

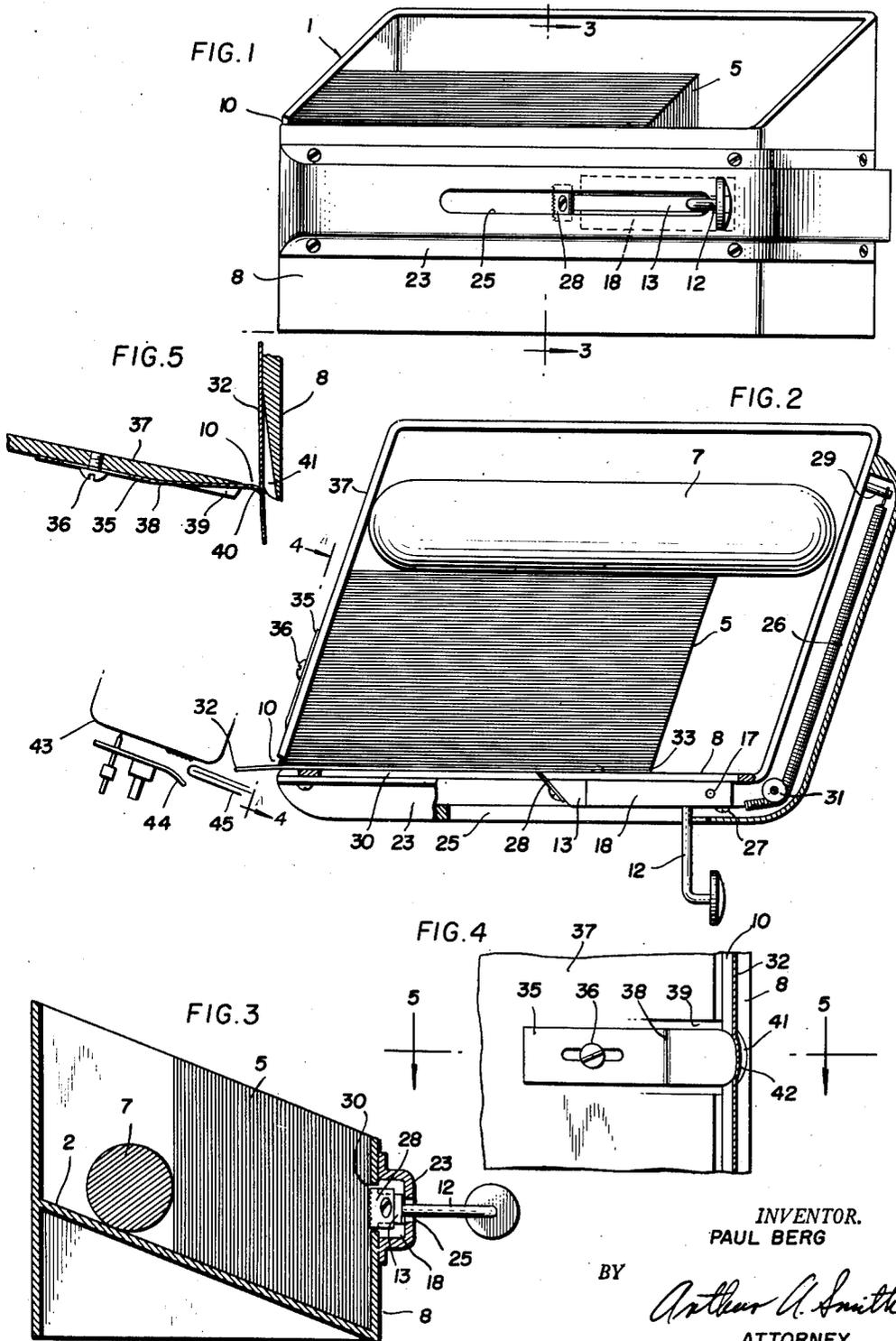
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CARD DISPENSING DEVICE

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CARD DISPENSING DEVICE

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7 Claims. (Cl. 312-56)

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This invention relates generally to dispensing devices and more particularly it relates to card or tag dispensers. The invention disclosed herein is an improvement over that disclosed in my copending application Serial No. 94,483, filed May 20, 1949, now abandoned.

