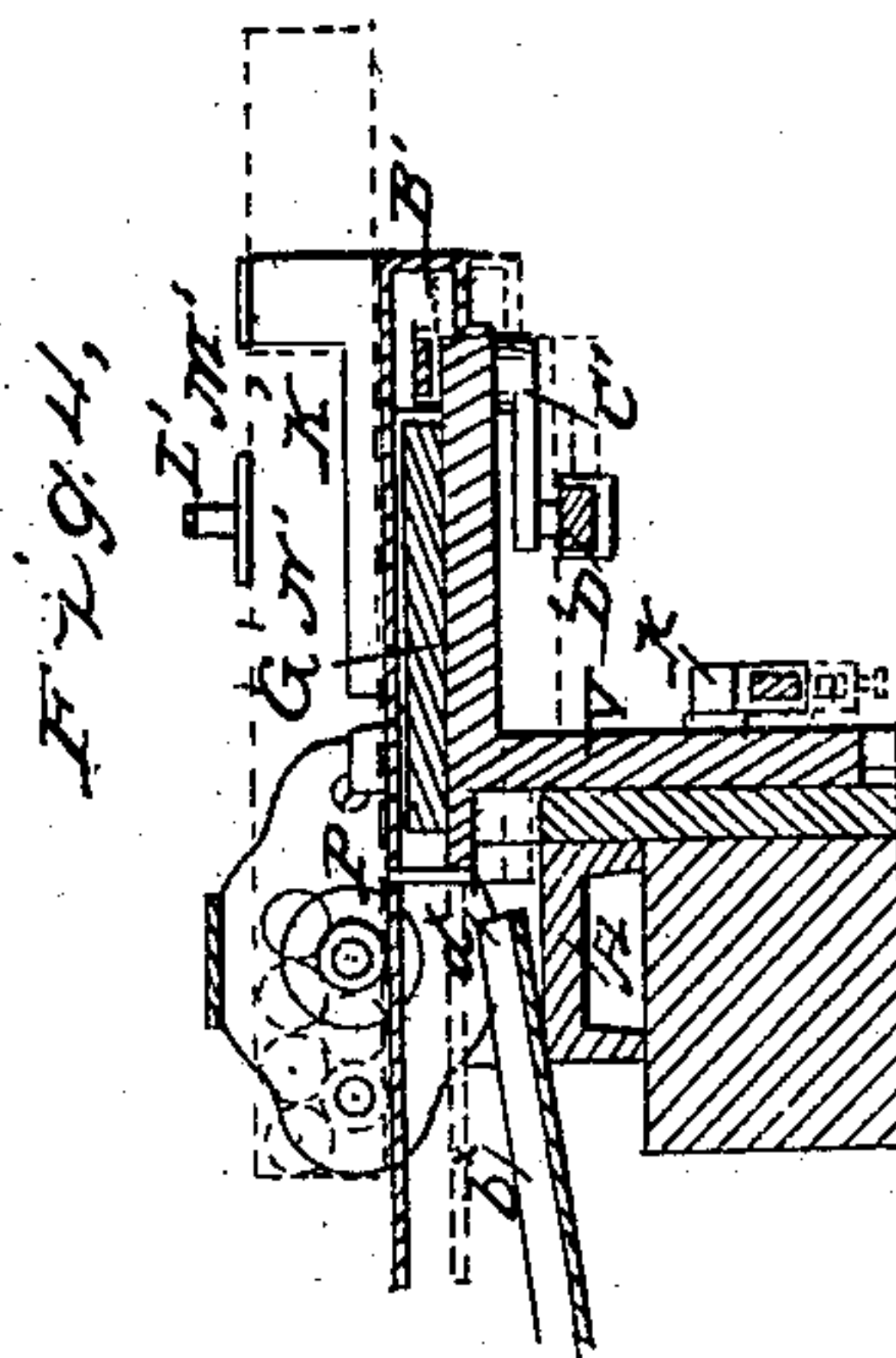
