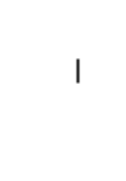


1

1

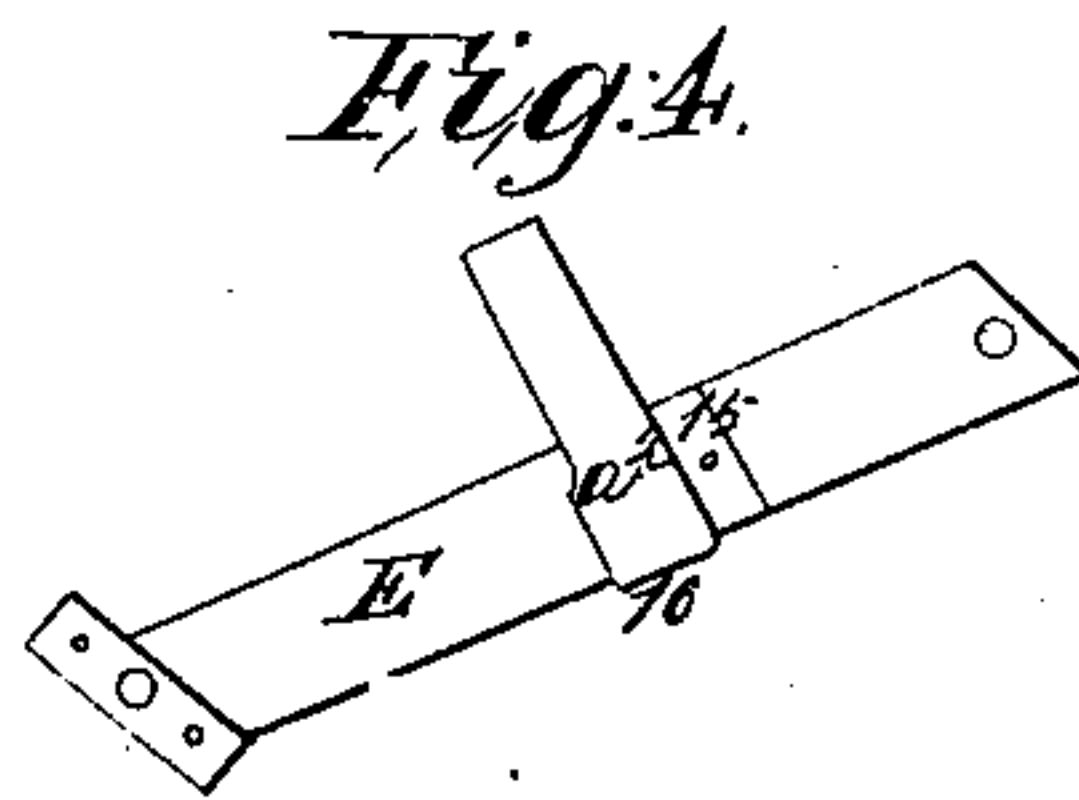
