

(No Model.)

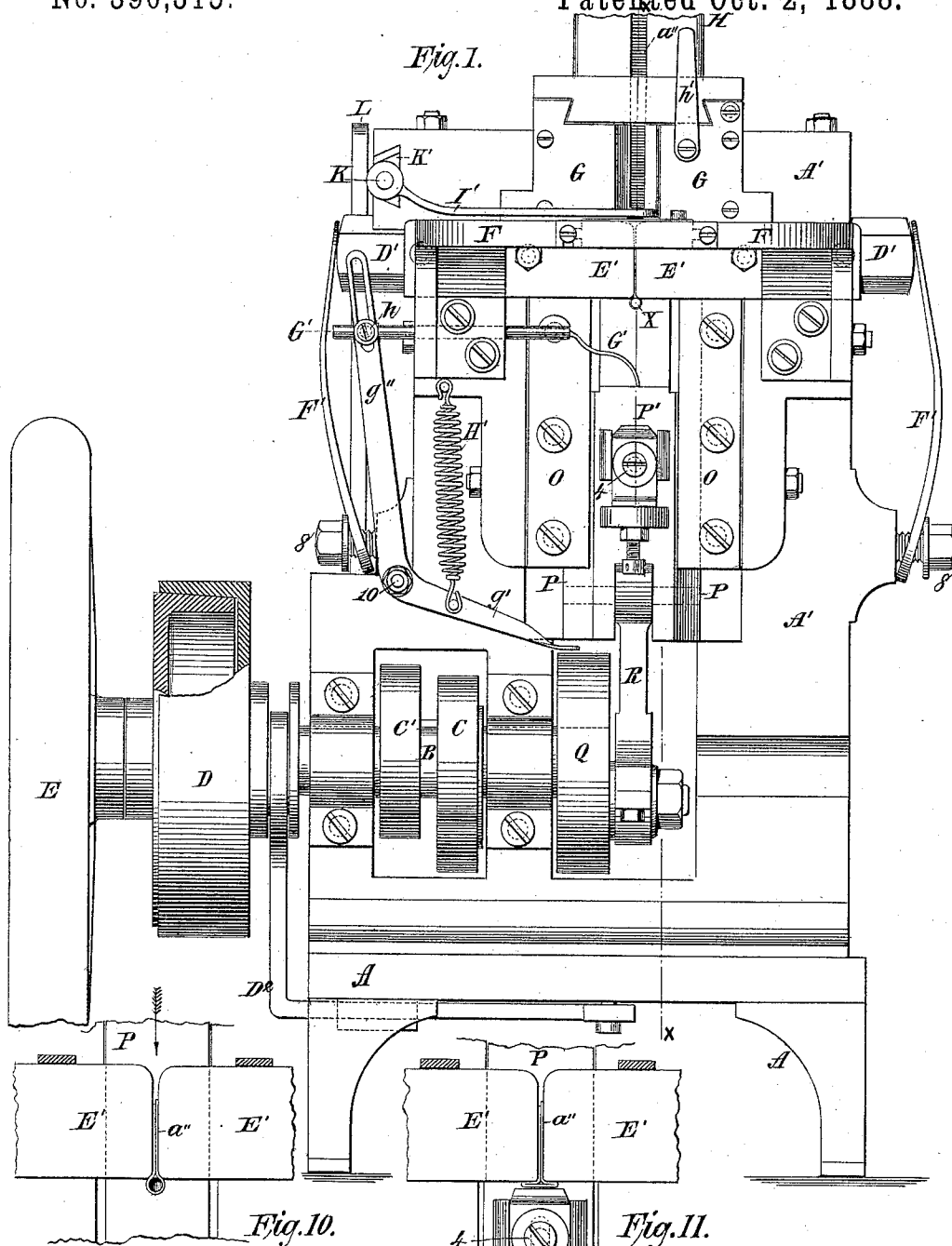
3 Sheets—Sheet 1.

R. J. SHIPLEY.

MACHINE FOR MAKING PAPER FASTENERS.

No. 390,315.

Patented Oct. 2, 1888.



