

W. T. Nicholson.

File-Cutting Machine.

N<sup>o</sup> 42,217.

Patented Apr. 5, 1864.

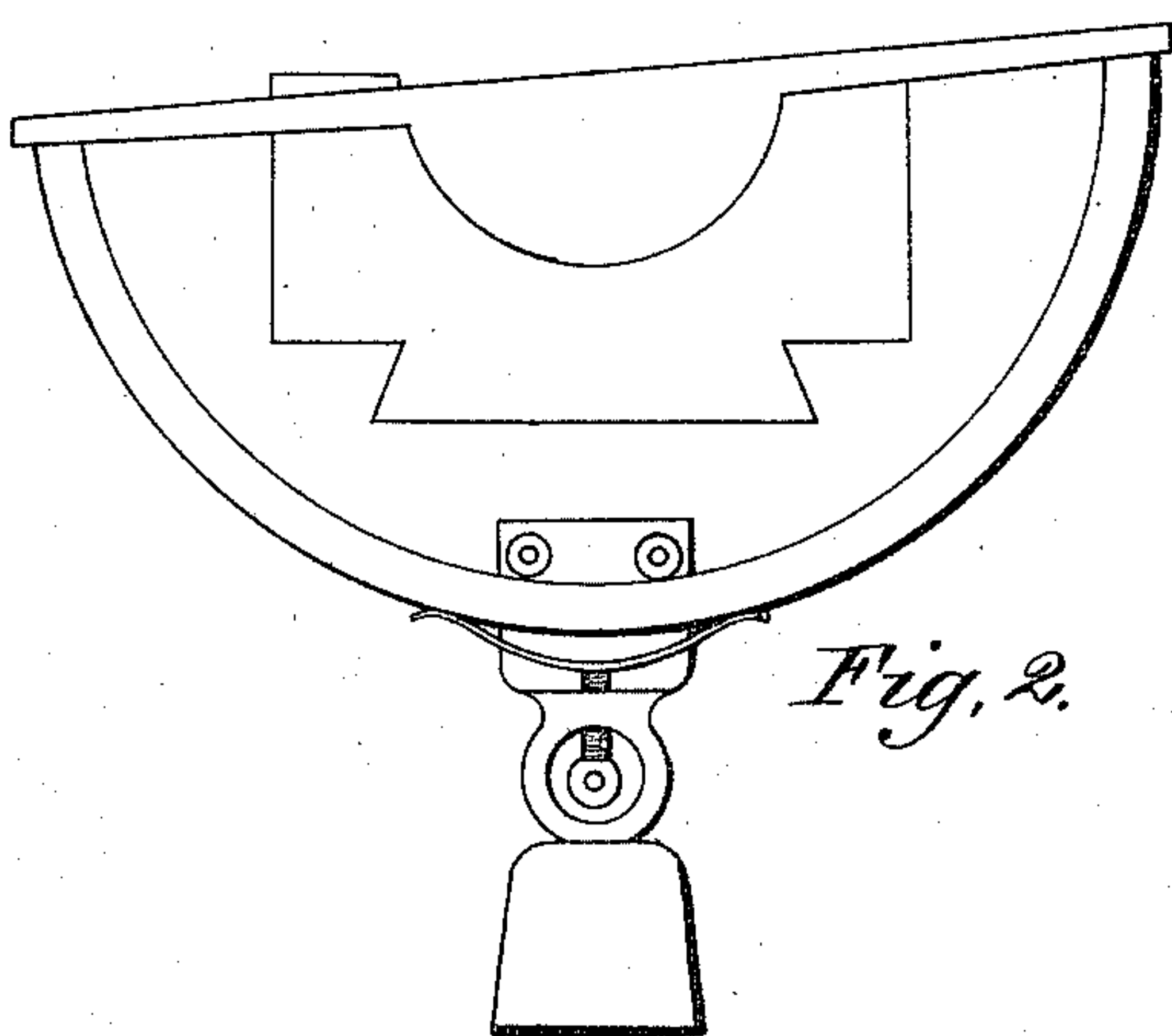


Fig. 2.

