(No Model.) 2 Sheets—Sheet 1.

R. J. SHIPLEY.

MACHINE FOR MAKING PAPER FASTENERS.

No. 418,535. Patented Dec. 31, 1889.

Fig. 2.

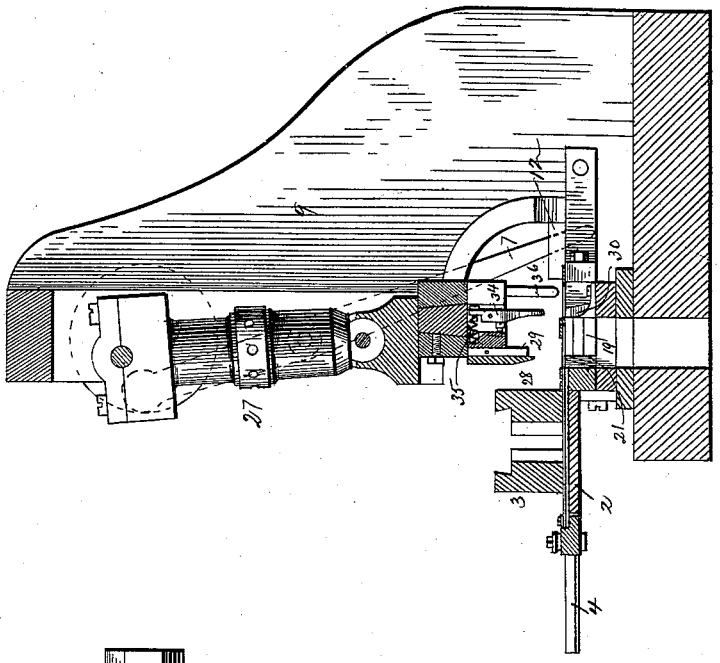
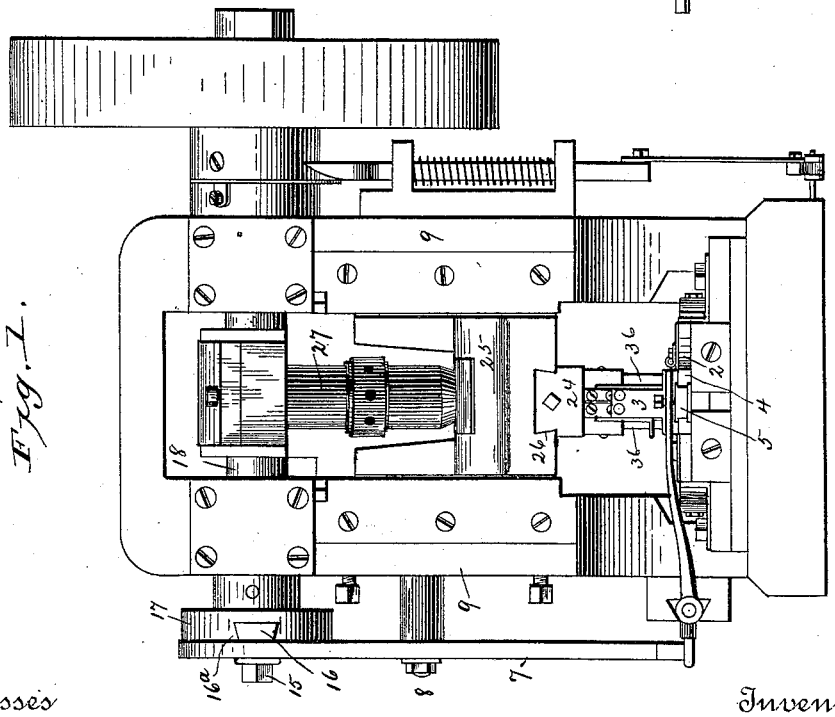


Fig. 1.



Witnesses
E. D. Smith
A. H. Norris.

