

Nov. 21, 1939.

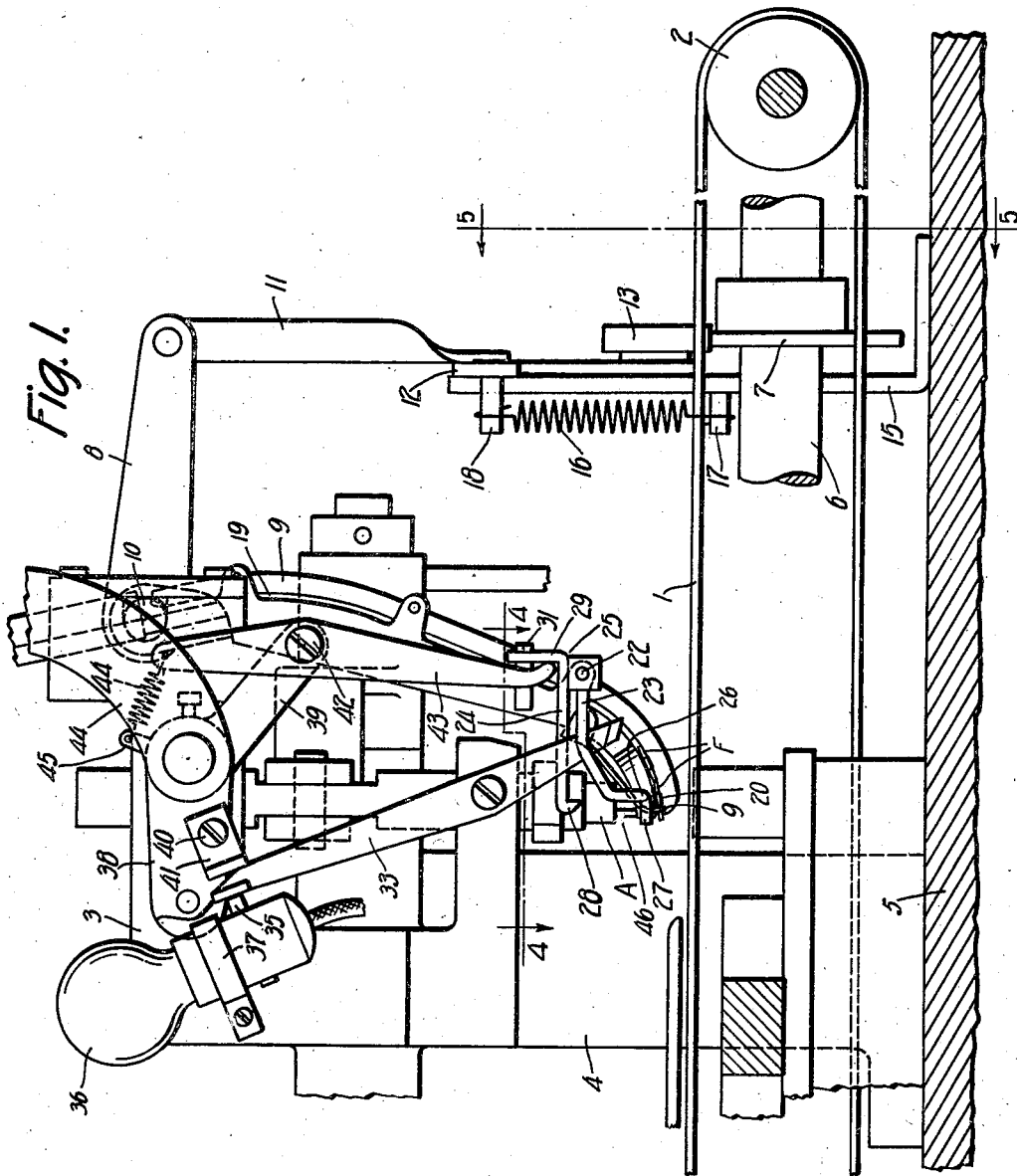
D. NOVICK

2,180,718

ENVELOPE FASTENER MACHINE

Filed June 24, 1938

3 Sheets-Sheet 1



INVENTOR.

