

(No Model.)

3 Sheets—Sheet 1.

C. F. PUTNAM.

SAW SHARPENER.

No. 251,633.

Patented Dec. 27, 1881.

Fig. 1.

Fig. 3.

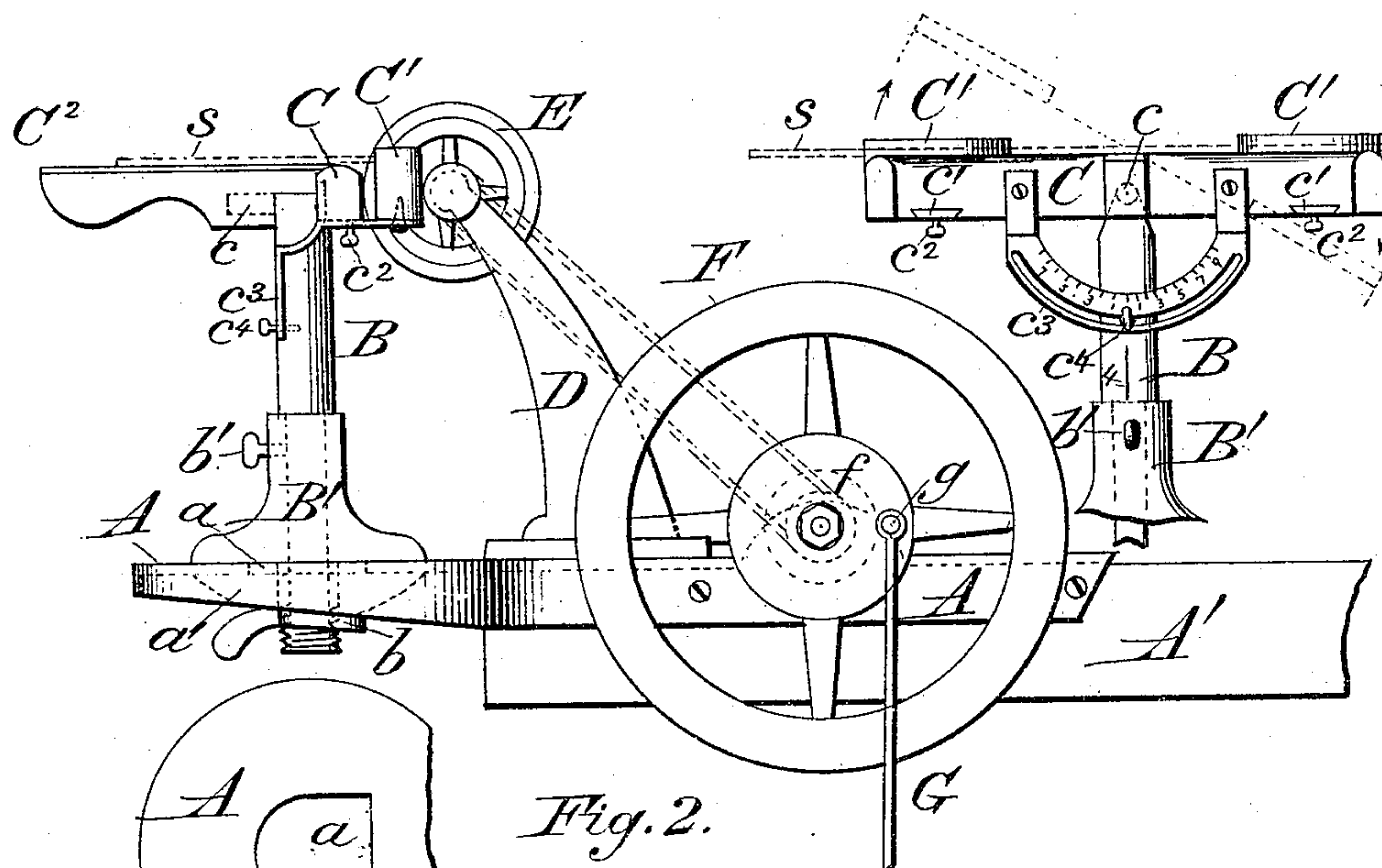
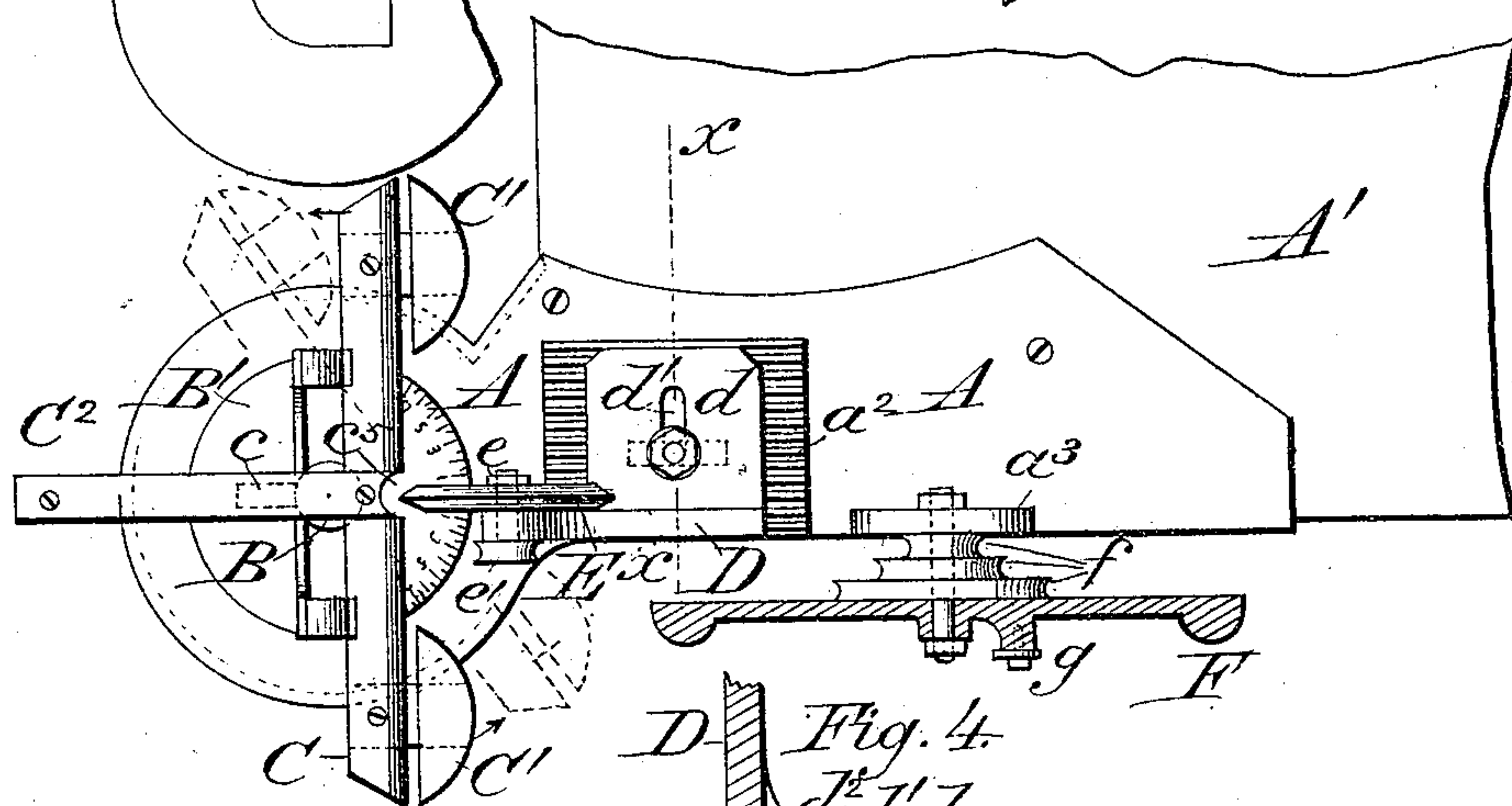


