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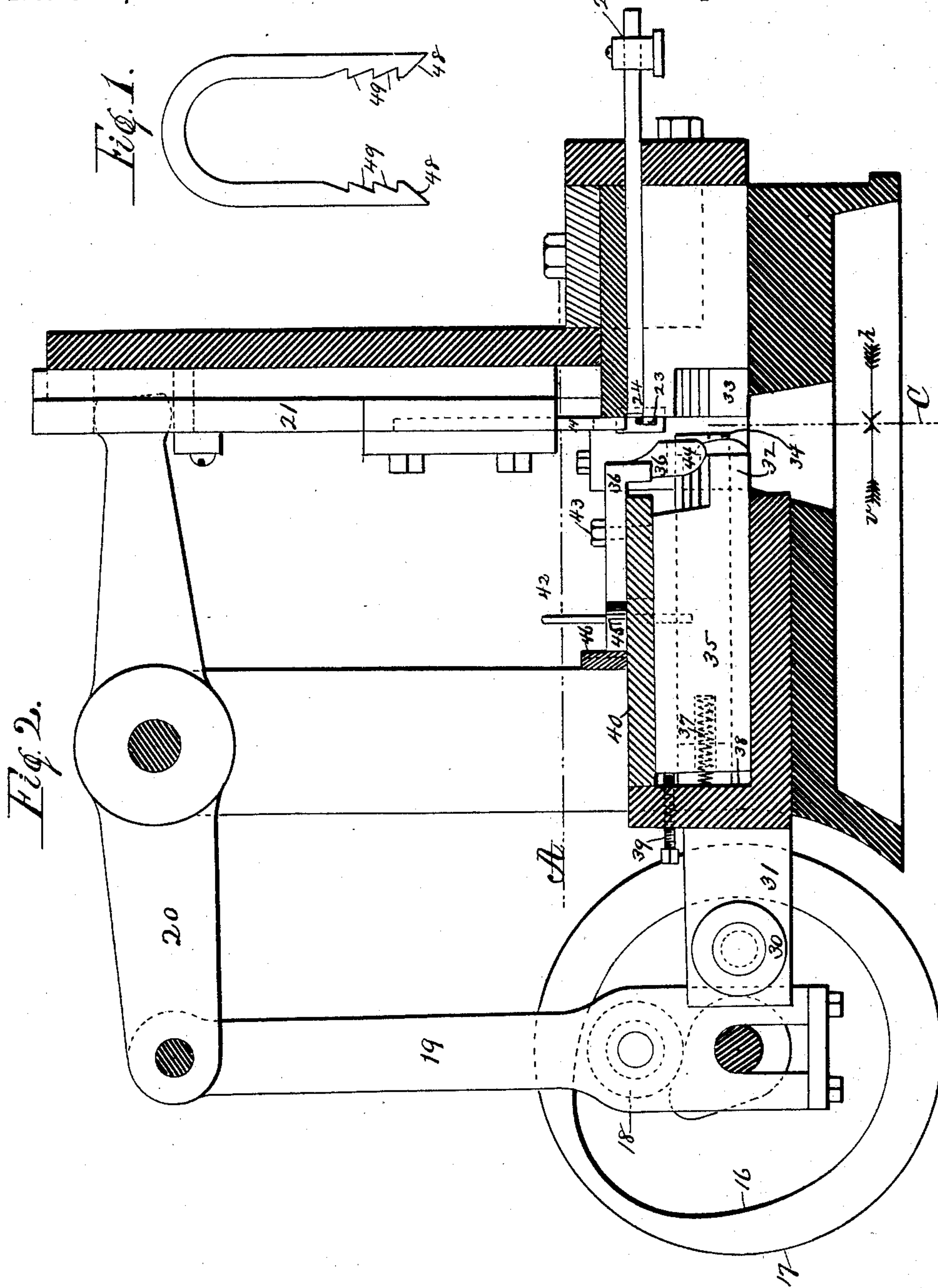
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J. ADT.

