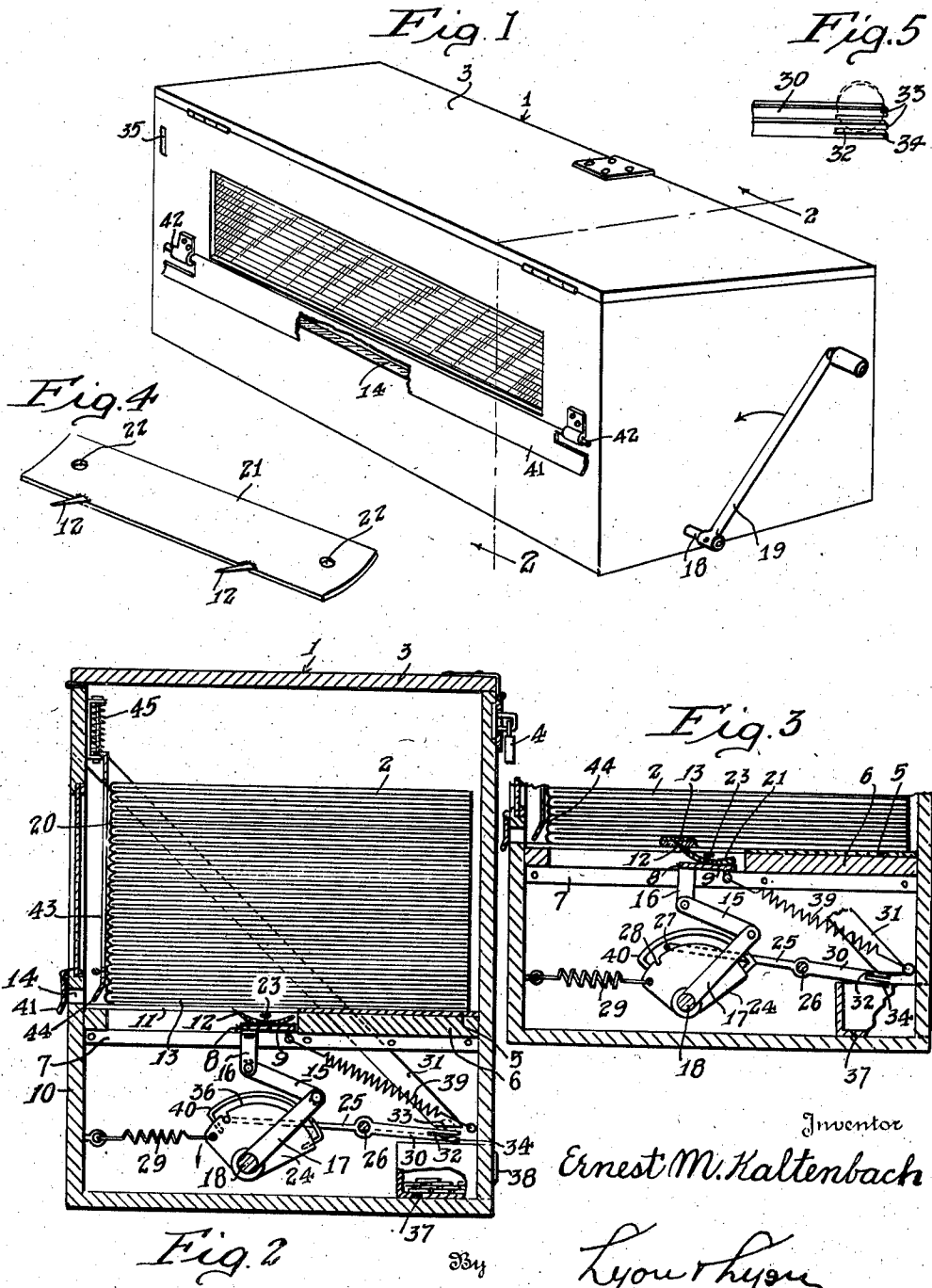


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NEWSPAPER VENDING MACHINE

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NEWSPAPER VENDING MACHINE

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4 Claims. (Cl. 312—55)

