Oct. 20, 1936. F. C. DU GRENIER 2,057,770

BOOK MATCH DISPENSER

Filed Jan. 26, 1935 2 Sheets-Sheet 1

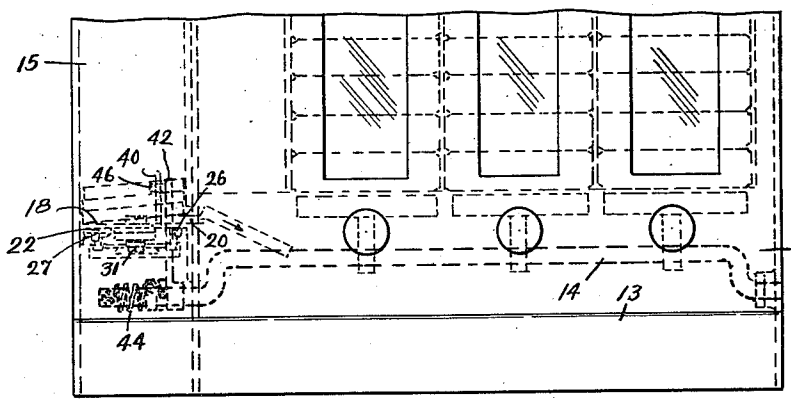


Fig. 1.

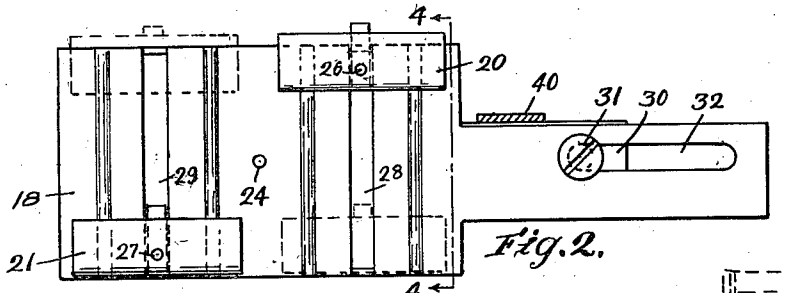


Fig. 2.

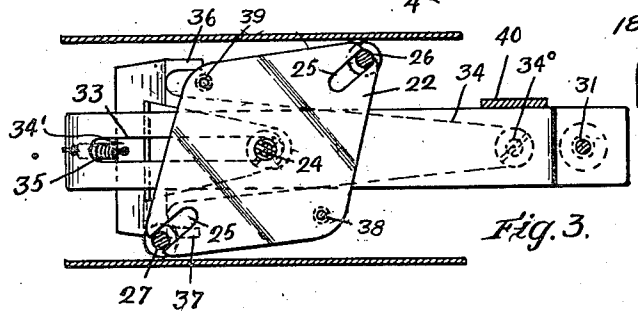


Fig. 3.

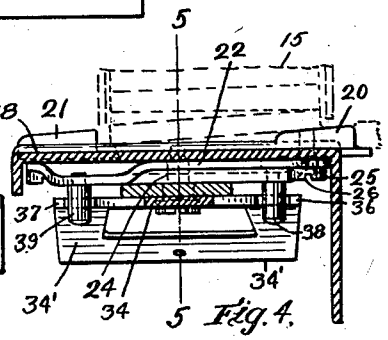


Fig. 4.