Daniel Novick.

BY

Moses & Nolte

ATTORNEYS

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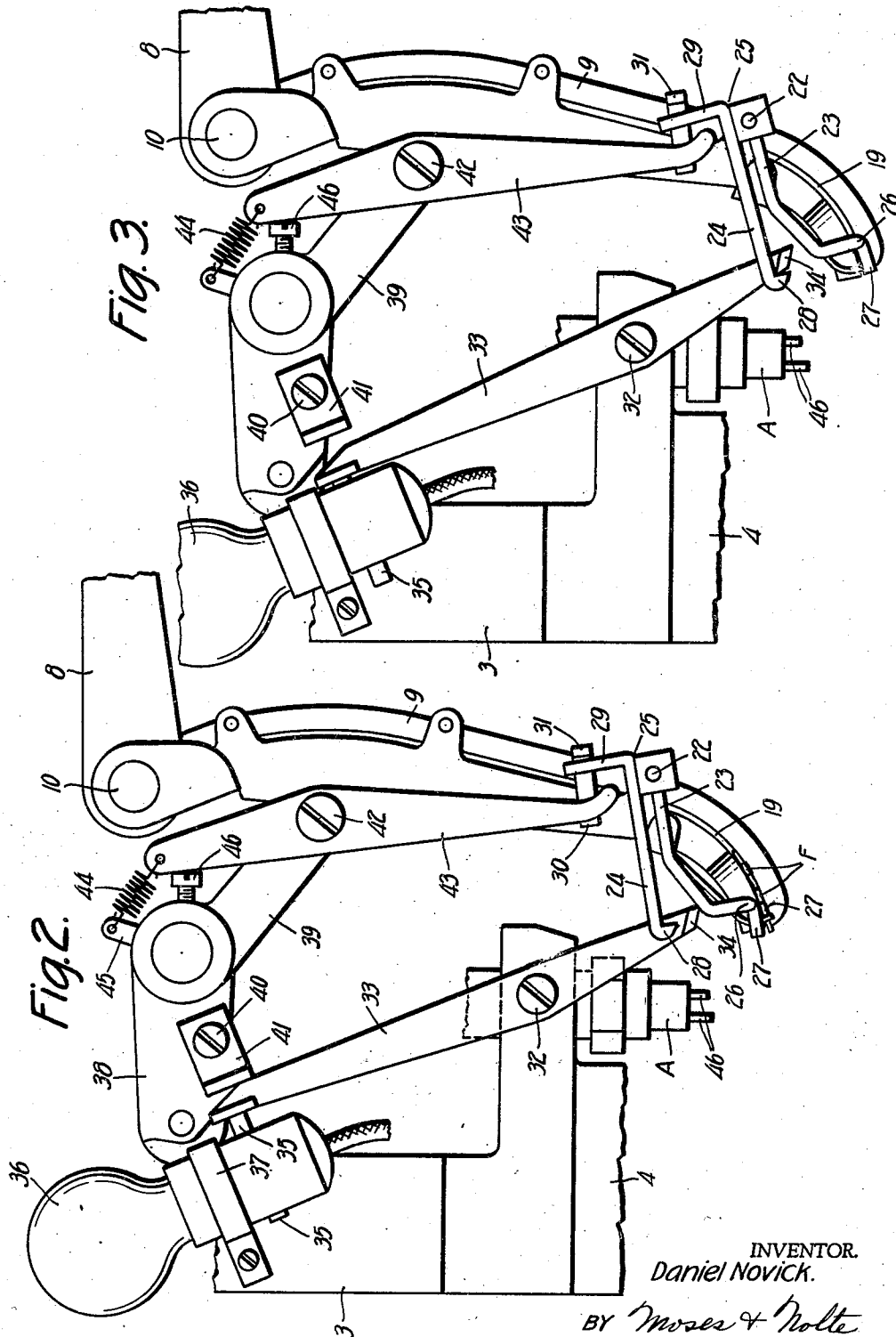
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Fig. 4.

