

March 24, 1925.

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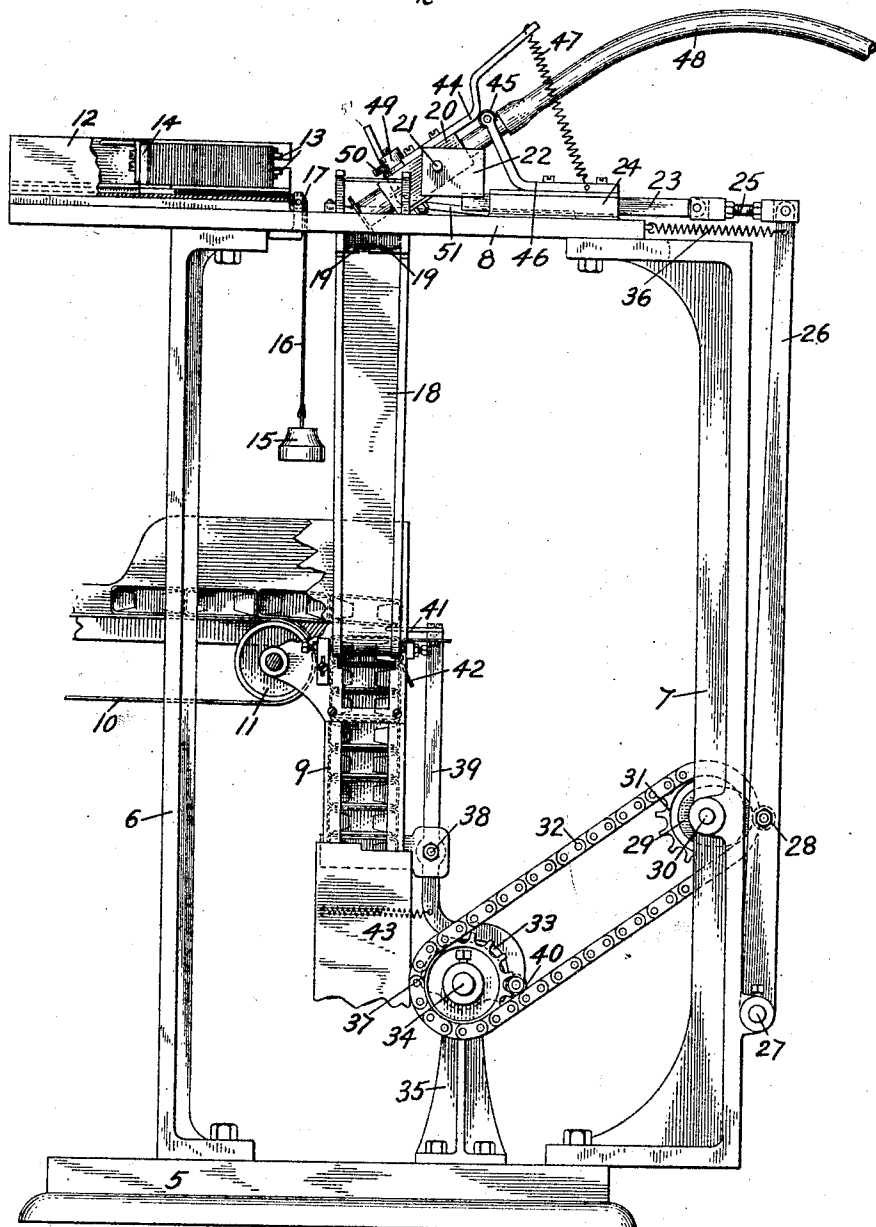
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CARD FEEDING ATTACHMENT FOR PACKING MACHINES

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3 Sheets-Sheet 1

Fig. 1.