MACHINE FOR MAKING STAPLES.

No. 327,217.

Patented Sept. 29, 1885.



Witnesses:

*W. H. Simmons*  
*Allen M. Squire*

*John Adt*  
Inventor,  
By his Attorney,  
*John Thomson*

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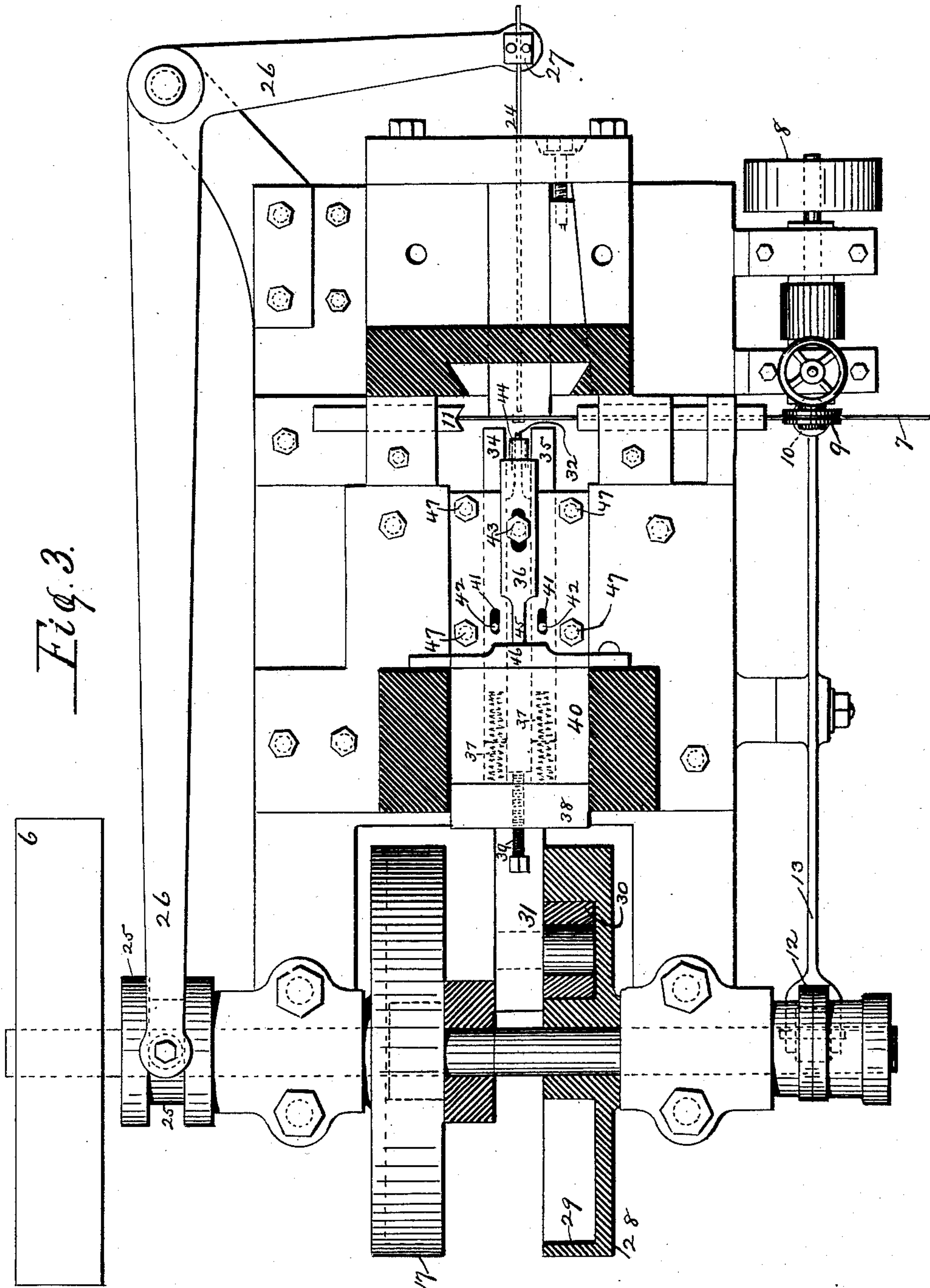
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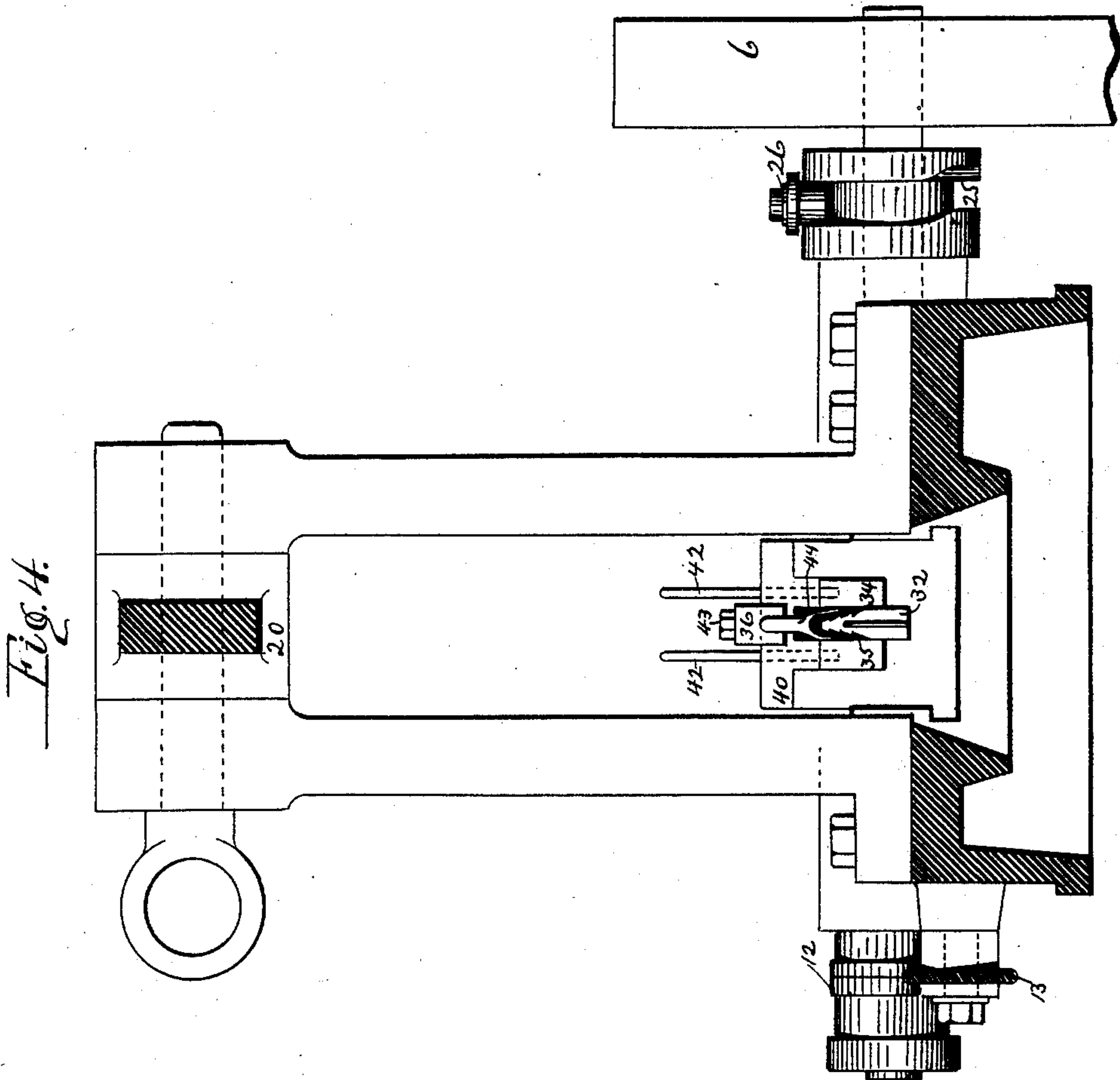