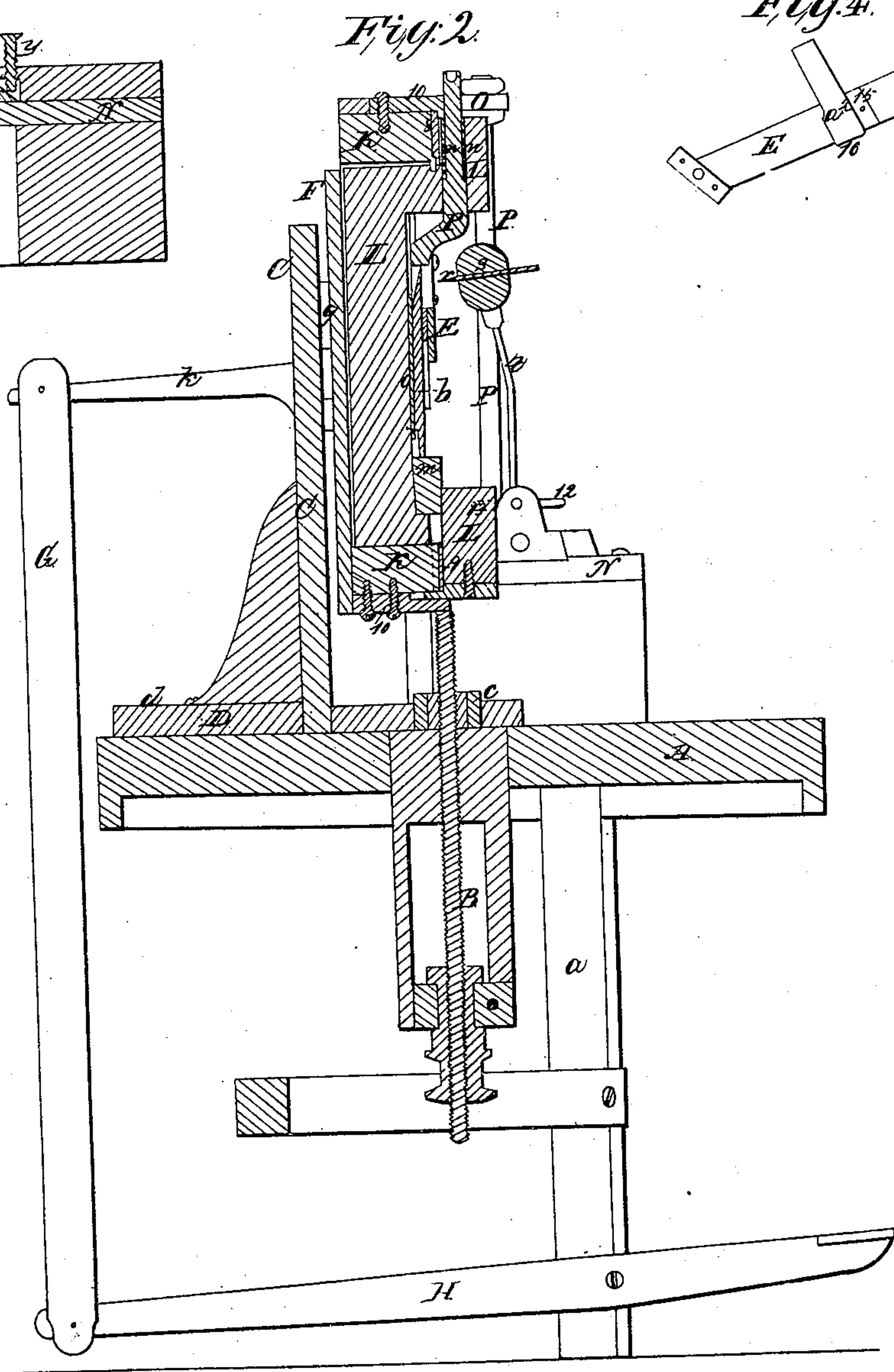
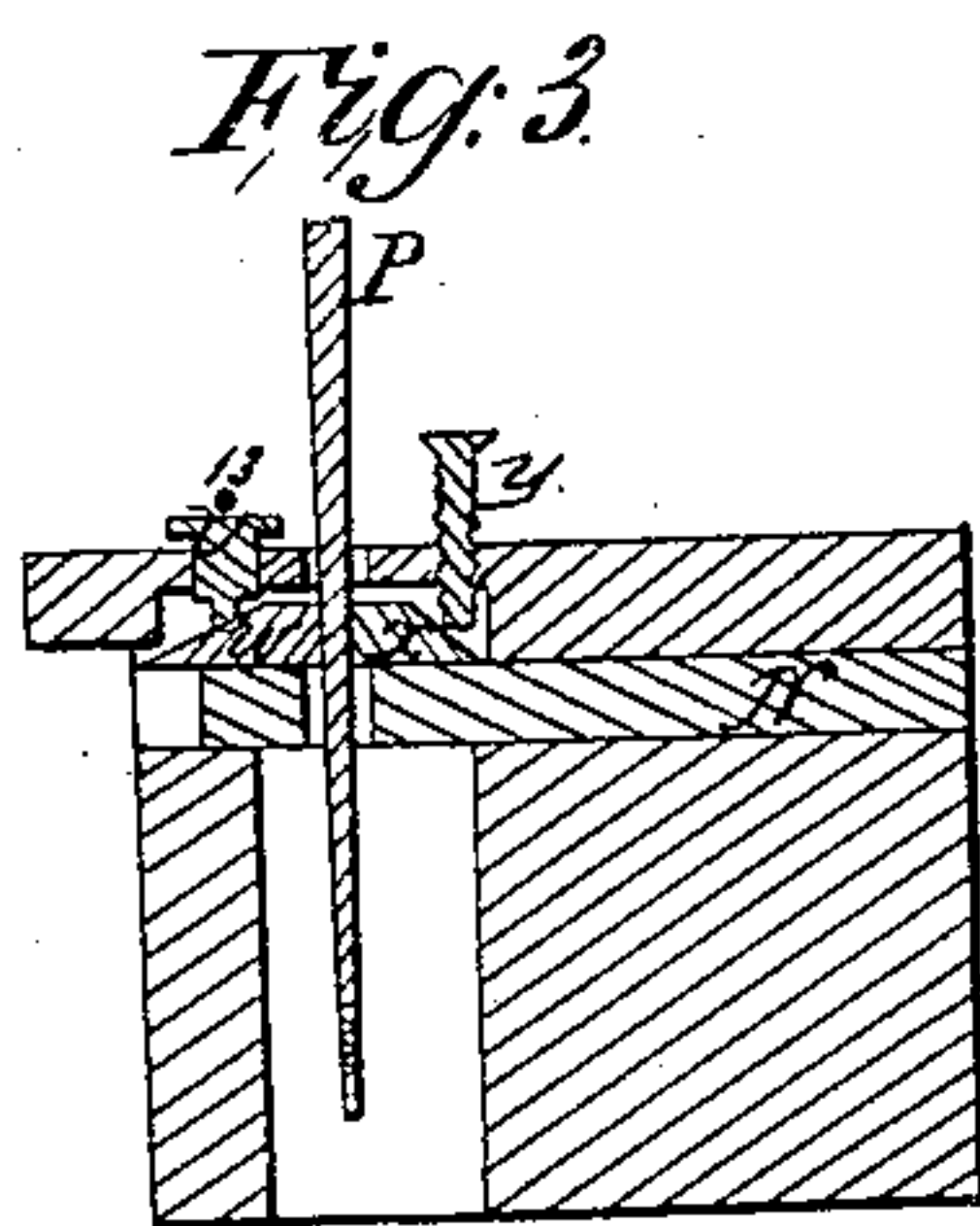