Fig. 2.



Witnesses:

H. H. Schott,  
A. R. Brown

Inventor

Per

Clarence F. Putnam  
C. H. Watson & Co. Attorneys.

(No Model.)

3 Sheets—Sheet 2.

C. F. PUTNAM.

SAW SHARPENER.

No. 251,633.

Patented Dec. 27, 1881.

Fig. 5.

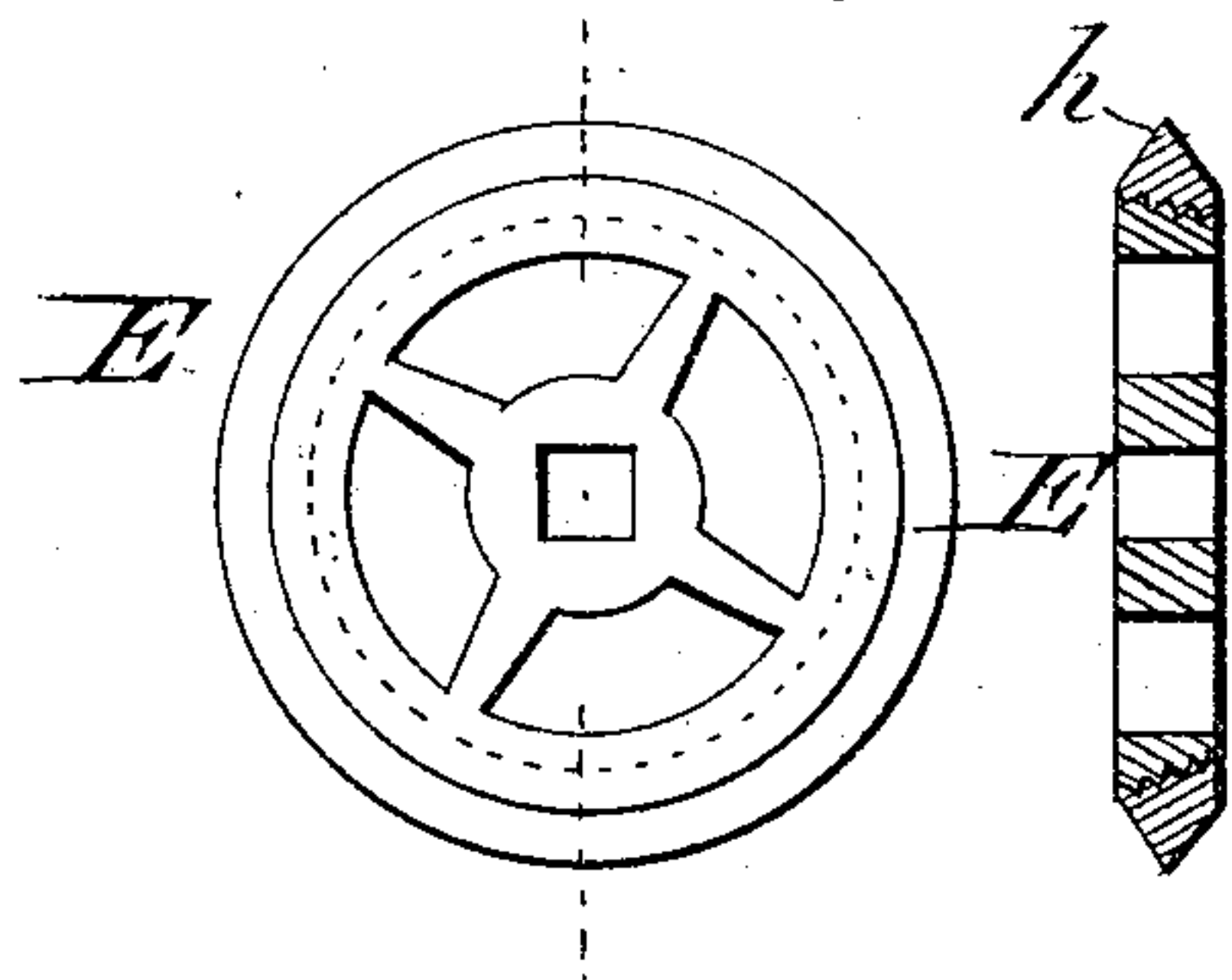


Fig. 6.

