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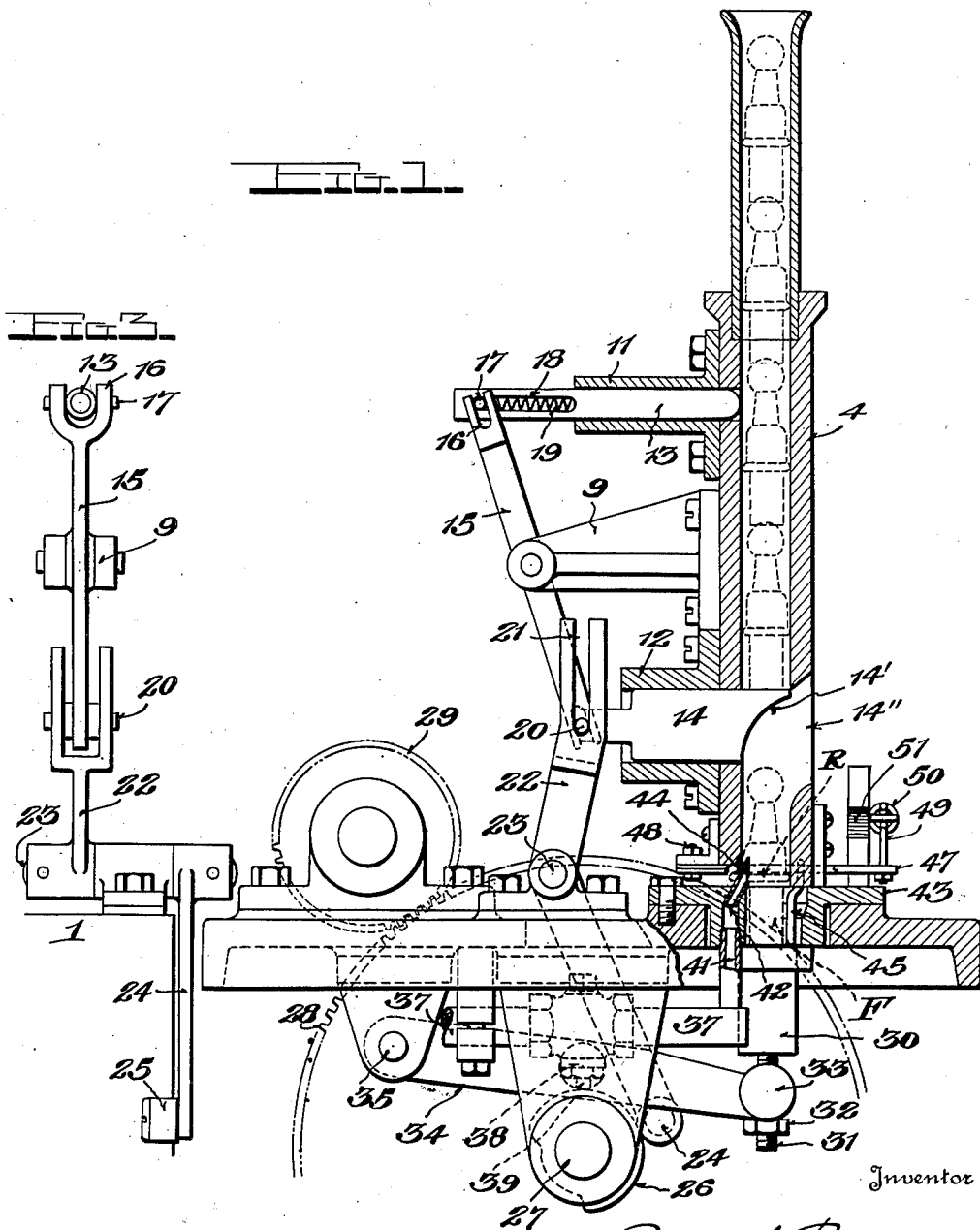
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P. A. RAICHE