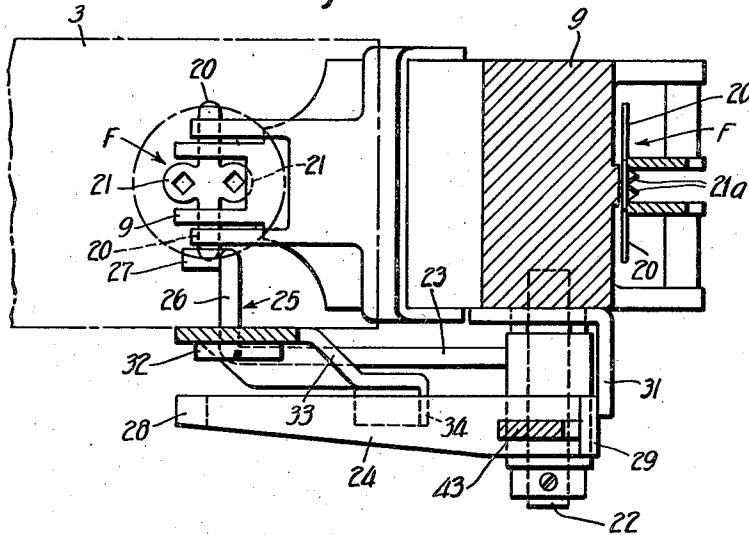
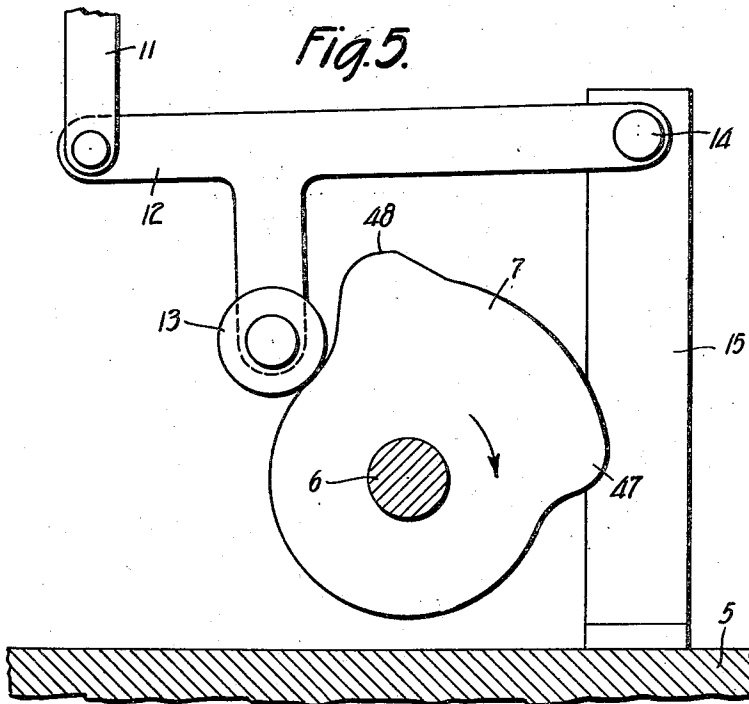


Fig. 5.



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UNITED STATES PATENT OFFICE

2,180,718

ENVELOPE FASTENER MACHINE

Daniel Novick, Flushing, N. Y., assignor to F. L. Smithe Machine Co., Inc., New York, N. Y., a corporation of New York

Application June 24, 1938, Serial No. 215,551

9 Claims. (Cl. 1—3)

The present invention relates to a novel apparatus and method for applying fastening devices and similar attachments to envelopes and the like and is to be regarded as an improvement upon the type of fastener-applying machine disclosed in the pending application of Abraham Novick, Serial No. 142,393, filed May 13, 1937.