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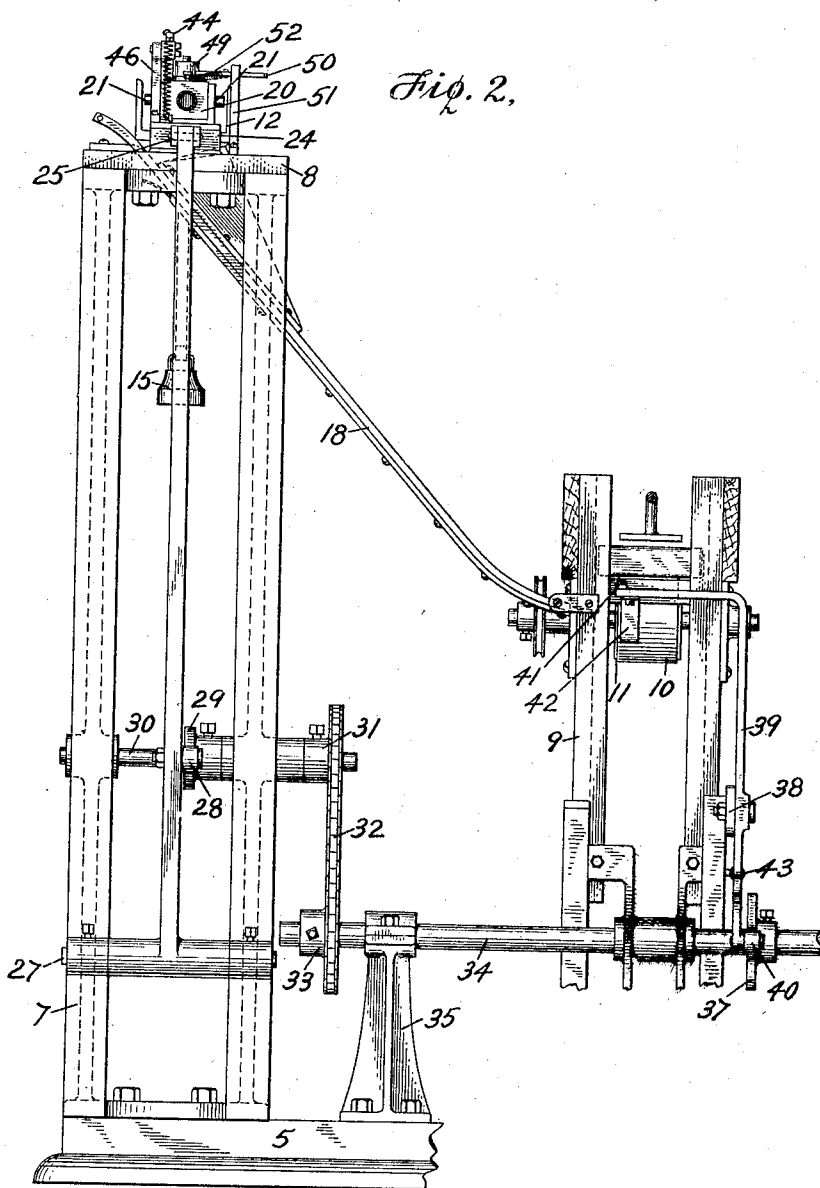
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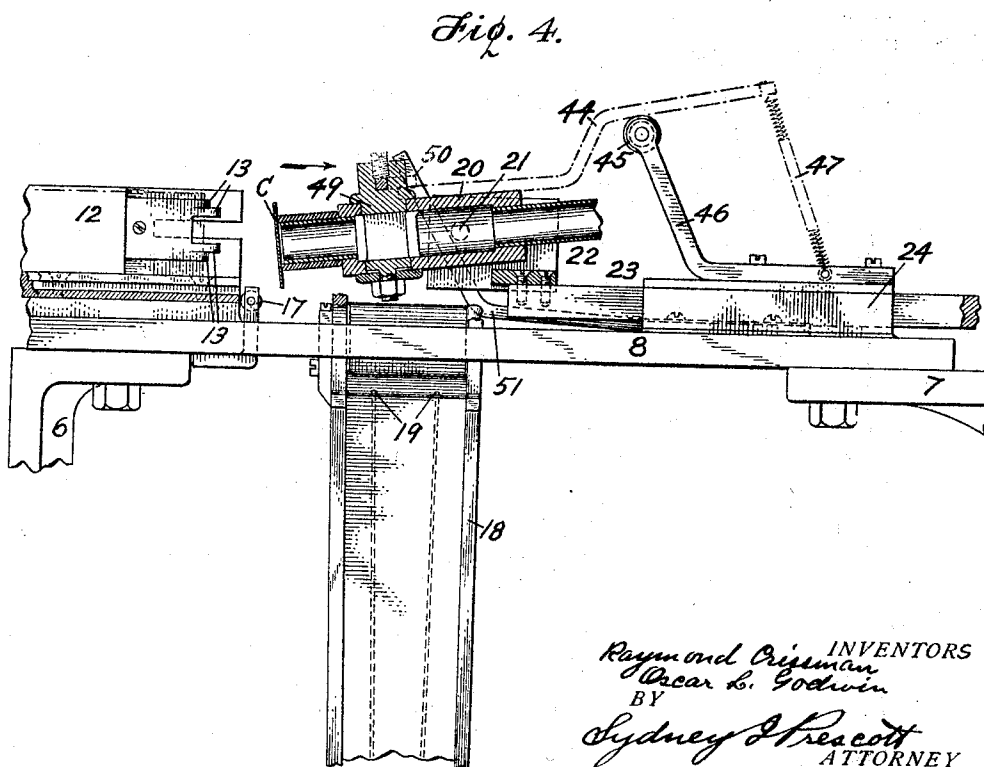
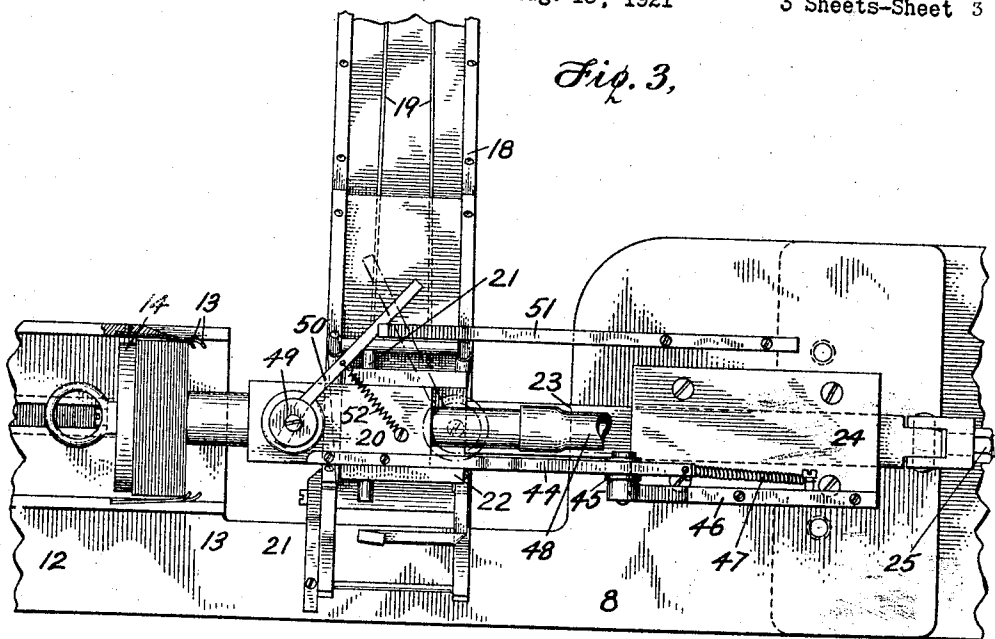
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UNITED STATES PATENT OFFICE.

