

(No Model.)

J. C. CALDWELL.

DEVICE FOR TILTING THE TOOL OF A SLOTTING MACHINE.

No. 409,451.

Patented Aug. 20, 1889.

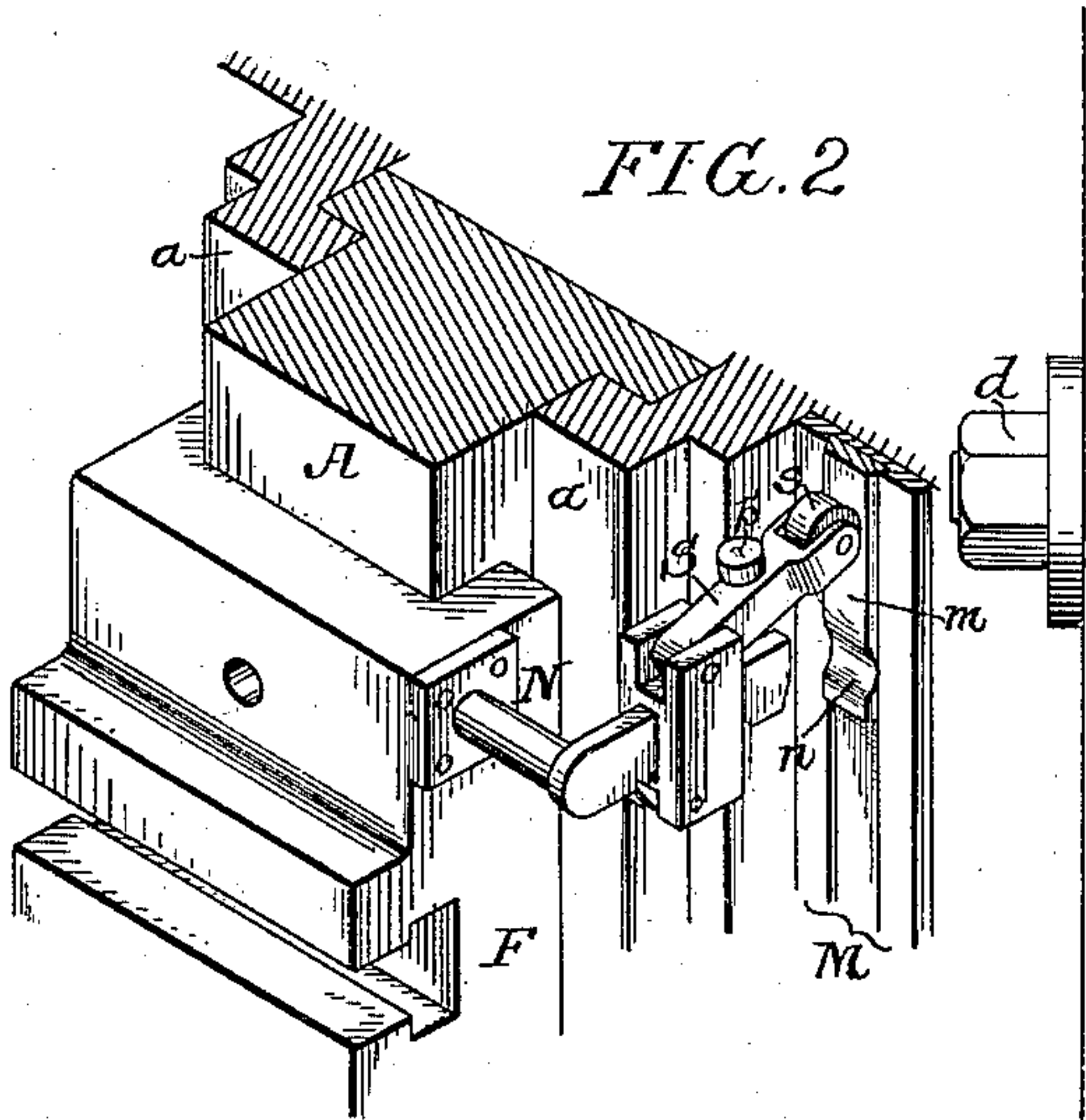


FIG. 2

FIG. 1.