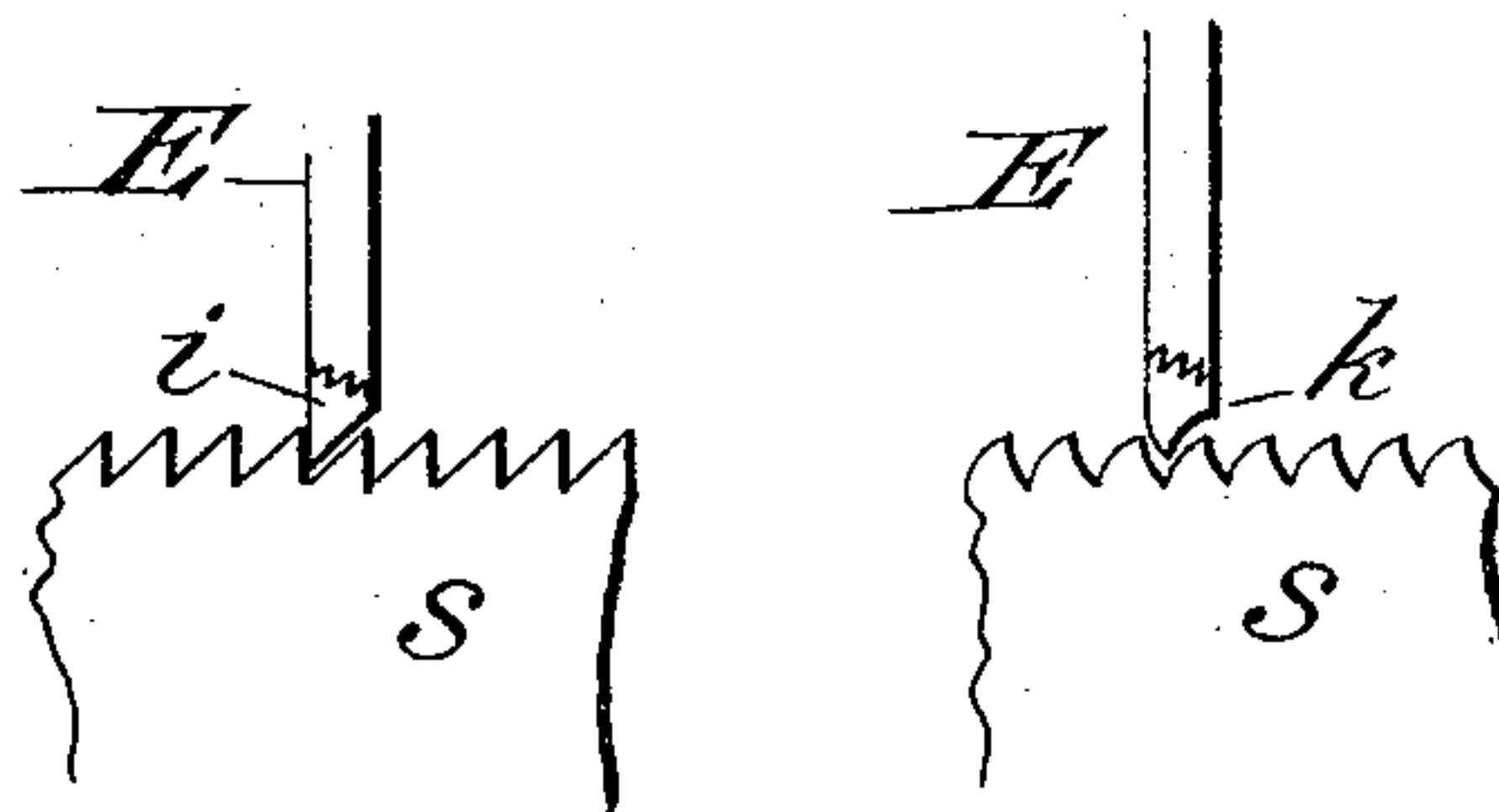


Fig. 7.