WITNESSES:

Gustave Duteil
Robert Emmett

INVENTOR

Ralph J. Shipley

BY

James L. Norris

ATTORNEY

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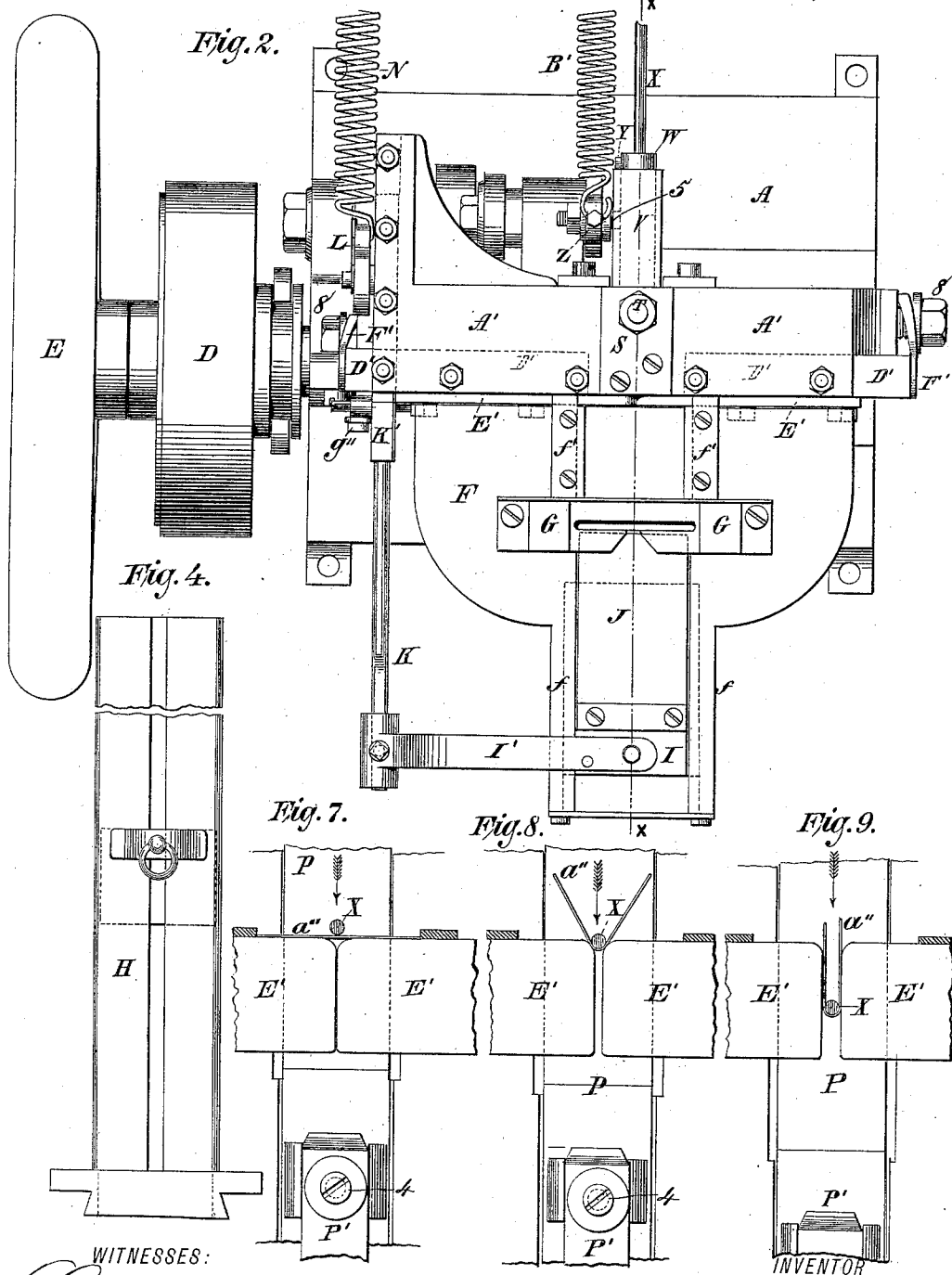
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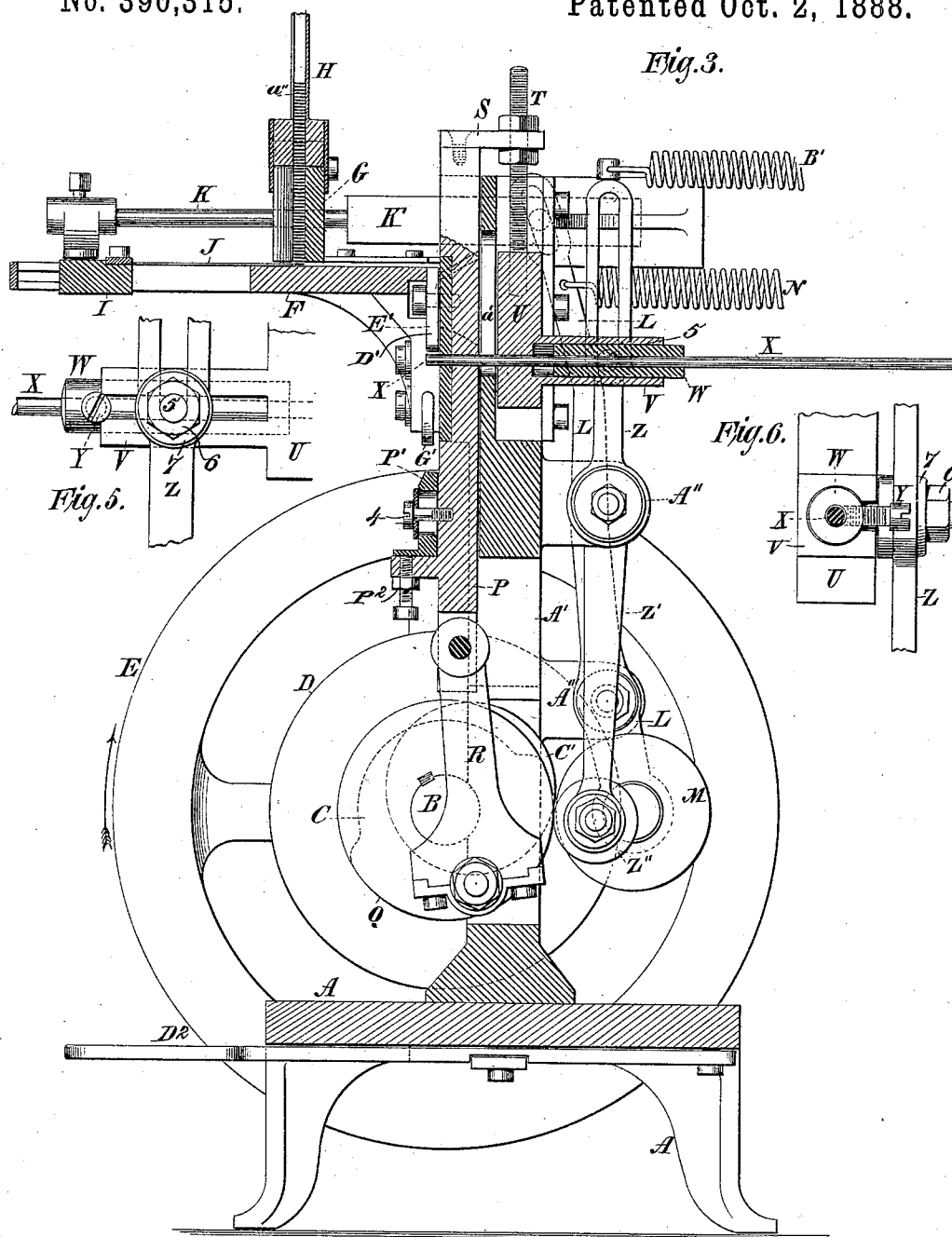
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UNITED STATES PATENT OFFICE.

