Oct. 4, 1938. C. J. BREITENSTEIN 2,132,229

JAMPROOF CHECK EJECTOR

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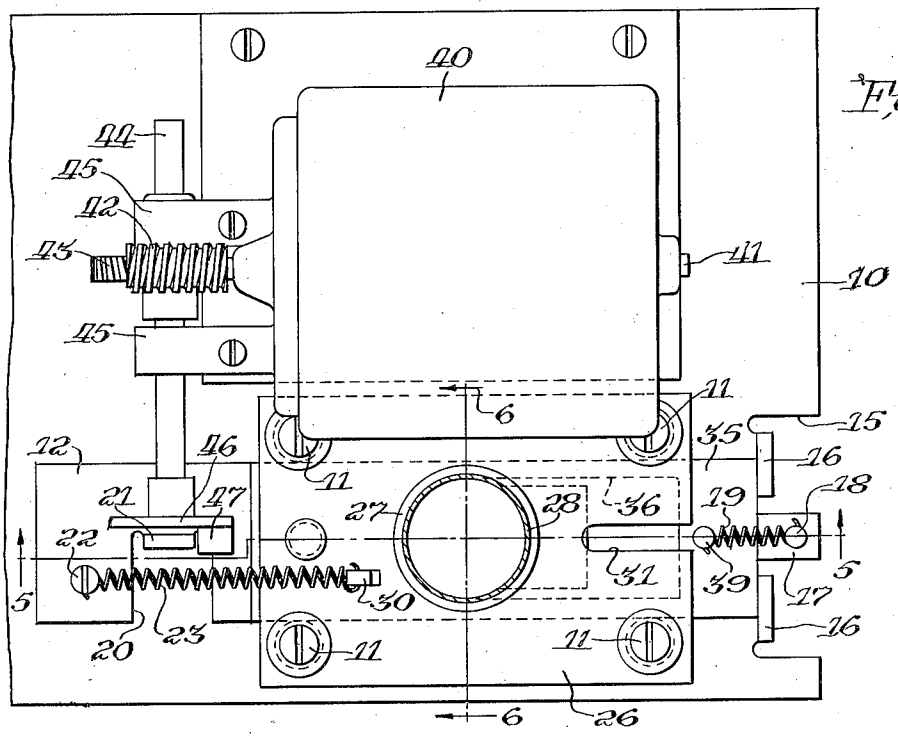



Fig. 1.

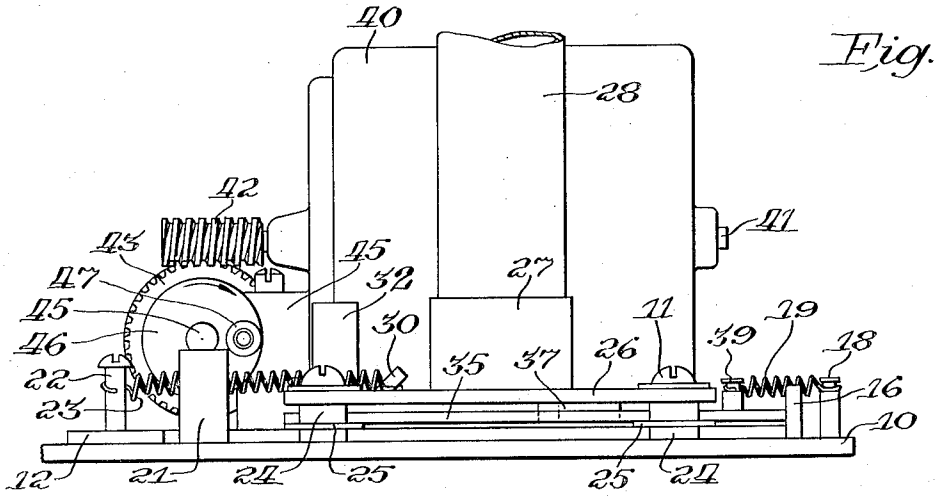



Fig. 2.

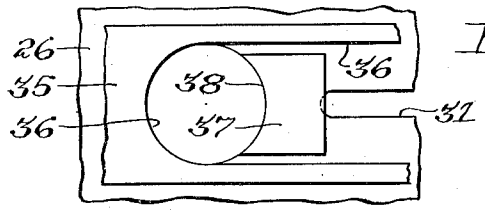



Fig. 3

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Fig. 4.

