

(No Model.)

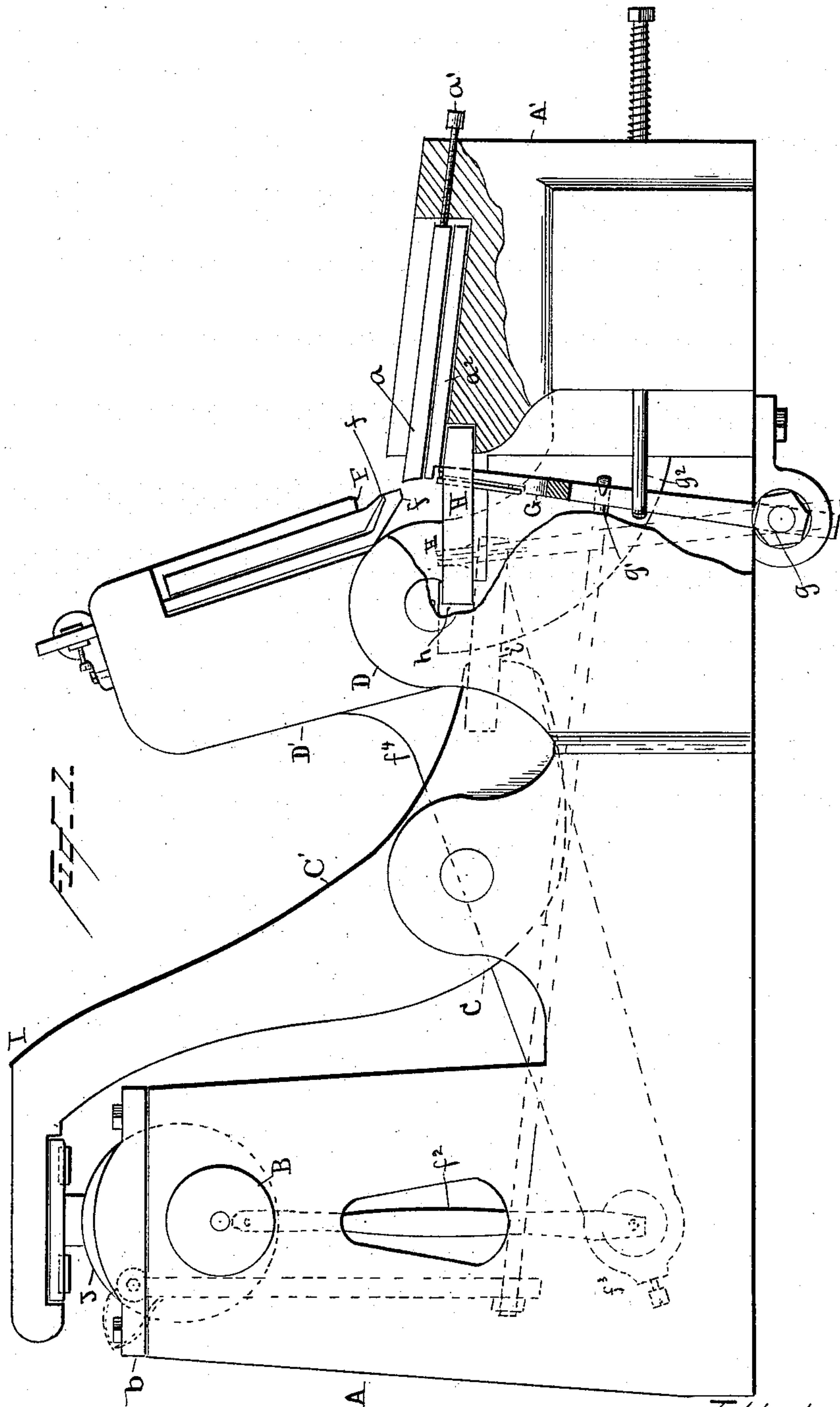
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W. G. MORGAN.

MACHINE FOR CUTTING AND FORMING STAPLES.

No. 375,375.

Patented Dec. 27, 1887.



