

D. F. Mellen,

Making Wood Screws,

N^o. 53,648 -

Fig. 1. Patented Apr. 3, 1866.

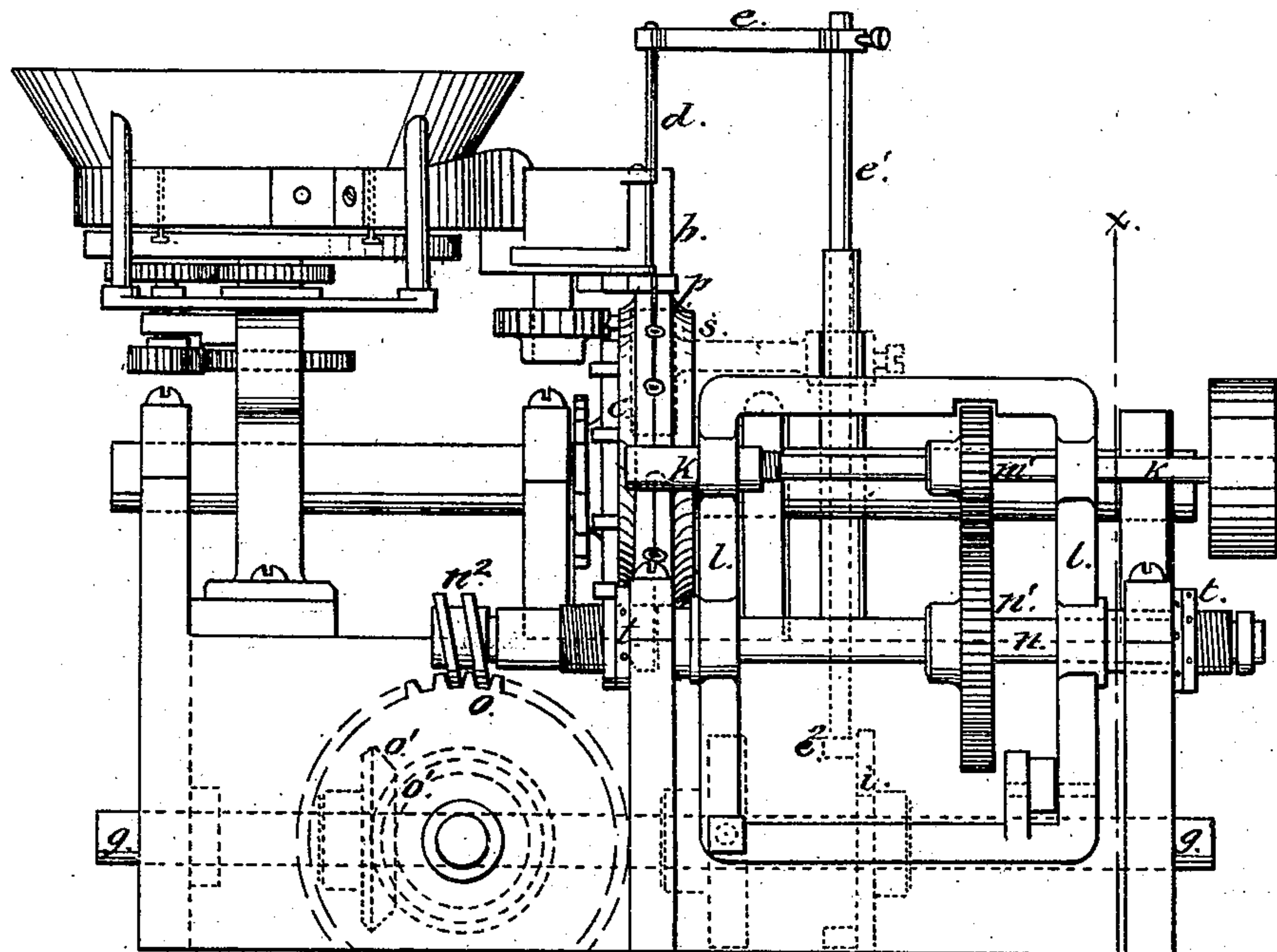
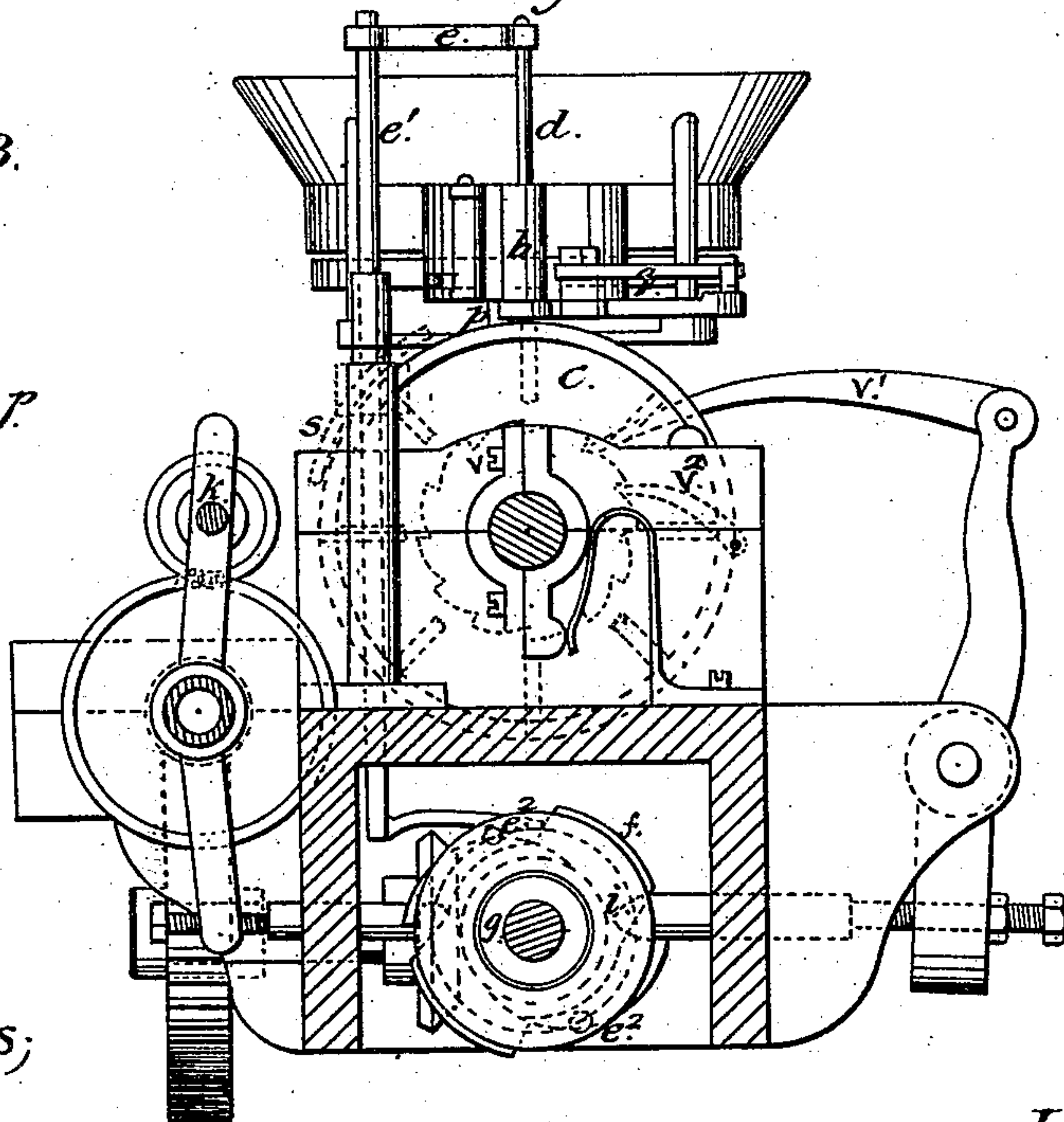
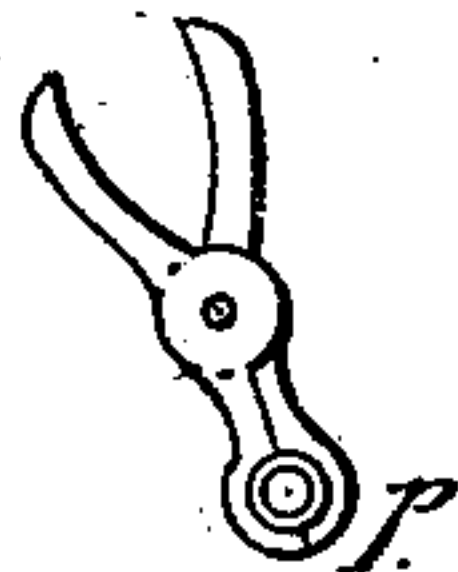