RALPH J. SHIPLEY, OF WATERBURY, CONNECTICUT, ASSIGNOR TO GEORGE W. MCGILL, OF NEW YORK, N. Y.

MACHINE FOR MAKING PAPER-FASTENERS.

SPECIFICATION forming part of Letters Patent No. 390,315, dated October 2, 1888.

Application filed September 5, 1887. Serial No. 248,874. (No model.)

To all whom it may concern:

Be it known that I, RALPH J. SHIPLEY, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machines for Making Metallic Paper-Fasteners; and the following is declared to be a description of the same.

My present invention relates to a machine for bending and shaping a metal blank and forming therefrom a metallic paper-fastener. My improved machine is simple in construction and automatic and effective in its operations.

The metallic blanks are fed from a containing-sheath one at a time by a sliding feed-blade upon the top of yielding jaws. A pin working through a slide-head is brought to place above the blank and is pulled down upon said blank, bending the same into a V form. The further movement of the pin downward draws the blank in between the ends of the yielding jaws and bends the blank double, so that its prongs are parallel, or nearly so, and of a distance apart equal to the thickness of the pin. This pin and blank continue to move down between the yielding jaws, and as the pin passes below said jaws they close by the action of springs and bend the blank around the pin, forming a round head. This pin is then withdrawn and an ascending anvil strikes the round head and flattens it equally each side of a perpendicular line. During this latter operation the pin is raised and projected over another blank that has been meanwhile projected to place upon top of the yielding jaws. The downward movement of the pin in forming another blank opens the yielding jaws and releases the blank already made and it falls out.

