

(No Model.)

3 Sheets—Sheet 1.

J. A. WILSON, Jr.

MACHINE FOR MAKING AND ATTACHING BUCKLE ROLLS.

No. 356,055.

Patented Jan. 11, 1887.

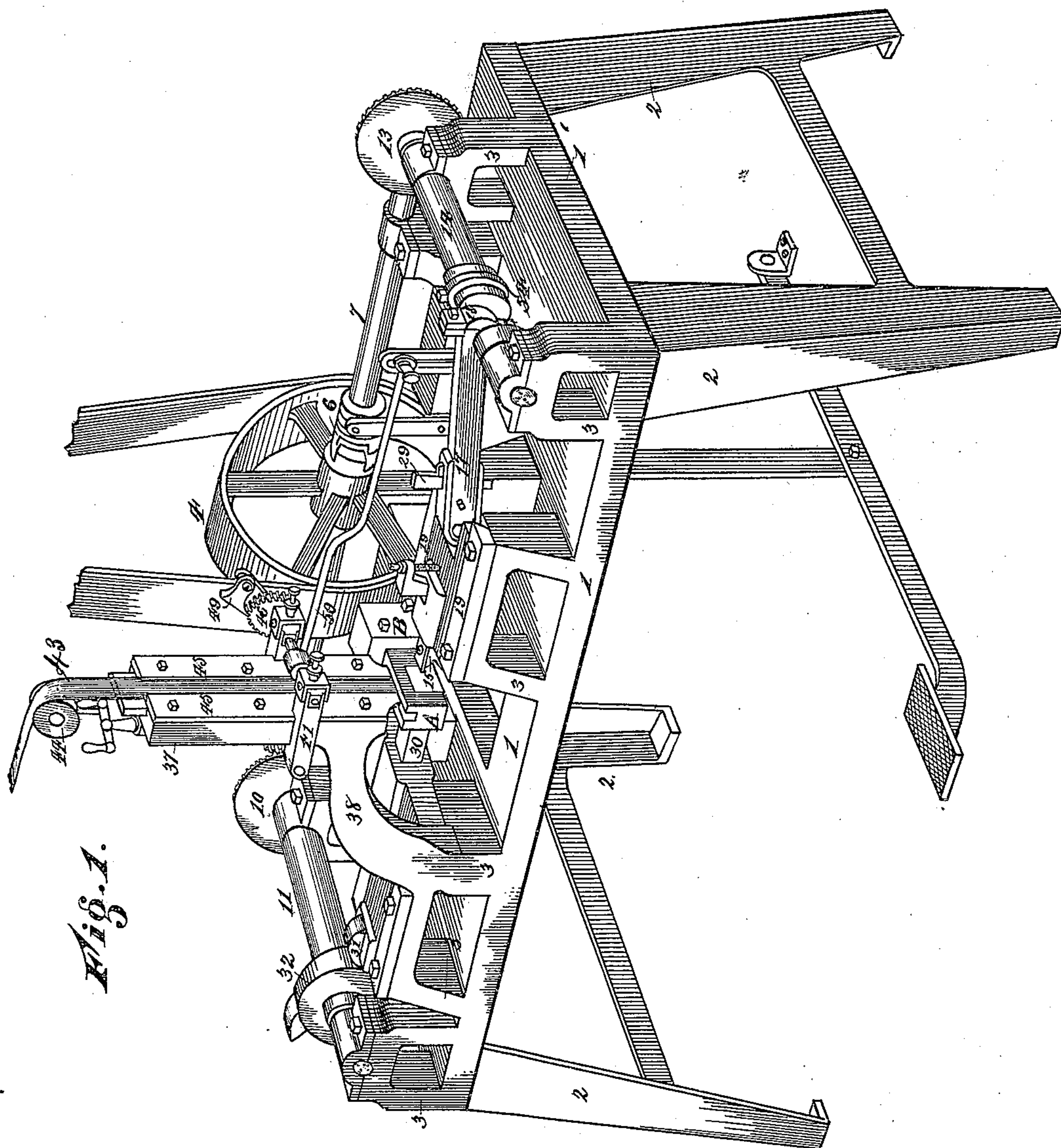


Fig. 1.