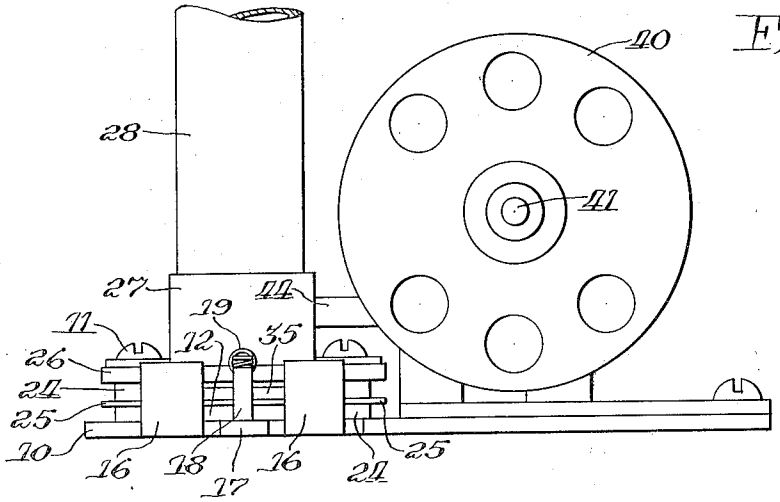



Fig. 5.

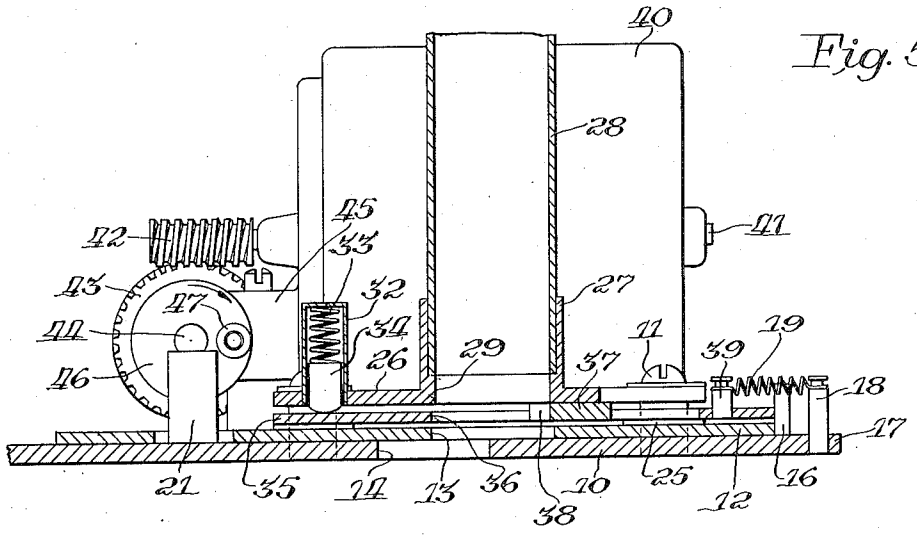
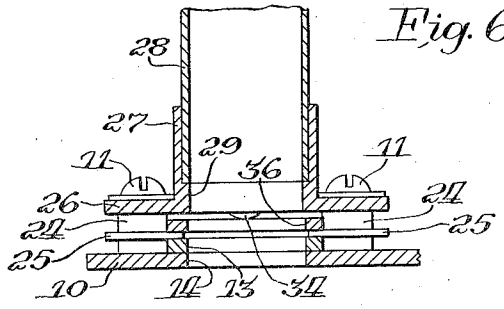



Fig. 6.




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# UNITED STATES PATENT OFFICE

2,132,229

## JAMPROOF CHECK EJECTOR

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9 Claims. (Cl. 312—47)

The invention relates to a check, or coin handling apparatus of the type having an upright magazine for storing the pieces to be dispensed, said apparatus further having an ejector operatively associated with the lower end of the magazine to take and dispense the pieces therefrom. The ejector is power operated from an electric motor, or the like.