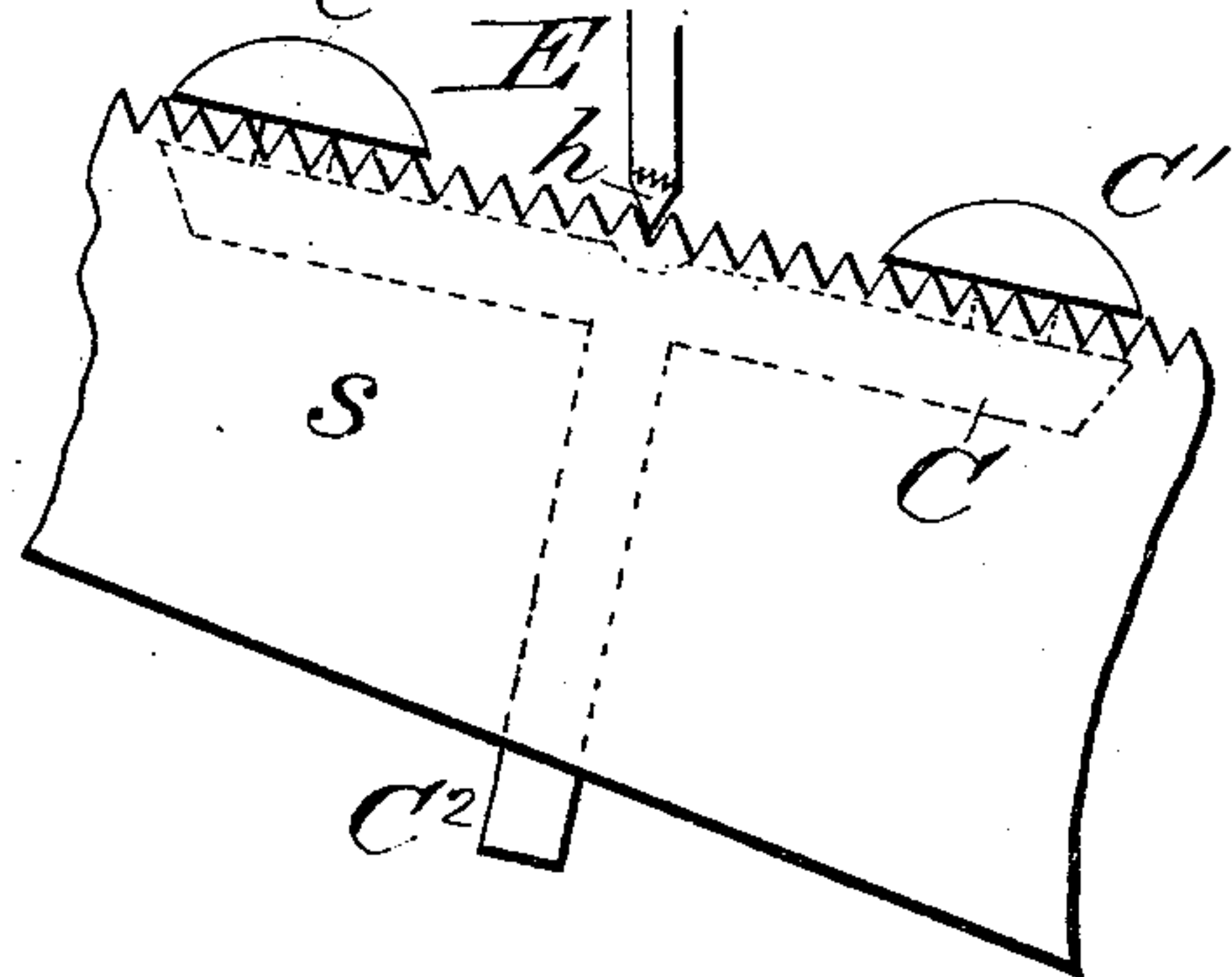


Fig. 8.