Attest

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(No Model.)

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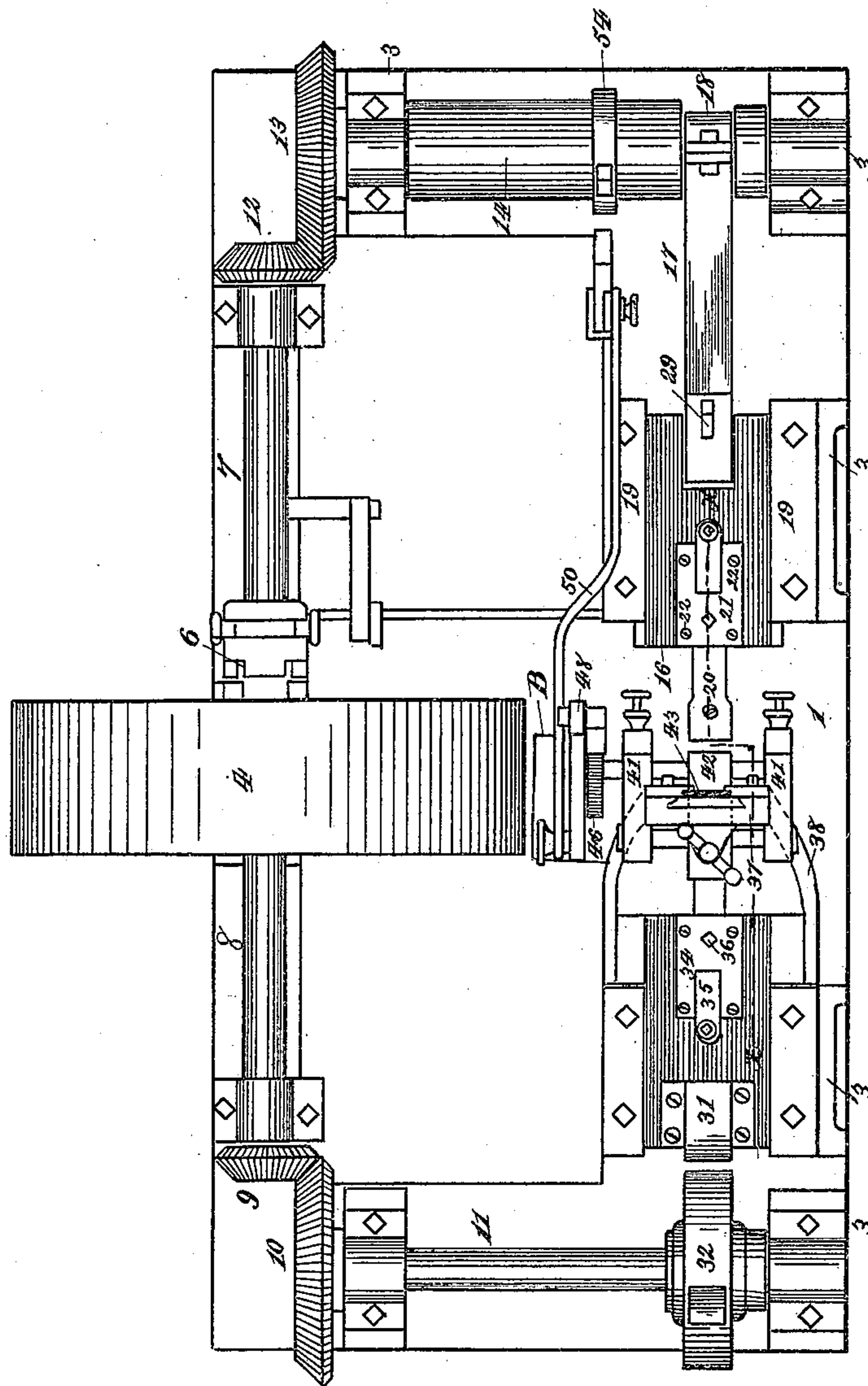
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Fig. 2.