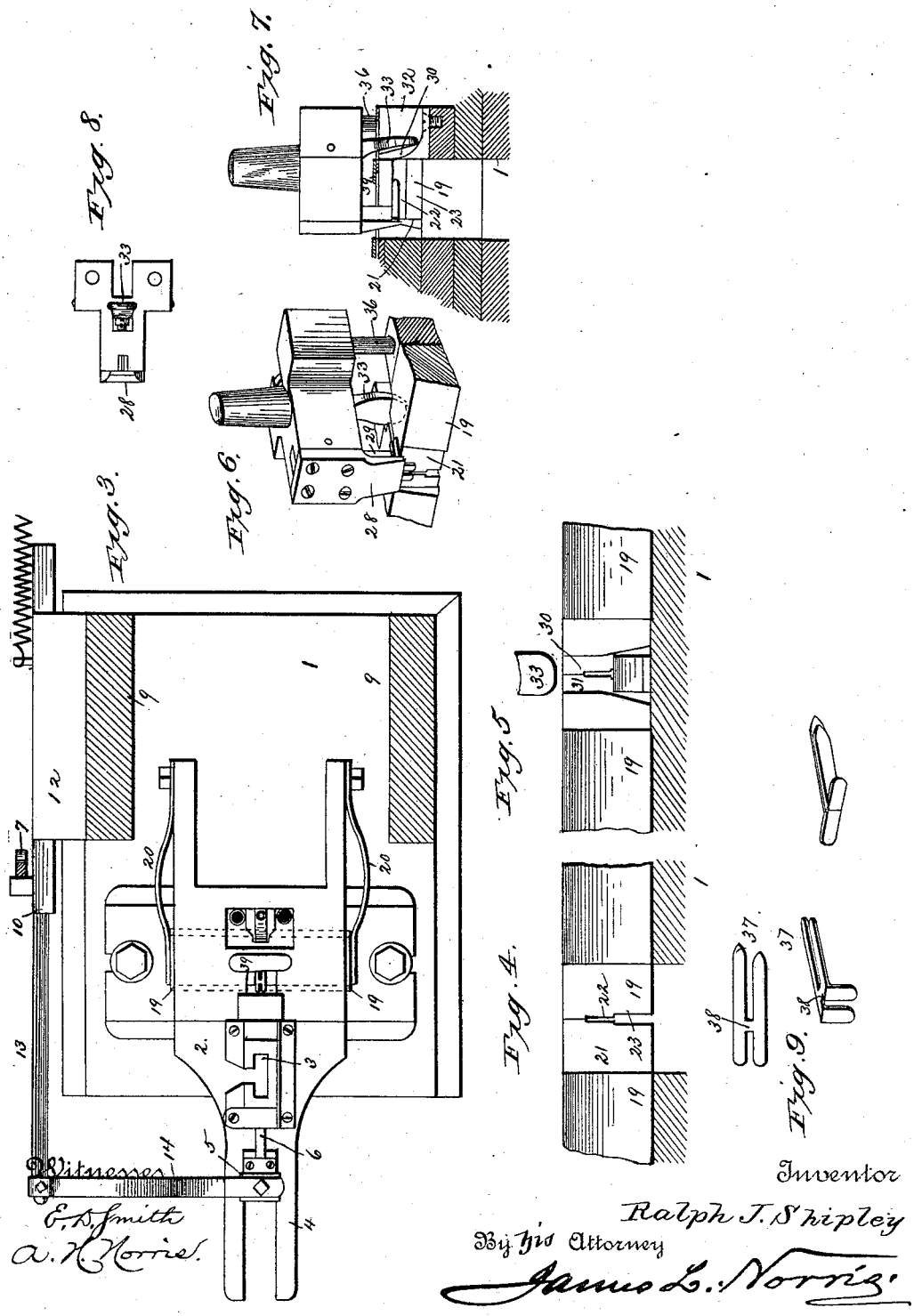
Inventor
Ralph J. Shipley
By his Attorney
James L. Norris.

(No Model.) 2 Sheets—Sheet 2.

R. J. SHIPLEY.

MACHINE FOR MAKING PAPER FASTENERS.

No. 418,535. Patented Dec. 31, 1889.



UNITED STATES PATENT OFFICE.

RALPH J. SHIPLEY, OF WATERBURY, CONNECTICUT, ASSIGNOR TO GEORGE W. McGILL, OF RIVERDALE, NEW YORK.

MACHINE FOR MAKING PAPER-FASTENERS.

SPECIFICATION forming part of Letters Patent No. 418,535, dated December 31, 1889.

Application filed October 22, 1889. Serial No. 327,814. (No model.)

To all whom it may concern:

Be it known that I, RALPH J. SHIPLEY, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Machines for Manufacturing H Paper-Fasteners, of which the following is a specification.

My present invention relates to mechanism for manufacturing that class of paper-fasteners commonly known as "McGill's H fasteners."

It is the purpose of said invention to provide wholly automatic means whereby fasteners of this kind may be rapidly and perfectly formed, the blank being bent and folded and the fastener completed by a single action of the die.

The invention consists to these ends in the novel parts and combinations of parts hereinafter set forth and then pointed out in the claims, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine embodying the invention. Fig. 2 is a central vertical section. Fig. 3 is a plan view of the parts immediately below the upper die. Fig. 4 is a detail front elevation of the jaws of the lower die. Fig. 5 is a rear elevation of the same. Fig. 6 is a perspective of the upper and lower dies in action. Fig. 7 is a central vertical section of the same. Fig. 8 is an inverted plan view of the upper die. Fig. 9 is a view showing the blank and the two successive steps in the process of manufacture.

In the drawings, the reference-numeral 1 denotes the base-plate of the machine, upon which is mounted the lower dies, which will be described hereinafter. Upon the die-supports is attached a plate 2, carrying the hopper 3, in which the blanks are received from a cob in the usual manner.