This ejector may be in the form of a reciprocatory slide having an opening therein adapted to register with the magazine so that the pieces may gravitate into the ejector to be moved thereby to a point of discharge. When the solid portion of the ejector is below the magazine the pieces, of course, remain in the magazine. The ejector usually is of a thickness equal substantially to the thickness of the piece to be dispensed. It follows, consequently, when bent pieces or unauthorized over or under thickness pieces are handled by the ejector slide, that the latter is apt to, and frequently does, jam. Since the slide is power driven such forcible jamming is serious and frequently puts the check or coin handling apparatus out of commission. Thus, it is highly desirable that means be provided to make the ejector slide jamproof to prevent the apparatus from getting out of order, or from being damaged.

The present invention, therefore, more particularly relates to means for making check or coin handling apparatus of the type mentioned jamproof.

The main object of the invention is to provide an improved check or coin handling apparatus.

Another object of the invention is to provide means for making such apparatus jamproof.

Other objects will be apparent to those versed in this art as the disclosure is more fully made.

These desirable objects may be achieved by the example of the invention herein to be shown and described for purposes of illustration. In such example, briefly, the main ejector slide has associated therewith an auxiliary ejector slide, the latter being carried above the former in slightly spaced relationship. Said auxiliary slide is mounted in a manner to permit it, within limits, to float yieldably upwardly, so that it may accommodate itself to the thickness of the bent check or coin, so that if the main slide in attempting to move such piece tends to jam, the auxiliary floating slide would move with the main slide and help it to move the piece which would cause the jamming action mentioned.

The jamming spoken of occurs when an over thick piece, or a bent piece presents a projecting portion above the level of the top surface of the main slide. As the slide attempts to move such over thick or distorted piece, the upwardly projecting portion of the piece would jam against the side of the magazine and prevent operation of the slide. By means of the present auxiliary slide, a means is provided whereby the distorted piece will be moved out of the apparatus without sticking or jamming. An extra piece in some conditions might be dispensed with the distorted piece but this is not serious, since the important point is to prevent jamming.

Sometimes the main slide is purposely made thick enough to dispense a column of two regular size pieces. Should such two pieces be worn and of under thickness, a jamming problem is again presented, but the auxiliary slide of this invention will also handle such situation by moving the two pieces without jamming, although in the process a third piece may also be dispensed with the first two pieces. Again this is not objectionable as the main thing is to prevent jamming and thereby maintain the dispensing apparatus foolproof.

In the drawings:

Figure 1 is a general plan view of the check dispensing unit;

Figure 2 is a general side elevational view of the structure as seen in Figure 1;

Figure 3 is a fragmentary detail bottom plan view to show the floating auxiliary jam preventing slide in relation to the stationary top plate;

Figure 4 is an end elevational view of the unit;

Figure 5 is a cross sectional view through the unit taken along the line 5—5 of Figure 1, looking in the direction of the arrows; and,

Figure 6 is a detail cross sectional view through the ejector means and magazine taken along the line 6—6 of Figure 1, looking in the indicated direction.

The check ejector or dispenser comprises a suitable horizontal base plate 10 which may be of rectangular shape. Along one side portion the plate 10 carries four rectangularly spaced vertical screw posts 11 so related as to provide a space between them for the to and fro sliding movement of a main ejector slide 12 resting on the top surface of the plate 10 for such free sliding movement. The ejector slide 12 is formed with a circular opening 13 to receive the checks as will later appear and the base plate 10 is formed with a similar opening 14 for the same purpose.

As shown in Figure 1, one end of the base plate 10 is cut out as at 15 in a manner to provide two spaced upwardly bent tongues forming stops 16 to limit the movement in one direction of the main slide 12. Between the two spaced stops 16

is a horizontal extension 17 of the plate 10 which serves to carry a rigid upstanding pin 18. This pin 18 carries one end of a spring 19 the purpose of which will later appear.

The opposite end of the main slide 12 along one side edge is cut out as at 20 to enable providing a bent upstanding arm 21 rigid with the slide 12. Also at this end the slide 12 carries a pin 22 to which is connected one end of a spring 23 for a purpose soon to appear. Each of the four posts 11 carries a sleeve 24 including a horizontal flange 25. These four flanges 25 all lie in a common horizontal plane and the main ejector slide 12 is operable between the lower edge of the inner portion of each flange and the top surface of the base plate 10.