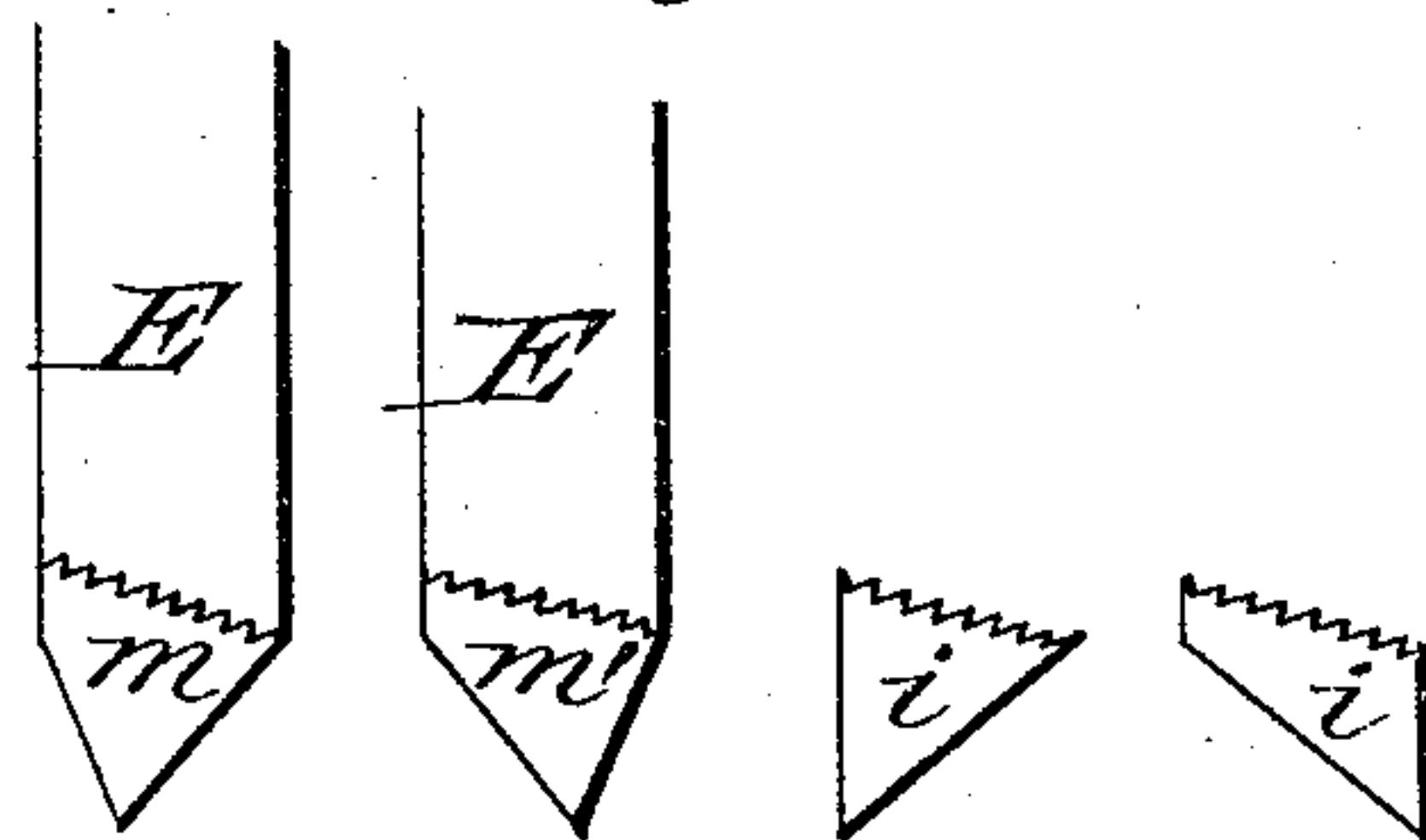
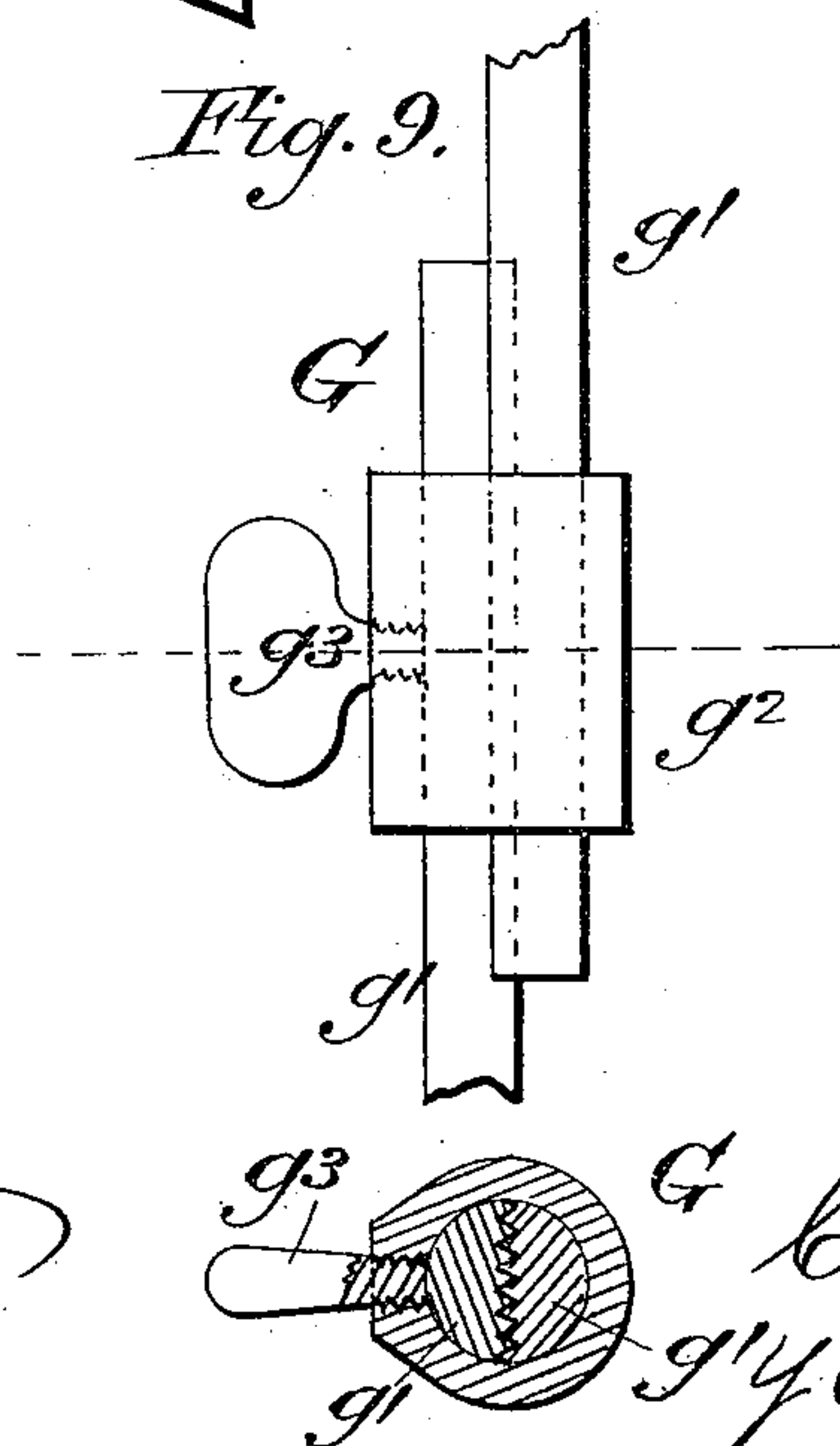


Fig. 9.



Attest:

J. H. Schott.  
A. R. Brown.

Inventor:

Clarence Putnam  
J. W. Watson & attys

(No Model.)