MACHINE FOR STRIPPING RUBBER NIPPLES FROM METAL FORMS

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3 Sheets-Sheet 1



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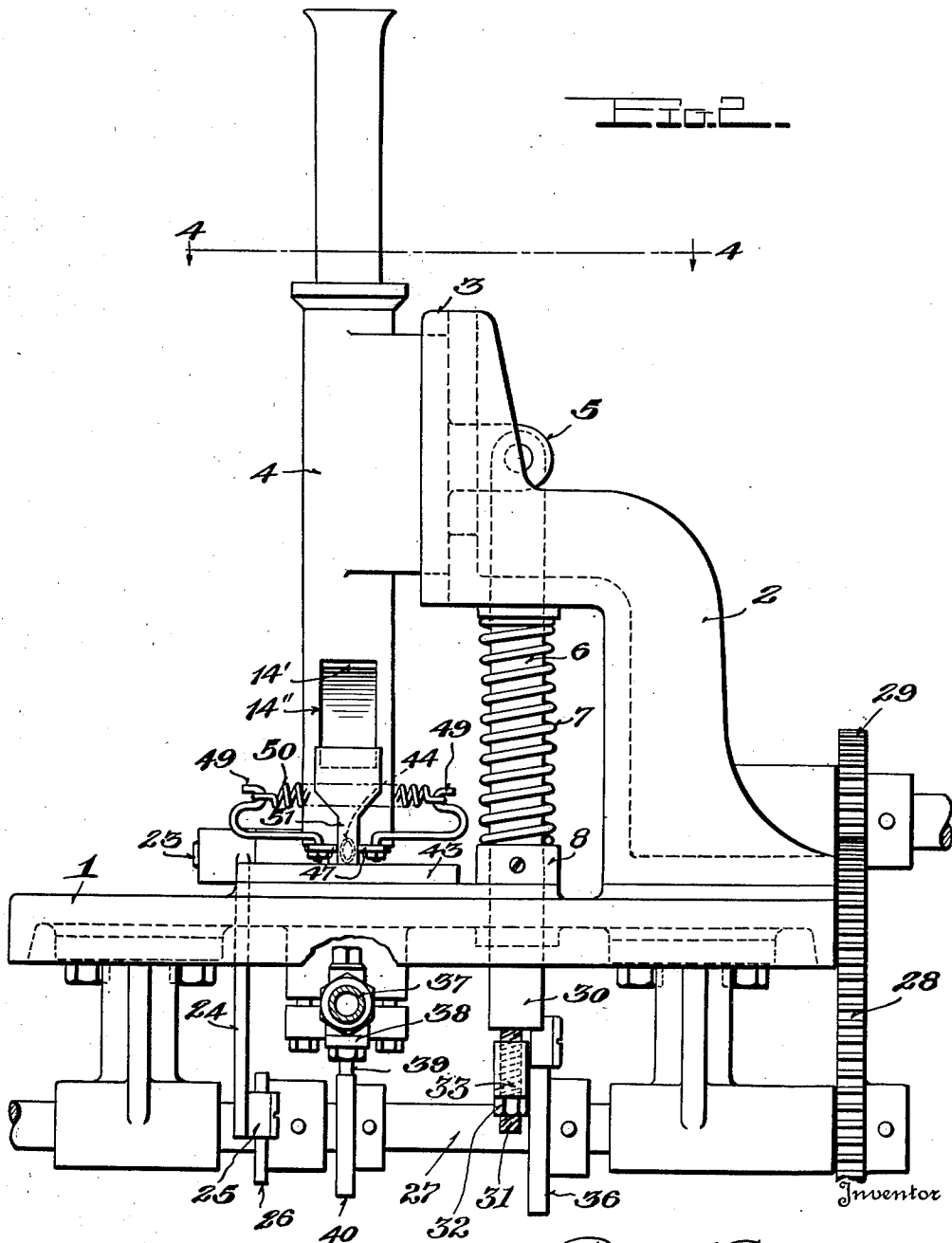
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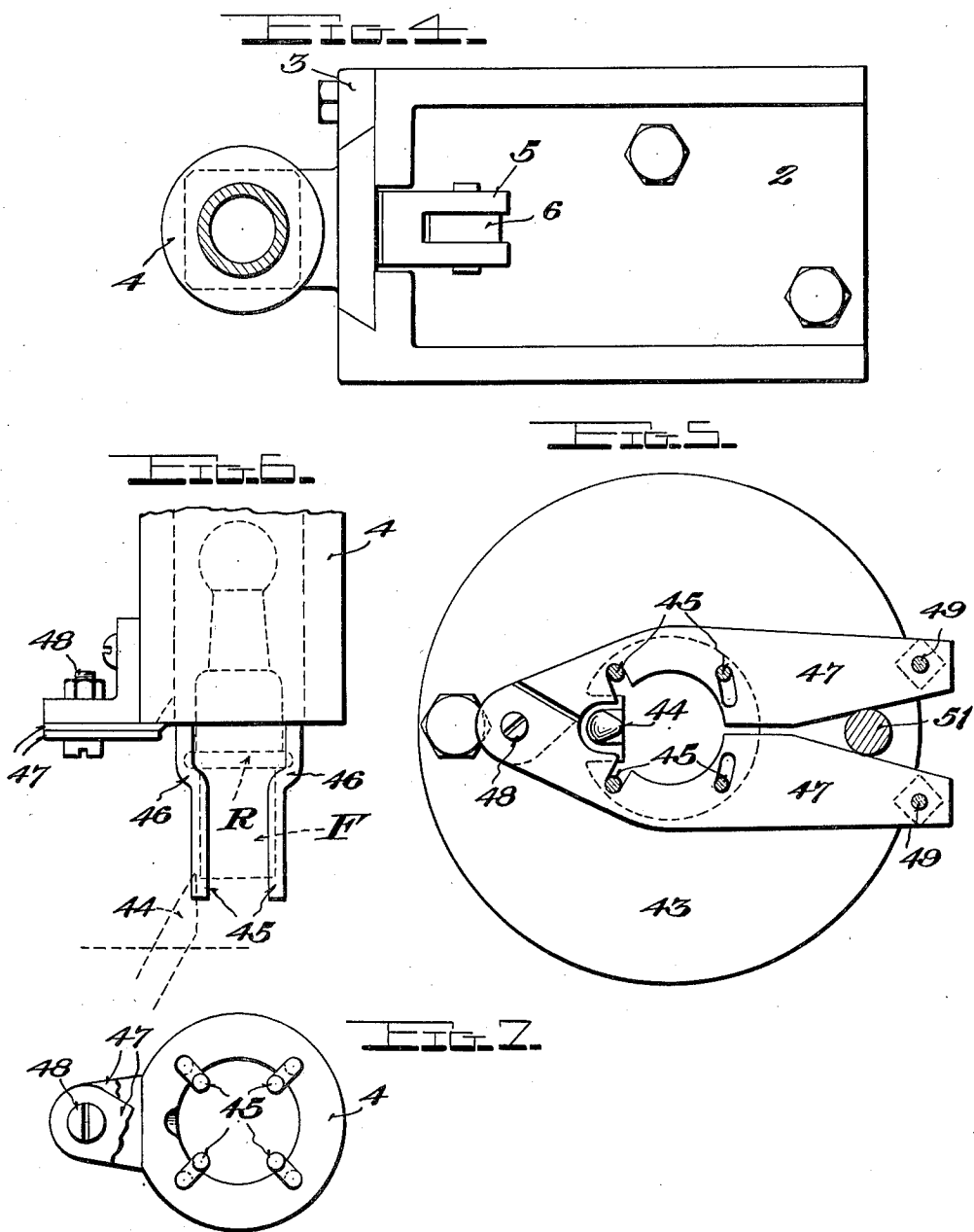
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MACHINE FOR STRIPPING RUBBER NIPPLES FROM METAL FORMS