RAYMOND CRISSMAN AND OSCAR L. GODWIN, OF RICHMOND, VIRGINIA, ASSIGNORS
TO BRITISH-AMERICAN TOBACCO COMPANY, LIMITED, OF NEW YORK, N. Y., A COR-
PORATION OF GREAT BRITAIN.

CARD-FEEDING ATTACHMENT FOR PACKING MACHINES.

Application filed August 13, 1921. Serial No. 492,197.

To all whom it may concern:

Be it known that we, RAYMOND CRISSMAN and OSCAR L. GODWIN, citizens of the United States, residing, respectively, at Richmond, Henrico County, Virginia, and Richmond, Chesterfield County, Virginia, have invented a new and useful Improvement in Card-Feeding Attachments for Packing Machines, of which the following is a specification.

This invention relates to an improvement in card feeding attachments for packing machines and consists in certain constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is a side elevation of a device constructed in accordance with the invention; Fig. 2 is an end elevation of the structure shown in Fig. 1; Fig. 3 is a detail plan view, upon an enlarged scale, of a portion of the device illustrated in Figs. 1 and 2; and Fig. 4 is a side elevation of the structure shown in Fig. 3, partly in section.

In carrying the invention into effect, there is provided a card magazine in which a supply of cards is stored, a card chute spaced from said magazine, and a suction card carrier interposed between said magazine and said chute and adapted to successively take cards from said magazine and to deliver them to said chute for ultimate delivery by gravity to cups in the package cup magazine forming a part of the general machine organization in connection with which the attachment is used. These parts may be varied widely in construction within the scope of the claims as the structure shown and described is but one of many possible concrete embodiments of the invention. The invention therefore is not to be restricted to the precise details of the structure shown and described.