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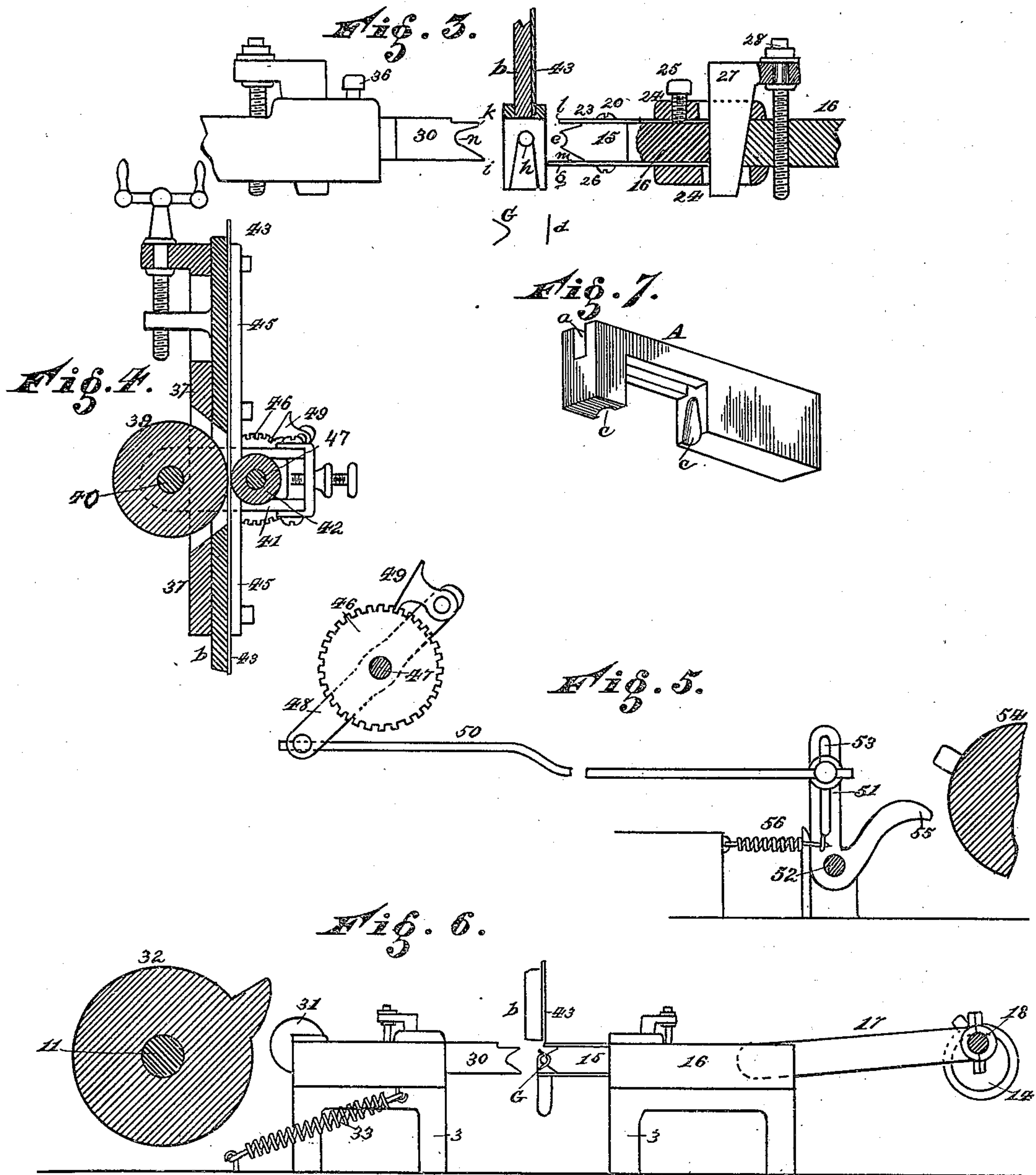
3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

JOHN A. WILSON, JR., OF CINCINNATI, OHIO.

MACHINE FOR MAKING AND ATTACHING BUCKLE-ROLLS.

SPECIFICATION forming part of Letters Patent No. 356,055, dated January 11, 1887.

Application filed October 7, 1886. Serial No. 215,583. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. WILSON, Jr., a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Machines for Making and Attaching Buckle-Rollers, of which the following is a specification.