WITNESSES

Louis A. Clark
S. Hunt

INVENTOR

William G. Morgan
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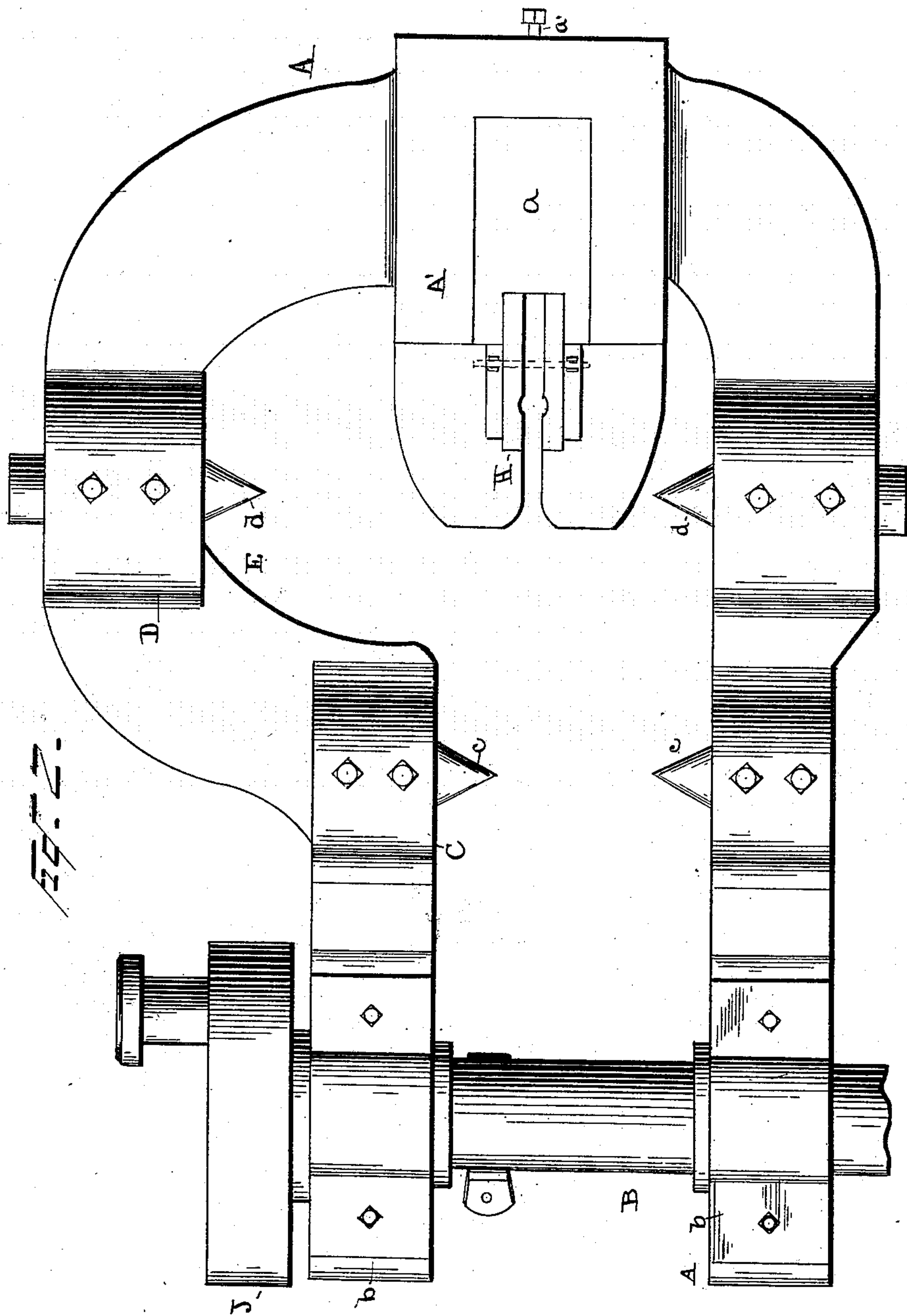
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