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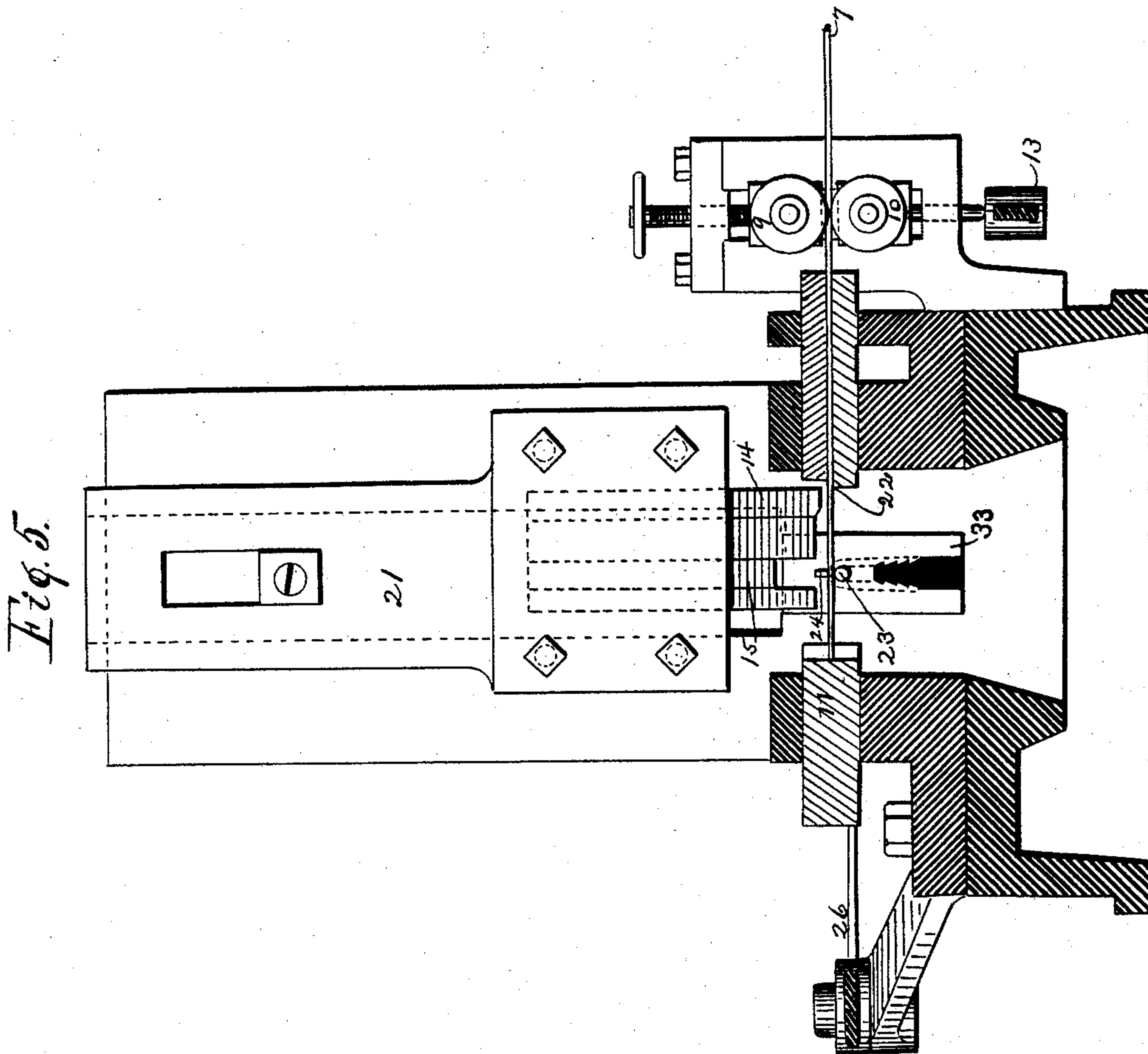
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# UNITED STATES PATENT OFFICE.