The object of my invention is to provide a machine which will cut from a strip of metal, which is fed to it, blanks for making the buckle-roller, and then automatically close the roller around the axis of the buckle. These results I accomplish by the features of invention herein described, which will be fully understood by reference to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a top plan view of the same. Fig. 3 is a central vertical section on line *x x*, Fig. 2. Fig. 4 is a sectional elevation of the feeding-rolls and frame. Fig. 5 is a sectional elevation of the feeding mechanism. Fig. 6 is a sectional elevation of the die-moving mechanism. Fig. 7 is a perspective view of the buckle-holder.

1 represents the frame of the machine; 2, the posts supporting the same.

3 represents brackets for supporting the working parts.

4 represents the main driving-pulley mounted upon a shaft.

6 represents clutch mechanism connected to the shaft and hub of the main pulley.

7 represents one end of the divided main shaft, to which the clutch mechanism is attached. 8 represents the opposite end of the main shaft.

9 represents a bevel-gear meshing with bevel 10, transmitting motion to shaft 11.

12 represents a bevel-gear on the opposite end of the main shaft, meshing with bevel 13 for driving shaft 14.

15 represents a knife-carrying die, which is mounted upon a stock, 16, operated by a pitman, 17, journaled on eccentric 18 of shaft 14. The stock 16 is supported and moves between guides 19, which may be made adjustable to take up lost motion, if desired.

20 represents a screw attaching the knife 23 to die 15.

21 represents an adjusting-plate, secured by screws 22, for clamping and holding the knife 23, attached to the top of the die. This knife is rigidly attached to and moves with the die 15.

In order to adjust the die forward and backward longitudinally, I provide jaws 24 and set-screw 25 for clamping the die-stock 16, to which the die-strips 26 are attached by set-screw 25.

27 represents a longitudinally-adjusting key connected to the stock 16, and passing through the slot in the jaws 24 and a similar slot in the stock 16.

29 represents a key passing through the wrist of the pitman, taking up lost motion.

30 represents a die operated by a cam, 32, operating against the lug 31 on the heel of the stock.

33 represents a retractile spring for pulling the die 30 back to its normal position.

34 35 represent clamps for holding die 30 to its adjusted position, and are of similar construction to the similar parts of die 15.

36 represents a set-screw for attaching the die 30 in position.

The dies 15 and 30 are driven by mechanism on the opposite ends of the machine, and they are operated in connection with the metal-feeding mechanism, constructed as follows:

37 represents a metal-feeding stock supported by bracket 38 upon the frame of the machine.

39 represents a stationary feeding-roller journaled upon shaft 40, and mounted upon the frame by means of brackets 41. 42 represents a feed-roller adjustably mounted upon said brackets 41, opposite roller 39.

43 represents a metal strip passing over a spool, 44, thence down between the guides 45, adjustably secured to stock 37, thence between the rollers 39 and 42, and through the buckle-holder A. The metal is fed forward by means of ratchet 46, mounted upon shaft 47, which is the axis of roller 42.

48 represents a lever journaled on shaft 47, carrying a ratchet, 49.

50 represents a connecting-rod hinged at one end to lever 48, and loosely hinged to lever 51, which is journaled upon a center, 52.

53 represents a slot pierced in the upper arm

of said lever, so as to allow the connecting-rod 50 to move in its proper arc.

54 represents a cam connected to the shaft 14, engaging with the free end 55 of lever 51, for giving it a sudden reciprocation, drawing the lower end of lever 48 backward, carrying the pawl 49 forward, moving the wheel 46, and with it the feed-roller 42.

56 represents a retractile spring connected at one end to the frame and at the other to the lever 51, for driving the pawl back to its position on its ratchet.

The buckle-holder A is shown in perspective, Fig. 7.

The buckle-holder A is secured to a block, B, vertically under the feeding-stock, and provided with a slot, *a*, to receive the knife-stock, which is adjustably attached to the stock 36, and forms the base against which the strip of metal rests. Its lower edge forms a cutting-edge, which, together with the knife 23, forms a shear-blade for cutting off the strip of metal 43 when the jaw is advanced. The slot *a* is wide enough in cross-section to allow the strip of metal 43 to pass down below the edge of the knife, in the manner hereinafter explained.