3 Sheets—Sheet 3.

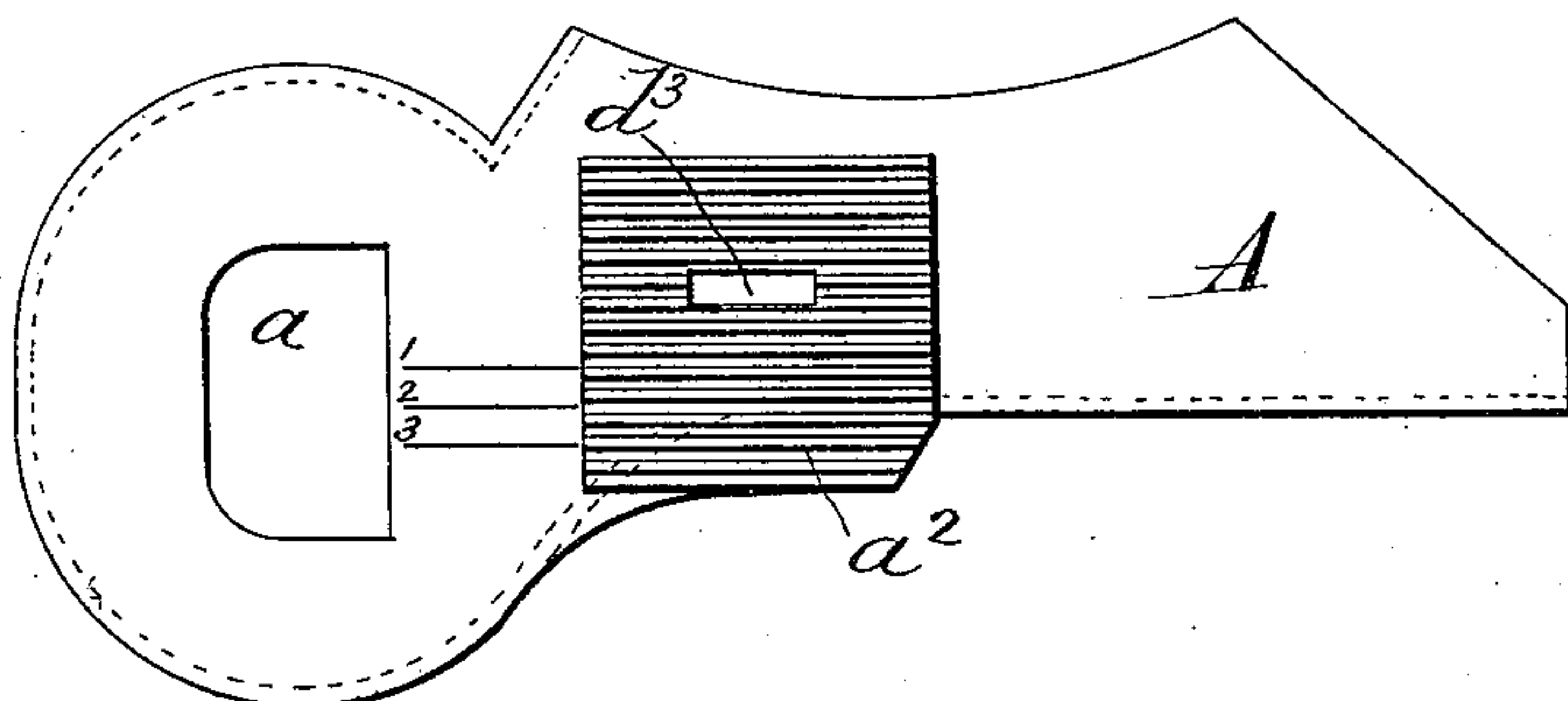
C. F. PUTNAM.

SAW SHARPENER.

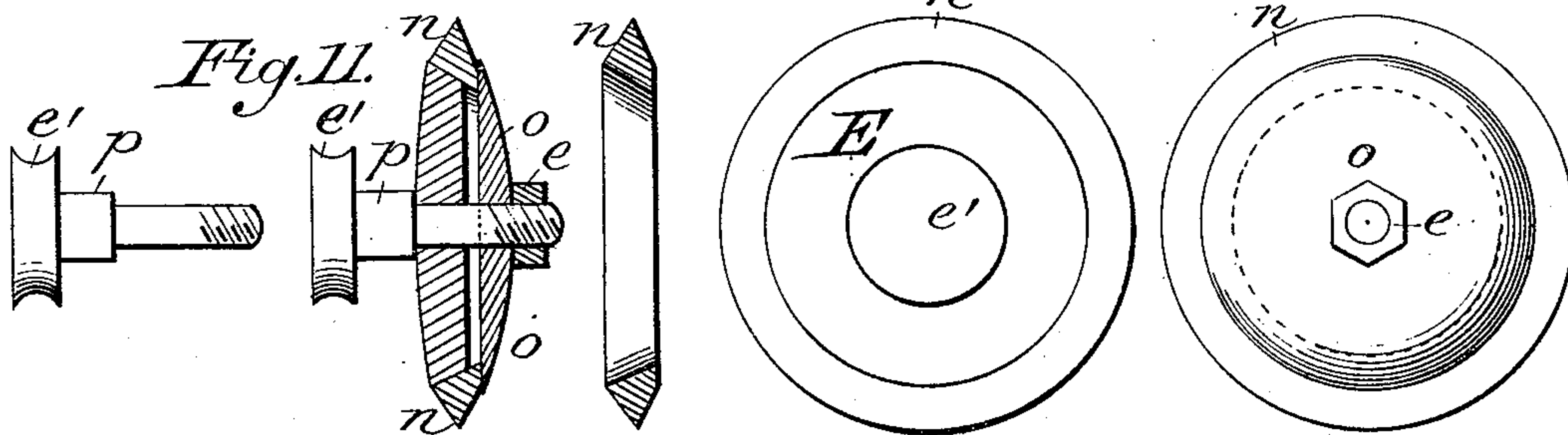
No. 251,633.

Patented Dec. 27, 1881.

*Fig. 10.*



*Fig. 12.*



*Attest*

*J. H. Schott.*  
*A. R. Brown.*

*Inventor:*

*Clarence F. Putnam*  
*By C. H. Watson & Co.*



# UNITED STATES PATENT OFFICE.

CLARENCE F. PUTNAM, OF CHEYENNE CITY, WYOMING TERRITORY.

## SAW-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 251,633, dated December 27, 1881.

Application filed July 26, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE F. PUTNAM, of Cheyenne City, in the county of Laramie and Territory of Wyoming, have invented certain new and useful Improvements in Saw-Filing Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to saw-filing machines, the object being to provide a simple means of adjusting a detachable saw-filing rim to a suitable wheel and operating the same in connection with an adjustable saw-rest and guides, whereby a regular direction and angle of file-stroke, together with a uniform depth of cut, is secured; and to this end the invention consists in the construction and arrangement of devices, as hereinafter more fully set forth.