In the drawings, Figure 1 represents an elevation of my machine. Fig. 2 is a plan view of the same. Fig. 3 is a vertical longitudinal section at *xx* of Figs. 1 and 2. Fig. 4 is an elevation of the receiver or sheath for holding the blanks. Figs. 5 and 6 are detail views in larger size of the pin and secondary head. Figs. 7, 8, 9, 10, and 11 are detail views showing the various stages of bending the blank.

A is the main base-frame of the machine, and A' its upright portion.

The shaft B for driving the mechanism is journaled in bearings upon the upright frame A', and said shaft carries the fly-wheel E, driving-clutch D, cams C C', and crank-wheel Q. The clutch D is connected and disconnected by the clutch-lever D'. A belt driven by suitable power is used upon the pulley of the clutch D to operate the machine. The connecting-rod R extends from the crank-wheel Q to a sliding head, P, in guide-slides O O in the frame A' to move the head up and down.

Upon the face of the sliding head P is an anvil, P', and this anvil is shown as resting upon a bracket, which is a part of the sliding head, and said anvil is held to the head P by a set-screw, 4, and is adjustable vertically by the set-screw P².

Upon the upper end of the sliding head P is a bracket-arm, S, and passing vertically through said bracket-arm is a screw, T, that is attached at its lower end to the secondary head U, which is free to slide in guides in the frame A, and the jam-nuts on such screw connect it by and to the bracket S and cause the head U to be moved in unison with the sliding head P.

Upon the back of the secondary head U is a socket, V, one side of which is slotted. (See Figs. 5 and 6.) Within the socket V is a pin-holder, W, and the pin X passes through this holder W and through the heads U and P, and the frame A is slotted at *a'* for this pin X. The screw Y passes through the holder W, and clamps the pin X in place; but said pin may be removed or fed forward as worn.

There is a pin, 5, secured to the holder W, and said pin passes through the slot in socket V and through the fork or slot of the lever Z, and there is a nut, 6, and washer 7 connecting the holder W and lever Z, the said pin 5 being free to move up and down in the forked or slotted end of the lever Z as the head P and secondary head U are raised and lowered. This lever Z Z' is pivoted at A² to a lug of the frame A', and the end of this lever has a roller or friction-wheel, Z'', which is acted on by the cam C, which imparts to said lever and the pin X a forward motion, the retractile spring B' imparting the return movement.

There is a bracketed table, F, secured to the frame A' at its upper part, and upon said table is the slotted dovetailed block G, into which is received the dovetailed end of the blank-holding sheath H, which is brought to this forming-machine from the filling-machine, and is full of metal blanks for making the paper-fasteners. An arm, h', Fig. 1, is employed to clamp and hold the sheath H in the block G. The forward end of the table F is made with guideways f f', in which works the slide-block I, and to the block I is connected the feed-blade J. This blade J is moved back and forth above the table F and below the block G and between the end guides, f' f', and said blade takes the bottom blank from the pile of blanks in the slotted block G and delivers it to the bending mechanism.

The slide-block I has an arm, I', connecting it to the rod K and carriage K', and there is a lever, L, whose slotted upper end is connected by a pin to the carriage K', and said lever L is pivoted at A³ to a lug upon the frame A', and the end of the lever L carries a friction-roller, M, which is acted upon by a cam, C', upon the driving-shaft B, to impart to the carriage K', rod K, arm I, and pushing-blade J a forward movement, a spring, N, retracting the lever L to deliver the blanks.

There are sliding stocks D' D' in the frame A', and connected to them are the jaws E' E', which, with the stocks, can be moved horizontally. The spring-arms F' F' are connected at their lower ends by bolts S to the sides of the upright frame A', and the upper ends of said springs bear against the outer ends of the stocks D' D' and act to press them and the jaws E' toward each other, and tend to keep the jaws closed, but allow them to be pressed apart.

Upon a pivot at 10 is the bent lever g' g'', and connected to it and to the frame A' is the helical spring H'. The upper end of this bent lever is slotted, and connected to it by the pivot-pin h is the clearer G'. This clearer G' passes through one bracket of the table F, and its bent end projects over the anvil P'. This clearer and bent lever are operated by the slide-head P, the foot-piece of g' passing under the lower side of said slide-head P, so that the descent of the slide-head moves the clearer G' forward, while its ascent allows the spring H' to force the lever backward and move the clearer out of the way.