This invention relates to dispensing or vending machines, and while features of the invention may be adapted for other specific purposes, the invention as described in the following specification, is applied to the vending of newspapers. In such a vending machine the newspapers are held in a pack and an ejector mechanism is provided for removing the papers from the pack one by one. This ejector mechanism is usually located at the bottom of the pack and operates to engage the bottom paper and deliver it through the side of the cabinet or container in which the pack of papers is held. One of the difficulties in the operation of the ejector for a newspaper is that the material of the paper is more or less flimsy. The preferable procedure is to place the papers in the magazine or container so that their folded edge is located forwardly and immediately back of the opening through which the papers are to be ejected. One of the difficulties of the ejector mechanism is that it may engage only the lower half of the folded paper, and when the ejector moves forward to eject the paper, the friction of the pack on the upper side of the bottom paper may hold the upper portion of the paper so that the ejector merely shoves a part of the lower portion of the paper out through the delivery opening. The general object of this invention is to provide a vending machine of this type with an ejector of improved construction, which will operate to effect a satisfactory engagement with the bottom paper sufficient to insure that the paper will be effectively ejected through the delivery opening.

A further object of the invention is to construct the ejector in such a way that the first movement of the ejector operates to impale the adjacent paper of the stack, and the latter part of the movement of the ejector operates to eject the paper through the delivery opening.

The ejector preferably includes an ejector bar carrying two or more spurs to engage the adjacent paper of the stack; and one of the objects of the invention is to provide a construction which will enable the degree of penetration of these spurs in engaging the paper, to be nicely regulated so as to adapt the device to operate upon papers of different dimensions; also to insure that the spurs will penetrate not only through the adjacent half of the folded paper, but so that they will engage the other half of the same to insure efficient delivery of the paper through the opening when the ejector moves forward.

A further object of the invention is to provide

a simple coin-controlled device for effecting the release of the ejecting mechanism.

Further objects of the invention will appear hereinafter.

5 The invention consists in the novel parts and combination of parts to be described hereinafter, all of which contribute to produce an efficient newspaper vending machine.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawing:

15 Fig. 1 is a perspective of a newspaper vending machine embodying my invention, certain parts being broken away.

Fig. 2 is a vertical section taken about on the line 2—2 of Fig. 1, and showing the parts in the condition of rest.

20 Fig. 3 is a vertical section similar to Fig. 1, but showing only the lower part of the apparatus. This view shows the ejector immediately after it has been released preparatory to operating it to eject the paper.

25 Fig. 4 is a perspective of the ejector plate.

Fig. 5 is a detail view of the end of the coin-holder lever, broken away.

In practicing the invention, I provide an ejector device that is preferably located under a pack of papers held in a container or cabinet. The ejector is preferably in the form of a bar that extends substantially parallel with the delivery opening through which the papers are to be delivered. The ejector bar carries spurs preferably at its forward edge, which operate to engage the adjacent or lowest paper of the stack in the first part of the movement. In the latter part of the movement of the ejector means the ejector bar is moved bodily forward toward the delivery opening and shoves the paper through it.

In the position of rest the ejector mechanism is locked against movement and is released by the insertion of a coin. In the operation of the coin-controlled mechanism the coin operates to release a detent, thereby permitting a slight movement of the ejector mechanism preferably through the medium of a spring, and this movement initiates the upward tilting movement of the spurs to engage the paper. This movement is also sufficient to prevent the detent from operating again to hold the ejector mechanism against being operated. And the construction is such that when the ejector mechanism is operated the coin will be released and permitted to fall into the coin box.

The ejector bar is preferably constructed in such a way that as it moves forwardly, the spurs can tilt backwardly at their upper ends. This feature is important because it prevents any possibility of the points operating to rip through the paper without pushing it forward. The spurs are preferably carried on a rocker plate that operates to increase this backward tilting movement of the spurs, and also operates to cause them to increase their penetration through the lower fold or half of the paper and engage with the upper fold or half of the paper, thereby preventing any miscarriage when the ejector moves forward.