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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MACHINE FOR STRIPPING RUBBER NIPPLES FROM METAL FORMS.

Application filed December 24, 1924. Serial No. 757,956.

To all whom it may concern:

Be it known that I, PAUL A. RAICHE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in a Machine for Stripping Rubber Nipples from Metal Forms, of which the following is a specification.

This invention relates to certain new and useful improvements in machines for stripping rubber nipples from metal forms, and the primary object thereof is to provide a machine which automatically strips the rubber nipple from the form, as distinguished from manual stripping.

The present practice of removing rubber nipples from forms is to employ a hand tool which is inserted beneath the roll at the base of the nipple and given a quick or sharp movement upwardly toward the head of the nipple which effects removal of the nipple from the form, but with the nipple in a partial inside out condition, necessitating therefore, a second or further manual operation of turning the nipple back or restoring same to its normal shape.

The present invention aims to provide an entirely automatic machine for stripping the nipple from the form and for also effecting subsequent automatic ejection of the nipple from the machine.

A still further object of the invention is to provide pneumatic means for stripping and then ejecting the nipple from the machine.

The invention has still further and other objects which will be later herein set forth and manifested in the course of the following description.

In the drawings:—

Figure 1 is a side elevation, partly broken away and in section;

Figure 2 is a front elevation;

Figure 3 is a detail view of the separating device;

Figure 4 is a section on line 4—4 of Fig. 2;

Figure 5 is an enlarged plan view of the gripping jaws;

Figure 6 is an enlarged detail view of the holder for the forms and nipples during stripping of the latter and,

Figure 7 is a bottom plan view of Figure 6.

