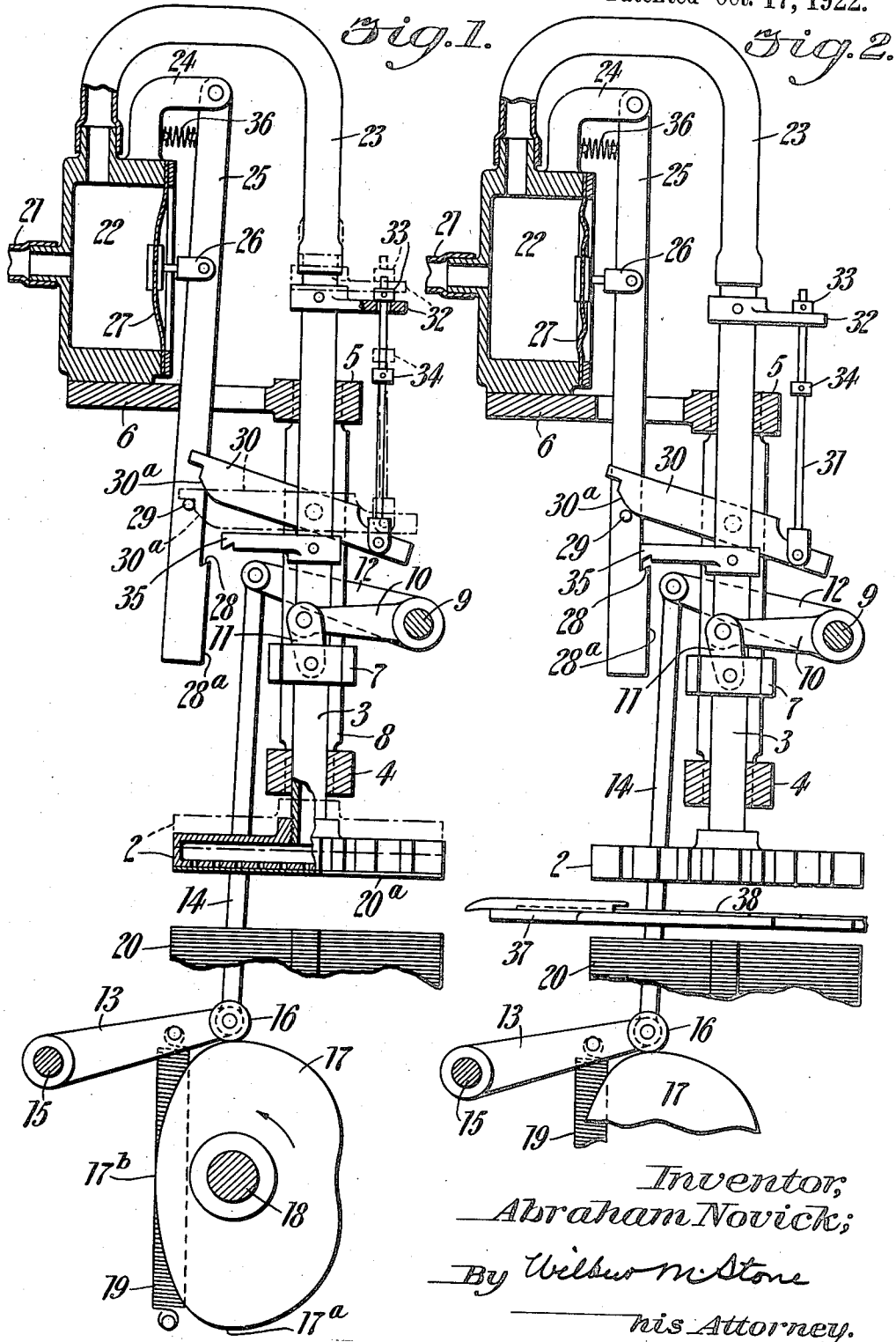


A. NOVICK.  
SAFETY STOP FOR BLANK PICKERS.  
APPLICATION FILED OCT. 1, 1921.

1,432,032.

Patented Oct. 17, 1922.