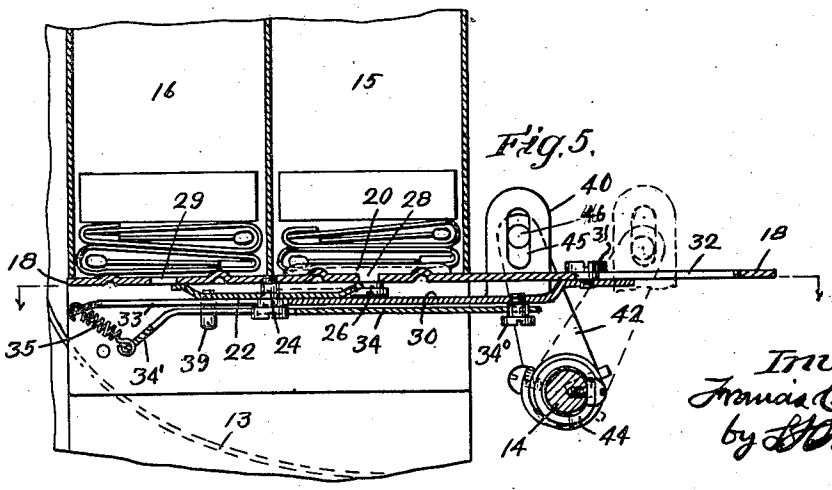


Fig. 5.

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BOOK MATCH DISPENSER

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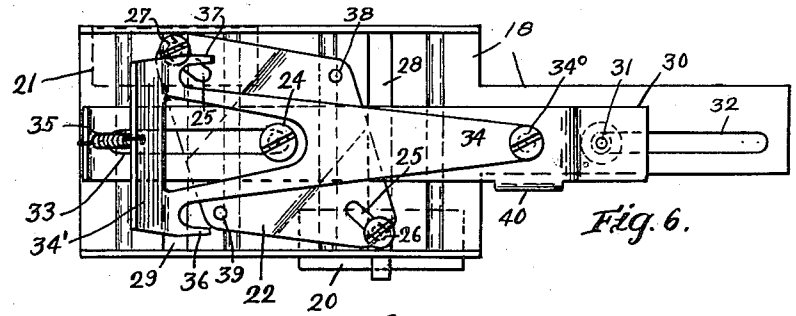


Fig. 6.

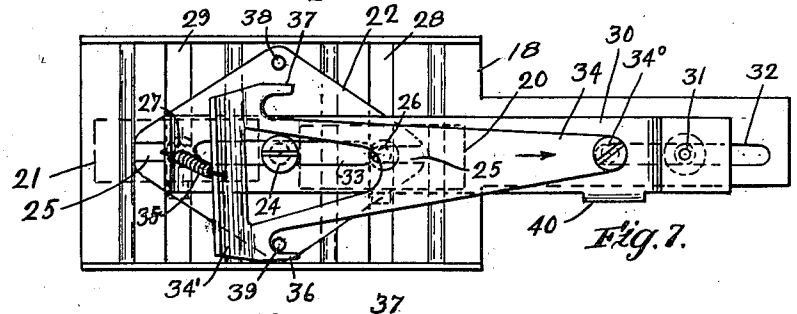


Fig. 7.

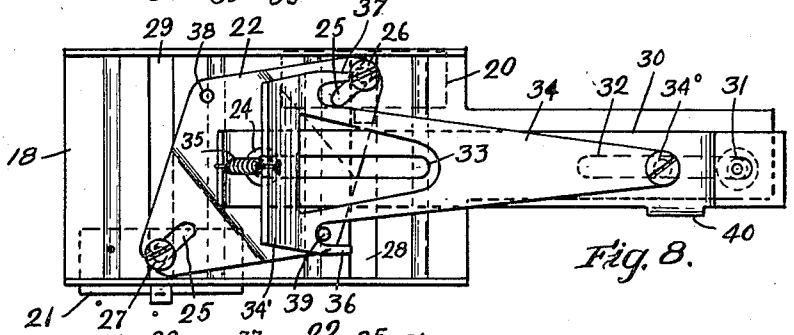


Fig. 8.

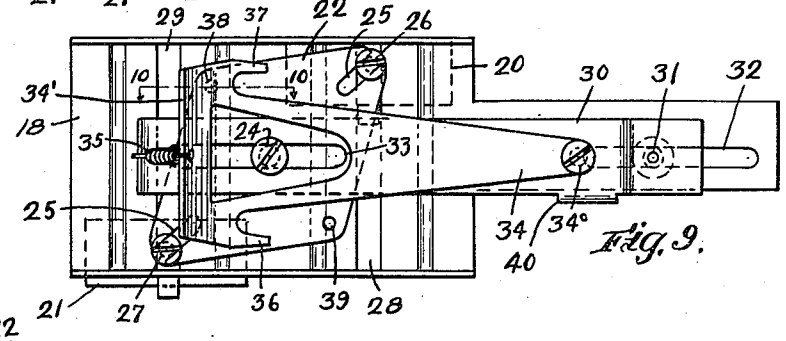


Fig. 9.