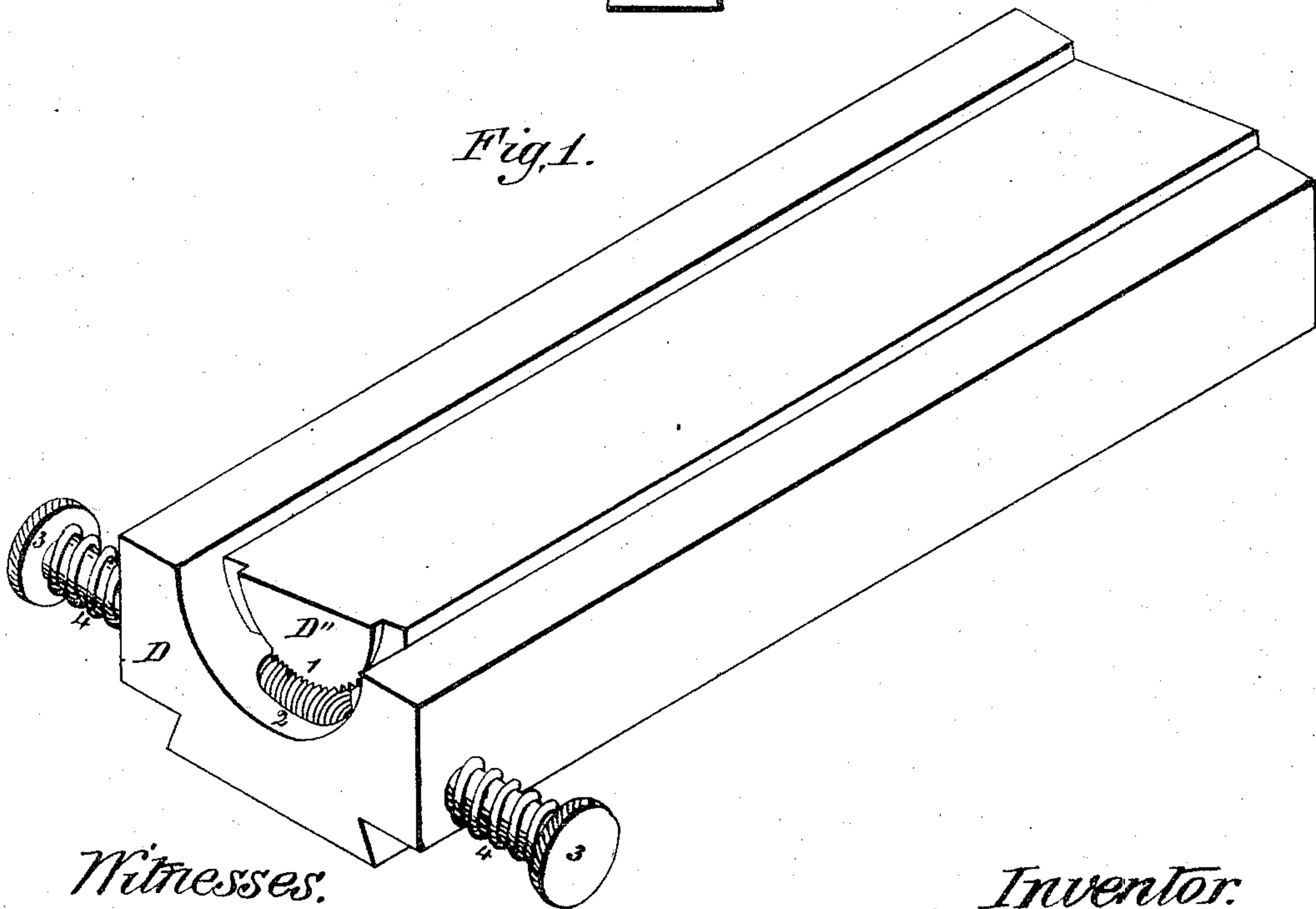


Fig. 1.