A. B. Southwick.

File-Cutting Machine.

N^o 37,552.

Patented Jan. 27, 1863.



UNITED STATES PATENT OFFICE.

ALPHEUS B. SOUTHWICK, OF BALLARD VALE, MASSACHUSETTS, ASSIGNOR,
THROUGH MESNE ASSIGNMENTS, TO THE WHIPPLE FILE MANUFACTUR-
ING COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR CUTTING FILES.

Specification forming part of Letters Patent No. 37,552, dated January 27, 1863.

To all whom it may concern:

Be it known that I, ALPHEUS B. SOUTHWICK, of Ballard Vale, in the county of Essex and State of Massachusetts, have invented certain Improvements in Machines for Cutting Files, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the machine; Fig. 2, a vertical section through the middle of the same; Figs. 3 and 4, details to be referred to.

The first part of my present invention consists in an improved method of holding the file-blank which is to be cut up to the face-plate near which the cutter strikes, so that if the face of the blank is not true the bed in which the blank is held may accommodate itself and present that portion of the blank which is operated on squarely to the cutter.

The second part of my invention consists in a device for regulating the blow of the cutter so that it may strike harder on the wide part of the blank than on the narrow part, where less force is required to make a cut of equal depth.

The third part of my invention consists in an improvement in the face-plate.

That others skilled in the art may understand and use my invention, I will describe the manner in which I have carried it out.

In the said drawings, A is a bed or table supported on legs *a*. A screw-shaft, B, rises through the center of this table, by which the file-blank *b* is fed up as the cutting proceeds; but as the mechanism by which this feed is effected forms no part of this present invention it need not be described. A standard, C, rises from a base or platform, D, which is pivoted around a hollow center, *e*, through which the screw-shaft B passes, while its rear end *d* may be adjusted by set-screws *e*, one on each side, so as to bring the whole frame which carries the file-blank as near square as possible to the direction of the blow of the cutter. After being adjusted in place, this platform is secured to the table A by screws *f*, which pass through slots 3 in the platform. Two arms, *g*, one on each side, projecting forward