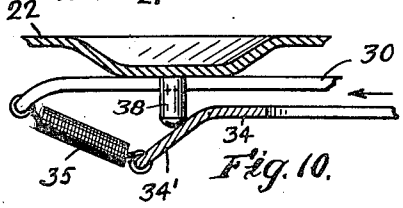


Fig. 10.

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Patented Oct. 20, 1936

2,057,770

UNITED STATES PATENT OFFICE

2,057,770

BOOK MATCH DISPENSER

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Application January 26, 1935, Serial No. 3,634

8 Claims. (Cl. 312—67)

This invention relates to dispensing mechanism which is primarily designed to be combined with a cigarette vending machine and which will deliver a card of book matches each time the main machine is operated to deliver a package of cigarettes.

Cigarette vending machines, as now generally constructed, are designed to deliver several different brands of cigarettes, and as some brands are more popular than others, twice the capacity must be provided for the more popular brands than for others. Consequently each machine is now usually made to hold a large number of cigarette packages, which are now usually arranged in vertical stacks, at the bottom of which the dispensing operation takes place.

As the height of each stack of cigarettes is limited by practical considerations, and, as the height of the stack of book matches is correspondingly limited, it has been ascertained that two stacks of book matches are required for a cigarette vending machine of the capacity above indicated, in order that a book of matches may be delivered with each package of cigarettes.

For example, it has been ascertained that with a machine having seven vertical compartments for cigarette packages, two compartments of approximately equal height are necessary to hold a sufficient number of match cards to furnish one for each package delivered, without reservicing.

As a matter of compactness of design, and for other reasons, it has been found desirable to arrange the match compartments, one in front of the other at one end of the main machine and it has also been found desirable to dispense a match card from these compartments alternately.

The objects of my invention are to provide a dispensing mechanism which is adapted to be operated by the cigarette vender each time it is operated to deliver a package and which will operate to deliver a match card first from one of the compartments in which they are stacked and then from the other on successive operations of the cigarette vender.

Also to provide an auxiliary dispensing mechanism which is adapted to be operated by the main dispensing mechanism when the latter is moved operative, and which is so arranged that, in case of interference with the normal operation of the auxiliary mechanism, the main mechanism may still be operated.

I accomplish these objects by the means hereinafter described and illustrated in the accompanying drawings, in which:—

Fig. 1 is a front elevation of a portion of a cigarette vending machine provided with an embodiment of my invention.

Fig. 2 is a detail view of the top side of the auxiliary dispensing mechanism which is employed.

Fig. 3 is a similar view of the bottom side thereof.

Fig. 4 is a sectional view at line 4—4 of Fig. 2.

Fig. 5 is a sectional view at line 5—5 of Fig. 4.

Figs. 6 to 9 are bottom plan views of the auxiliary dispenser showing the parts in different positions.

Fig. 10 is a detail sectional view at line 10—10 of Fig. 9.

As shown in the drawings, a cigarette vending machine 12 is indicated, which is provided with a series of stacks from the bottom of any one of which a package may be dispensed by mechanism well known in the art, the package being delivered onto a shelf 13 extending along the front of the machine. A shaft 14 extends beneath said stacks and is oscillated whenever a package is delivered from any one of said stacks, a machine of this type being shown in Du Grenier Patent 1,935,835 of November 21, 1933.

According to my invention, a pair of compartments 15, 16, each for holding a stack of cards of book matches are arranged at the left hand end of the machine, one in front of the other, as shown in Figs. 1 and 5, said compartments being mounted on a horizontal shelf 18 which is secured to the frame of the main machine 12, means being provided, as hereinafter described, for ejecting the bottom card from each stack alternately towards the right, so that the cards which are delivered from each stack will be delivered onto the shelf 13, as indicated in Fig. 1.

