W. T. NICHOLSON.

MACHINES FOR STRIPPING FILE-BLANKS.

No. 177,071. Patented May 9, 1876.

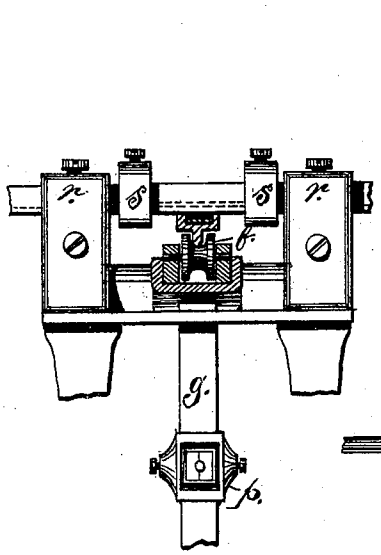


FIG. 3.

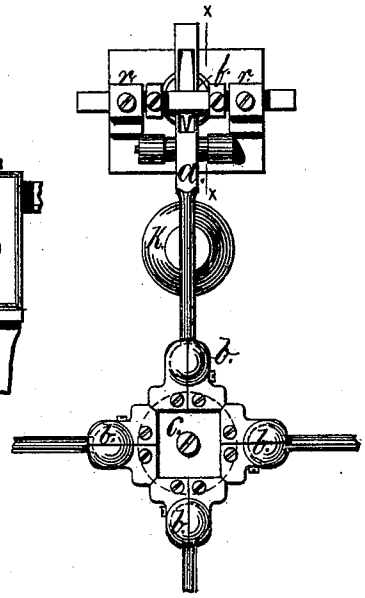


FIG. 1.



FIG. 4.

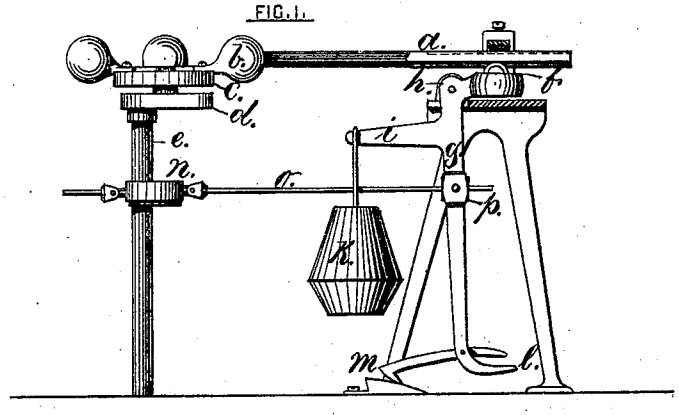


FIG. 2.

WITNESSES.

Frank Mundd

J. C. B. Woods.

INVENTOR.

William T. Nicholson

(4)

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM T. NICHOLSON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO NICHOLSON FILE COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR STRIPPING FILE-BLANKS.

Specification forming part of Letters Patent No. **177,071**, dated May 9, 1876; application filed December 16, 1875.

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 Machines for Stripping File-Blanks; and I do hereby declare that the following specification, taken in connection with the drawings making part of the same, is a full, clear, and exact description thereof.

The invention described in this application is one of several improvements in machines used for the purpose of stripping or draw-filing file-blanks, for the several divisions of which invention I have made three other applications for Letters Patent, all of even date herewith. This part of my invention consists, first, in an improved arrangement by which reciprocation is imparted to the file-blank, and a movement given to it which approximates in its figure to the figure 8; second, in the arrangement by which an elastic, yielding, and self-adjusting support is given to the file or tool which effects the stripping; third, in the construction of the file-blank bed, by which the file-blank is enabled to adjust itself to the face of the stripping-file; fourth, in a peculiar arrangement by which the file-blank is held in contact with the stripping-file, which contact is partially relieved when the blank passes backward from under the same.

Figure 1 is a top view of my improved machine, parts of three other machines being shown as connected with the one central driving-shaft. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged front view of the machine. Fig. 4 is a sectional view of the holder for the stripping-file.