In the annexed drawings, which fully illustrate my invention, Figure 1 is a side view of the machine in position for operation. Fig. 2 is a top plan view of the same. Fig. 3 is a front view of the standard and saw-rest. Fig. 4 is a section on the line *x x*. Fig. 5 is a side view and section of a file-wheel having a detachable file-rim secured thereto by means of screw-threads on the inclined periphery of the wheel and corresponding inner face of the rim. Fig. 6 shows the manner of applying the file-wheel to saws having teeth of different forms. Fig. 7 is a plan view of the saw-rest. Fig. 8 shows detail views of variously-formed file-rims. Fig. 9 is a side view and section of an adjustable treadle for operating the driving-wheel. Fig. 10 is a plan view of the bed-plate. Fig. 11 illustrates a file-wheel having an inclined or beveled periphery, to which a detachable file-rim having a correspondingly-formed inner face is secured by means of a nut and washer, which at the same time serve to assist in holding the wheel in place upon its shaft.

Like letters indicate like parts in the several views.

A indicates the bed-plate of the machine, which is secured by screws or any suitable

means to a work-bench or other convenient support. The forward end of this bed-plate, projecting beyond the edge of the bench or support A', is nearly circular in form, and is provided with an opening, *a*, having a partially-curved outline.

B is an adjustable standard, which is provided with a truncated base or sleeve, B', that rests on the bed-plate, and has a screw-threaded extension, which passes down through the opening *a*, where it is held in place by means of a packing-ring, *a'*, and hand-nut *b*. The standard B is adjustable up and down within its sleeve B', and is held in place at any desired elevation by a set-screw, *b'*. The edge of the sleeve B' is provided with a graduated scale, (shown in Fig. 2,) for the purpose hereinafter described. To the upper beveled end of the standard B are attached the saw-rest C and adjustable guide buffers or cushions C'.

The saw-rest C is a transverse bar that is pivoted at *c*, and the cushions C' are adjustably attached to this bar by means of sliding arms *c'*, which are held by set-screws *c''*, so that the cushions may be readily adjusted to the required distance from the saw-rest. The top surface of the saw-rest is faced with wood, leather, rubber, or paper, to prevent the scratching of the saw-blade and to deaden the sound of the filing.

Attached to the front of the saw-rest C is a semicircular scale, *c''*, which is suitably graduated, and provided with a curved slot that engages with a set-screw, *c'''*, on the standard B.

The saw-rest C is provided with a handle, C<sup>2</sup>, that projects from the center thereof, and also assists in supporting the saw-blade *s*. This handle is slotted for the reception of the end of the pivot *c*. By means of the handle C<sup>2</sup> the standard B may be rotated and raised or lowered, and the saw-rest C may be tilted to either side upon its pivot *c*, being guided by the engagement of its slotted scale-plate *c''* with the set-screw *c'''*, the various nuts and set-screws holding the parts in position having been previously loosened, as may be required. It will thus be seen that the saw may be readily brought to the required angle with the filing mechanism, as indicated by the graduated scales heretofore referred to, and as will be hereinafter more fully described.



A portion of the bed-plate A is provided with longitudinal corrugations or guide-grooves  $a^2$ , that engage with corresponding grooves and ridges on the lower surface of the base-plate  $d$  of an adjustable curved arm, D, the upper end of which forms a bearing for the journal of the file-wheel E, which is secured on its shaft by a nut,  $e$ , so as to be readily detached when desired.

The base of the arm D is provided with a transverse slot,  $d'$ , through which passes a bolt,  $d^2$ , that also enters a longitudinal slot,  $d^3$ , in the corrugated portion of the bed-plate A, and by means of which the arm D may be readily adjusted either longitudinally or transversely upon the bed-plate A, for the purpose of bringing the file-wheel E into proper relation with the saw to be filed.

On the shaft of the file-wheel E is a pulley,  $e'$ , which is connected by a suitable belting with a pulley on the shaft of the driving-wheel F, which is journaled in bearings  $a^3$  on the bed-plate A. The shaft of this driving-wheel is provided with three pulleys,  $f$ , more or less, of varying diameter, so that by shifting the belting or connection with the pulley  $e'$  from one pulley  $f$  to another, and by adjusting the position of the arm D upon the bed-plate A, the belting that transmits power from the driving-wheel F to the file-wheel E may be tightened or loosened to vary the rate of speed that is imparted to the latter. A similar result may also be attained by arranging the wheel F on an adjustable shaft. The grooved surfaces or edges of these pulleys are suitably roughened to increase the traction of the rope, wire bands, or belting, and thus better enable a slow, steady rate of speed for saw-filing to be maintained with the expenditure of but little power.

To the driving-wheel F is attached an adjustable treadle, G, by means of a wrist-pin,  $g$ . This treadle consists essentially of two grooved bars,  $g'$   $g''$ , that pass through a connecting-sleeve,  $g^2$ , and are secured by the thumb-screw  $g^3$ , so that the length of the treadle may be readily varied to correspond with the height of the bench or support upon which the bed-plate of the machine is secured. The machine may thus be conveniently operated by foot-power; or, if desired, the shaft of the driving-wheel may be suitably geared for operation by any other appropriate means.

In carrying out my invention a circular file-rim that is beveled and screw-threaded on its inner surface may be detachably secured to the corresponding screw-threaded beveled edge of the wheel E in such a manner as to remain firmly in place while the said file-wheel is in operation. The construction of these file-rims is such that, while they are capable of being quickly and securely attached, they may be as readily removed for the purpose of substituting others having an exterior face or faces of different conformation, so that a file-rim having the requisite shape or angle is easily adjusted for operation in sharpening saws having teeth of any form desired. It will be seen

that an endless variety of file-rims may be employed in this manner, according to the character of the work required.