Upon the plate 2 are formed parallel arms 4, between which is mounted a slide 5, which carries the feed-slide 6, which is a narrow strip of metal reciprocating through the bottom of the hopper. This slide is reciprocated by a lever 7, fulcrumed upon a stud 8 upon a standard 9 rising from the bed-plate. The lower end of this lever engages a slide-bar 10 moving in a dovetailed slot in a lateral block 12, and having a bar 13 attached, from which a bar 14 extends to and is connected with the slide 5. The upper end of the lever is connected to an adjustable wrist-pin 15, carried by a support 16, movable in a slot 16^a in a disk 17, the latter being carried by a shaft 18 journaled in the standards 9.

Immediately in front of the feed table and hopper are the lower dies. They consist of two similar laterally-sliding steel blocks 19, moving in ways in the die-support and pressed toward each other by strong springs 20. The upper surface of these dies, when the latter are in normal position, is perfectly flush and smooth, and the front vertical face 21 of the same is at a right angle with the surface. In the adjacent faces of said dies, at a little distance below their surface, is formed a channel 22, having the thickness of the completed fastener, and below said channel a wider opener 23 is formed, for a purpose presently to be shown.

The upper die-support 24 moves in vertical ways formed in the standards 9, and is connected with a head 25, provided with dovetailed ways 26, running from front to rear. The head 25 is joined to a pitman 27, operated by an eccentric on the shaft 18.

Upon the die block or support 24 is mounted a steel bending-die 28, the lower end of which lies very nearly upon and perfectly parallel with the vertical face 21 of the lower die. Upon the rear face of this plate is mounted a thin and narrow strip of steel 29, the lower end of which lies a little above the end of the bending-plate. This strip is arranged at right angles with the surface upon which it is mounted and is directly in line with the cut dividing the two lower jaws.

Upon the rear of the divided jaws 19 is formed a shallow pocket 30, the front wall 31 of which is curved downward and rearward, as shown in Fig. 6. In rear of said jaws 19, lying against their rear faces and forming part of the way in which said jaws slide laterally, are rigid blocks 32, separated by a recess into which the pocket 30 opens.

Depending from the upper die-support 24 is a spreading piece or plate 33, pivoted in a recess 34 of the die-block, and normally held

by a spring 35 in such position that as the die-block descends the spreader will enter the pocket 30 and slightly separate the jaws 19. The die-block 24 is guided by pins 36, which move in openings in the rigid blocks 32.

The blanks 37 (shown in Fig. 9) are fed successively upon the lower dies 19, their parallel strips lying upon opposite sides of the dividing-line between the dies. They are pushed forward by the feed-plate until the narrow connecting strip or septum 38 of the blank lies upon the dies 19, across the line of division, leaving the parts forming the head of the fastener projecting from the front of the dies. In this position the points of the prongs lie under a sheath-plate 39, by which they are confined. The die-block 24 now descends and the bending plate or die 28 impinges upon the projecting ends of the blank and bends them down against the vertical face 21 of the dies 19. At the same moment the spreader 33 enters the pocket 30 and slightly separates the dies, and the folding-piece 29 descends upon the strip 38, whereby the blank is folded into the form shown in Fig. 9. As the die-block 24 descends still farther, the spreader rides upon the curved wall 31, whereby the spreader is turned upon its pivot and drawn out of the pocket 30, permitting the dies 19 to approach each other under the action of their springs 20. At the same time the downward passage of the folding-piece 29 carries the folded blank into the channel 22, and the dies closing at the same time and the die-block 24 being raised, the folding piece 29 is withdrawn, leaving the blank in said channel 22. As the die-block rises high enough to clear this piece from the dies 19, the latter close tightly, compressing the folded blank, bringing the prongs close together and completing the fastener, which remains in the channel 22 until the formation of the ensuing blank, when it drops into a receptacle below.

What I claim is—

1. In mechanism for forming H fasteners, the combination, with separable dies, upon which the blank is fed, of a die-block carrying a bending-plate turning the heads at right angles to the body, a folding-piece, folding the prongs back to back, and a spreader separating the dies to enable the folder to carry the blank between them, substantially as described.

2. In mechanism for forming H fasteners, the combination, with separable dies having a channel formed between their meeting faces, of a die-block carrying a bending-plate turning the heads at right angles to the body, a folding-piece folding the prongs back to back, and a spreader entering a pocket between the dies to enable the folder to carry the folded blank between the dies and into the channel between their meeting faces, substantially as described.

3. In mechanism for forming H fasteners, the combination, with separable dies having a channel between their meeting faces below their surface, and provided with a sheath-plate receiving the points of the blank, of a die-block carrying a bending-plate and a folder, a spreader pivoted upon said die-block and adapted to enter a pocket between the dies, its point coming in contact with a curved surface by which it is drawn out of said pocket, and springs closing the dies, substantially as described.

4. In mechanism for forming H fasteners, the combination, with a die formed in two separable spring-closed parts, of a bending and folding plate acting successively and upon the same downward stroke of the die-block, and a pivoted spring-actuated spreader simultaneously entering a pocket between the parts of the die, said pocket having a curved surface drawing the spreader out from the parts of the die as the spreader descends, substantially as described.

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

RALPH J. SHIPLEY.

Witnesses:
F. L. ADAMS,
H. H. WALKER.