In the drawings, *a* is the reciprocating bar, at one end of which is the bed in which the file-blank is secured. The other end of the bar is connected, by a ball-and-socket joint, *b*, to the driving-plate *c*. The plate *c* is supported on, and driven by, a crank-pin, which is adjustable on the crank *d*, so that a longer or shorter reciprocating movement may be imparted to the bed and rod *a*, to accommodate longer or shorter file-blanks to be stripped or draw-filed. The crank *d* is secured to, and revolves with, the shaft *e*, and the driving-plate *c*, in which the crank-pin turns, is carried by the same, describing the same circle as the crank-pin. The bed *a*, being connected with the plate *c* by the ball-and-socket joint, is therefore swung from side to side by the lateral motion of the plate *c*, while at the same time it has a reciprocating movement, thus giving a movement to the file-blank which approximates generally in form to the figure 8. By this peculiar movement the stripping-file is prevented from producing lines or ridges on the file-blank, which is the case when reciprotion in a right line only is imparted to the file-blank. The end of the bar *a*, forming the bed in which the file-blank is secured, has on its under side a projecting rib, which rests on the roller *f*. The form of the rib and roller are such that, while the file bed or bar *a* is firmly supported and held against the stripping-file, it is free to rock on the roller *f*, and adjust itself so that the file-blank will rest at all parts against the stripping-file. The roller *f* is supported on the short arm of the hinged lever *g*, resting on the fulcrum *h*. The horizontal arm *i* of the lever *g* carries the weight *k*, which thus holds the roller *f* against the bed, and the file-blank firmly against the stripping-file. The vertical arm of the lever *g* extends downward to near the floor, and ends in a foot-plate, *l*. At this point a pawl, *m*, is secured, which engages in a hook or projection, and when the lever *g* is pushed forward secures the same in this position, thus depressing the roller *f*, and relieving the file-blank from contact with the stripping-file. The operator can now turn the file-blank over, or replace the same by another blank. By tripping the pawl *m* the vertical arm of the lever *g* is relieved, and the weight *k*, suspended from the horizontal arm *i* of the lever *g*, again raises the roller against the bed *a*, and presses the file-blank against the stripping-file. As the stripping-file is cut in the usual manner, having a certain angle and slash, which can only cut to advantage in one direction, the drawing back of the file in contact with the file-blank injures the file, by the pressure on the cutting-edges of the teeth in the reverse direction for cutting. To prevent this, and produce (to some extent mechanically) the action of hand-filing when the whole pressure is exerted at the forward stroke, and

comparatively little at the return stroke, I place a crank or an eccentric device, *n*, on the shaft *e*, and connect with this the clutch-rod *o*, extending through a friction-clutch, *p*, in the vertical arm of the lever *g*.

When the machine is in operation the rotation of the shaft *e* imparts reciprocating motion to the rod or bed *a*, carrying the file blank, and also the same motion to the rod *o*. While the the file-blank is, therefore, passing under the stripping-file against the cutting-edge the rod *o* is forced through the friction-clutch *p*, thus assisting the weight *k* in pressing the blank against the stripping-file. As soon as the direction of the motion is changed, and the file-blank is passing in the opposite direction, the clutch-rod *o* will draw the lever *g* forward, and thus relieve the pressure of the file-blank against the stripping-file, so as to pass lightly over the same. The friction-clutch *p* consists of two blocks pressed against the rod *o* by two screws, as shown in the drawings, Fig. 3. It may, therefore, adapt itself to the changes in the planes of movement of the rod *o*, and can also be adjusted to take up the wear on the blocks, and to produce any friction required.

To produce a smooth, clean cut by any cutting tool or file on steel or iron the tool must not be held too rigidly, as otherwise it will chatter. To prevent this, and insure a true surface, I place between the stripping-file and the stripper-bar a sheet of rubber or other elastic material, as shown in solid block at *q* in Fig. 4, and which, constituting a yielding cushion, obviates the tendency of the file to chatter, which otherwise would exist.

I am aware that it is not new in grinding-machines used in the manufacture of cutlery, &c., to employ a yielding cushion at the rear of the matrix or bed, between which and the grinding-surface the article to be ground is held; and I do not, therefore, broadly claim said yielding cushion, but limit my invention to the combination, with the stripping-file, in a machine embodying a reciprocating bed which carries the file-blank, and which, in operation, moves said blank to and fro while in contact, during a portion of its movement, with the stripping-file, whereby the cutting-tool or stripping-file is prevented from chattering.

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

1. The combination, in a file-stripping machine, of the reciprocating file-blank bed *a* with means, substantially as described, by which greater pressure is exerted on the stripping-file in one direction than in the other, as and for the purpose described.

2. The combination of the rod or bed *a*, the ball-and-socket joint *b*, and the driving-plate *c*, for producing the peculiar motion of the file-blank, as and for the purpose set forth.

3. The combinat on, with the stripper-bar and stripping-file, of the elastic cushion *q*, interposed between the bar and file, substantially as described.

4. The combination, with the lever *g*, of the weight *k* and pawl *m* in a file-stripping machine, as and for the purpose described.

5. The combination of the lever *g*, the friction-clutch *p*, the clutch-rod and roller *f*, operating together substantially as and for the purpose set forth.

WILLIAM T. NICHOLSON.

Witnesses:

FRANK S. ARNOLD,

J. C. B. WOODS.