Referring to the drawing, 1 indicates a casing or container for a stack 2 of papers that are preferably placed in the container from above, and enclosed by a hinged cover 3, which may be provided with a padlock 4 to prevent the papers from being stolen. The stack 2 rests upon a bottom plate 5, which may in turn rest upon a wooden bottom 6. At the ends of the box or container, guide bars 7 are provided for guiding an ejector bar 8, said ejector bar preferably comprising a rigid slat or batten 9, the ends of which rest upon, and are guided by, the bars 7. The wooden bottom 6 is cut away to a point near the front wall 10 to permit the ejector bar 8 to move back and forth. The bottom plate 5, which is preferably of metal, is formed with two slots such as the slot 11, through which the spurs 12 carried by the ejector bar 8 project. These spurs project forwardly and upwardly from the ejector bar, and in the position of rest of this bar as shown in Fig. 2, the points of the spurs are slightly below the bottom paper 13.

The machine is constructed so that when the movement is imparted to the ejector bar 8, the ejector bar will begin its movement by swinging upwardly sufficiently to impale the bottom paper 13 on the spurs 12. In order to accomplish this, I prefer to provide a connection to the forward edge of the slat or batten 9, that will give an upward thrust to its forward edge at least at the first part of the movement, and the mechanism for this purpose is preferably constructed so that the direction of this thrust will change later and be directed in a substantially horizontal direction toward the delivery opening 14 in the forward wall 10 of the magazine or container.

In order to accomplish this, I prefer to employ a connecting rod or link 15, which, in its position of rest is in an inclined direction; that is to say, its forward end is elevated and pivotally attached to a short post 16 extending downwardly from the under side or forward edge of the batten 9. The rear end of the link 15 is preferably connected to an arm or lever 17 rigid with a shaft 18. The links 15 are preferably two in number, connected to two arms 17 so that the batten 9 will be advanced at two points on its length, thereby insuring that it will maintain itself parallel with the forward wall 10 as it advances. The shaft 18 may be rotated by any suitable actuating means, but in the present instance it may be rotated by means of a lever or crank 19 (see Fig. 1).

The papers of the stack are preferably disposed with their folded edges 20 aligned, and all located adjacent the delivery opening 14.

The spurs 12 preferably have sharp points to penetrate the newspaper, and are preferably formed integrally on an ejector plate 21, and this plate is preferably constructed so that it augments the backward tilting action of the points

of the spurs when they engage the paper to move it forwardly. For this purpose the plate 21 is preferably curved or dished transversely, and attached to the slat 9 in a way to permit free rocking movement of the plate in an upward direction toward its forward edge. For this purpose the plate is preferably provided with two openings 22 through which nails 23 or similar fasteners pass downwardly. These nails have enlarged heads larger than the openings 22 so as to hold the plate on the batten, but the nails are not driven down tight, so that there is free play for the plates under the heads. Fig. 3 illustrates this action of the ejector plate, and shows how the batten 9 will rock upwardly toward its forward edge as the thrust is developed in the link 15. This view also illustrates how the plate 21 rocks upwardly toward its forward edge.

The upward tilting movement at the forward edge of the slat or batten 9, and the upward rocking movement of the pins or spurs 12, is preferably sufficient to enable the points to penetrate all the way through the lower fold of the paper and enter or engage the upper fold. In this way, when the ejector moves forwardly the thrust through the spurs is imparted to both the upper and lower folds of the paper, which insures that the upper fold will be moved forwardly with the lower fold regardless of the high amount of friction between it and the adjacent paper of the stack.

In order to provide for locking the ejecting mechanism to prevent its being operated without the use of a coin, I prefer to provide the shaft 18 with a rigid segment 24. This segment cooperates with a detent 25; that is to say, it has means to be engaged by the detent so that the detent can keep the shaft 18 from rotating. For this purpose the detent 25 is in the form of a lever rigid with a rock shaft 26 and having a lateral or bent end 27 received in a recess or notch 28 in the edge of the segment.