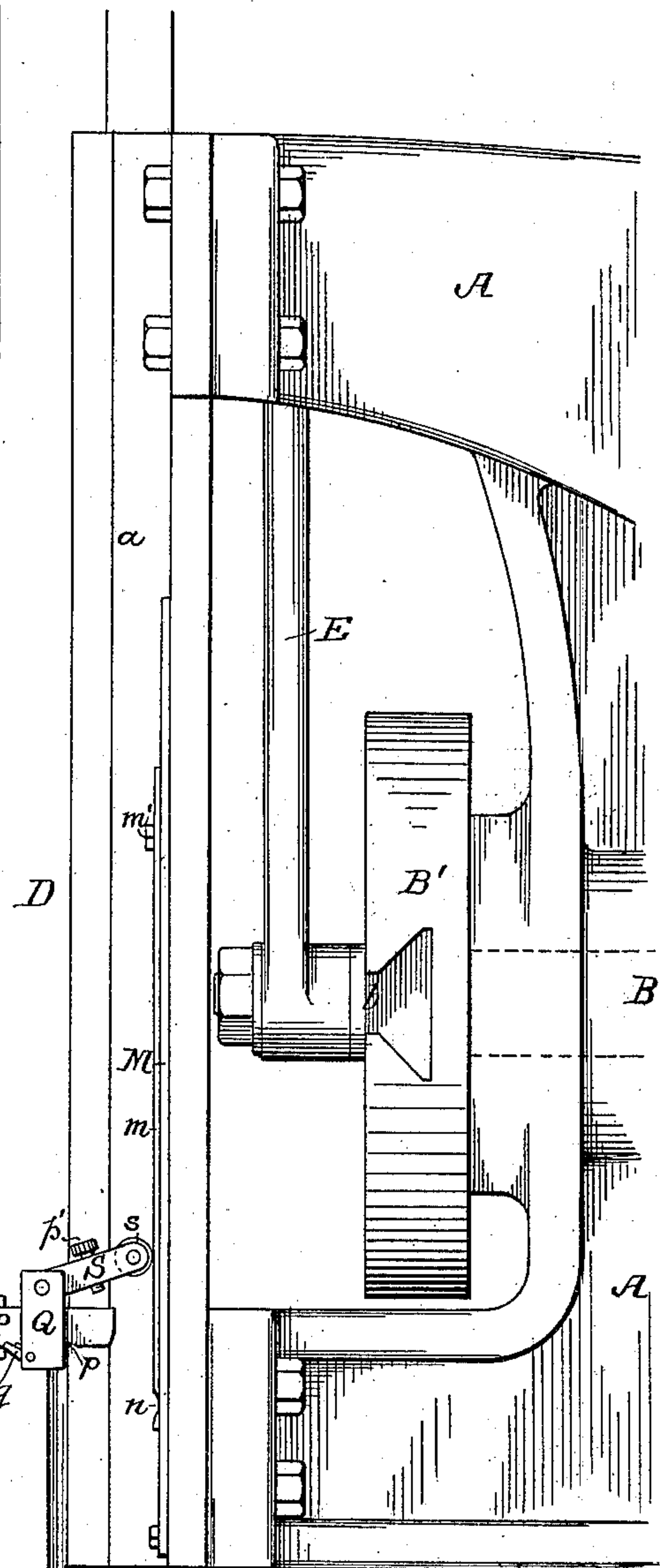
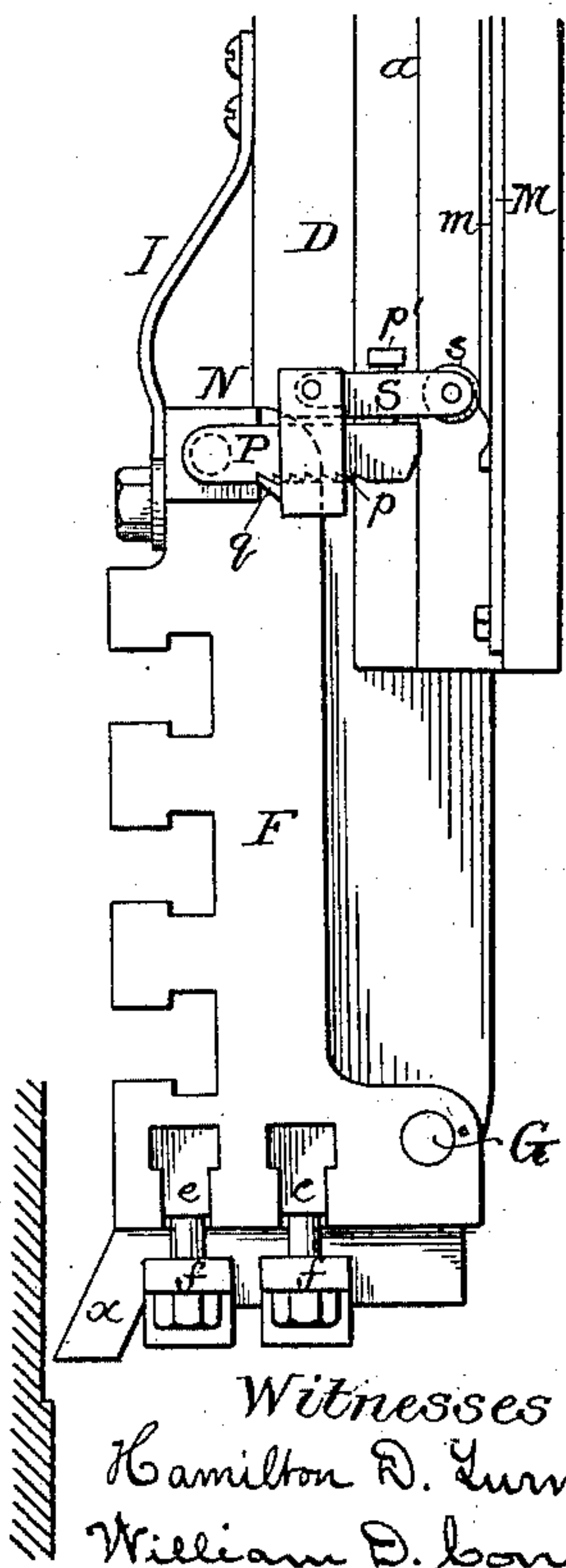