In said application a conveyor system is disclosed for conveying into a predetermined station position a series of envelopes one after another, at which station position a metal fastener is provided by means of a movable feed or supply chute and is secured to the envelope by a reciprocatory plunger. The fasteners are delivered to the feed chute in series from a hopper mounted above it and, when for any reason, such as a lack of fasteners or a stoppage occurring in the chute, a fastener is not in position at its lower end ready for engagement by the lower end of the plunger, no fastener will be applied to the envelope which will then be carried on to be delivered in an incomplete condition. It is accordingly an object of this invention to provide a signaling or indicating device which at once indicates to the operator of the machine when one or more envelopes passes through the machine without the application of a fastener thereto.

It is a further object of the invention to provide a visual indicating device in connection with the fastener feed supply of an envelope or like fastener machine which becomes operative to indicate to the operator of the machine a failure in the supply of fasteners from the feed supply device.

A still further object of the invention is to provide in connection with a fastener applying machine having a movable feed chute for supplying the fasteners to the work, a feeler device associated with the feed chute which serves to operate a switch lever and light a signal light in the absence of a supply of fasteners at the mouth of the chute.

Other and further objects of the invention will become apparent to those skilled in the art as the description thereof proceeds. For a better understanding of the invention, however, reference is made to the following description taken in connection with the accompanying drawings in which similar reference numerals indicate corresponding parts.

Fig. 1 is a front elevation of a portion of a fastener applying machine showing an embodiment of my invention as applied thereto;

Fig. 2 is an enlarged view in elevation of the embodiment of the invention shown in Fig. 1;

Fig. 3 is a view similar to Fig. 2 but showing the parts in a different operative position;

Fig. 4 is a partial sectional view taken substantially on the line 4—4 of Fig. 1; and

Fig. 5 is a partial sectional view taken through the line 5—5 of Fig. 1 and showing the chute operating cam.

Referring first to Fig. 1 which shows my invention in connection with certain portions of the envelope fastener applying machine described in the copending application of Abraham Novick, Serial No. 142,393, filed May 13, 1937, said machine comprises conveyor belts 1 passing over pulleys 2 and which serve to convey envelopes or like objects into proper position under a fastener applying plunger A which is reciprocated vertically in a frame 3 supported by a standard 4 which is secured to the main base plate 5 of the machine. The main drive shaft of the machine and the operating connections therefrom to plunger A and pulley 2 are not shown herein, being fully described in the aforesaid application. Also connected to the main drive shaft is a shaft 6 which carries a cam 7 which serves to operate a rocker arm 8 carrying the fastener feed chute 9 and pivoted at 10 to frame 3. The operating connections for arm 8 are shown as comprising a lever 12 pivoted as at 14, Fig. 5, to a bracket 15 supported on base plate 5, the lever 12 having a roller 13 held in engagement with the surface of cam 7 as by a bias spring 16 and the outer end of the lever being connected by a link 11 to rocker arm 8. In the embodiment shown one end of spring 16 is connected to a pin 17 secured to bracket 15, and its other end to pin 18 secured to lever 12.

Chute 9 is provided with a slot 19 into the upper end of which the fasteners are supplied automatically from a hopper (not shown) and through which they are transferred to the mouth 40 at its lower end for transfer to the envelope by the lower end of plunger A which also acts as a set to rivet the prongs against the inner wall of the envelope as more fully explained in the above mentioned application. As more clearly seen in Fig. 4, each fastener F comprises a single piece of sheet metal having elongated tongues 20 which extend in opposite directions from a central web portion and a pair of attaching lobes 21 extending from the same web preferably at right angles to its major axis as defined by the tongues. Each lobe has a plurality of short prongs 21a, Fig. 4, on its under surface which are forced through the envelope wall and clenched thereto by the pressure of the plunger A. As shown in Figs. 1 55

and 4, the tongues 20 extend through the slot 19 of the chute and project a substantial distance beyond its sides.