Means is provided for urging the shaft 18 to rotate in a direction to advance the ejector bar. For this purpose I prefer to provide a coil spring 29, which is attached to a part of the segment, the other end of the spring being anchored on the forward wall 10 of the container.

The rock shaft 26 is provided with means for moving it to release the detent 25 from the segment. This means may be coin-controlled, in which case I prefer to employ a lever or arm 30 (see Fig. 2) the outer end of which projects under the lower end of a coin chute 31. The end of the lever 30 under the delivery end of the coin chute, is provided with two separated fingers 32 between which the coin 33 is received, the lower edge of the coin striking against a horizontal tongue 34 below the fingers 32. The chute 31 is of considerable length, having an elevated receiving mouth 35 (see Fig. 1). When the coin falls down this chute it acquires considerable momentum, and when it strikes the end of the lever 30 it will depress it and cause the detent 25 to rock upwardly and remove its bent end 27 from the notch 28. The spring 29 will then give a slight forward movement to the segment in the direction of the arrow indicated in Fig. 2, and this will move the notch 28 from under the bent end 27 of the detent and permit it to rest on the edge 36 of the segment. This edge is in the form of a cam, and when the shaft 18 is rotated by the crank 19, this cam edge 36 will raise the end of the detent 25, thereby considerably depressing the free end of the coin arm or lever 30, which

will permit the coin to fall out of the coin chute and into a coin box 37. The coin box may be in the form of a small drawer, which may be locked by means of a key inserted in a lock indicated at 38.

In effecting the upward tilt of the forward edge of the ejector bar in the first part of the ejector movement, it should be said that this action is greatly facilitated if a coil spring 39 is provided. This coil spring is anchored at its rear end on the rear wall of the box, and its forward end is attached near the rear edge of the batten or slat 9. This spring functions to hold down the rear end of the batten, although it permits the forward edge to be tilted upwardly as described.

The segment 24 may be provided with a segmental guard 40 to prevent any possibility of the bent end 27 of the detent from swinging too far away from the edge 36 of the segment 24.

By reason of the presence of the dished plate 21, it will be evident that the ejector mechanism can be readily adapted to operate upon papers of different thicknesses, for it will be evident that by increasing the amount of this bend in this plate, increased upward rocking movement of the spurs will result, and vice versa.

In order to keep the papers from becoming wet in bad weather, the outer side of the delivery opening 14 may be covered by a long flap door 41 suspended on hinge pins 42.

In order to prevent any theft of papers through the delivery opening 14, I may provide the forward end of the pack of papers with a guard 43, the lower end of which presents a flange or bar 44 extending along just inside of the delivery opening. This guard 43 is pressed downwardly yieldingly by one or more coil springs 45. Its lower edge at the flange or bar 44, is preferably bent outwardly so that the pressure of the forward folded edge of the paper against it will force it up and permit the paper to pass outwardly.

The mode of operation of the entire machine will now be briefly stated:

When a coin is inserted at the coin slot 35, it falls down the chute 31 and strikes the end of the arm 30, thereby depressing the free end of this arm; and through the medium of the rock shaft 26, raises the free end of the detent 25. This moves the detent out of engagement with the notch 28 in the segment 24, and permits the spring 29 to pull the segment forwardly through a small angle, thereby supporting the bent end of the detent 25 on the cam edge 36 of the segment, and also effecting a slight forward movement of the link 15 sufficient to tilt the ejector bar 8 upwardly at its forward edge and cause the spurs 12 to impale the lowest paper 13 of the pack. The crank 19 can now be actuated to rotate the shaft 18, developing an increased thrust on the link 15, but as the arm 17 swings upwardly, it will be evident that the direction of this thrust through the link 15 becomes less inclined and substantially horizontal at the most elevated point of the swing of the arm 17. As the ejector bar 8 moves forwardly, the spurs 12 penetrate further through the paper 13 and tilt backwardly toward their points as this occurs. This tilting back of the spurs increases their resistance to being dragged through the paper and tends to prevent them from tearing the paper. The further movement of the ejector bar will push the bottom paper 13 through the delivery opening 14 and, of course, as soon as its forward edge appears beyond the flap 41, the

paper can be seized by the purchaser and pulled outwardly.

