

(No Model.)

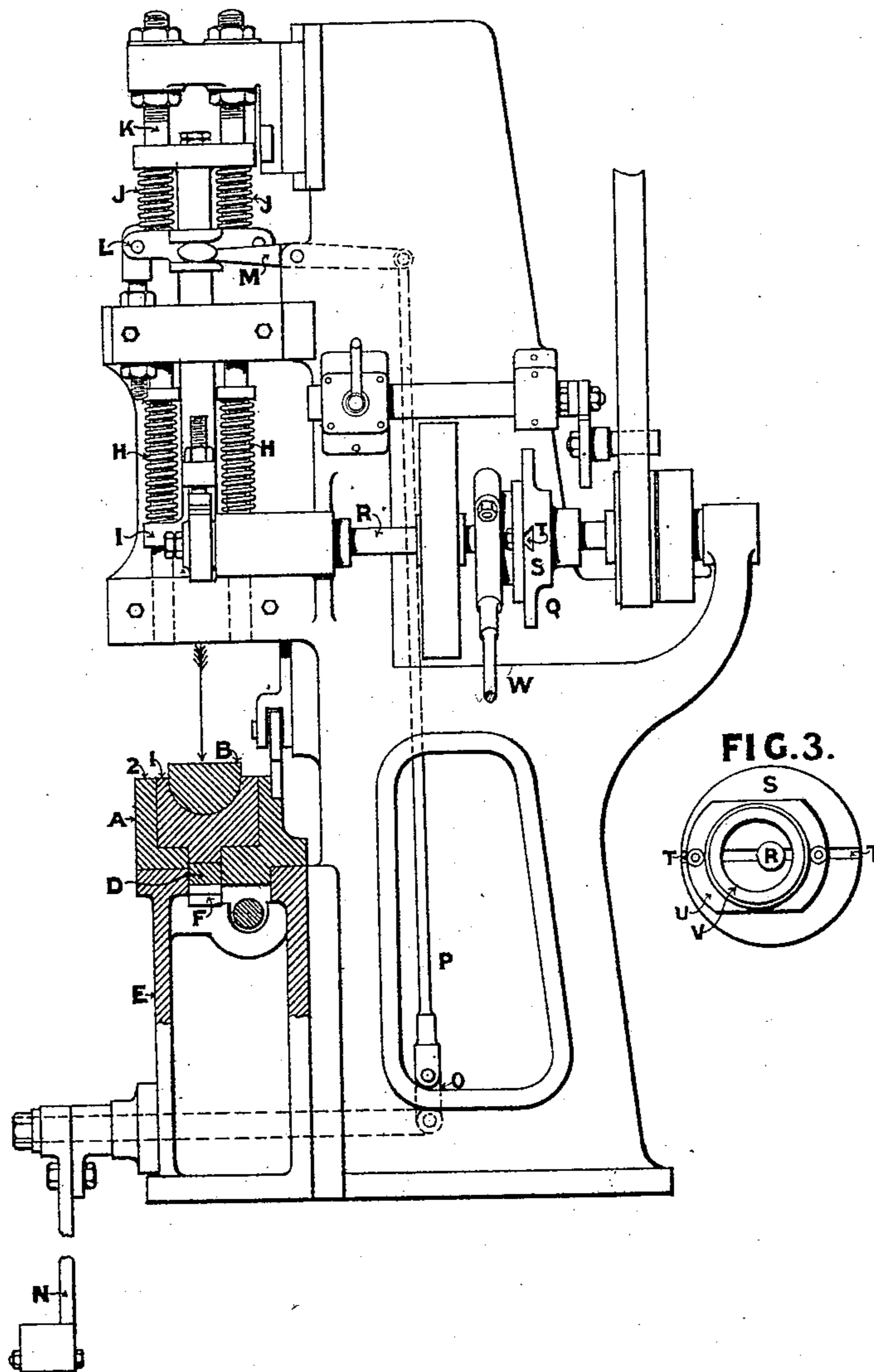
2 Sheets—Sheet 1.

A. SHARDLOW.  
FILE CUTTING MACHINE.

No. 449,765.

Patented Apr. 7, 1891.

FIG. 1.



Attest:  
*Howell Barth*  
*Geo. W. Whitney*

Inventor:  
*Ambrose Shardlow*  
By *Francis Forbes*  
Attorney.

(No Model.)