As shown in Fig. 2, I provide a feeler device 25 pivoted at 22 to the chute and comprising a finger portion 23 and a latch portion 24, the finger portion 23 being extended inwardly at 26 to provide an end portion 27 adapted to contact and be supported by the fastener tongues. Latch portion 24 is provided at one end with a latch or hook 23, its other end being shaped to provide an upstanding arm 29. Secured to chute 9 is a bracket 30 having an upturned end portion 31 which is adapted to engage arm 29 (see Fig. 1). Pivoted to frame 3 at 32 is a switch lever 33 having an offset lug 34 at its lower end which is adapted for engagement by latch 28 in a manner to be described, the upper end of lever 33 being adapted to engage and operate the switch button 35 of an electric light bulb 36 whose socket or base is secured to frame 3 as by any suitable clamp 37. Secured near the upper end of frame 3 is a bracket 38 having a downwardly extending arm portion 39, and secured to said bracket by screw 40 is a stop plate 41 adapted to engage lever 33 as shown in Fig. 2. Pivoted to bracket arm 39 by a screw 42 is a lever 43 whose lower end is curved to engage arm 29 of the feeler device, a tension spring 44 being connected to the upper end of the lever and to an upstanding lug 45 on bracket 38. An adjusting screw 46 is threaded into bracket 38 in position to engage the upper end of lever 43 and serve as a limit stop therefor.

In the operation of the device and in the position shown in Fig. 1, the lower end of chute 9 has been moved to its extreme left position under the bias of spring 16 and the fastener at its end is in position to be engaged by the prongs 46 on punch plunger A for transfer and attachment to an envelope (not shown), the envelope having been brought to proper position by the belts 1, and suitable stops (not shown). Immediately after transfer of the end fastener to the punch, the chute is moved toward the right by the rise portion 47 of cam 7 (Fig. 5) and in the presence of a fastener at the end of the chute, the parts will be moved into the positions shown in Fig. 2 with end 27 of finger 23 of the feeler device resting on the tongue 20 of the fastener and being supported thereby. This keeps latch 28 clear of lug 34 so that switch lever 33 is not operated by further motion of the lower end of the chute to the right under the influence of the rise portion 48 of cam 7. With lever 33 in this position the light is off and switch button 35 is in the "off" position. In Fig. 2 it will also be noted that there is a clearance space between the lower end of lever 43 and arm 29 of the feeler device. If, however, a fastener is not at the end of the chute as it leaves the plunger and moves toward the right under the influence of cam 7, the end portion 27 of the feeler finger will drop down below the slot 19 of the chute causing the latch 28 to engage with the lug 34 and as the chute approaches its extreme position to the right under the influence of the rise portion 48 of the cam, latch 28 moves switch lever 33 to actuate the push button 35 and turn on the light. Fig. 3 shows the position of the parts described just after the switch is closed and the light warns the operator that there is a deficiency in the supply of fasteners and continued operation will cause envelopes to be passed through the machine which are lacking in fasteners. Upon the return mo-

tion of the chute under the influence of spring 16 the lower end of lever 43 comes into engagement with arm 29 to raise the feeler finger 27 above the slot in the chute so that a supply of fasteners may be supplied thereto. Lever 43 under control of spring 44 thus provides a yielding stop to restore the feeler finger to its normal position above the slot in the chute upon return of the chute to its position under plunger A as shown in Fig. 1. It is to be understood that having once been lighted due to a lack of fasteners, the light will remain on until the operator pushes button 35 and throws the switch to its "off" position.