It is customary in feed mills and in various other industrial establishments to close bags of grain or other materials by sewing and it is required by State regulation that a tag be attached to each bag showing the ingredients of the material in the bag. Certain mechanisms have been suggested for feeding a tag or card into the line of stitching to be caught by the needle of the bag sewing machine, but such mechanisms are unduly complex and expensive.

Prior art devices of the class described above include mechanisms designed to prevent the ejection of more than one card at a time, but such mechanisms are also subject to criticism as unduly complex and expensive.

Accordingly, it is the primary object of this invention to provide a novel card dispenser, and it is a further object of this invention to provide a card dispenser which is of simple construction and inexpensive to manufacture.

Still another object of this invention is to provide a card dispensing device including a novel mechanism for permitting ejection of a single card only at a given time, such mechanism being simple and inexpensive.

In accordance with this invention, card separating means is disposed in the path of an ejectable card comprising a member adapted to deflect said card and break the frictional engagement of said card with other cards which may be in contact therewith.

For a better understanding of the invention, together with other and further objects thereof, reference is made to the following description, taken in connection with the accompanying drawings, and its scope will be pointed out in the appended claims.

In the accompanying drawings:

Figure 1 of the drawings shows a front elevation of the apparatus embodying this invention.

Figure 2 is a top view, partially in section, of the card dispenser shown in Figure 1.

Figure 3 is a cross-section taken on line 3-3 of Figure 1.

Figure 4 is a partial end view taken on line 4-4 looking from the left of Figure 2.

Figure 5 is a partial, slightly enlarged cross-section taken on line 5-5 of Figure 4.

Referring to Figure 1 of the drawings, there

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is provided in accordance with this invention a card dispenser comprising card supporting structure which may be a box 1 in the form of a parallelogram having a sloping bottom 2 for holding cards 5. The purpose of the parallelogram form will be explained subsequently. Cards 5 may be stacked vertically on edge within the box, there being a gravity moveable weight 7 disposed to the rear of the stack for moving the cards down firmly into contact with the front wall 8 of box 1. Weight 7 may be any cylindrical member of sufficient mass to move cards 5 downwardly whereby as cards are ejected from the box, there is certain to be at least one card in position for ejection. Another purpose for weight 7 will appear from subsequent description. Box 1 is provided with a slot 10 through which cards may be ejected in a manner to be described.

For ejecting cards 5 from box 1 there is provided a lever 12 attached to a sliding member 13 extending from the lever to the cards 5 in the box. Lever 12 serves as an operating member which may be manually or power operated. Member 13 is pivoted at 17 to a slide 18 mounted in the track or guide 23 which is slotted at 25 and is fixed to the front 8 of box 1 in any well known manner. For the purpose of positively engaging the lowermost or front card of box 1, there is provided, on member 13 at its outer end, a saw-tooth member 28. As illustrated in Figure 3, the saw-toothed member 28 moves through a slot 30 provided in the front 8 of box 1, through a distance sufficient to allow member 28 to engage the outermost card. For normally retaining slide 18 in its inactive position, there is provided a spring 26, attached at one end to slide 18 by a screw 27 and at its other end to a lug 29 fixed to the side of box 1. Pulley 31, mounted on guide 23, serves to guide spring 26.