A pair of ejectors 20, 21 are arranged to slide back and forth on the shelf 18 in the lower ends of compartments 15, 16 respectively, said ejectors being guided to move from left to right and right to left between the dotted line positions of Fig. 2, alternately, by means now to be described.

An actuator 22, consisting of a flat plate of rhomboidal form, is mounted on the under side of shelf 18, to oscillate on a pivot 24, said actuator having open slots 25 in its apex portions, which extend in the direction of the longer diagonal thereof, and said ejectors 20, 21 each have a fixed screw 26, 27 therein which extends thru guide slots 28, 29 in the shelf 18, so that when said actuator is swung from its position shown in Fig. 3 to its position shown in Fig. 6, said ejectors will be moved from the full line positions of Fig. 2

to the dotted line positions thereof. An actuating member or slide 30 is reciprocally mounted on the under side of the shelf 18, to move at right angles to slots 28, 29, being guided by screw 31 fixed therein and movable in a slot 32 in shelf 16, and by slot 33 in said slide thru which screw 24 passes. A latch 34 is mounted on slide 30 by means of a screw 34°, which is fixed in the slide adjacent its outer end, and permits a slight vertical swinging movement and also a horizontal swinging movement of the latch 34. A coil spring 35 connects the inner end of slide 30 and the inner end of latch 34, the inner end portion 34' thereof being arranged to extend obliquely downward, said spring acting normally to hold the latch in engagement with the slide, as shown in Fig. 5. The latch 34 is provided with hook-portions 36, 37 on each side thereof which open outwardly and a pair of posts 38, 39 are fixed in the under side of the actuator in line with its shorter diagonal and adjacent the corresponding apices thereof, and in position to be engaged by said hooks alternately, as hereinafter described.

The slide 30 has an arm 40 extending vertically therefrom and the main shaft 14 has an arm 42 thereon which is connected thereto by a coil spring 44, which encircles the shaft and is connected at one end to the shaft and at the other end to the arm 40, so that when the shaft 14 is rotated in either direction the arm 42 will be swung correspondingly, but will be actuated entirely thru the spring 44. A pivot pin 46 is mounted in arm 42 and engages arm 40 in a slot 45 therein, so that when the shaft 14 is oscillated, in performing a dispensing operation, the slide 30 will be correspondingly reciprocated.

As the machine is organized, the package dispensing operation is performed when the arm 42 is swung from the full line position of Fig. 5 to the dotted line position thereof, and the match card dispensing operation takes place at the same time, so that both are delivered simultaneously to the shelf 13. The parts are shown in their initial positions in Figs. 2 to 6, and as the slide 30 is drawn forward by arm 42, the hook 36 of the latch 34 engages post 39 on the actuator and the continued forward movement causes the actuator to be rotated in the direction to move the ejector 21 from the full line position of Fig. 2 to its ejecting position of Figs. 8 and 9, the ejector 20 being, at the same time, moved to its initial position. During this movement, as the posts 38, 39 move about a central pivot, at the middle of this movement they are carried close to the opposite side edges of the shelf 18, so that the latch 34 is swung laterally to a sufficient extent to prevent the opposite hook 37 from encountering the opposite post 38, which will then be moving rearward, as shown in Fig. 7. As at the end of the outward movement, the hook 37 and post 38 will have been moved into positions of approximate alignment, as shown in Fig. 8, on the return movement of the slide, the inclined inner end portion 34' engages the post 38 and rides thereover, as shown in Fig. 10, so that when the return motion has been finished the hook 37 will be in position to be engaged with post 38 on the next operative movement, which will be similar to that already described, the hook 37 by its engagement with post 38 causing the actuator to be moved about the pivot in the opposite direction, thereby causing the ejector 20 to perform an ejecting operation and the latch 34 to be swung so that the hook 36 will be moved to one side of the path of the post 39 out of a position in which they would engage each other and, during the return movement the latch will ride over the post 39, as shown in Fig. 10, when the parts are returned to initial positions.