FIG. 3.



Witnesses:  
Hamilton D. Turner.  
William D. Banner

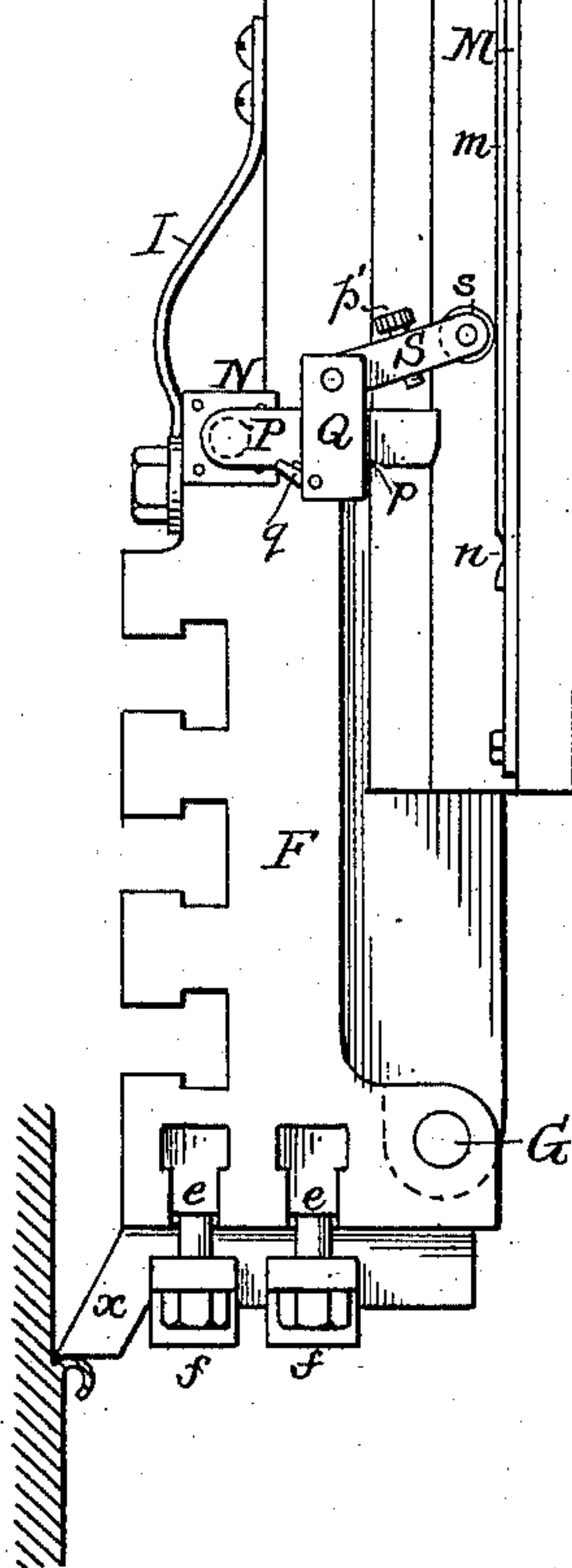


FIG. 4.  
Inventor:  
James C. Caldwell  
by his Attorneys  
Howson & Howson



# UNITED STATES PATENT OFFICE.

JAMES C. CALDWELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
CLARENCE S. BEMENT, FREDERICK B. MILES, WILLIAM P. BEMENT, AND  
FRANK BEMENT, ALL OF SAME PLACE.

## DEVICE FOR TILTING THE TOOL OF A SLOTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 409,451, dated August 20, 1889.