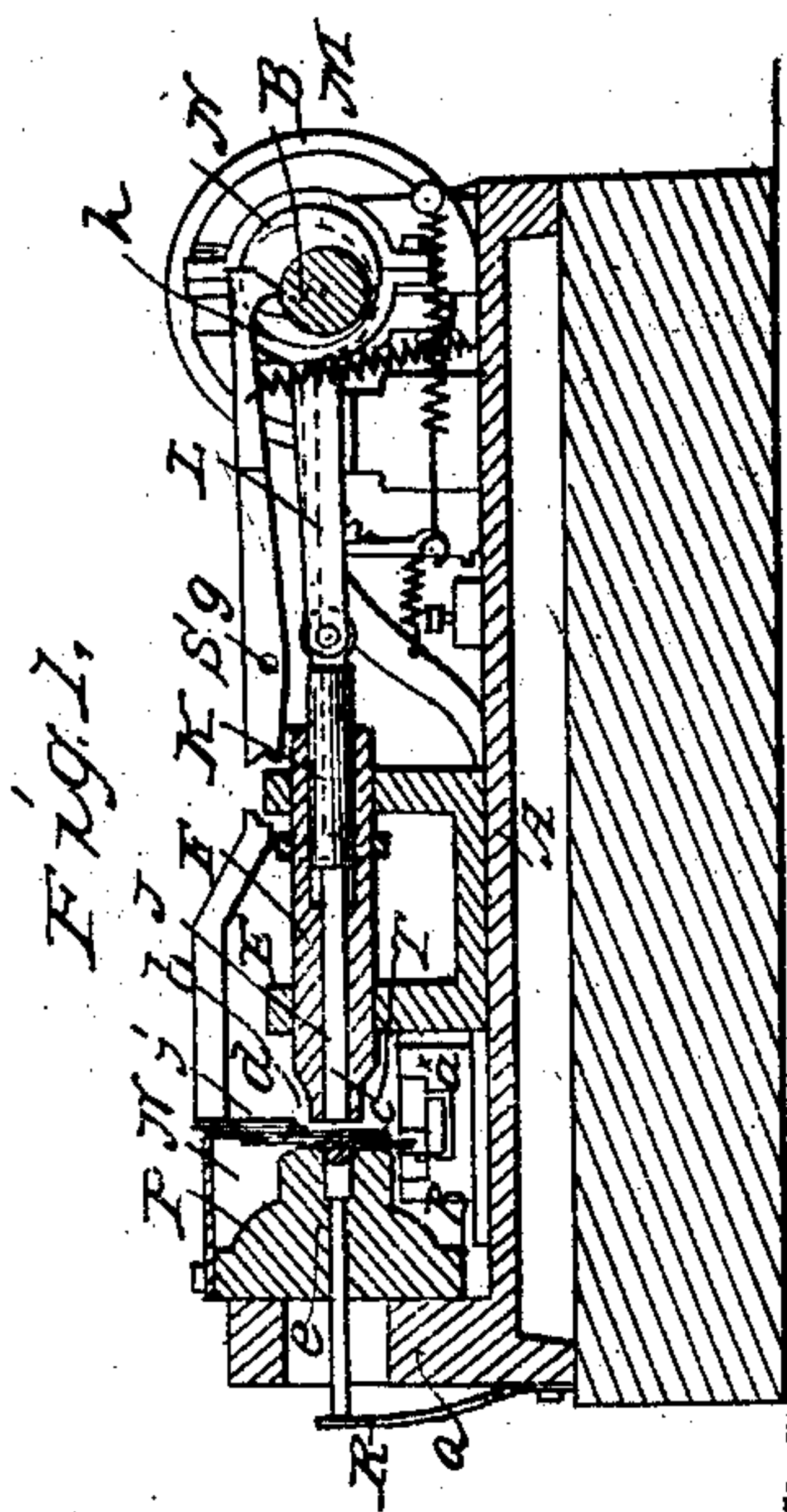