Inventor,  
Abraham Novick;  
By Wilbur M. Stone  
his Attorney.

## UNITED STATES PATENT OFFICE.

ABRAHAM NOVICK, OF BROOKLYN, NEW YORK, ASSIGNOR TO F. L. SMITHE MACHINE COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## SAFETY STOP FOR BLANK PICKERS.

Application filed October 1, 1921. Serial No. 504,621.

*To all whom it may concern:*

Be it known that I, ABRAHAM NOVICK, a citizen of the United States, and a resident of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Safety Stops for Blank Pickers, of which the following is a specification.

This invention relates to safety stops for blank pickers, and its object is to provide a simple and dependable device of the character described.

The present invention is particularly applicable to that class of machines in which a blank of paper or similar sheet material is lifted by a suction picker from a support and deposited upon receiving means introduced between the support and the lifted suction picker. While the mechanism of the present invention is applicable to a large variety of machines I have chosen to illustrate it as incorporated with an envelope machine such as shown in my pending application for Letters Patent Serial Number 500,796, filed September 15, 1921, to which reference may be had. In that machine a lining blank is lifted from a stack of blanks and deposited onto an envelope blank introduced below the lifted lining blank. As said envelope blank is usually provided with an adhesive on its upper face for the reception and securing of the lining blank thereon, it is highly undesirable to permit the lining picker to descend onto the gummed envelope blank without having a lining blank thereon. The present invention is directed to preventing the descent of the picker onto the envelope blank when a lining blank is absent therefrom.

In the drawing accompanying this specification:—

Figure 1 is a side elevation, partly in section, of so much of an envelope machine as will suffice to suitably illustrate my improvements. Fig. 2 is a similar elevation showing some of the parts in different relative positions. The scale of the two figures is the same.

Preferably picker 2 is fixed to the lower end of plunger 3, mounted for vertical movement in bearings 4, 5 fixed to a permanent part of the machine structure such as arm 6. Fixed to plunger 3 is crosshead 7 guided between opposite ways as 8. At one side of said plunger rock-shaft 9 is mounted in fixed bearings, not shown, and fixed to said

shaft is rock-arm 10, the free end of which is connected to crosshead 7 by link 11. Also fixed to said rock-shaft 9 is arm 12 having its free end connected to cam arm 13 by link 14. Said cam arm is freely mounted on fixed shaft 15 and carries roll 16 for engagement with cam 17 fixed to rotating shaft 18 mounted in fixed bearings, not shown. Roll 16 is constrained to engagement with said cam by pull spring 19. The stack of blanks 20, to be lifted, one blank at a time, by picker 2 is supported and fed upwardly as required by known means, not shown.

Picker 2 and plunger 3 are of the usual hollow construction and the air is exhausted therefrom, from time to time as required, by known means, not shown, connected to suction pipe 21. Said pipe opens into diaphragm chamber or box 22, and said chamber is connected by flexible pipe 23 with the upper end of hollow plunger 3. Said chamber 22 is fixed to a permanent part of the machine frame such as arm 6. Pivoted in ear 24 upstanding from chamber 22 is depending lever 25. Said lever is connected by link 26, pivoted thereto, with the mid-portion of flexible diaphragm 27, forming the front wall of diaphragm box 22. For urging said lever away from diaphragm box 22, push spring 36 is provided. The lower end of lever 25 has hook 28 reaching toward plunger 3 for purposes set forth later herein. Above said hook 28, pin 29 protrudes from lever 25 for engagement with the free end of lever 30 pivoted about midway its length on slideway 8. The right hand end of said lever 30 is pivotally engaged by vertical rod 31. The upper end of said rod plays freely through an opening in arm 32, outreaching from and fixed to the upper end of plunger 3. Fixed to said rod 31, above and below arm 32, are collars 33, 34, respectively, for engagement with said arm as described later herein. For engagement with hook 28 of depending lever 25, arm 35 fixed to plunger 3 is provided. In Fig. 2, horizontally moving slide 37 carrying sheet 38 on which a blank from stack 20 is to be deposited, is shown.