Grooves *c* are formed in buckle-holder A, to receive the ends of the buckle and hold it in proper position for receiving the roller.

The mode of operation of the machine is as follows: A strip of metal is threaded through between the rollers, and resting against the front edge of the knife *b*. The machine, when it is in motion, is geared and adjusted so that the die 15 is carried forward in advance of die 30. Knife 23 cuts off the blank *d* just before the die-points *e* are advanced sufficiently to strike the blank. *g* represents a projecting end of the lower die-strip, upon which the blank rests until the concave of the jaw presses the blank into the V form, as shown at G, around the axis *h* of the buckle. As soon as this V-crimp is formed in the blank the die 30 is quickly advanced by the cam 32, which as it advances forms the blank G in a complete circle, the points *i k* fitting into the recesses *l m* of die 15, and the point *e* of die 15 fitting into the recess *n* of die 30, so as to form a complete cylinder of the metal. This operation of die 30 takes place before die 15 has commenced to recede. The die is then retracted and the metal fed forward by ratchet-and-pawl mechanism as the die 15 is again advanced for the second operation.

I claim—

1. A machine for making and attaching buckle-rollers, composed of the die 15, connected to and operated by suitable reciprocating mechanism, in combination with the buckle-holder and a finishing-die, 30, operated by reciprocating mechanism conjointly with the opposing die for forming a roll around the axis of the buckle, substantially as specified.

2. In a machine for shaping and attaching rollers on buckles, the reciprocating die 15, carrying the knife 23, and supporting-plate *g*, in combination with the buckle-holder and metal-feed device, substantially as specified. 70

3. In a machine for shaping and attaching rollers on buckles, the reciprocating die 15, carrying the knife 23, in combination with the buckle-holder and metal-feed device, substantially as specified. 75

4. In a machine for shaping and attaching rollers on buckles, the reciprocating die 15, provided with the recesses *l m*, in combination with the reciprocating die 30, having the concave points for fitting with the die 15 to shape the metal cylinder, substantially as specified. 80

5. In a machine for shaping and attaching rollers on buckles, the reciprocating die 15, provided with the recesses *l m*, in combination with the reciprocating die 30, having the concave points fitting the recesses, and the buckle-holder A, slotted to receive and hold the buckle to the dies, substantially as specified. 85 90

6. In a machine for shaping and attaching rollers on buckles, the die 15, driven by an eccentric, whereby it is held stationary after forming the initial bend of the roller-blank, in combination with the die 30, driven by a cam which advances it to meet the die 15, held in its advanced position, substantially as specified. 95

7. In combination with the reciprocating dies 30 and 15 and the buckle-holder A, the metal-feeding mechanism consisting of rollers, and a stock mounted above the dies, with mechanism for intermittently and automatically advancing the metal strip, substantially as specified. 100 105

8. In combination with the die-holder A, the metal-feeding stock, and knife *b*, the die 15, carrying knife 23, whereby the metal is sheared and given its initial shape by the advancing of said die, substantially as specified. 110

9. In a machine for forming rollers on buckles, the die-holder A, having the opening to receive the dies, with the grooves *c*, for holding the buckle, and slot *a*, for receiving the metal strip, substantially as specified. 115

10. In combination with the die 15 and the adjusting reciprocating stock 16, the clamp 24, for detachably securing said die, substantially as specified.

11. In combination with die 15 and stock 16, the adjusting taper key 27, connected thereto by passing through a slot in said die-stock, substantially as specified. 120

12. A machine for cutting and forming rollers around the axis of a buckle, composed, substantially, of a reciprocating die and knife, and connecting mechanism for moving it forward to cut the blank and give it an initial shape, and an automatic feeding mechanism for advancing the metal to the knife and die, in 125 130

combination with a die, 30, and the connecting mechanism for reciprocating it when the die 15 is held stationary, substantially as specified.

5 13. In combination with the buckle-holder and reciprocating die, the feeding-stock 36, supporting the adjustable knife *b*, and the feeding-rollers automatically driven in conjunction with the die-operating mechanism, substantially as specified.

In testimony whereof I have hereunto set to my hand this 4th day of October, 1886.

JOHN A. WILSON, JR.

Witnesses:

ROBERT ZAHNER,
J. WATSON SIMS.