In proceeding in accordance with the present invention, a base 1 is employed to which is secured an arm 2, the latter having a vertical guide 3. A vertically disposed tubular magazine 4 is slidably mounted in the guide 3 and has a rearwardly projecting bifurcated ear 5 to which the upper end of a rod 6 is pivoted. The rod 6 is vertically slidable in the base 1 and arm 2 and is tensioned downwardly by a coil spring 7 which surrounds the rod, the spring at its upper end bearing against arm 2 and at its lower end against a collar 8 fixed on the rod and normally held against the base 1 by the spring so as to limit downward movement of the rod 6 and thereby the magazine.

The magazine 4 is provided with a rearwardly projecting arm 9 and rearwardly projecting horizontal guides 11 and 12 located respectively above and below the arm 9. A cut-off 13 is slidably mounted in guide 11, while a combined cut-off and deflector 14 is slidably mounted in guide 12.

A lever 15 is pivoted between its ends to arm 9 and has its upper end forked and slotted at 16 to receive the ends of a pin 17 which latter is slidable in a slot 18 formed in cut-off 13 and is tensioned in an outward direction by a coil spring 19 in the slot 18.

The lower end of the lever 15 is provided with a pin 20 received in the slots 21 of the forked upper end of an arm 22, which latter is secured on a shaft 23 that is journaled on the bed 1. The shaft 23 has an operating arm 24 secured thereto and depending therefrom, the arm having a roller 25 on its lower end engaged by a cam 26 on a shaft 27, the latter being journaled to and beneath the bed 1. A gear wheel 28 is secured to the shaft 27 and is driven by a gear 29, the latter being journaled above the bed 1 and deriving its power from any suitable source.

The lower end of the rod 6 is provided with a foot 30. A rounded end 33 of a lever 34 pivoted at 35 has a screw adjustable by nut 32 which engages with the foot 30, the lever 34 being actuated by a cam 36 on shaft 27, the cam engaging the lever between the ends of the latter.

A pipe 37 in communication with any suit-

able source of air pressure, is provided with a valve 38, having a stem 39, the latter being operated by a cam 40 on the shaft 27. Pipe 37 has a branch 41 leading into a duct 5 42 formed in a table 43 which latter is secured to the base 1. A rigid tubular member 44 is secured to the table 43 and has a beveled or sharpened upper end, which latter extends into the interior of the magazine.

10 The lower portion of the magazine is provided with a series of vertical centering and locating pins 45 having shoulders 46 which project inwardly to engage and support the roll R at the base of the nipple and the metal form F on which the nipple 15 is mounted in the position shown in Figs. 1 and 6 of the drawings.

A pair of jaws 47 are pivoted at 48 to the magazine and are provided with arms 20 49 connected to a spring 50, which latter acts to draw the jaws together so that the latter will embrace or grip the nipple and hold same against movement. A wedge 51 is mounted on the stationary table 43 25 and upon upward movement of the magazine engage the jaws 47 and spread same to release the nipple.

In operation, the nipples on the metal forms are placed head-up in the hopper or 30 magazine 4 and are held against downward movement by the lowermost one seating on the cut-off 14. Upon rotation of the shaft 27, cut-off 14 will move outwardly releasing the lowermost nipple, and simultaneously cut-off 13 will move inwardly to engage 35 and arrest downward movement of the adjacent nipple. On the next revolution of shaft 27 the cut-off 14 will move inwardly and cut-off 13 will move outwardly, thereby 40 releasing the nipple engaged by cut-off 13 and permitting the last named nipple to gravitate onto cut-off 14. The said lowermost nipple initially released by the cut-off 14 will drop to the position of Fig. 1, the 45 magazine then being in up-position, the locating pins 45 engaging the metal form F and centering and holding same. The magazine then is lowered and jaws 47 are permitted to engage the nipple. At the same 50 time the beveled mouth of the air tube 44 engages at a point between the metal form and the nipple. The cam 40 now opens the valve 38 admitting air pressure to the tube 44 which latter introduces the air pressure 55 between the nipple and form, expanding the nipple, out of engagement with the form, whereupon the form is freed and is discharged by gravity from the machine. The cam 36 now raises the magazine and there- 60 with the nipple, the jaws 47, also moving upwardly with the magazine, and engaging the wedge 51, are released from their engagement with the nipple. The air valve remains open throughout the above de- 65 scribed operation, and finally acts to blow

or force the nipple out through the discharge opening 14'', the curved face 14' of the cut-off affording a deflector for the nipple to guide same in its egress through the opening 14''.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a machine for stripping nipples from metal forms, a magazine having a discharge outlet, means for moving the magazine vertically, centering and locating means for the forms and nipples thereon, means for successively delivering the forms from the magazine to the centering means, releasable means for gripping the nipples carried by the magazine, an air tube formed with a beveled mouth to engage between the roll of the nipple and the form, means to admit air under pressure into the tube, and means 85 to release the gripping means upon upward movement of the magazine to permit the air pressure to eject the nipple through the discharge outlet.