Witnesses.  
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# UNITED STATES PATENT OFFICE.

WILLIAM T. NICHOLSON, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN FILE-CUTTING MACHINES.

Specification forming part of Letters Patent No. 42,217, dated April 5, 1864.

*To all whom it may concern:*

Be it known that I, WILLIAM T. NICHOLSON, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in File-Cutting Machines; and I do hereby declare that the following specification, taken in connection with the drawings, making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a perspective view of the movable bed of the file-machine with my improvement attached. Fig. 2 is a transverse section of the same, with an arrangement shown for modifying the application of the principle shown in Fig. 1.

The invention which is the subject of this patent relates to that class of file-cutting machines in which a rocking bed is employed to adapt the transverse plane of the file-blank to the line of the cutter's edge during the operation of cutting the ranges of teeth; and it consists in the application of equalizing pressure-springs, or their equivalents, to the said rocking bed for the purpose of better adapting any inequalities in the surface of the file-blank to the edge of the cutter.

In the accompanying drawings, representing this portion of a file-machine, for improvements in which other Letters Patent have been granted to me bearing even date herewith, D is the movable carriage, which travels upon an appropriate bed, and D' the rocking block upon which the blank is placed, the necessity for which rocking block arises from the fact that in order to give the proper barb to the teeth the plane in which the chisel travels and the plane in which the blank travels must be inclined with respect to each other, and as the teeth are cut in diagonal lines, if the transverse plane of the file-blank remains parallel with the plane of the horizon, the edge of the chisel will cut the teeth deeper upon one side than upon the other. If the face of the file-blank contains no inequalities of surface, after the rocking bed has been once properly adjusted, the successive teeth will be uniformly cut to the same depth; but in practice is impossible to grind the surface of the blanks so evenly as that some inequalities shall not exist, whereby a further capacity of adjustment of the rocking bed to the chisel becomes necessary and is accomplished by the means herein shown. To one end of the rocking bed is attached a segment of a worm-gear, 1, which engages with the threads

of the worm 2, cut upon a shaft which extends transversely through the bed D, the hole in the bed through which it passes being of a greater diameter than that of the shaft, so as to admit of an endwise as well as rotary movement of the shaft in either direction. Each end of the shaft terminates with a thumb-piece, 3 3. The spaces between the thumb-pieces and the sides of the bed D are occupied by spiral springs 4 4, which are coiled around the shaft and exert a pressure in opposite directions. The tendency of these springs is to keep the rocking bed at the angle which will bring the face of the blank parallel with the edge of the cutter—that is to say, after the bed has been set as nearly as possible in its proper position by turning the worm shaft to the right or to the left. If there should be any unevenness of surface in the blank which would cause the chisel to cut deeper upon one side than upon the other, the blow of the chisel, being at first harder upon one side than upon the other of the blank will cause the bed to rock, which it is allowed to do by the springs, and at the same time the jarring which the blow of the chisel makes will cause the worm to turn in the direction to relieve itself, and thus readjust itself to this change in the surface of the blank.

My invention is also equally applicable to file-cutting machines which do not, as in this instance, have a movable carriage which moves with the file-blank, but which feed the blank itself over the surface of the bed, provided that such bed is free to adapt the transverse plane of the blank to the cutter's edge.

Instead of springs, a weight or weights could be used, as shown by an arrangement exhibited in Fig. 2, and with equally good effect exert a longitudinal strain in opposite directions upon the worm-shaft, and accomplish the same useful result.

What I claim, as of my invention, and I desire to secure by Letters Patent, is—

The method, substantially as described, of regulating the position of the rolling bed of a file-cutting machine by means of equalizing-springs, or their equivalents, applied and operating substantially as herein specified.

In witness whereof I have hereunto subscribed my name this 20th day of February, A. D. 1864.

WM. T. NICHOLSON.

Witnesses:

BENJ. F. THURSTON,  
BYRON SPRAGUE.