

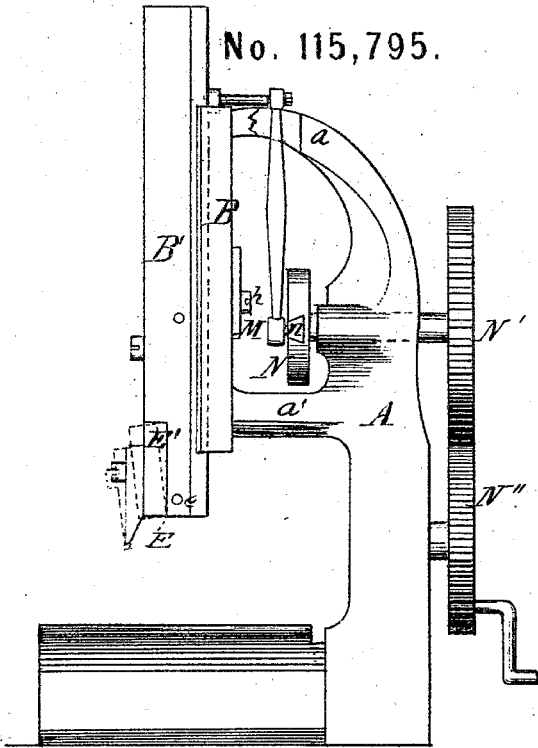
WILLIAM H. WARREN.

**Figl.**

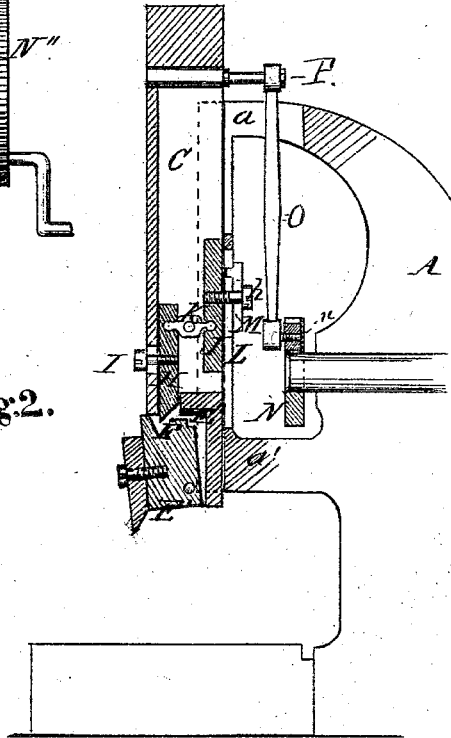
## Improvement in Slotting Machines.

No. 115,795.

Patented June 6, 1871



**Fig:2.**



Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. WARREN, OF WORCESTER, MASSACHUSETTS.

## IMPROVEMENT IN SLOTTING-MACHINES.

Specification forming part of Letters Patent No. 115,795, dated June 6, 1871.

*To all whom it may concern:*

Be it known that I, WILLIAM H. WARREN, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and valuable Improvement in Slotting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a side elevation of my invention. Fig. 2 is a vertical section of the same.

This invention has relation to slotting-machines, and is designed to obviate the drag or friction of the cutting-edge of the slotting-tool against the edge of the slot during the upward movement of the slotting-bar. In ordinary slotting-machines the cutting-tool is secured directly to the slotting-bar, and with it has only a vertical movement, ascending in precisely the same line as it descends. The consequence is, therefore, that the edge of the cutting-tool rubs against the surface which it has cut when it ascends, and thereby injures not only the tool, but the work also. My improvement consists in the attachment of the cutting-tool to a block, so pivoted as to rock to and fro, and, by means of suitable devices connected therewith, relieve the tool from the injurious friction.

In the drawing, which shows only so much of a slotting-machine as is necessary to illustrate my invention clearly, A represents the frame of the machine, cast with two brackets, *a a*, supporting the dovetailed standard B, in which the slotting-bar B' slides up and down. In the slotting-bar a chamber, C, is formed, which extends nearly its entire length. E is a rectangular seat cut in the lower end of the slotting-bar to receive the shouldered portion of the rocking block E'. The back part of said block is narrowed and fitted into a chamber, E'', wherein it is held and allowed to turn on a pin, *e*. F represents a beveled notch cut in the top of the block E. H is a slide, the lower end of which falls into the notch F, and is beveled off, as shown in Fig. 2. I shows a screw inserted in this slide through a slot, I', cut in the front part of the slotting-bar. J is a slide opposite, but somewhat higher than, the one just referred to, both being joined by a rocking-block or le-

ver, K, having rounded studs at either end to fit into corresponding chambers in the slides H J. The latter is held by a screw, *h*, inserted through a slot, L, cut vertically in the back part of the standard B, and also through a plate, M, from which projects a stud, M', for the purpose of keeping said plate in a proper position. N represents a crank-wheel fastened on one end of a shaft which passes through a socket cast in the frame A, the other end supporting a gear-wheel, N', acted on by a pinion, N''. The crank-wheel has a radial dovetailed slot or groove, in which works a flexible stud, *n*, connected with one end of a coupling-rod, O, the other end of which connects, by a pin, P, with the upper part of the slotting-bar.

The operation of this machine is as follows: When the slotting-bar is raised all the parts are in the relative positions shown in Fig. 2, the upper end of the rocking block E' being inclined forward and the lower end backward. Now, when the slotting-bar descends, the friction of the slide J and plate M against the standard B creates sufficient resistance (regulated by screw *h*) to force the beveled end of the slide H into the notch F, and thus throw the block E' into a vertical position. When the slotting-bar begins to ascend a similar resistance elevates the aforesaid slide, and allows the block to fall forward. The slot through which the screw I passes allows the slide H to move a sufficient distance to accomplish its object, after which it is carried up and down with the slotting-bar.

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

1. In a slotting-machine, the rocking block E', in combination with the rectifying-slide H, the lever *k*, and the friction-clutch J M, or its equivalent, substantially as specified.

2. In a slotting-machine, the notched rocking block E', pivoted to the bar B', with its axis of rotation parallel with the cutting-edge of the chisel secured to its face, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM H. WARREN.

Witnesses:

GEO. O. TAFT,  
JOHN P. SIBLEY.