of rotation inclined to the axis of the chuck, the cutter-head driven by and movable lengthwise upon said shaft, and the spring whereby the cutter-head is held with yielding pressure against the pencil or article to be operated on, substantially as for the purposes set forth.

3. The combination of the stationary circular rack, the supporting plate or frame hav-

ing its axis of rotation coincident with the center of said rack, the inclined cutter-head shaft carried by said frame and provided with a pinion meshing with said rack, the cutter-
5 head carried by and movable lengthwise of said shaft, the cutter-head-supporting spring, and the pencil chuck or holder, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 29th day of July, 1886.

ANDREW S. VEDDER.

Witnesses:

SAMUEL KRAUS,
H. C. BENSON.