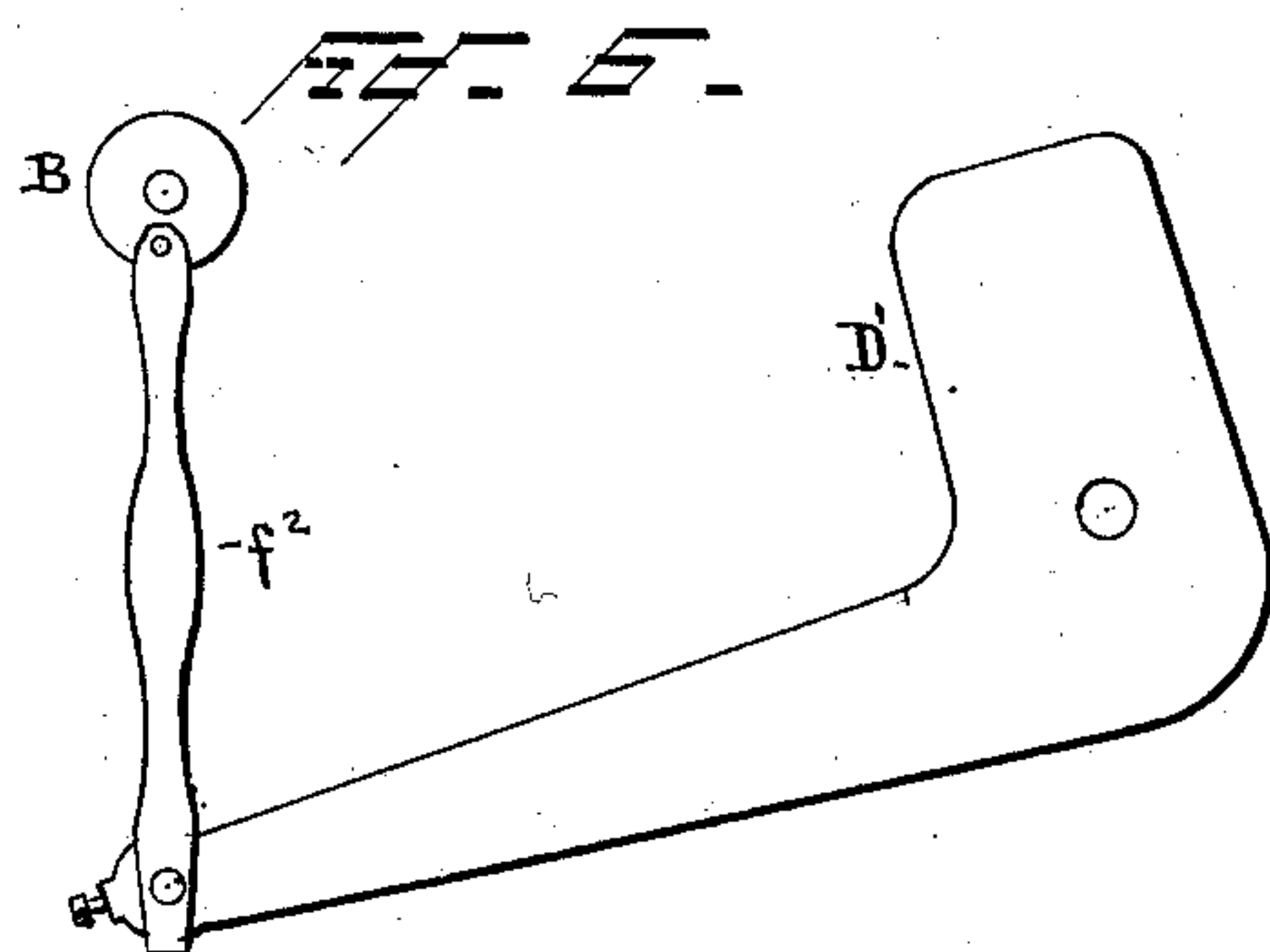
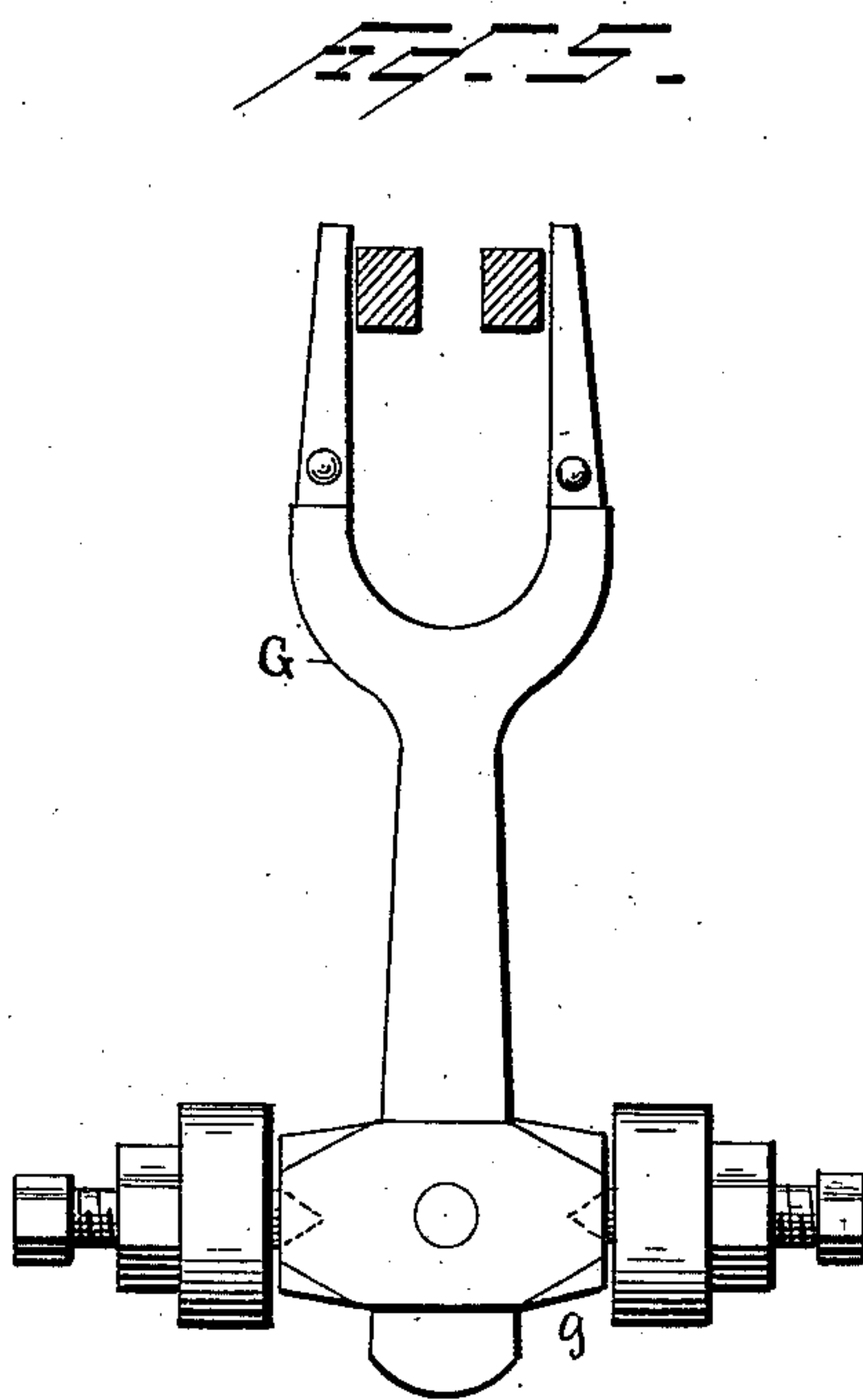
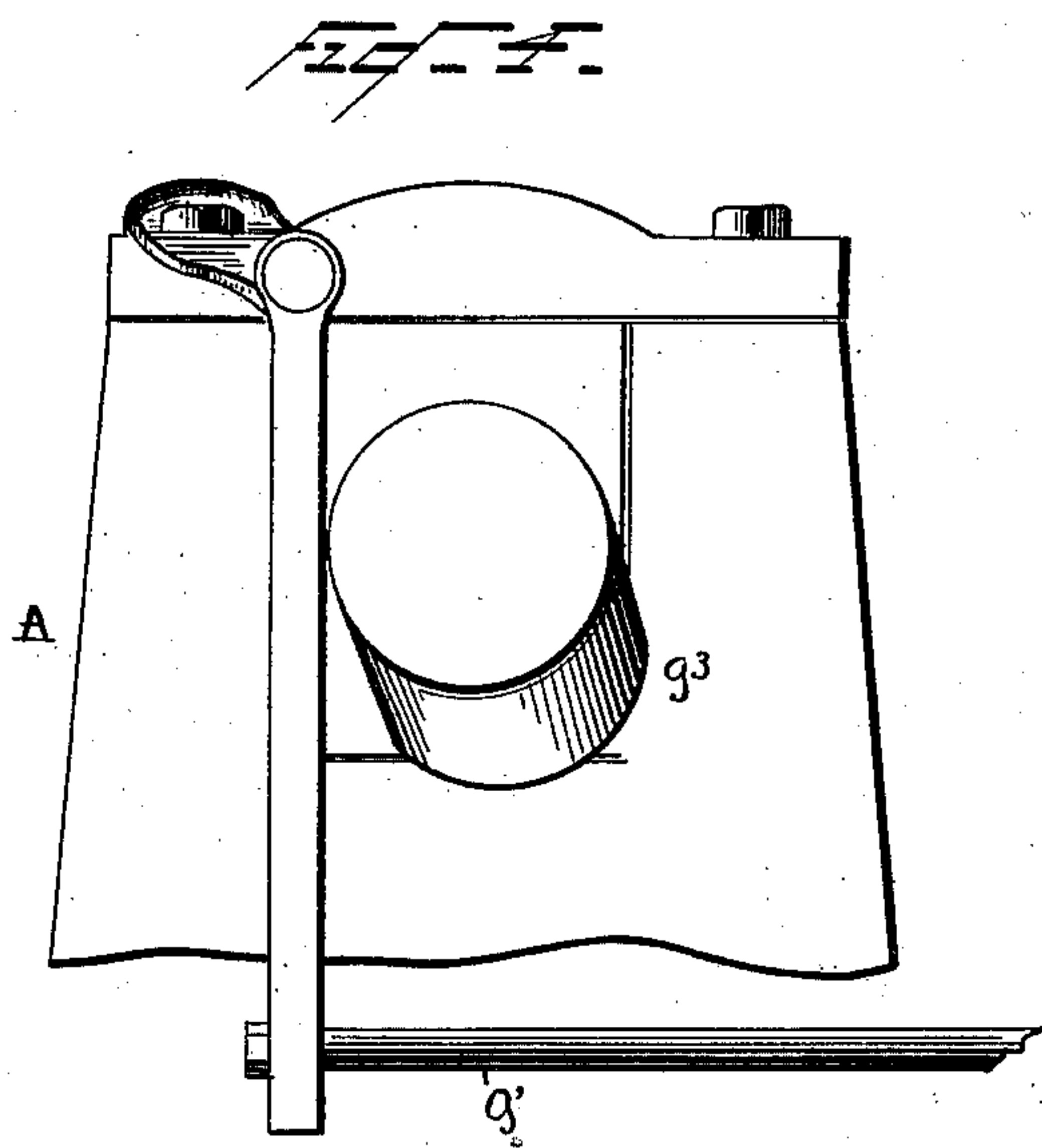