From the foregoing description it will be seen that a match card will be ejected from the bottom of each stack alternately by the successive operations of the main dispensing mechanism.

Under normal conditions the spring 44, does not yield and the operation is the same as if the crank arm 42 were fixed on shaft 14. If, however, it should happen that either ejector became clogged, so that the operating mechanism thereof cannot be moved by the operating mechanism, the spring 44 will yield sufficiently to permit the main dispensing mechanism to be operated, so that a package would be delivered, although a match card will not be delivered. However, as the ejectors, when in ejecting position, have a substantial portion thereof beneath their respective stacks, the danger of clogging is reduced to a minimum.

It will, of course, be understood that while the device above described is primarily designed to dispense book matches it is usable to dispense other articles.

I claim:

1. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably and an operating member arranged to be operatively moved from an initial position and to be returned thereto, said member having means arranged for engagement with said actuator to oscillate the same in one direction on one operative movement thereof and to oscillate it in the opposite direction on the next operative movement thereof.

2. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, a reciprocally movable operating member arranged to be operatively moved from an initial position and to be returned thereto, and means on said member arranged to engage said actuator to oscillate the same in one direction on one operative movement of said member and movable to engage the actuator and oscillate it in the opposite direction on the next operative movement of said member.

3. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, a reciprocally movable member arranged to be operatively moved from an initial position and to be returned thereto, and a latch pivotally mounted on said member and movable between positions to engage said actuator to oscillate the same in one direction, on one operative movement of said member, and to oscillate it in

the opposite direction on the next operative movement of said member.

4. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, abutments arranged on said actuator at diametrically opposite points, and reciprocally movable operating devices arranged for operative movement when moved in one direction, one of said devices being arranged to be moved transversely of said direction between a position to engage one of said abutments, on one operative movement thereof, to oscillate said actuator in one direction and a position to engage the other abutment, to oscillate the actuator in the opposite direction on the next operative movement.

5. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, abutments arranged on said actuator at diametrically opposite points, a reciprocally movable operating device arranged for operative movement when moved in one direction only and including a latch arranged to engage one of said abutments on one operative movement, to oscillate said actuator in one direction, and to be moved transversely into position to engage the other abutment and oscillate the actuator in the opposite direction on the next operative movement.

6. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, abutments arranged on said actuator at diametrically opposite points, a reciprocally movable operating device arranged for operative movement when moved in one direction only and including a transversely movable latch having a pair of oppositely disposed engaging faces, so arranged that, in one position of the latch, one of the faces engages one of said abutments on one operative movement of said member, to oscillate said actuator in one direction, and in another position of the latch, the other face engages the other abutment on the next operative movement of the member, to oscillate the actuator in the opposite direction.

7. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, abutments arranged on said actuator at diametrically opposite points, and a reciprocally movable operating device arranged for operative movement when moved in one direction, and including a pivotally mounted latch having a pair of oppositely disposed engaging faces for said abutments, so arranged that each engages its corresponding abutment on successive operative movements of said device, to oscillate said actuator in opposite directions and during said movement to swing the latch laterally to a position in which the face which is not engaged will be moved out of the path of movement of the corresponding abutment.

8. A dispensing apparatus comprising a pair of vertically disposed compartments in which articles to be dispensed are stacked, a separate ejector reciprocally movable in the bottom of each compartment, an actuator pivotally mounted beneath said ejectors and engaged therewith at diametrically opposite points, to move the same simultaneously in opposite directions when moved rotatably, a pair of posts mounted on said actuator in diametrically opposite relation, a reciprocally movable operating member arranged for operative movement when moved in one direction by means of a latch loosely pivotally mounted on said member having oppositely disposed hooks arranged to be successively engaged with one or the other of said posts, to oscillate said actuator in opposite directions on successive operative movements of said member whereby the latch will be swung to one side of its middle position during the middle portion of its operative movement, to prevent engagement of the other hook with its corresponding post, said latch having an inclined face arranged to engage each post, to deflect the latch at right angles to said swinging movement and permit each hook to pass over its corresponding post, at the latter portion of the return movement of said member and move into position to engage the same on the next operation of said member.

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