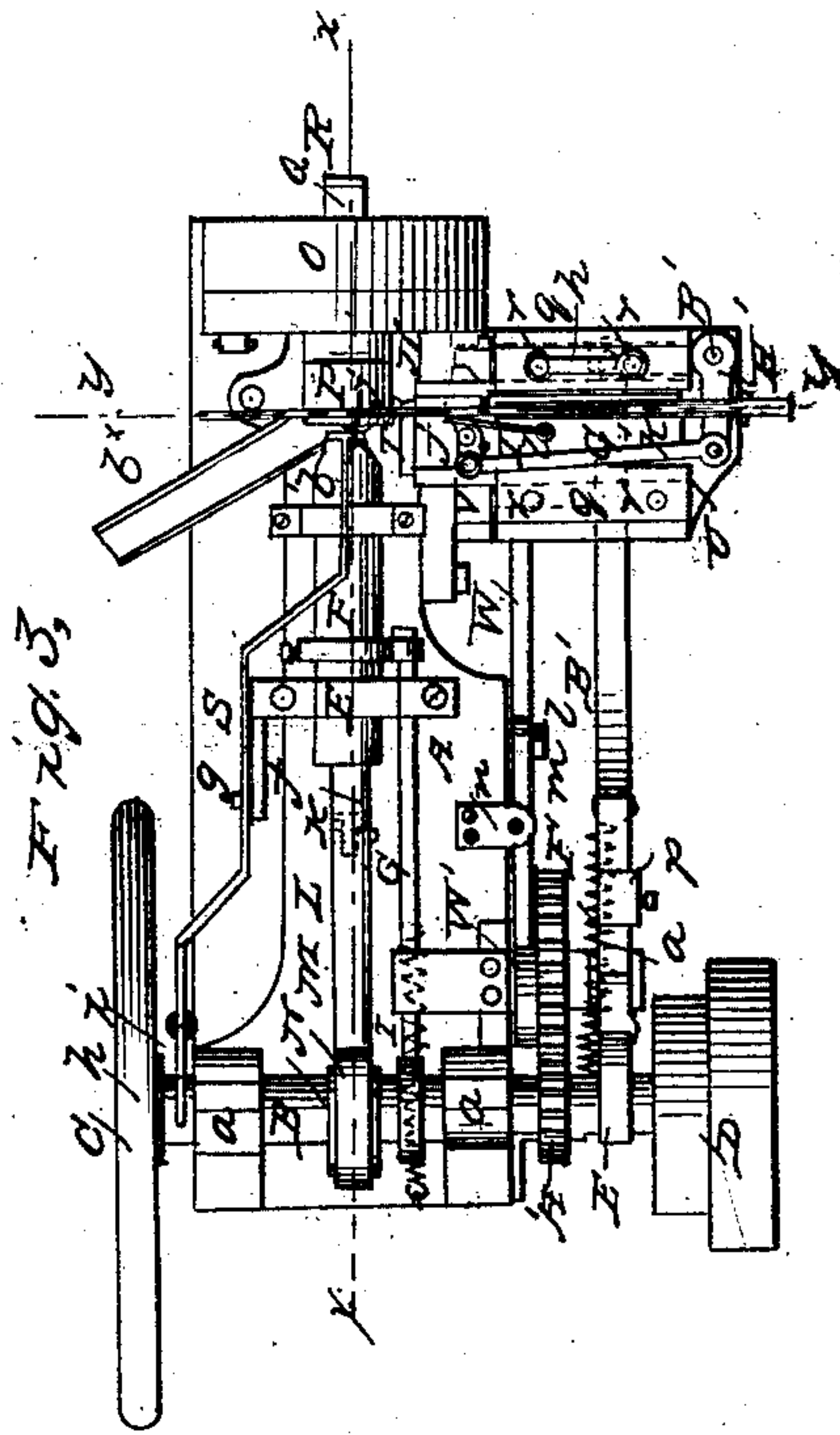