The operation of my improved device is as follows: Assuming the machine to start from the position of Fig. 1, it will be noted that picker 2 has blank 20<sup>a</sup> against its lower face, said blank being held there by air pressure due to the exhaustion of air from picker 2 through plunger 3, pipe 23, diaphragm box

22 and pipe 21, and so to the source of suction. Also it will be noted that the exhaustion of air from diaphragm box 22 causes diaphragm 27 to collapse into said box, thereby drawing lever 25 to the left against the resistance of spring 36, Fig. 1, whereby hook 28 is withdrawn from the downward path of arm 35 fixed to plunger 3.

At this time slide 37 bearing sheet 38 is introduced between stack 20 and picker 2, see Fig. 2. Then, cam 17 rotating a quarter turn in the direction of its arrow, picker 2 descends and deposits blank 20<sup>a</sup> onto the sheet on slide 37, the suction in said picker being cut off at the same time.

Cam 17 now continues its anti-clockwise rotation, and picker 2 is lifted from slide 37 leaving blank 20<sup>a</sup> thereon. Said slide then withdraws and air freely entering diaphragm box 22 through said picker, a balance is established between the inside and outside air and spring 36 thereupon acts to swing lever 25 to the right, face 28<sup>a</sup> thereof striking against the end of arm 35. Further rotation of cam 17 lifts plunger 3 and arm 35 thereon until said arm rises above hook 28 and spring 36 then forces said hook under the end of said arm.

If now plunger 3 should start to descend, arm 35 would engage hook 28 and prevent further descent of said plunger and picker 2 to lift another blank from the stack. To obviate this, high part 17<sup>a</sup> of cam 17 now lifts roll 16 to its highest position causing picker 2 and arm 32 to rise to the dotted positions, respectively, of Fig. 1. As said arm 32 rises to said dotted position, it engages collar 33 and pulls rod 31 upwardly, thereby swinging lever 30 to its dotted position, Fig. 1, cam edge 30<sup>a</sup> thereof engages pin 29 on lever 25, forces that lever to the left and holds it out of the path of arm 35. Plunger 3 is therefore free to descend for causing picker 2 to engage the top of the stack of blanks 20.

Cam 17 now continues its rotation and presently presents its lowest portion 17<sup>b</sup> to roll 16, whereby picker 2 is pressed against the top of the stack. Just before picker 2 reaches this low position, arm 32 on plunger 3 engages collar 34 and pushes rod 31 downwardly, thereby swinging lever 30 to release pin 29 of lever 25. Said lever is thereupon urged to the right by its spring 36 and its face 28<sup>a</sup> presses against the end of arm 35. When picker 2 engages the top of stack 20, the air is exhausted from said picker and the topmost blank of the stack adheres thereto. The exhaustion of air from said picker and its connected exhaust system causes diaphragm 27 to collapse to the position of Fig. 1, whereby lever 25 is swung to the left to the position of Fig. 1, free of arm 35. Picker 2, bearing blank 20<sup>a</sup> then rises to the position of Fig. 1 and, because

of the maintained exhaust in diaphragm box 22 whereby lever 25 is held to the left as in Fig. 1, said picker is free to descend and deposit blank 20<sup>a</sup> on slide 37 as described.

If, however, from any cause, picker 2 fails to secure a blank from the stack, immediately upon its rising from the stack, air is admitted therethrough, destroying the partial vacuum in box 22 and permitting spring 36 to press lever 25 to the right, all as in Fig. 2. Therefore, in the absence of a blank on picker 2, when that picker starts to descend from the position of Fig. 2, arm 35 fixed to its plunger 3 engages hook 28 and the downward movement of said plunger toward slide 37 and blank 38 thereon is checked and the engagement of said plunger and slide, or blank, prevented.

But when cam 17 again presents its high portion 17<sup>a</sup> to roll 16, arm 32, through collar 33, rod 31, lever 30 and pin 29, forces lever 25 out of the path of arm 35, thereby permitting picker 2 to descend to again engage stack 20 to get a blank therefrom.