JOHN ADT, OF NEW HAVEN, CONNECTICUT.

## MACHINE FOR MAKING STAPLES.

SPECIFICATION forming part of Letters Patent No. 327,217, dated September 29, 1885.

Application filed December 5, 1884. (No model.) Patented in England March 25, 1885, No. 3,852.

*To all whom it may concern:*

Be it known that I, JOHN ADT, of the city and county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Staple-Machines, of which the following is a specification.

This invention refers to machines for making staples of that class in which the extension of the inside of each prong of the staple is beveled downward and outward to an edge, and also in having a series of barbs formed in the inside of the prongs above the said bevels.

The object of this invention is to produce the said staples rapidly and of uniform quality by the use of a style of machine generally known and understood by operatives in the art of staple-making. My invention refers specifically, therefore, to that portion of the mechanism necessary to form the bevels and barbs.

In the drawings, Figure 1 is a front elevation representing the form of staple to be made. Fig. 2 is a central longitudinal section of the machine for producing the staple. Fig. 3 is a top plan view with the standards broken away on line A. Fig. 4 is a transverse section on line C, viewed in the direction of arrow *h*; and Fig. 5 is also a transverse section on line C, viewed in the direction of arrow *v*.

The chief movements and arrangement of this machine, up to the point of forming the bevels and barbs, are substantially the same as those known to the art and used heretofore, and will therefore only require a condensed description of its action, the more clearly to distinguish the added elements of the present invention, which are more fully to be described and claimed.

Motion is primarily imparted to the machine by a belt operating upon the main driving-pulley 6. The wire 7, from which the staples are made, is fed by means of a separate belt driving the pulley 8, thereby imparting motion to the wire feed-rollers 9 10, seen in Figs. 3 and 5. The rotation of the feed-rolls are continuous; but their action upon the wire or rod is intermitting, being sufficient at each "feed" to just bring the end of the wire fully up to the stop-piece 11, at which instant the cam 12 acts upon the lever 13, which latter carries the lower roller, 10, and

thus relieves the wire from its grip during the time required for the succeeding operations.

The vertical cutting-off and shaping dies 14 15, respectively, are formed to act as one part, motion being imparted to them by the cam 16 of the cam-wheel 17 acting upon the friction-roller 18, to the pitman 19, through the transmitting-lever 20 to the slider-block and die-holder 21. The action of this die (Fig. 5) is first to cut the wire at 22, immediately following which the shaping-die forces the two ends downward, bending it around the stud 23 to the desired form. The staple thus formed is prevented from drawing back with the die by the projection of the reciprocating rod 24. In the ordinary machine the next action would be the withdrawal of the stud 23, thus permitting the staple to drop out of the machine, which result would be effected by means of the cam 25 acting upon the bell-crank 26, to the shorter arm of which the stud 23 would be attached, but to which, in this instance, the reciprocating rod is pivotally connected, as at 27. The special function of this machine, however—namely, forming the bevels and barbs of the staple 48 49, Fig. 1—takes place immediately after the withdrawal of the shaping-die and before the staple is dropped.