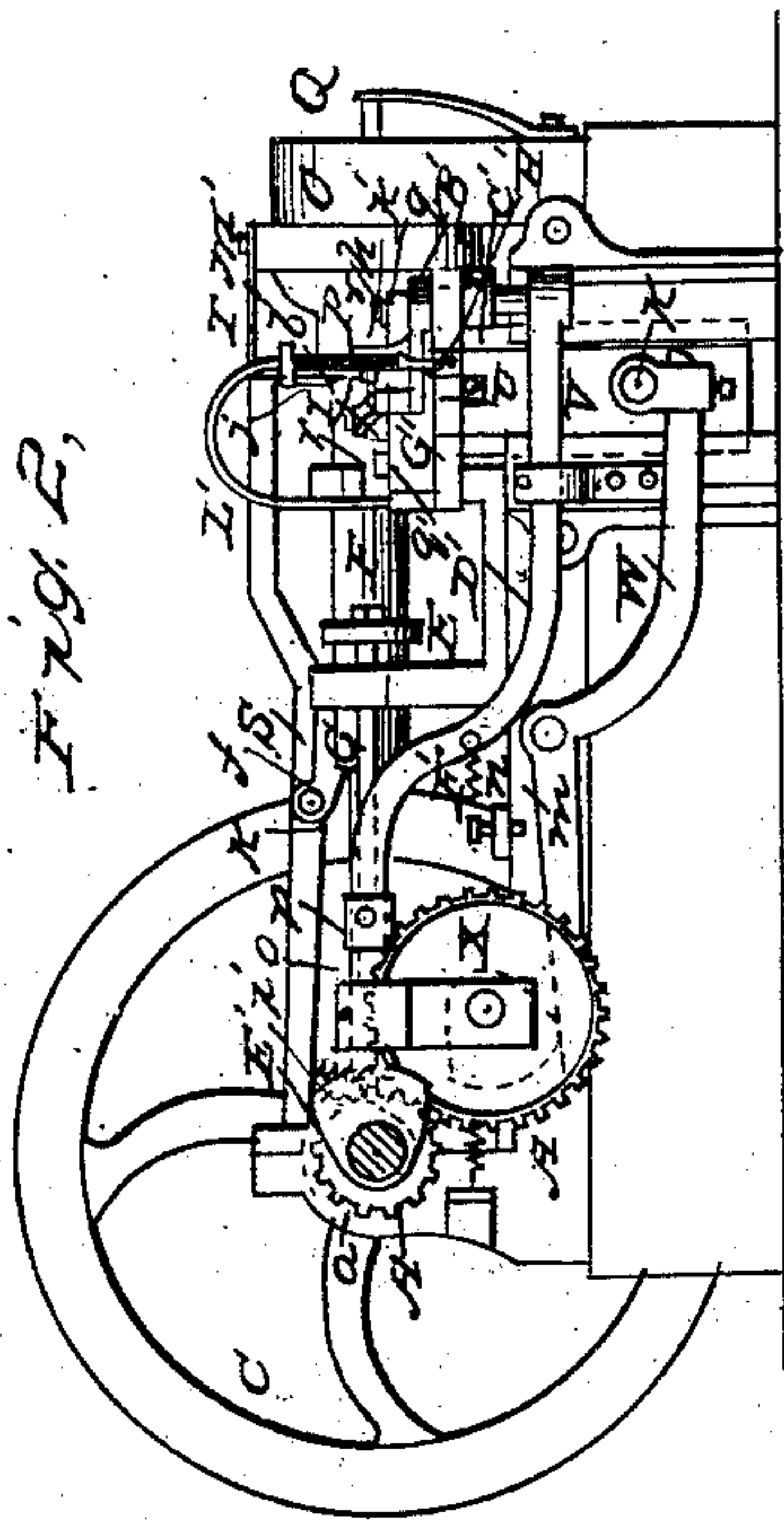