I have described what I believe to be the best embodiments of my invention. I do not wish, however, to be confined to the embodiments shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. In a machine for attaching fasteners to envelopes or like articles, the combination of a movable plunger adapted to apply the fasteners to the envelopes, means for feeding the fasteners to the end of said plunger, a feeler device connected to the lower end of said fastener feeding means and arranged to engage the fastener in position to be attached to the end of the plunger upon its first downward movement, a signal device, and means associated with said feeler device and arranged to operate said signal device in the absence of a supply of fasteners in said fastener feeding means.

2. In a machine for attaching fasteners to envelopes or like articles, the combination of a movable plunger adapted to apply the fasteners to the envelopes, a movable chute through which the fasteners are supplied to the end of said plunger, a feeler device connected to said chute, a signal device, an electric switch connected to said signal device, and means controlled by said feeler device for operating said electric switch in the absence of a supply of fasteners in said chute.

3. In a machine for attaching fasteners to envelopes or like articles, the combination of a vertically movable plunger adapted to secure the fasteners to the envelopes, a movable chute through which the fasteners are supplied to the end of said plunger, means for automatically reciprocating said chute, a feeler device connected to said chute, an electric lamp having a control switch, and means mechanically connecting said chute and said control switch in response to movement of said feeler device caused by an absence of one or more fasteners in said chute whereby movement of said chute operates said control switch to light the lamp.

4. In a machine for attaching fasteners to envelopes, the combination of a movable plunger adapted to apply the fasteners to the envelopes, a movable chute having an elongated slot through which the ends of the fasteners project, means for reciprocating said chute to and from a position under said plunger, a signal device, an electric switch connected to said signal device, a feeler device connected to said chute and having a finger adapted to rest on the projecting end portions of the fasteners, a latch connected to said finger and means for mechanically connecting said latch and said electric switch to thereby cause the operation of said signal device in response to a depression of said finger of the feeler device due to an absence of fasteners in said chute.

5. In a machine for attaching fasteners, the combination of a chute having a slot through

which the end portions of the fasteners project, cam operated means for reciprocating said chute, an electric signal device having a switch, a lever having a portion in engagement with said switch, a feeler device having a finger adapted to rest on the projecting ends of fasteners and a latch portion adapted to engage said lever in response to the depression of said finger due to the absence of a supply of fasteners in said chute.

6. In a machine for attaching fasteners to envelopes or like articles, the combination of a vertically movable plunger adapted to secure the fasteners to the envelopes, a chute through which the fasteners are supplied to the lower end of said plunger, means for pivotally supporting said chute, spring means for biasing the end of said chute towards the end of said plunger, a feeder device connected to said chute and having a latch portion, a signal device having a control switch, an operating member for said switch having a lug adapted to be engaged by the latch portion of said feeler device in response to its depression caused by the absence of fasteners in said chute and a cam connected to said chute and having a rise portion adapted to move said switch operating member upon engagement of its lug by the latch of said feeler device.

7. In a device for attaching fasteners to envelopes, the combination of a vertically movable plunger adapted to secure the fasteners to the envelopes, a chute having a slot through which

the ends of the fasteners project, means for reciprocating said chute, a feeler device connected to said chute and having a finger adapted to rest on the projecting ends of the fasteners, a signal device having a switch, means controlled by said feeler device to operate said switch upon the depression of said feeler finger below the slot of the chute caused by the absence of a supply of fasteners in said chute, and a yielding stop device to return the feeler finger to a position above the slot of the chute as the end of the chute approaches the plunger.

8. The arrangement defined in claim 7 in which said stop device comprises a pivotally mounted lever and a spring connected thereto.

9. In a machine for attaching fasteners to envelopes, the combination of a movable plunger adapted to apply the fasteners to the envelopes, a movable chute having an elongated slot through which one end of each of the fasteners projects, means for reciprocating said chute to and from a position below said plunger, a feeler device connected to the lower end of chute and having a portion adapted to rest upon the projecting end portions of the fasteners, a signal device and means associated with said feeler device and arranged to operate said signal device in the absence of one or more fasteners at the lower end of the chute.

DANIEL NOVICK. 30