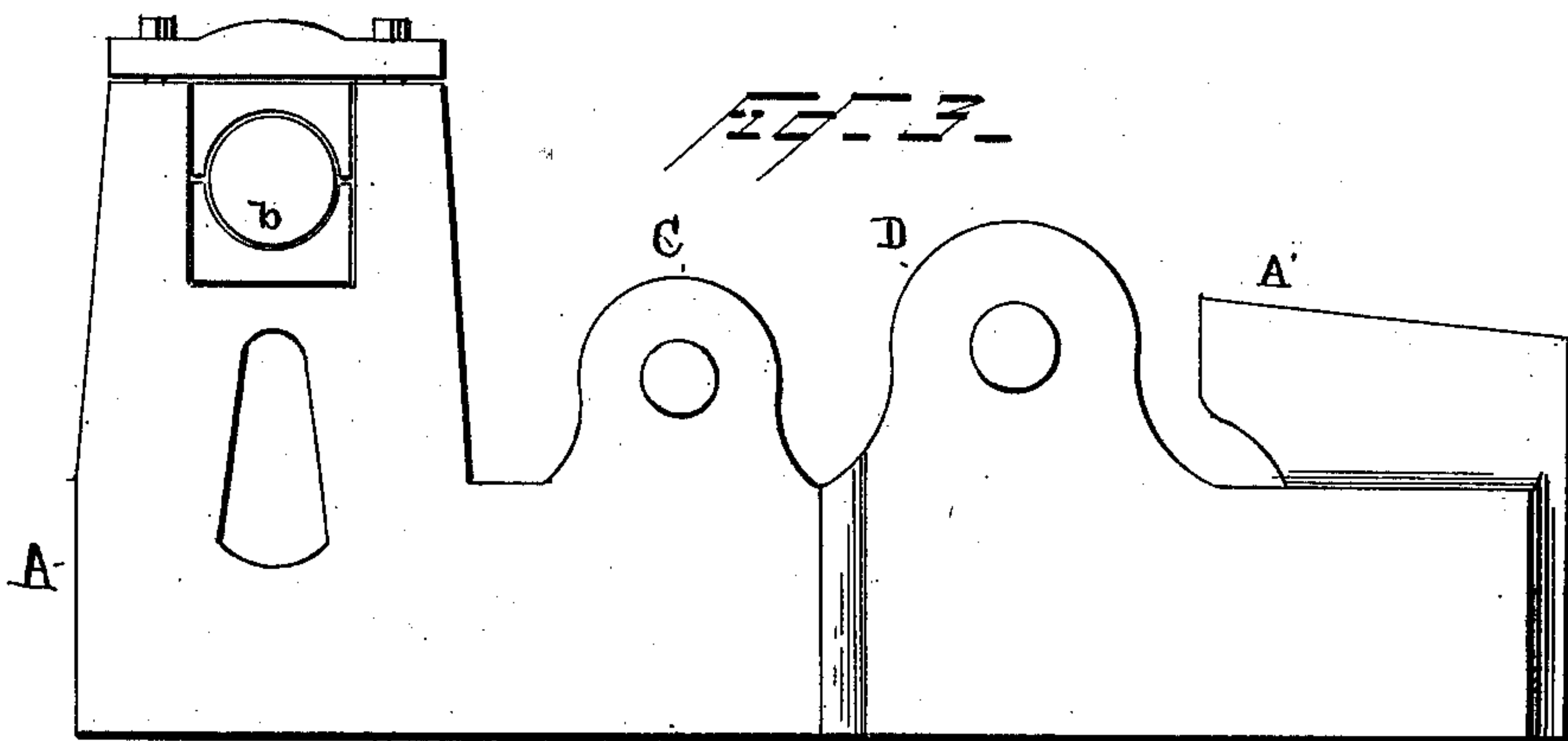
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UNITED STATES PATENT OFFICE.