The operation of the machine in forming a paper-fastener from the blank is as follows: The metal blanks a² from the sheath H and slotted block G are removed one at a time and delivered by the feed-blade J between the end guides, f' f', upon the upper edge of the jaws E' E' and beneath the pin X. The descent of the slide-head P brings down the projecting pin X, as seen in Fig. 7, and said pin pressing the blank bends it into a V shape, as shown in Fig. 8. The further movement of the pin X as it acts on the rounding corner of the

jaws opens them and bends the blank, as seen in Fig. 9, and the pin and bent blank descend between the jaws, and as the pin X passes below the jaws they close upon the blank, bending it around the pin and bringing its arms together hold it in place, as seen in Figs. 1 and 10. The further movement of the mechanism now withdraws the pin X, leaving the blank held by the jaws E', and the slide-head P is raised, and the anvil connected thereto is brought to bear upon the open round head of the blank and flattens the same into the form shown in Fig. 11, and at the same time the pin X has been raised with the heads and is projected by the lever Z Z', and by this time another metal blank has been pushed upon the upper edges of the jaws E' by the feed-blade J, and the parts are again in the position shown in Fig. 7, ready, by the descent of the pin X, to form another fastener, which operation opens the jaws E' and releases the first-made fastener, so that it is free to fall into a receptacle provided for the purpose.

In case the fasteners so formed should not fall away when released, but should stick upon the anvil P', the clearer G', moving across the face of the anvil, acts to remove the fastener and cause it to fall into the receptacle provided for that purpose.

I claim as my invention—

1. The combination of a sliding feed-blade, a pin, and a pair of carrying-jaws for bending and shaping a fastener-blank, and an anvil for flattening the head of the blank, substantially as described.

2. The combination of the feed-blade J, slide-block I, arm I', rod K, carriage K', and mechanism, substantially as described, for operating the same, substantially as set forth.

3. The combination, with the frame A', of the table F, the slotted dovetailed block G, the sheath H for containing metal blanks, and the pivoted arm h' to hold the sheath in position, substantially as described.

4. The combination of the slide-head P, the secondary head U, a bracket-arm, and screw and jam-nuts for connecting said parts, the socket V upon the head U, the reciprocating pin-holder W, pin X, a clamping-screw, Y, and means, substantially as described, for operating the parts, substantially as set forth.

5. The combination of the sliding yielding stocks D' D' and carrying-jaws E' E', connected therewith, and the springs F' F', with the slide-head P, secondary head U, reciprocating pin X, anvil P', and mechanism, substantially as described, for operating the parts, substantially as set forth.

6. The combination, with the reciprocating slide-head P, of the bent lever g' g'', clearer-arm G', pivot h, and spring for insuring the removal of the fasteners, substantially as described.

7. The combination, with the slide-head P, secondary head U, and pin X, of the slotted socket V, the pin-holder W, clamping-screw

Y, the pin 5, nut 6, washer 7, slotted lever Z, and mechanism, substantially as described, for operating the parts.

5 8. The combination, in a machine for making paper-fasteners, of a reciprocating feed-blade, reciprocating jaws, and pin for folding the blank upon itself and leaving an open head at the folding-line, and an anvil for flattening the said open head against the jaws, 10 substantially as described.

9. The combination, in a machine for making paper-fasteners, of a reciprocating feed-blade, a movable pin, jaws for folding the blank upon the pin to leave an open head at 15 the folding-line, mechanism for withdrawing the pin from the folded blank, and means for flattening the said head of the blank, substantially as described.

10. The combination, in a machine for making paper-fasteners, of a feed-table, a holder 20 on the table for containing the blanks, a re-

ciprocating feed-blade for successively discharging the blanks from the holder, carrying-jaws, and a pin for receiving the blank and bending it upon itself to leave an open head 25 along the folding-line, an anvil for flattening the said head, and a reciprocating clearer for removing the fastener from the anvil, substantially as described.

11. The combination, in a machine for making paper-fasteners, of reciprocating jaws, a 30 moving pin around which the fastener-blank is folded, an anvil for flattening the fastener-head, and mechanism for operating the parts, substantially as described.

Signed by me this 31st day of August, A. D. 35 1887.

RALPH J. SHIPLEY.

Witnesses:

CLIFFORD J. HACKETT,
HERBERT H. WALKER.