Z. WALSH.  
Capping Nails.

No. 18,372.

Patented Oct. 6, 1857.





# UNITED STATES PATENT OFFICE.

ZACHARIAH WALSH, OF NEWARK, NEW JERSEY, ASSIGNOR TO CORNELIUS WALSH, OF SAME PLACE.

## MACHINE FOR CUTTING METAL CAPS FOR NAIL-HEADS.

Specification of Letters Patent No. 18,372, dated October 6, 1857.

*To all whom it may concern:*

Be it known that I, ZACHARIAH WALSH, of Newark, in the county of Essex and State of New Jersey, have invented a new and improved device for cutting out and forming the sheet-metal caps or covers for the heads of nails, generally known as trunk-nails and mostly used in the manufacture thereof; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of my improvement taken in the line (*x*) (*x*), Fig. 3. Fig. 2, is a side view of the same. Fig. 3, is a top or plan view of the same. Fig. 4, is a transverse vertical section of the same taken in the line (*y*) (*y*), Fig. 3. Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the peculiar means employed for feeding or presenting the metal plates from which the caps or covers are cut and formed, to the dies.

The object of the invention is to economize in the greatest possible degree in the amount of stock used for the purpose and also to facilitate and expedite the operation of the machine so that the work may be done very expeditiously.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the bed plate of the machine, on one end of which a shaft B is placed transversely, said shaft being placed in proper bearing (*a*) (*a*) on the bed plate. A fly wheel C is attached to one end of the shaft and, driving pulleys D at the opposite end. On the bed plate A, a stationary head E is secured, and in this head E a hollow shaft or arbor F is fitted, said shaft or arbor being allowed to slide freely thereon, and having a rod G attached to it, the back end of which is made to bear against the face of a cam H on the shaft B by means of a spiral spring I. Within the shaft or arbor F a rod J is placed. This rod is attached to a plunger K within the shaft F, said plunger being connected to a rod L, which is attached to a strap M that encompasses an ec-

centric N on the shaft B. The front end of the shaft or arbor F is a circular die, as shown at (*b*), as also is the front end of the rod J, as shown at (*c*), the latter die having a curved surface.

O is a standard secured to the front end of the bed plate A and having a female die P attached thereto. The female die P receives the male die (*b*) and a rod Q is fitted within the die P, said rod having its inner end made of concave form corresponding inversely with the die (*c*), the concave end of the rod Q forming a female die (*d*) see Fig. 1. The rod Q is somewhat smaller in diameter at its outer than at its inner part so that a shoulder (*e*) is formed on it, the enlarged or inner portion being fitted and working within a suitable recess in the die P, the portion having the smaller diameter extending through the die P and standard O, and bearing against a spring R attached to the outer side of the standard.

S is a lever which is pivoted to an arm (*f*) which is attached to the head E, the pivot (*g*) serving as the fulcrum of said lever. The back end of this lever rests or bears upon the shaft B and is actuated by a tappet (*h*) on said shaft, the end of the lever being kept upon the shaft by means of a spiral spring (*i*). To the front end of the lever S a vertical plate (*j*) is attached which plate serves as a clearer as will be presently shown.

T is a guard plate which is attached to the upper part of the die P and is arranged in the usual way.

U represents a rectangular bed which is attached to the upper end of a slide V. This slide is fitted in a suitable guide attached to one side of the bedplate A at its front end. To the lower part of the slide V a pin (*k*) is attached, said pin bearing or resting upon the front end of a lever W which has its fulcrum at (*l*), the back end of said lever bearing in consequence of its own gravity against the under side of a cam W', on the shaft B. A set screw (*m*) which passes through a plate (*n*) on the bed A serves as a stop and regulates the throw of the lever W.

B' represents a vertical arbor that passes through the outer end of the bed U. This



shaft has an arm C', attached to its lower end, the outer end of the arm being connected with a sliding bar D' which is fitted in proper guides (o) (o). The back end of the bar D' is opposite a cam E' on the shaft B, said cam actuating the bar D'. A spiral spring F' is attached to the bar D' for the purpose of keeping the back end of said bar against the cam E' or as near to it as it is allowed to go. On the bar D' a slide (p) is placed. This slide may be secured on the bar at any desired point at the front side of the hindmost guide (o) and the throw of the bar D' may be regulated thereby.