For the purpose of separating the outermost card 32 from the next outermost card 33, there is provided, in the path of movement of an ejected card, a stop 35 moveably mounted by means of screw 35 which may be fixed to end member 37 of the box 1 as illustrated in Figures 2 and 4 of the drawings. Stop 35 may be a spring member and is slightly bent as at 38 into a slot 39 formed in member 37. Stop 35 is bent in a reverse direction, as at 40, into approximate alignment with the plane of side 37. Stop 35 extends across slot 10 into alignment with the inside surface of front wall 8 and to a position to intercept card 32 and also deflect it as illustrated in Figures 2 and 4. The front 8 is provided with a

cavity as at 41 of sufficient depth to permit slight bending of the midportion 42 of a card so that a card 32, which is positively engaged by member 28, may bend at its midportion 42 and slide outwardly past the stop 35 whereas card 33, which is only frictionally engaged by card 32, will not bend and will meet the stop whereby the frictional engagement will be broken to prevent the ejection of a second card.

For purposes of illustration of a typical application of this invention, Figure 2 includes a showing of a portion of a conventional bag sewing machine looking downwardly. Such a machine includes a frame 43 and a foot 44 whereby, in normal operation, the end portion 45 of a bag moves between the frame and the foot for sewing by the needle (not shown) and a card such as 32 may be ejected into position to be sewn along its upper edge to the bag. The card dispenser may be arranged with respect to the sewing machine in any suitable manner to achieve the desired result as will be obvious to those of ordinary skill in the art. However, box 1 has a parallelogram form so that the mounting supports may be spaced appreciably from the sewing machine but the dispensing slot may be closely adjacent the sewing machine.

In operation, a stack of cards may be placed in box 1, by removing weight 7, inserting the cards and then replacing the weight 7. As a bag is being sewn, the operator of the sewing machine, at any desired stage of the sewing, may move lever 12 to the left (Figure 2), thereby pivoting member 13 clockwise to the position shown in Figure 2. Member 13 pivots with lever 12 until saw-toothed member 28 engages card 32. Because of the resistive action of weight 7 the teeth of member 28 will pierce card 32 to a slight degree. Thus cards 32 and 33 are moved into engagement with the curved end of stop 35. The very tip end of stop 35 is in approximate alignment with the inner surface of front 8 of box 1, and therefore, card 32 must bend at its middle portion into cavity 41 the degree of bending being at least equal to the thickness of the card. It should be noted that front 8 prevents bending of card 32 except at its mid-portion whereby greater force is required to eject the card than would be required if the card were permitted to bend across its entire width as shown in my co-pending application, identified previously. Because there is positive engagement between member 28 and card 32 this card is forced to bend and slip past the stop 35 as shown in Figures 2 and 4. However, when card 33 reaches the stop 35 it is spaced inwardly from the tip end of stop 35 a distance at least equal to the thickness of card 32 and therefore would have to bend at its mid-portion through a distance equal to its own thickness plus that of card 32 before it could pass the stop 35. This cannot happen because there is only frictional engagement between the cards 32 and 33 and the friction is not sufficient to cause continued movement of card 33 with the force necessary to bend it outwardly beyond the tip end of stop 35. Therefore, card 33 cannot be ejected while card 32 is being ejected. For cards of different sizes, materials, thicknesses, or degrees of stiffness, screw 36 permits adjustment of stop 35.

Continued motion of lever 12 moves card 32 into position between frame 43 and foot 44 of the sewing machine to be caught by the needle for sewing to the bag. As soon as this happens, lever 12 may be released permitting spring 26 to

disengage the saw-toothed member 28 from card 32 and move slide 18 back to its starting position and therewith the associated mechanism. By repeating the cycle described above, one card after another may be sewn to one bag after another until the cards are all ejected from box 1.

As mentioned hereinbefore box 1 is formed in the shape of a parallelogram, has a sloping bottom and a gravity movable weight 7. Weight 7 serves to counteract the pressure exerted on the cards by the card ejecting mechanism. As the cards are ejected weight 7 moves downwardly, and the right hand side of the box moves weight 7 to the left whereby the left hand end of weight 7 is closely adjacent to the side 37 of box 1. If at any time the pressure of the card ejecting mechanism becomes excessive, the left hand end of weight 7 binds against the inner surface of side wall 37, thereby preventing excessive inward movement of the cards.