Fig. 2.

Fig. 3.



Witnesses;

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DUSTIN F. MELLEN, OF NEW YORK, N. Y.

MACHINE FOR NICKING SCREWS.

Specification forming part of Letters Patent No. 53,648, dated April 3, 1866; antedated March 21, 1866.

To all whom it may concern:

Be it known that I, D. F. MELLEN, of the city, county, and State of New York, have invented certain new and useful Improvements in Screw-Cutting Machinery, the purpose of which is to nick or slot the heads of screws; and I do hereby declare and ascertain my said invention, in which I refer to the accompanying drawings, as follows:

Figure 1 is a side elevation of the machine. Fig. 2 is a cross-section thereof. Fig. 3 is the directing forceps *p* detached.

My improvement in machinery for nicking or slotting screws is for the purpose of expediting the process and forming a permanent and effective machine that will accurately and properly cut the nicks with rapidity in the screw-heads, and be lasting, easily adjusted, and sure in its operations.

The feed in this machine may be of any efficient description. That shown in the drawings consists of a hopper, *a*, such as is described in my machine for shaving the heads of screw-blanks; but instead of the directing-spout there is a straight vertical tube, *b*, the caliber of which is a little larger than the screw-head. The bottom of this tube *b* is open, and directly under it there are directing-forceps *p*. (Shown detached at Fig. 3.) These forceps are kept closed by springs *q*, Fig. 2. The upper face of the forceps are chamfered, so as to direct the point of the screw-blank to the center, directly over the dies of the holding-clamps. These forceps insure the entrance of the point of the blank into the dies as it descends head uppermost into them through the tube *b*.

The blank is forced down into the dies through the forceps *p* by means of a piston, *d*, which is connected by an arm, *e*, with a rod, *e'*, which is raised by pins *e²* on the cam *i* on the cam-shaft *g* below. The screw-blank, after being fed into the die of the circular clamp, is moved onward by its revolution to the cutting-point.

The circular clamp is composed of two disks, the faces of which, having a series of radial dies in them, are a little inclined toward each other, so as only to touch on one side, where the dies that contain the blank will there be brought together to gripe fast the blank that is between them at the point where the nick is cut. On the other side they are open to relieve the blank. The dies are revolved by means of a ratchet, (shown by dotted lines in Fig. 2,) into which a pawl, *v*, works, that is on a vibrating lever, *v'*, moved by a cam below, as clearly seen in the drawings. A finger, *v²*, jointed to the stationary frame, prevents the recoil of the clamps *c* beyond the proper point, while a spring friction-clutch, *w*, on the shaft of the clamp causes it to recoil firmly against said finger *v²* after the pawl recedes, so as to insure the correct position of the dies when in a state of rest.

The clamps, *per se*, are not new, but only the mode of operating them.

When the screw-blank is inserted in the dies, as above described, the clamps *c* revolve far enough to bring the next die into place under the forceps *p*, which have been forced open to let the preceding blank pass out and closed again by their springs. The screw-blank passes around a quarter-turn of the clamps, more or less, to reach the cutter, passing under a stationary curved guard-plate, *s*, (shown by red lines in the figures,) which forces the head of the screw-blank down to the exact gage from the face of the dies before it is held fast in them, which occurs when the head of the blank is brought opposite the nicking-tool or cutter. The cutter is of ordinary construction for nicking screw-blanks, and is affixed on mandrel *k*, which is revolved by a belt from the driving power running onto pulley *m*. The cutter is supported in a vibrating frame, *l*, having its center of motion on a shaft, *n*, and it is vibrated by a cam on the cam-shaft, which is driven by gearing from the cutter-mandrel *k*, a spur-wheel, *n'*, gearing into a pinion, *m'*, on said mandrel. The shaft *n* has a worm on one end gearing into a wheel, *o*, on a shaft at right angles to *n*, bearing on its other end bevel-gear *o'*, connecting it with the cam-shaft *g*, by the revolution of which the various cam-motions are made.

The vibrating frame *l* is made to adjust sidewise, so as to set the nicking-cutter exactly to nick the screw-blank properly, by means of the set-nuts *t* placed on each side of its bearings, which are made to slide for that purpose.

The operation of this machine is as follows: The screw-blanks having been fed to the directing-tube *b* by any device, they are driven accurately and with certainty into the dies in the revolving clamp by means of the directing-forceps *p* and piston *d*, and are thence conveyed and properly gaged and presented opposite the nicking-cutter on mandrel *k*, which is in

rapid revolution. The frame *l* then carries the tool up to the work and the nick is cut, after which the blank passes on until the clamps open far enough to deliver it therefrom. As there are a succession of the dies around the clamps to receive the screw-blanks, a new one is brought opposite the cutter at each movement of the clamp.

Having thus fully described my improvements in screw machinery for nicking the screw-blanks, what I claim therein, and desire to secure by Letters Patent, is—

1. The combination of the piston-rod *d* and directing-forceps *p*, employed with the feeding apparatus, as described, for feeding the screw-blanks to the griping-dies, as specified.

2. The gage-plate *s*, to determine the exact radial projection of the screw-blank from the face of the dies when brought to the cutter, in combination with the griping-dies *c* herein described.

3. The vibrating adjustable frame *l*, in combination with the holding-dies, as and for the purposes described.

4. The combination of the friction-clutch *w*, spring *y*, ratchet, and stop *v*², for setting the clamps accurately, as herein specified.

DUSTIN F. MELLEN.

Witnesses:

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