As the projecting movement is completed, the free end of the detent 25 rides up on the cam edge 36, causing the depressing of the free end of the arm 30, which releases the coin and permits it to fall into the coin box 37.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

What I claim is:

1. In a machine for vending newspapers or the like, the combination of a container for a pack of papers and having a wall with a delivery opening therethrough, an ejector bar, means for guiding the bar by supporting the same from below, so that it is capable of moving toward and from said delivery opening and so that the ejector bar is capable of tilting out of the guiding line toward or from the adjacent paper of the pack on an axis extending transversely with respect to its direction of travel, engaging means carried by said bar and having spurs for engaging the adjacent paper of the pack when the spurs are tilted upwardly, an arm mounted to rotate on an axis extending substantially parallel with the ejector bar, said arm having a position of rest in which it extends upwardly from its axis of rotation and away from the delivery opening, a link connecting the arm with the bar and disposed in an inclined position with its upper end approaching the pack, a driving member for rotating said arm on its axis, said link and arm cooperating when the arm is actuated, to tilt the bar and the spurs upwardly so as to engage said spurs with the adjacent paper of the pack and operating thereafter to push the engaged paper through the delivery opening.

2. In a machine for vending newspapers or the like, the combination of a container for a pack of papers and having a wall with a delivery opening therethrough, an ejector bar supported from below, so that it is capable of moving toward and from said delivery opening and capable of tilting toward the adjacent paper of the pack on an axis extending transversely with respect to, and out of line with, its direction of travel, engaging means carried by said bar, consisting of a metal plate extending longitudinally of the bar and bent in a transverse direction and extending longitudinally with the bar to form a convex face resting against the upper face of the bar, said plate having spurs for engaging the adjacent paper of the pack, an arm mounted to rotate on an axis extending substantially parallel with the ejector bar, a link connecting the arm with the said bar and disposed in an inclined position with its upper end approaching the pack, a driving member for rotating said arm on its axis, said link and arm cooperating when the arm is actuated, to tilt the bar and engage said spurs with the adjacent paper of the pack and operating thereafter to push the engaged paper through the delivery opening, said plate operating to rock on the adjacent face of the bar when the same is advanced, and thereby cause the spurs to rock back toward a more upright position as the spurs engage the same.

3. In an ejector for ejecting newspapers or the like in succession from the bottom of a pack and through a delivery opening, the combination of an ejector bar, means for guiding the same to

travel toward or from the delivery opening, said ejector bar extending laterally with respect to its direction of travel, engaging means carried by the ejector bar and consisting of a bar of plate-form bent transversely and extending longitudinally with the ejector bar, means for mounting the engaging means on the ejector bar to enable the engaging means to rock upwardly at its forward edge, said engaging means having inclined spurs adjacent its forward edge for engaging the bottom paper of the pad, and means for exerting force upon the ejector bar to move the same toward the delivery opening, said spurs engaging the bottom paper and operating when the ejector bar moves forwardly to swing upwardly, impale the bottom paper first, and then move the same toward the delivery opening.

4. In an ejector for ejecting newspapers or the like in succession from the bottom of a pack and through a delivery opening, the combination of

an ejector bar supported from below so that it is capable of traveling toward or from the delivery opening, and also capable of tilting upwardly at its forward end, said ejector bar extending laterally with reference to its direction of travel, engaging means carried on the ejector bar consisting of a metal bar bent in a transverse direction and extending longitudinally with the ejector bar, said engaging means having upwardly inclined spurs for engaging the bottom paper of the pack, and means for exerting force upon the ejector bar to move the same toward the delivery opening, means for holding the engaging means on the ejector bar loosely so as to permit the same to rock upwardly at its forward edge when the ejector bar is moved forwardly, thereby impaling the bottom paper on the spurs and then moving the same toward the delivery opening.

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