I claim:

1. In a device of the character described the combination of a picker mounted and actuated for movement toward and away from a stack of blanks, means for exhausting air from said picker for causing a blank to adhere thereto, means interposed between said picker and stack when the picker is away from the stack for receiving a blank lifted by said picker upon the next movement of said picker toward said stack, and pneumatically governed means for checking the movement of said picker toward said interposed blank receiving means in the absence of a blank on the picker.

2. In a device of the character described the combination of a picker mounted and actuated for movement toward and away from a stack of blanks, means for exhausting air from said picker for causing a blank to adhere thereto, means interposed between said picker and stack when the picker is away from the stack for receiving a blank lifted by said picker upon the next movement of said picker toward said stack, pneumatically governed means for checking the movement of said picker toward said interposed blank receiving means in the absence of a blank on the picker, and means operative during the return movement of said picker away from its checked position for releasing said checking means.

3. In a device of the character described the combination of a reciprocating plunger, a blank picker carried thereby, a pneumatically actuated diaphragm, an oscillatable lever having a hook, said lever being operably connected to said diaphragm, an arm on said plunger for engaging said hook, and means for constantly urging said lever hook to engagement with said plunger arm, the

movement of said diaphragm being governed by the presence or absence of a blank on said picker.

4. In a device of the character described the combination of a reciprocating plunger, a blank picker carried thereby, a pneumatically actuated diaphragm, an oscillatable lever having a hook, said lever being operably connected to said diaphragm, an arm on said plunger for engaging said hook, and means for constantly urging said lever hook to engagement with said plunger arm, the movement of said diaphragm being governed by the presence or absence of a blank on said picker, the absence of a blank on said picker being effective for releasing said lever for causing its hook to be engaged by said plunger arm.

5. In a device of the character described the combination of a reciprocating plunger, a blank picker carried thereby, a pneumatically actuated diaphragm, an oscillatable lever having a hook, said lever being operably connected to said diaphragm, means for constantly urging said lever hook to engagement with said plunger arm, the movement of said diaphragm being governed by the presence or absence of a blank on said picker, the absence of a blank on said picker being effective for releasing said lever for causing its hook to be engaged by said plunger arm, and means operative during the return movement of said picker for disengaging said hook and plunger arm.

6. In a device of the character described the combination of a reciprocating plunger, a blank picker carried thereby, a pneumatically actuated diaphragm, an oscillatable lever having a hook, said lever being operably connected to said diaphragm, means for constantly urging said lever hook to engagement with said plunger arm, the movement of said diaphragm being governed by the presence or absence of a blank on said picker, the absence of a blank on said picker being effective for releasing said lever for causing its hook to be engaged by said

plunger arm, and a pivoted lever having cam means adapted for engaging said oscillatable lever for throwing said lever hook out of engaging position with said plunger arm, said pivoted lever being operably connected with said plunger.

7. In a device of the character described the combination of a reciprocating plunger, a blank picker carried thereby, a pneumatically actuated diaphragm, an oscillatable lever having a hook, said lever being operably connected to said diaphragm, means for constantly urging said lever hook to engagement with said plunger arm, the movement of said diaphragm being governed by the presence or absence of a blank on said picker, the absence of a blank on said picker being effective for releasing said lever for causing its hook to be engaged by said plunger arm, and a pivoted lever having cam means adapted for engaging said oscillatable lever for throwing and latching said lever hook out of engaging position with said plunger arm, said pivoted lever being operably connected with said plunger, said plunger being effective when reciprocated in one direction for causing said pivoted lever to engage said oscillatable lever and when reciprocated in the opposite direction for unlatching said pivoted lever from said oscillatable lever.

8. In a device of the character described the combination of a picker mounted and actuated for movement toward and away from a stack of blanks, means for exhausting air from said picker for causing a blank to adhere thereto, pneumatically governed means for checking the movement of said picker toward said interposed blank receiving means in the absence of a blank on the picker, and means operative during the return movement of said picker away from its checked position for releasing said checking means.

In witness whereof, I hereby affix my signature, this 16th day of September, 1921.

ABRAHAM NOVICK