Resting on top of these four sleeves 24 and held down by the respective screws 11 to make a rigid mounting is a horizontal top plate 26 which at its center includes an upstanding integral sleeve 27 in which is mounted the usual upstanding magazine in the form of a tube 28 of the desired height to contain and store a column of checks, coins or generally, the pieces which are to be handled and dispensed. The sleeve 27, of course, provides the opening 29 through which the pieces gravitate to the opening 13 in the main slide 12 when said two openings happen to be in registration.

The top plate 26 includes an upstanding tang 30 over which is hooked the other end of the spring 23 heretofore described. Further the edge of said stop plate 26 adjacent the stops 16 is provided with an elongated slot 31 for a purpose later to appear. Also as shown best in Figure 5 the opposite end of the top plate 26 carries an upright capped sleeve 32 in which is housed a compression spring 33 pushing down on a plunger 34 having a rounded bottom end, as shown.

The top surface of each of the four flanges 24 and particularly the inner portions thereof serve to carry an auxiliary slide plate 35 normally disposed horizontally in parallelism with the main slide 12. This auxiliary slide 35 is formed with an elongated check receiving opening 36 especially well shown in dotted lines in Figure 1 where it will be seen that said opening is generally rectangular with one end being semi-circular to match the opening 29. The underside of the top plate 26 has secured thereto a stationary, depending block portion 37 one end of which as at 38 is semi-circularly shaped, as shown. This block 37 extends down into the elongated opening 36 and is of a thickness equal to the space between the lower side of the top plate 26 and the top side of the four spacer flanges 25.

The auxiliary slide 35 at one end, in line with the slot 31 carries a vertical pin 39 to which is connected the other end of the spring 19 heretofore described.

The plate 10 carries a suitable motor device, which in the present instance by way of example, is an electric motor 40 having a horizontal shaft 41 carrying a worm wheel 42. The wheel 42 is in mesh with and drives a large worm wheel 43 turning with a horizontal shaft 44 suitably journaled in brackets 45, as shown. This shaft 44 extends transversely some distance as shown toward the slide 12 where at its free end the shaft has fast thereon a blank wheel 46 carrying an eccentric roller pin 47 turning in the same plane in which the upstanding arm 21 lies. This completes the detailed description of the parts and their relative positions. The manner of use and mode of operation of the improved dispenser will now be described.

In the starting position, of course, it is clear that the tube 28 is loaded with a column of the pieces, such as checks or coins which are to be handled. The spring 23 normally exerts a force to hold the main slide 12 pulled against the stops 16 at one end as shown in Figure 5. Similarly, the spring 19 pulls the auxiliary slide normally against the same stops 16, as shown, in said Figure 5. As a result it follows that the openings 36, 13 respectively in the main and auxiliary slides register with each other and also with the opening 29 which is the bottom outlet of the tube 28. When these openings 29, 36, 13 register, they are offset from the dispenser opening 14 in the bottom plate 10. Consequently, the column of pieces rests by gravity on the solid portion of the top surface of the plate 10 adjacent the opening 14, as appears in Figure 5.

In the present embodiment, for the sake of illustration, the main slide 12 is of a thickness equal to the thickness of normal pieces to be handled. It follows then in the set up of Figure 5 that the bottom-most piece therefore rests in the opening 13 in the main slide 12. When the motor device 40 is energized now, the gearing 42, 43 operates the shaft 44 and wheel 46. Therefore, the eccentric roller 47, since the wheel 46 turns clockwise as viewed in Figure 5, engages the side of the upstanding rigid arm 21 to push it to the left as seen in Figure 5. The slide 12, of course, must move with the arm, also to the left, and as a result, the slide 12 carries the piece in its opening 13 to a position over the discharge opening 14, whereupon said piece is vended by gravity through said opening 14 in an obvious manner. By the time the piece has been so vended the roller 47 has left the arm 21, whereupon the spring 23 is effective to restore the slide 12 to normal position against the stops 16 to receive another check piece. Of course, the column of pieces is supported by the solid portion of the slide 12 while the latter is being moved to dispense the check and the instant the said slide 12 is returned against the stops 16 its opening 13 is in position to receive another piece.