The action is as follows: Fixed upon the same shaft as the cam-wheel 17 is a similar wheel, 28, having a cam, 29, in which operates a friction-roller, 30, which connects the carriage 31. Attached to this carriage is the male die 32, which forms the bevels and barbs of the staple. The stationary female die 33 is suitably secured back of the staple, as shown in Figs. 2 and 5. Also comprised with the carriage are a pair of locking-blocks, 34 35, and a stripper, 36. Within the back extension of each locking-block is a spring—as 37—the thrust of said spring being exerted between the blocks and the solid portion, 38, of the carriage.

The die is capable of being adjusted back or forth by means of the screw 39.

The locking-blocks and the die are secured in their bearings by the face-plate 40, through the slots 41 of which project from each locking-block a pin, 42, whereby the action of the springs is limited.

The stripper 36 is secured to the face-plate



by a bolt, 43, passing through a slot in the main body of the stripper, which is otherwise guided by the forked portion 44, which embraces the cutting-portion of the die.

5 The cams in the wheels 17 28 are so formed and timed relatively in their action that the cam 29 begins to drive the carriage at the instant the forming-die will have been withdrawn from the staple. As the carriage is forced forward the first effect is to bring the faces of the locking-blocks, which project slightly beyond the face of the male die, as seen in Figs. 2 and 3, in contact with the face of the female die and on the outside of each prong of the staple. Thus the staple is locked against displacement sidewise. It is also locked against displacement upward and downward by the projection 24 and stud 23.

The continued forward movement of the carriage will now compress the springs in the locking-blocks and drive the die through the prongs of the staple; hence cutting the desired bevels and barbs to any angle or depth to which the die may be adapted. Upon the withdrawal of the die it will be seen that in consequence of the action of the springs upon the locking-blocks they will maintain their position against the face of the female die during a portion of the return-stroke of the carriage, or until the male die will have been fully withdrawn from the female die and the termini of the slots 41 reach the pins 42, when the complete device will be carried back as one part. Meantime, the staple will have clung to the male die very snugly, and will be carried back with the die until the extension of the stripper 45 impinges against the solid cross-piece 46, which thus arrests the further movement of the stripper with the carriage—the slot in the stripper allowing it to slide over the carriage—and thus forces the finished staple from off the die, whence it drops down and out of the machine. Just previous to and at this time the bell-crank 26 is caused to act and withdraws the projection of the rod 24, thus leaving a free space for the next feed of wire to take place, when the said rod will again be brought into position, as before.

It will be understood that that portion of the stripper which compasses the die approximates the form of the staple, as seen in Fig. 4.

In the practical working of the machine a

considerable advantage is obtained by the disposal of the parts, rendering them very accessible for repair or adjustment.

To remove either or both of the locking-blocks, or the die, or all, it is simply necessary to unscrew the bolts 47, when the face-plate, and with it the stripper, may be displaced, thereby fully exposing the locking-blocks and die free to be removed either for inspection or repair. This is especially valuable in the instance of the male die, which, in rapid and continued use, requires to be most frequently examined and sharpened.

I claim—

1. In a staple-machine, the combination, with means for first cutting off the blank and bending it to the usual form, of the following elements: A cam and a carriage operated thereby, a male die, a stripper embracing the die, and two locking-blocks—one on either side of the die—the forward face of said locking-blocks being caused to travel in advance of the face of the die, in which relative position they are maintained by springs, all being mounted upon and caused to act by the reciprocating movement of the carriage in the following order: first, bringing the faces of the locking-blocks up to the female die on the outside of the prongs of the staple; second, compressing the springs of the locking-blocks; third, forcing the die through the staple; fourth, withdrawing the die; and, fifth, stripping off the finished staple, substantially as specified.

2. In a staple-machine, the combination, with means for first cutting the blank and forming it to the desired shape, of the carriage, the die, the locking-blocks, springs for maintaining the said blocks in proper relative position, and the stripper, all mounted upon a carriage, and means, substantially such as described, for operating the said carriage and parts comprised therewith, for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN ADT.

Witnesses:

SAMUEL G. THORN,  
CLARENCE P. WILSON.