from the standard C, support the face-plate E (shown detached in Fig. 4,) which is attached to the arms by screws 4, so that it may be readily removed. Against this plate the face of the file-blank to be cut is held. Two other arms, *h*, which project forward from one side of the standard C, have pivoted to them at 5, similar arms, *i*, attached to a frame, F, which is thus allowed a slight vibrating motion on the pivots 5, and is held up toward the face-plate E by the weight of a heavy rod, G, which is pivoted to the end of a lever, *k*, pivoted at 6 to the edge of the standard C. A short strap, *l*, is pivoted to the head of the lever *k* and to the frame F. A treadle, H, pivoted to one of the legs *a*, and to the lower end of the rod G, enables the operator to raise this rod and the lever *k* and draw back the frame F when it is required to remove the file-blank *b*. As a vertical motion of the blank is required as it is fed up by the screw-shaft B, another frame or box K is made to slide up and down in dovetailed ways 7, in the frame F. A heavy block, L, is hung in the front of the box K. It has let into its face a soft-metal bed, *o*, in which the blank *b* lies. It is pivoted at top at 8 and at the bottom at 9 to short arms 10, projecting from the ends of the box K. These pivots are placed in, or nearly in, a line with the face of the blank, so that the weight of this swinging block, which receives the concussion of the blow of the cutter, tends to keep the face of the blank against the face-plate E, although it is capable of a slight vibration on its pivots to accommodate itself to any irregularity or twist in the face of the blank, which rests against the face-plate as it is fed up. This is necessary, as the face of the blank cannot always be made a perfect plane, and any twist on the surface which is pressed against the face-plate E will cause the cutter to make its indentation in the metal deeper near one edge of the blank than the other. The tang of the blank *b* rests in a socket, *m*, set in the block L, and the point of the blank is held under a cap, *p*, which is pressed down by a spring, *n*, in the head of the block L. As the point or upper end of the file-blank *b* (the one here shown is a three-cornered file) is narrower on the face than the lower part, the blow of the cut-

ter should be less at the commencement of the operation of cutting, and gradually increase in a very slight degree as the face of the blank widens, in order that the cuts may all be of a uniform depth. To accomplish this I employ the following device: The cutter *r* is secured in a head, *s*, on a bent arm, *t*, which rises from a shaft, *M*, supported on suitable bearings on a heavy block, *N*, rising from the table *A*. The blow of the cutter is given by a spring applied to the shaft *M*, and the shaft is revolved a part turn at short intervals to raise the cutter by mechanism similar to that employed in other machines of this class, and which, as it forms no part of this present invention, need not be explained. A stop is always requisite to check and determine the amount of revolution of the shaft *M*, the throw of the arm *t*, and the depth of the cut made by the cutter *r*. It is the regulating of the position of this stop by the feed of the blank itself which constitutes this part of my invention. The shaft *M* is turned by a spring applied to a pin, 12, and is arrested by another similar pin, 13, which projects from the opposite side of the shaft, and strikes on a button or stop, *v*, (see Fig. 3,) which is set in and projects above the top of the block *N*. It is supported on a wedge-shaped piece, *w*, which slides in a recess in the block *N*. An arm, *O*, attached to the top of the sliding frame *K*, carries at its outer end a rod, *P*, the lower end of which is wedge-shaped, as shown in Fig. 3, and passes down through a hole in the top of the block *N*, and bears against the wedge *w*, so that as this rod is raised with the frame *K* by the feed of the screw-shaft *B* the taper of the rod allows the wedge *w* to be pushed farther back by the percussion of the pin 13 on the stop *v*, and the stop falls lower and allows a greater vibration to the shaft *M*, and consequently a heavier blow to the cutter. A

small regulating-block, *x*, is placed in the same recess with the wedge *w*, but behind the tapering rod *P*. This block is pushed farther forward by turning down the set-screw *y*, which bears on its inclined end, and the position or amount which the stop *v* may fall is thus nicely adjusted. The face-plate *E* is usually made of a straight piece of hardened steel; but, as the cutter *r* strikes very close to its upper edge, it is liable to be worn away and become uneven. To remedy this I have formed a recess in the back of the face-plate, in which I have inserted a piece of hard steel, *a*², Figs. 1 and 4, which is held in place by a wedge and screw, 15, and which, when worn, may be easily removed to have its end 16 ground off square and true.

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

1. The pivoted or vibrating block, *L*, in combination with the sliding frame or box, *K*, operating substantially as described.

2. The swinging frame *F*, with the weighted-rod *G*, or its equivalent, for holding the blank up to the face-plate *E*, substantially as set forth.

3. The standard *C* and platform *D*, pivoting on the center *c*, and made adjustable in the manner substantially as specified.

4. The device for regulating the blow of the cutter *r* as the feed proceeds—viz., the wedge-shaped rod *P*, which is raised with the blank *b*, and the tapering block or wedge *w*, for lowering the stop *v*, substantially as set forth.

5. The piece *a*², inserted in the face-plate *E*, for the purpose stated, and in the manner substantially as described.

ALPHEUS B. SOUTHWICK.

Witnesses:

THOS. R. ROACH,

P. E. TESCHEMACHER.