Application filed January 14, 1889. Serial No. 296,263. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. CALDWELL, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Tool-Tilting Devices for Slotting-Machines, of which the following is a specification.

The object of my invention is to automatically throw the tool of a slotting-machine away from the work on its return movement. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of sufficient of a slotting-machine to illustrate my invention. Fig. 2 is a perspective view of a portion of the machine; and Fig. 3 is a side view of part of the machine, showing the tool-carrier tilted. Fig. 4 is a view of my device in its simplest form.

My invention is mainly intended for use on large and heavy slotting-machines; but it will be evident that it can be used on any machine in which the tool or the work travels and the tool cuts only during its movement in one direction.

A is the frame of the machine, and B is a continuously-rotating shaft on which is mounted the disk B', a reciprocating slide D being adapted to ways *a a* on the frame A and being connected to the disk by a rod E, which is pivoted to an adjustable pin *d* on the slide and to an adjustable crank-pin *b* on the disk B'. At the lower end of the slide is pivoted a tool-holder F, having a series of transverse T-slots, in which the heads of securing-bolts *e* are held, as shown in the drawings, the tool *x* in the present instance being held in position by two bars *f f*, secured to the tool-holder by the securing-bolts *e e*. The tool-holder is pivoted at G, and a spring I, fastened to the slide D and bearing against the upper portion of the tool-holder, tends to keep it always against the slide and to force the tool out into position; but where heavy work is to be done and a long cut made the tool even with this construction would on its return movement bear against the cut surface of the metal, so that the tool would in

time become worn away. I prevent this in the following manner: On the frame A, at the side of the slide D, I secure a plate M, which acts as a trackway and is provided with an undercut groove, and in this undercut groove I adjustably secure a bar *m* by means of a set screw or screws *m'*. This bar *m* has at its lower end a recess or bevel *n*, for a purpose described hereinafter. Mounted on the post N, which is secured to the upper end of the tool-carrier, is an arm P, on which is a sleeve Q, carrying a pivoted arm S, provided at its outer end with a friction-wheel *s*. This sleeve Q is adjustable toward or from the post N, being held in position by means of a spring-pawl *q* acting in conjunction with a ratchet *p* on the lower edge of the arm P. The object of adjusting this sleeve Q is to provide for different forms of machines and for the peculiar character of the cut, and the arm S can fall to a line at right angles to the slide P, or more or less, depending upon the adjustment of a set-screw *p'*.

It will be seen on referring to Fig. 2 that as the slide moves down, and as the tool is cutting, the arm S swings freely upward, but as the roller *s*, which bears against the bar *m*, enters the recess *n*, (which is so set as to be at the end of the stroke,) the arm S assumes a position nearly at right angles to the slide, and consequently on the raising of the slide the roller will be pushed out of the groove, and the lever S will be moved bodily forward and consequently will push the upper end of the tool-carrier out, and the tool itself will be drawn in toward the slide away from its work, and it will thus be raised free from contact with said work, and will not be injured on the return movement of the slide, but as soon as the upward stroke is finished and the slide begins to return the arm S will again swing freely upward and the tool be allowed to resume the cutting position. The bar *m* is adjustable, in order to accommodate the different strokes of the slide.

The friction-roller in some cases may be dispensed with; but I prefer to use it in all cases. In fact, the bar P may extend to and

bear against the bar M, or may be provided with a friction-roller, as shown in Fig. 4, thus dispensing with the sleeve Q and the arm S.

I claim as my invention—

5 1. The combination, in a slotting-machine having a cutter-slide, of a pivoted tool-holder on said slide, and an arm pivoted to said tool-holder adapted to bear against a trackway and throw the tool away from its work on  
10 the return movement of the cutter-slide, substantially as described.

2. The combination of a reciprocating slide and a tool-holder pivoted thereto with an arm pivoted to said tool-holder and bearing  
15 against an adjustable bar beveled at its lower end, the whole acting to force the tool carried by said holder away from its work on its return movement, substantially as described.

3. The combination of the reciprocating

slide, the tool-holder pivoted thereto and carrying a cutting-tool, an arm pivoted to the upper end of said tool-holder, and a sleeve adjustable on said arm and carrying a second arm, with a bar having at its lower end a recess or beveled end, into which the second  
25 arm will drop at the end of the stroke of the slide, the whole acting to force the tool away from its work on its return movement, substantially as set forth.

In testimony whereof I have signed my name  
30 to this specification in the presence of subscribing witnesses.

JAMES C. CALDWELL.

Witnesses:

JAMES S. CROSS,  
ARTHUR F. TRETHEWAY,  
F. A. ZIPPERLEIN.