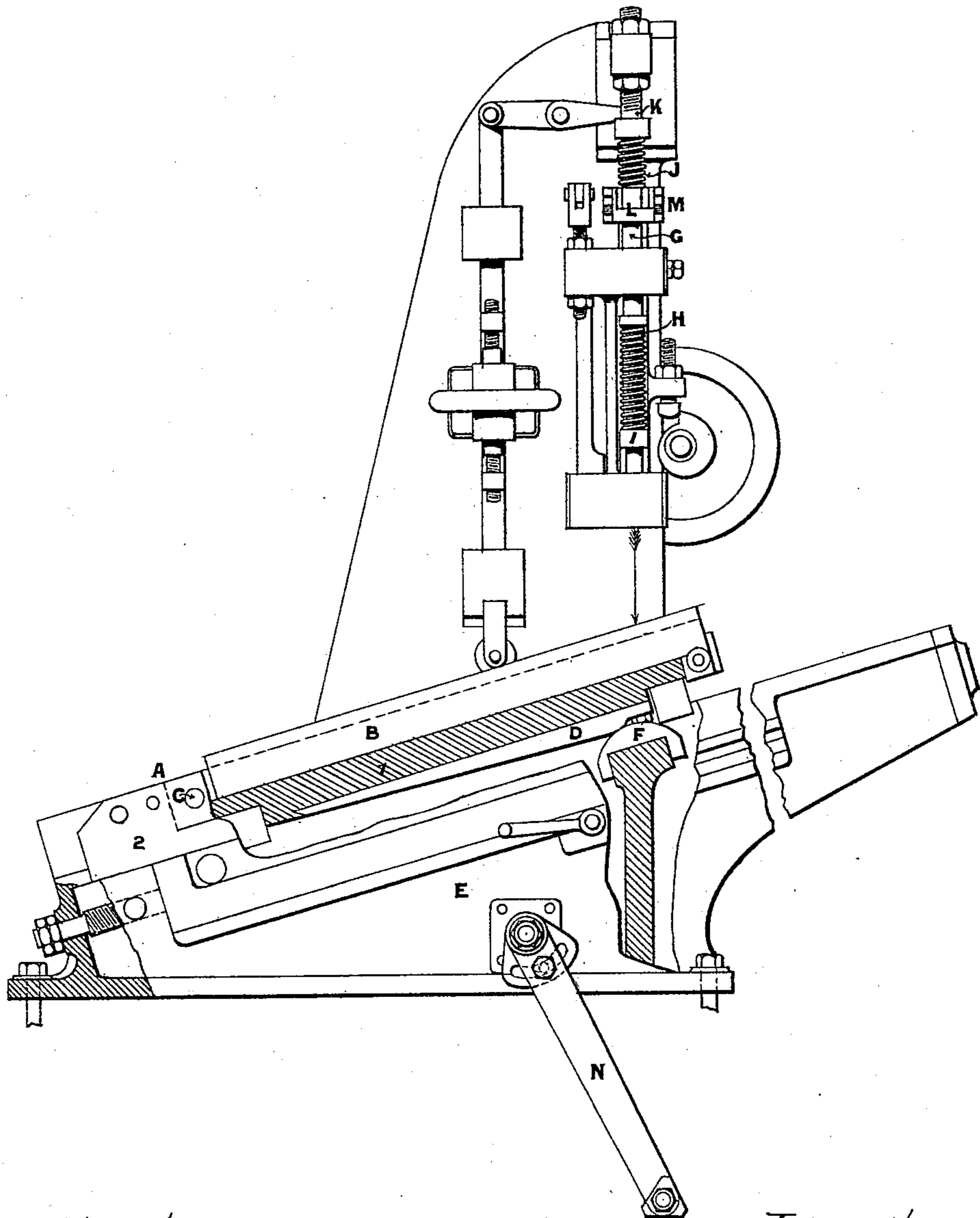
2 Sheets—Sheet 2.

A. SHARDLOW.  
FILE CUTTING MACHINE.

No. 449,765.

Patented Apr. 7, 1891.

FIG. 2.



Attest:  
*Howell Bartle*  
*Geo. W. Whitney*

Inventor:  
*Ambrose Shardlow.*  
By *Francis Forbes*  
Attorney

# UNITED STATES PATENT OFFICE.

AMBROSE SHARDLOW, OF SHEFFIELD, ENGLAND.

## FILE-CUTTING MACHINE.

**SPECIFICATION** forming part of Letters Patent No. 449,765, dated April 7, 1891.

Application filed October 24, 1889. Serial No. 328,107. (No model.) Patented in England January 31, 1889, No. 1,699; in Italy August 17, 1889, No. 26,028; in Germany August 18, 1889, No. 50,649; in France August 21, 1889, No. 200,314, and in Austria-Hungary December 2, 1889, No. 35,795.