Referring to the drawings, 5 indicates the bed of a packing machine in connection with which the attachment is used. Rising from the bed 5 are standards 6 and 7 which serve to support the bed 8 of the attachment proper. Between the standards 6 and 7 is located a vertical package cup magazine 9

shown broken away from but supported by the main frame of the packing machine proper. Package cups are fed to the top of this magazine by means of a belt 10 running over a pulley 11 and deriving its motion from a suitable source of motion in the packing machine proper. Since the detail construction of the package cup magazine 9 lies outside the present invention, is well known, and a full description is not necessary to an understanding of the present invention, further description of this package cup magazine is deemed unnecessary and is therefore omitted in the interest of brevity and clearness.

Mounted upon the attachment bed 8 is a card magazine consisting of a trough 12 provided near its delivery end with spring clips 13, the function of which is to retain the leading edge of a stack of cards in the magazine in proper position for delivery. The stack of cards in the magazine is held against the clips 13 by means of a sliding follower 14 which derives its movement from a weight 15 attached to one end of a strap 16 running over a roller 17, the other end of the strap being attached to the follower.

The package cup magazine 9 is located below and forward and to one side of the card magazine and means are provided for successively taking cards from the card magazine and delivering them to the package cups in the cup magazine. This means includes a chute 18 interposed between the two magazines and spaced from the card magazine, and a suction carrier adapted to successively take cards from the card magazine and deliver them to the chute. For the purpose of minimizing friction the chute 18 is provided with a pair of wires 19 soldered to its bottom and upon which the cards slide down the chute. The suction carrier includes a casing 20 pivoted at 21 to a block 22 screwed fast to a slide 23 free to reciprocate in an enclosed slideway 24 screwed to the bed 8 before referred to. The end of the slide 23 opposite the block 22 is connected, by means of an adjustable link 25, with a lever 26 fulcrumed at 27 to the standard 7 and carrying a bowl 28 operating on the periphery of a cam 29 carried by a shaft 30 mounted in suitable journals in the standard 7. The shaft 30 also car-

ries a sprocket 31 and over this sprocket runs a chain 32 which also runs over a sprocket 33 fast on a shaft 34 which is one of the shafts of the packing machine proper in connection with which the attachment is used. One end of the shaft 34 is suitably journaled in a bracket 35 rising from the bed 5 before referred to and its other end is suitably journaled in a bearing carried by the packing machine proper but not shown in the drawing.

The bowl 28 carried by the lever 26 is held in contact with the cam 29 by means of a spring 36 one end of which is fast to the upper end of the lever 26 and the other end to the attachment bed 8. By this construction the slide 23 and the reciprocating movement of the suction carrier 20 is spring actuated and cam controlled.

The shaft 34 also carries a cam 37 and fulcrumed 38 on the package cup magazine is a lever 39 the lower end of which is provided with a bowl 40 tracking on the periphery of the cam 37. The upper end of the lever 39 is provided with an overhanging clip 41 and with a bent finger 42. The function of the clip 41 is to sustain the leading edge of a package cup as it is fed to the cup magazine by the belt 10 out of contact with the cup immediately below it in the magazine while a card is being introduced to the latter. And the function of the finger 42 is to hold the cup accurately in position in the magazine while a card is being introduced therein. The bowl 40 carried by the lever 39 is held in contact with the cam 37 by means of a spring 43 one end of which is fast to the lever 39 and the other to the frame of the cup magazine.

Concurrent with the reciprocating movement of the suction carrier 20, the latter is given a rocking movement to facilitate delivery of a card to the chute 18. With this end in view, a cam arm 44 is screwed to the top of the suction carrier and rides on a bowl 45 carried by a fixed arm 46 screwed to the slideway 24 before referred to. The cam arm 44 is held against the bowl 45 by means of a spring 47 one end of which is fast to the cam arm 44 and the other to the fixed arm 46. By the mechanism just described, the rocking movement of the suction carrier 20 is also spring actuated and cam controlled.

The carrier 20 is connected by means of a flexible tube 48 with a suitable suction producing device not shown but of a well known character. For the purpose of controlling the suction in the carrier 20 there is provided a valve 49 to the upper end of which is secured an arm 50. This arm contacts with a fixed cam arm 51 screwed to the bed 8. It is held against this arm by means of a spring 52 one end of which is fast to the valve arm 50 and the other to the carrier 20.