WILLIAM G. MORGAN, OF SHARON, PENNSYLVANIA.

MACHINE FOR CUTTING AND FORMING STAPLES.

SPECIFICATION forming part of Letters Patent No. 375,375, dated December 27, 1887.

Application filed September 9, 1887. Serial No. 249,226. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. MORGAN, a citizen of the United States, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Forming Staples; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a machine for bending staples from metal blanks, such as those described in Patent No. 339,191, granted to John T. Jones, or of other kinds and shapes.

Generally speaking, the machine may be said to consist of a bed-frame upon which is pivoted a vertically-moving bending-lever, a pivoted jaw carrying a cutting-knife and adjustable gage, an adjustable plate over which the metal strip is fed, and a slotted anvil or die which receives the cut blank and co-operates with the bending-lever in forming the finished staple. The invention, however, will be fully hereinafter described and claimed, and is shown in the accompanying drawings, in which—

Figure 1 is a longitudinal section, partly in elevation. Fig. 2 is a top view with the cutting-jaw removed. Fig. 3 is a side view of the bed-frame. Fig. 4 shows the cam for operating the blank-carrier. Fig. 5 is a detail view of said carrier. Fig. 6 is a detail view of the cutting-jaw and the mechanism for operating it.

The letter A represents the bed-frame of the machine, which is of rectangular shape, substantially and strongly built, so as to firmly support the operative parts. At the rear end of the frame, by which is meant the end opposite that at which the metal is fed to the machine, are supported boxes *b* for the driving-shaft B, which extends transversely across the bed-frame.