2. In a machine for stripping nipples 90 from metal forms, hollow means formed for insertion between the nipple and form, means to feed the nipples and forms to said hollow means, and means to admit air under pressure to the hollow means to thereby 95 strip the nipples from the form and to blow the nipple out of the machine.

3. In a machine for stripping nipples from metal forms, a magazine having a discharge outlet, locating means for the forms, 100 and nipples thereon, releasable means for gripping the nipples, pneumatic means for expanding the nipples while held by the gripping means to thereby release the forms from the nipples, and means to release the gripping 105 means from the nipples thereby to enable the pneumatic means to eject the nipples through the discharge outlet.

4. In a machine for stripping nipples from metal forms, locating means, releasable 110 means to grip the nipples, pneumatic means to expand the nipples thereby to release the forms, and means to subsequently release the gripping means whereby to allow the pneumatic means to eject the nipples from the 115 machine.

5. In a machine for stripping nipples from metal forms, locating means, means to periodically feed the forms to the locating means, releasable means to grip the nipples, 120 pneumatic means to expand the nipples thereby to release the forms, said feeding means having a part formed to engage the nipples to deflect same outwardly of the machine, and means to release the gripping 125 means whereby to allow the pneumatic means to eject the nipples against said deflecting part of the feeding means.

6. In a machine for stripping nipples from metal forms, a reciprocal magazine, 130

means to reciprocate the magazine, releasable nipple gripping means carried by the magazine, relatively fixed locating means, pneumatic means formed to direct air pressure between the nipple and form to expand the nipple and thereby release the form, and relatively fixed means for controlling the gripping means to release the nipples upon movement of the magazine.

7. In a machine for stripping nipples from metal forms, a reciprocal magazine, means to reciprocate the magazine, releasable nipple gripping means carried by the magazine, relatively fixed locating means, pneumatic means formed to direct air pressure between the nipple and the form to expand the nipple and thereby release the form, relatively fixed means for controlling the gripping means to release the nipple upon movement of the magazine and means for directing the released nipples outwardly of the machine under the action of the pneumatic means.

8. In a machine for stripping nipples from metal forms, locating means, releasable gripping means, pneumatic means formed to direct air pressure between nipple and form to expand the nipple and thereby release the form, means to release the gripping means after release of the form, and means to direct the released nipple outwardly of the machine under the action of the pneumatic means.

9. In a machine for stripping nipples from metal forms, a movable magazine, relatively fixed locating means, releasable means to engage and hold the nipples, pneumatic means to direct air between the nipples and forms thereby to expand and release the nipples from the forms, means operable

upon movement of the magazine in one direction to effect release of the gripping means, and means to move the magazine.

10. In a machine for stripping nipples from metal forms, a reciprocal magazine, feeding means carried by the magazine and movable therewith, spring tensioned nipple gripping jaws carried by the magazine and movable therewith, relatively fixed means to effect opening and permit of closing of the jaws, pneumatic means to direct air between the nipples and forms thereby to expand and release the nipples from the forms, means to control the pneumatic means, a drive shaft, means operated by the drive shaft to reciprocate the magazine, means on the shaft to actuate the control means of the pneumatic means, and means on the shaft to actuate the feeding means.

11. In a machine for stripping nipples from metal forms, a reciprocal magazine, feeding means carried by the magazine and movable therewith, spring tensioned nipple gripping jaws carried by the magazine and movable therewith, relatively fixed means to effect opening and permit of closing of the jaws, pneumatic means to direct air between the nipples and forms thereby to expand and release the nipples from the forms, means to control the pneumatic means, a drive shaft, means to reciprocate the magazine and a series of cams on the drive shaft to operate said means to reciprocate the magazine, and to operate the control means of the pneumatic means and the feeding means.

In testimony whereof I have signed my name to this specification.

PAUL A. RAICHE.