While this invention has been illustrated as applicable to a bag sewing machine, it will be obvious to those skilled in the art that there are many other applications for card dispensing devices. Also, it will be obvious to those skilled in the art that many types of boxes may be utilized with this invention. In fact, an open frame may serve the purpose in certain applications. It is further noted that this invention is not limited to the use of cards, as it may also serve to dispense metallic tags.

While there has been described what is at present considered the preferred embodiment of the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is, therefore, aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

I claim:

1. A card dispenser comprising a box for supporting a plurality of stacked cards, said box having an opening in one side thereof, means mounted on said box for moving into engagement with a card in said box thereby to move said card together with a frictionally engaged second card through said opening, and card separating means disposed in the path of said cards for bending said one card about a longitudinal axis thereof to break the frictional engagement of said cards.

2. A card dispenser comprising a box for supporting a plurality of stacked cards, said box having an opening in one side thereof, a concave surface on another side thereof and adjacent said opening, means mounted on said box for moving into engagement with a card in said box, said means being adapted to move said card together with a frictionally engaged second card through said opening, and card separating means disposed in the path of said cards comprising a stop extending toward said concave surface thereby to bend said one card toward said concave surface to break the frictional engagement of said cards.

3. A card dispenser comprising a box for supporting a plurality of stacked cards, said box having an opening in one side thereof, a concave surface on another side thereof and adjacent said opening, means mounted on said box for moving into engagement with a card in said box, said means also being adapted to move longitudinally of said box thereby to move said card together with a frictionally engaged second card through said opening, and card separating means

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disposed in the path of said cards comprising a stop facing said cards and extending toward said concave surface to bend said one card laterally thereof to break the frictional engagement of the said cards.

4. A card dispenser comprising a box for supporting a plurality of stacked cards, said box having an opening in one side thereof, a cavity in another side thereof and adjacent said opening, a guide structure mounted on said other side of said box, means mounted on said guide structure for moving into engagement with a card in said box, said means also being adapted to move longitudinally of said box thereby to move said card together with a frictionally engaged second card through said opening, and card separating means disposed in the path of said cards comprising a stop, said stop including a portion facing said cards and extending toward said cavity thereby to bend a portion of said one card into said cavity to break the frictional engagement of said cards.

5. A card dispenser comprising a box for supporting a plurality of stacked cards, said box having an opening in one side thereof, a cavity in another side thereof and adjacent said opening, a guide structure mounted on said other side of said box, means mounted on said guide structure for moving into engagement with a card in said box, said means also being adapted to move longitudinally of said box thereby to move said card together with a frictionally engaged second card through said opening, and card separating means disposed in the path of said cards comprising an adjustable stop, said stop including a curved portion facing said cards and extending toward said cavity into alignment with the inside surface of said other side thereby to bend the mid-portion of said one card into said cavity to break the frictional engagement of said cards.

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6. A card dispenser comprising a box having a sloping bottom, parallel side walls and a front vertical wall for supporting cards on edge, an opening at one corner of said box, pressure means mounted on said front wall for ejecting cards through said opening, a gravity movable weight supported on said sloping bottom and extending from one side wall to the other for urging cards into contact with the front wall and resisting the pressure of said ejecting means, the side wall adjacent said opening forming an acute angle with the front wall for creating a binding action on one end of said weight for preventing reverse movement thereof.

7. A card dispenser comprising a box having a sloping bottom, parallel side walls and a front wall for supporting cards on edge, an opening at one corner of said box, pressure means mounted on said box for ejecting cards through said opening, a gravity movable weight supported on said sloping bottom and urging cards into contact with the front wall and resisting the pressure of said ejecting means, the side wall adjacent said opening forming an acute angle with the front wall for creating a binding action on one end of said weight for preventing reverse movement thereof.

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