C and D represent standards on the frame, in which are secured horizontal conical bearings *c* *d*, Fig. 2, on which are pivoted, respectively, the bending-lever C' and the cutting-jaw D'. One of the standards, D, forms a part of a horizontal side extension of the main frame, as shown at E, Fig. 2. The forward or feeding end of the main frame is formed into

a solid anvil, A', Fig. 1, which is slotted and otherwise constructed, as hereinafter described, to accommodate some of the working parts of the machine.

Having thus described the supporting-frame of the machine, I shall describe the operative parts in the order in which they are employed in carrying out the process of forming a complete staple, and shall premise by stating that such staples are formed from blanks cut transversely from a metal strip rolled to the proper cross-section and fed into the machine by hand or otherwise. The cross-section of this strip may be that of the blanks shown in the patent before referred to, or it may be beveled on both sides, if desired. The width of the strip is of course exactly the same as the length of the staple-blank. The end of the strip is introduced into the machine and held against a gage, *f*, adjustable in the pivoted cutting-jaw F, Fig. 1. The end of the strip then rests upon an adjustable bed-plate, *a*, fitted to a slat in the anvil A' and operated by a screw, *a'*, and the part of this bed-plate upon which the strip rests is formed so as to coincide with the shape of the bottom of the strip, so as to hold it firmly while it is being cut. For this reason the bed-plate is made removable, so that it may be slipped out of its slat and another of different shape substituted. The cutting-knife *f'* is also carried by the jaw F in close proximity to the gage *f*, and co-operates with the bed-plate *a* to cut off a staple-blank from the strip, which blank is complete, requiring only the operation of bending to form a finished staple.

The cutting-jaw F is pivoted upon the conical bearings *d*, and is operated from the driving-shaft by a pitman, *f*², connected to a boss, *f*³, and the extension *f*⁴ of the jaw.

G is a carrier, having a recess at the top to receive the blank just cut. It is pivoted to the main frame at *g*, and is operated by two rods, *g'* *g*², and a cam, *g*³, on the driving-shaft, Fig. 4. The construction of the carrier and the manner of pivoting it will be fully understood by reference to Fig. 5, where it is shown as a forked arm pivoted on coned bearings *g*. When the cut blank is pushed upon the carrier by the knife, the upper end of the carrier is pushed forward by the cam under a recessed plate, *a*², placed immediately below the bed-

plate *a*, where it is held until the cutting-jaw has risen. The continued movement of the cam then causes the rods *g' g''* to move the carrier back into the position shown in dotted lines, Fig. 1, when the blank will be held transversely over the slotted bending-die *H*, Figs. 1 and 5, such die being supported by a recess in the anvil *A'* and in a projecting standard, *h*, of the frame, and between the forks of the carrier. The blank is then in position for bending.

The bending-die is a plate, *i*, carried by the forward end of the bending-lever *L*. The lever is pivoted on the bearings *c* of the main frame, its rear portion extending up and back above the driving-shaft, upon which is secured the eccentric *J*, by which the lever is operated. The die proper, *i*, has a vertical movement in the slotted forming-die *H*, its effect being to force the staple-blank down through the slot and discharge it below, finished completely. The movement of the cam or eccentric *J* is so timed that the die *i* is brought down as the cutting-knife ascends, while the carrier is also operated in such time as to co-operate with both. Thus the successive steps in the process from the first introduction of the strip of metal are entirely automatic as well as continuous. What I claim is—

1. In a machine for forming staples, the combination of a cutting-jaw, a bending-lever, and a carrier which receives a staple-blank from the cutting-jaw and conveys it to a position in the path of the bending-lever, substantially as described.

2. The combination of the cutting-jaw, the bending-lever, the slotted forming-die, and the forked carrier, constructed and arranged substantially as described.

3. The combination, with the cutting-jaw, carrying the knife and gage, of the bed-plate *a*, the pivoted carrier, the slotted forming-die, and the pivoted bending-lever, substantially as described.

4. A machine for forming staples, consisting of the following elements: a bed-plate or anvil, a cutting-jaw for severing a complete staple-blank, a carrier for receiving said blank and conveying it into position for being bent, a forming-die, and a bending-die, all constructed and arranged to operate substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

WM. G. MORGAN.

Witnesses:

WM. S. ROBERTS,

WM. S. WILLIAMS.