In Figs. 5, 6, 7, and 8, the letter  $h$  indicates the ordinary universal file formed into a circular rim.  $i$   $i'$  are right and left rip-saw-file rims.  $k$  is a special file-rim for curved saw-teeth, and  $m$   $m'$  are right and left file-rims for crosscut-saws. Many other file-rims of varied construction or shape may be employed, as required. The wheel E, which may be composed of any suitable material, acts essentially as a handle for the file-rims, which may be detachably secured thereto in any convenient manner, the method of attaching the same by means of screw-threads, as above described, being simple and efficient, although I do not confine myself strictly thereto.

Figs. 11 and 12 illustrate an efficient manner of attaching a file-rim to its wheel, in which the screw-threads before described are dispensed with. In this case the file-rim  $n$ , which is beveled on its inner surface to correspond with the angular edge of the wheel E, is held in place thereon by a washer,  $o$ , that is secured by the nut  $e$ . The shaft of the file-wheel E, which also carries the pulley  $e'$ , is provided with a shoulder,  $p$ , against which the wheel E is held by the nut  $e$  and washer  $o$ , that thus serve to attach the file-rim to the wheel, and at the same time assist in securing the latter to its shaft. It is obvious that this method of attaching the file-rims is less costly than that before described, in which the wheel and rims are screw-threaded.

From the foregoing description the operation and advantages of my improved devices will be apparent. The saw  $s$ , that requires to be sharpened, is laid upon the saw-rest C with its teeth resting against the buffers or cushions C'. These buffers may be made of wood or other suitable material that will not injure the points of the saw-teeth, and are adjustable by means of the sliding arms  $c'$  and set-screws  $c^2$ , according to the size of the saw-teeth, so as to vary the position of the saw with relation to the file-rim on the wheel E. The standard D, supporting the wheel E, having been properly adjusted toward or from the saw, or to the right or left, as desired, by means of the bolt in the slotted base-plate  $d$ , and the file-wheel having been supplied with a file-rim of the proper form to correspond with the shape and angle of the saw-teeth, the operative mechanism heretofore described may be actuated by power applied in any convenient manner, the saw being held and fed by hand or other suitable means to the file-wheel, the rim of which operates in a notch,  $c^3$ , that is formed in the edge of the saw-rest.

The direction and angle of file-stroke may be readily varied, as desired, by adjusting the position of the saw-rest with relation to the file-wheel. It will be seen that the saw-rest can be tilted to either the right or left by loosening the thumb-screw  $c^4$ , and then adjusted to any desired angle, as indicated by the figures on the slotted scale-brace  $c^3$ .



The standard B and attached saw-rest can also be rotated and raised or lowered by loosening the thumb-screw  $b'$ ; or the position of the truncated sleeve B' within the opening  $a$  may be changed by loosening the hand-nut  $b$ . The opening  $a$ , as shown in Fig. 10, is of such size as to enable the sleeve B' to be moved laterally to any desired position, so as to secure the same adjustment for different sizes of pulleys. Three marks or indentations, 1 2 3, on the bed-plate A are for the purpose of showing the degree of angle indicated by the scale on the base of the truncated sleeve B'. A similar mark, 4, is made on the standard B to indicate the degree of angle shown by the slotted scale-plate  $c^3$ . The object of this scale on the sleeve B' is to facilitate the same angle of adjustment for both sides of the saw when ordinary triangular file-rims are employed.

In using the ordinary triangular file-rims, after every other space on one side of the saw has been filed the saw-rest is turned to the right or left and adjusted for filing the remaining spaces from the other side. With what are termed "crosscut-saw files" or "rip-saw files" but one adjustment of the saw-rest is necessary; but two files—a right and left one, shown in Fig. 8—are required. The advantages of these files will be understood when it is observed that by this means the saw can be placed in contact with the file-wheel with the edge of the saw at right angles to the wheel, as shown in Fig. 6.

The machine and attached devices are simple, durable, and efficient, and render it possible to file a saw in much less time and in a better manner than can be done by hand.

By substituting emery or other grinding-surfaces for the file-rims the machine may be used to advantage for a great variety of purposes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-filing machine, the combination,

with the wheel E, having a beveled periphery, and detachably mounted on a shaft provided with shoulder  $p$ , of the detachable file-rim  $n$ , having its inner annular surface beveled to correspond with the periphery of the wheel E, and the washer  $o$  and nut  $e$ , adapted to secure the rim upon the wheel and the latter upon its shaft, substantially as set forth.

2. In a saw-filing machine, the combination, with the bed-plate A, having opening  $a$  and guideways  $a^2$ , of the adjustable standard B, carrying graduated sleeve B' and adjustable saw-rest C, adjustable standard or bearing-arm D, carrying file-wheel E, and the driving-wheel F, having adjustable treadle G, substantially as shown and described.

3. In a saw-filing machine, the combination, with the bed-plate A, having opening  $a$ , adjustable standard B, and graduated sleeve B', of the adjustable saw-rest C, having adjustable buffer-guides C' C' and slotted scale  $c^3$ , substantially as and for the purpose shown and described.

4. In a saw-filing machine, the combination, with the bed-plate A, having guideways  $a^2$  and slot  $d^3$ , of the wheel-bearing arm D, having base  $d$ , provided with slot  $d'$  and bolt  $d^2$ , substantially as shown and described.

5. In a saw-filing machine, the combination, with the detachable file-wheel E, journaled in suitable bearings, and having a detachable file-rim, of the adjustable saw-rest C, suitably mounted, and having adjustable buffer-guides C' C', handle C<sup>2</sup>, scale-brace  $c^3$ , and notch  $c^5$ , substantially as and for the purpose shown and described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CLARENCE F. PUTNAM.

Witnesses:

H. S. OLIVER,  
THOMAS MOORE.