G is a slide which is fitted in the bed U between guides (q) (q) which are secured on said bed by means of screws (r), said screws passing through the ends of springs (h) which are placed on the guides and bear upon them with a sufficient degree of pressure to cause the guides to bear upon the slide and still allow them to yield or give to a certain extent. In Fig. 3 one spring (h) is only shown, but there may be one each guide.

To the upper end of the arbor B' an arm H' is attached and this arm has one end of a bar I' pivoted to its outer end. The opposite end of this bar is pivoted to a small lever J', which is pivoted to the slide G', as shown at (s), see Fig. 3, the end of lever J' bearing against a spring plate (t) attached to slide G'.

To the bed U a grooved plate K' is attached. The lower edge of this plate is fitted in a groove in the slide G' so that the grooved plate will not interfere with the movement or working of said slide. A curved spring L' is attached to one side of the bed U, said spring having a grooved block M' attached to it.

The operation is as follows:—One edge of a flat metal plate shown in red and designated by N' is placed in the grooved plate K', the block M' bearing upon its upper edge and retaining it in proper position, the spring plate (t) bearing against the lower part of the plate at one side. Motion is given to the shaft B in any proper manner and a reciprocating motion is given the shaft or arbor F by means of the cam H and spring I, and a similar motion given the rod J by means of the eccentric N. The bar D' has a reciprocating movement given it by means of the cam E' and spring P' and the lever W has a vibratory movement given it by means of the cam W' and the gravity of the lever and slide V and bed U.

The cutting and forming device is quite a familiar one. The plate N as it is fed in front of the female die P is perforated by means of the male die (b) said die cutting a circular piece out of the plate. This

circular piece is forced into a circular recess in the die P and is then shaped by the die (c) which forces said plate into the female die (d) and converts it into a shell or dish-shaped cover or cap as shown in red, Figs. 1 and 4 and designated by (a\*). Upon the return motion or at the completion of each return motion of the dies (b) (c) the die (c) being forced back by spring R the cover or cap is discharged or thrown down by the plate or clearer (j) into an inclined spout or trough (b\*) by which they are conveyed into any proper receptacle.

The bed V has an up and down movement given it by the lever W, or, rather has an upward movement given it by said lever acted upon by the cam W'', the downward movement being given it by its own gravity as the prominent portion of the cam leaves the lever W. The slide G' has a reciprocating movement given it by means of the arms C', B', bar I', and the lever J' is made to force the spring plate (t) against the plate N', and the slide G' by means of this "bite" is, with the plate N' fed or moved toward the dies, and remains stationary at the termination of each forward movement until a cap or cover is cut from the plate N', and swaged into proper form. The slide G' then returns, the plate N', not being moved during the return movement of the slide as the spring plate (t) is not pressed against it. The movement of the slide G' and plate N' takes place when the bed U is at the termination of its upward movement and also when it is at its lowest point, consequently it will be seen that the plate N' has two rows of perforations made in it, one just below the other the perforations of the two rows being partially between each other as shown clearly in Fig. 4. By this means it will be seen that a saving of stock is not only effected but the work may also be done much more rapidly than if one continuous row of perforations were cut in a narrow plate, for by my improvement the plate N' only requires to be fed toward the dies just one half the distance that would otherwise be required at each operation of the dies, it being understood that no time is lost during the vertical movement of the bed as that movement takes place during the backward or return movement of the dies.

I do not claim separately the dies for cutting and forming the covers or caps for the nail heads for there is nothing essentially new in their construction, nor in their mode of operations; but

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

1. Feeding or presenting the plate N', to the dies substantially as shown or in any equivalent way so that said plate will be

moved vertically, between its longitudinal or lateral movements toward the dies, for the purpose specified, and this I claim whether used with the dies arranged as herein shown  
5 or otherwise.

2. The bed U slide G' and gripping lever J' operated as shown and constituting the

feeding device, in combination with the dies (b) P, (c) (d) arranged and operated substantially as described.

ZACHARIAH WALSH.

Witnesses:

STEPHEN R. MAINES,

THOMAS LAWSON.