*To all whom it may concern:*

Be it known that I, AMBROSE SHARDLOW, residing at Sheffield, England, a subject of the Queen of Great Britain, have invented certain new and useful Improvements in File-Cutting Machines, (patented to me in England by Letters Patent No. 1,699, dated January 31, 1889; in Italy by Letters Patent No. 26,028, dated August 17, 1889; in Germany by Letters Patent No. 50,649, dated August 18, 1889; in France by Letters Patent No. 200,314, dated August 21, 1889, and in Austria-Hungary by Letters Patent No. 35,795, dated December 2, 1889;) and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The objects of this invention are, first, to cause the chisel to strike all parts of the file at the correct angle by automatically presenting the tapered, beveled, or curved surface of such file to the action of the chisel at the same angle, or thereabout, as that at which the flat part of the file is presented; secondly, to enable the attendant to adjust the force of the blow of the chisel to suit the thin or weak parts of the file—such, for example, as the point; thirdly, to provide an adjustable eccentric by which the feed-motion may be more accurately adjusted and have a greater range of action.

Figure 1 of the annexed drawings is a partly-sectionized front elevation of a file-cutting machine with my improvements. Fig. 2 is a partly-sectionized side elevation of the same machine. Fig. 3 is a face view of the adjustable eccentric.

Portions of the machine not connected with my invention have been removed to show the improvements more clearly, and similar letters and numerals of reference indicate similar parts in any of the figures.

In carrying out my invention, to accomplish the first object I make the traveling bed A (which carries the cradle B on which the file is fixed) in two chief parts 1 and 2. The upper part (marked 1) is jointed to the lower part (marked 2) at the bottom end in such a

manner that it can be raised by the application of force, turning upon the axis C. Upon the under side of the part 1, which carries the cradle and file, I fix a removable templet or path D of any desired taper or curve, preferably fixed in the center, (but I may use two of such paths, if preferred, one on each side,) and upon the bed E of the machine or on some part thereof and exactly under the line of the chisel (indicated by an arrow) I fix a round-faced steel support F, which may, if desired, take the form of a roller or rollers; but I find a solid block, as shown, answers perfectly well in practice. The face or under side of the path D rests upon rounded face of the block F, and will travel over it when set in motion by the feed-motion of the machine, which may be of any desired construction, but is not shown in the drawings, so as to avoid complication.

As the traveling bed A, with the cradle B, is drawn up the face of the bed E by the feed-motion the path D will, according to its shape or curves, raise or lower the part 1 upon its axis C, and thus present the face of the file that is immediately under the cutter or chisel at the proper angle to form a correctly-shaped tooth.

In the drawings the path D is tapered backward, so that the part 1 would be lowered as the traveling bed A was drawn up the face of the machine.

In order to enable the attendant to vary or reduce the force of the blow of the chisel when cutting the point of a file, (which requires a lighter blow,) I adapt a spring-brake arrangement to the ram G, which carries the chisel. (Not shown.)

H H are two coiled springs, which act against the cross-head I on the ram G and give the chisel the requisite power or force to cut the file.

J J are the brake-springs encircling the bolts K, and capable of being raised or lowered by the cross-head L, upon which they rest, by means of the double arm M, which is connected with the foot-lever N by a shaft and any suitable arrangement of connecting-rods and levers—such as O P—passing through

the interior of the machine. If preferred, this brake may be operated by hand instead of by foot. Thus when the chisel is required to strike a light blow the foot-lever N is moved so as to raise the springs J J and meet the cross-head I as it descends, counteracting or cushioning the action of the principal springs H and reducing the force of the blow.

To obtain an extended range and a finer means of adjustment of the intermittent action of the feed-motion of such machines, I make the eccentric Q, which transmits the motion from the first shaft R to the ratchet action of the feed mechanism, adjustable in its eccentricity in the following manner: I make a face-plate S, provided with a slot T in its face, as seen in Fig. 3. This face-plate is fixed securely on the shaft R. The plate U has a projecting ring or barrel V, on which the strap of the eccentric-rod W is fixed in the usual manner. This plate is secured upon the first-named plate S by short bolts, the heads of which engage in the slot T, and it can thus be moved more or less from the center of the shaft, as required, to regulate the feed-motion.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In file-cutting machines, the traveling

bed A, having the movable upper part 1, provided with the cradle B and removable path D, in combination with a support F, located under the line of the chisel and coacting with said path to automatically raise and lower the cradle, substantially as hereinbefore described.

2. In file-cutting machines, the cushioning-springs J and means for varying their tension at will, in combination with the chisel-ram G and main springs H, for the purposes set forth.

3. In file-cutting machines, the combination, with the first shaft R, of the adjustable eccentric Q, composed of the face-plate S, fast on said shaft and provided with a diametrical slot T, and the movable plate U, attached to the face of said plate S by short bolts, the heads of which work in said slot T, and provided with a projecting ring or barrel V, embraced by the strap of the eccentric-rod W, substantially as shown and described, for the purpose set forth.

In testimony that I claim the foregoing as my own I have affixed hereto my signature, in presence of two witnesses, this 6th day of August, 1889.

AMBROSE SHARDLOW.

Witnesses:

ROBT. F. DRURY,  
BERNARD E. DRURY.