The weight 15 holds the stack of cards in the card magazine in the position shown in Figs. 1 and 3, against the clips 13. The suction carrier is then moved into contact with the forward end of the stack, the valve at this time being open and the suction carrier lying in a horizontal position. The carrier is then given its peculiar movement which is the resultant of concurrent reciprocating and rocking movements drawing a single card away from the stack in the card magazine and tilting it in transit. Fig. 4 illustrates this movement in the direction of the arrow, a card marked C being in position on the carrier and held there by the suction. When, however, the retreating carrier has reached the position shown in Fig. 1, the rearward reciprocating and the rocking movement of the carrier are almost completed and the valve has almost cut off the suction. Just beyond this point, the suction is completely cut off and the card is delivered to the upper end of the chute 18 down which it slides into the package cup, held in position to receive it by the lever 39, the clip 41 and the finger 42. It will be readily understood that after a card is thus delivered to the chute, the carrier is given a reverse movement—also the resultant of its concurrent reciprocating and its rocking movements, and that before the forward end of the carrier again contacts with the leading card of the stack in the card magazine, the valve has again fully opened.

What is claimed is:

1. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said movements being in horizontal planes.

2. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said magazine being provided with a device for advancing cards therein into the range of action of said carrier.

3. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said support including a slide having a block in which said carrier is journaled.

4. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said movement producing means including a link connected with said support and with a spring-actuated and cam-controlled lever.

5. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said carrier having a valve closed by said controlling means during said retreating movement.

6. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said carrier having a valve opened by said controlling means during said approaching movement.

7. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said carrier rocking means being spring-actuated and cam-controlled.

8. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said carrier rocking means including an arm fixed to said carrier, and devices for actuating said arm during said movements.

9. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said carrier rocking means including an arm fixed to said carrier, a spring actuating said arm during said approaching movement, and a stationary cam actuating said arm during said retreating movement.

10. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said controlling means being spring-actuated and cam-controlled.

11. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, and suction controlling means, said controlling means including a valve in said carrier and a spring-actuated and cam-controlled arm fast thereto.

12. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, suction controlling means, and card conducting means receiving cards from said carrier.

13. In a card feeding device, the combination with a magazine, of a support, means for alternately producing relative approaching and retreating right-line movements of said magazine and said support, a suction card carrier mounted on said support, means for rocking said carrier on said support, suction controlling means, and a chute receiving cards from said carrier.

14. In a card feed device, the combination with a card magazine, of a card carrier, an arm secured to said carrier and having an offset section, means for alternately producing approaching and retreating movements of said carrier toward and away from said magazine, and a cam bowl operative in fixed position and engaging said arm adjacent its offset to tilt said carrier in one direction during its retreating movement.

15. In a card feed device, the combination with a card magazine, of a card carrier, an arm secured to said carrier and having an offset section, means for alternately producing approaching and retreating movements of said carrier toward and away from said magazine, a cam bowl operative in fixed position and engaging said arm adjacent its offset to tilt said carrier in one direction during its retreating movement, and a spring engaging said arm and acting to tilt said carrier in the opposite direction during its approaching movement.

16. In a card feed device, the combination with a card magazine, of a slideway spaced

from said magazine but extending in the same general direction, a slide mounted in said slideway, means for reciprocating said slide, a card carrier pivotally mounted on said slide, an arm secured to said carrier and having an offset section, an arm secured to and rising from said slideway, a cam bowl mounted in said arm and engaging the offset section of the carrier arm, and a spring connecting the free end of the carrier arm with said slideway.

17. In a card feed device, the combination with a card magazine, of a slideway spaced from said magazine but extending in the same general direction, a slide mounted in said slideway, means for reciprocating said

slide, a suction card carrier pivotally mounted on said slide, a valve within said carrier, an arm carried by said valve, a fixed cam in the path of and engaging said arm, a spring holding said valve arm and said fixed cam in engagement, a tilting arm secured to said carrier and having an offset section, a fixed arm secured to said slideway, a cam bowl carried thereby and engaging the offset section of said tilting arm, and a spring holding said tilting arm and cam bowl in engagement.

In testimony whereof, we have signed our names to this specification.

RAYMOND CRISSMAN.
OSCAR L. GODWIN.