While normal sized pieces of the prescribed type are so being handled these dispensers work nicely, but a real problem is encountered when worn or distorted pieces pass down into the opening 13 of the main slide 12. It is under such circumstances that the auxiliary slide 35 has utility. Otherwise the auxiliary slides does not move with the main slide. Let us assume that a bent coin or check lodges in the opening 13 of the main slide 12. When the motor is energized the main slide is driven to the left as viewed in Figure 5. That portion of the bent piece disposed above the top side of the slide 12 would abut the side of the opening 36 in the auxiliary slide 35 and act as a pusher to cause the auxiliary slide to move with the main slide and thereby cause said distorted piece positively to be ejected and prevent jamming which would occur, but for the auxiliary slide of this invention. In other words, if the auxiliary slide were not present the main slide would lie flush with the lower end of the plate 26 so that the distorted piece could jam in the opening 29 and prevent movement of the slide.

It follows sometimes that an extra piece would be dispensed with the distorted piece but this is of no consequence when jamming is definitely prevented. When worn pieces are delivered a col-

umn of three worn pieces might be delivered, but here again the jamming has been prevented and that is the main factor, since thereby damage to the delivery means and motor is prevented.

When the roller 47 frees the arm 21 the spring 19 returns the auxiliary slide with the main slide and against the stops 16. The auxiliary slide 35 is yieldingly pressed down on the guides 25 by the spring pressed plunger 34 and since space is provided between the auxiliary slide and top plate it follows that the auxiliary slide can float yieldingly up and down within limits to compensate for the differing thickness irregularities, that might be encountered in the pieces handled. The stationary block 37 serves as a guide for the auxiliary slide 35 in an obvious manner and also acts as a limit stop for the auxiliary slide when the end of its opening 36 hits the block 37.

It can now be seen that an improved check delivery apparatus has been provided which achieves the desirable objects heretofore recited. The control mechanism for the driving motor device shown in this instance is no part of the invention and may be of any approved form depending upon the circumstances under which the check delivery apparatus is to be used. By such control the motor may be energized for the desired length of time thereby regulating the number of strokes the main slide is to make and thus regulate the number of deliveries it is to make.

It is the intention to cover all changes and modifications which do not depart from the spirit and scope of the invention as indicated by the following claims.

What is claimed is:

1. In a check delivery apparatus having an upright magazine, a main ejector member mounted for horizontal to and fro movement in relation to the lower end of the magazine to eject checks therefrom, a motor device including means to drive the main ejector member, the combination with said main ejector member of an auxiliary ejector member carried above the main ejector member and adapted for to and fro movement with the main ejector member to eject distorted or worn checks tending to jam the main ejector member, means for yieldingly mounting the said auxiliary ejector member for upward movement against spring pressure, and means for normally spacing the main and auxiliary ejectors a slight distance apart.

2. In a check delivery apparatus having an upright magazine, a main ejector member mounted for horizontal to and fro movement in relation to the lower end of the magazine to eject checks therefrom, a motor device including means to drive the main ejector member, the combination with said main ejector member of an auxiliary ejector member carried above the main ejector member and adapted for to and fro movement with the main ejector member to eject distorted or worn checks tending to jam the main ejector member, and spring means bearing on the auxiliary ejector for yieldingly mounting the auxiliary ejector member for bodily up and down movement in relation to the main ejector member, and means to prevent the spring pressure from acting on the main ejector.

3. In a check delivery apparatus having a base plate, a top plate, an upright magazine carried above the base plate by the top plate, a main slide mounted for reciprocatory movement over the base plate and under the top plate and under the lower end of the magazine to eject checks therefrom, means to move the slide, means to hold said slide down on the base plate for translational movement only, the combination with said main slide of an auxiliary slide carried above the main slide for translational movement therewith when a check tends to jam the main slide to eject such check, and means interposed between the top plate and auxiliary slide whereby said auxiliary slide may additionally have upward yielding movement between the lower end of the magazine and the main slide.

4. In a check delivery apparatus having a base plate, an upright magazine carried thereabove, a main slide mounted for substantially horizontal reciprocatory movement over the plate and under the lower end of the magazine to eject checks therefrom, means to move the slide, guide means to hold said slide for sliding movement on the base plate, the combination with said main slide of an auxiliary slide carried above the main slide for conjoint movement therewith when a check tends to jam the main slide to eject such check, and resilient means bearing on said auxiliary slide for additionally permitting bodily yielding movement up and down of the auxiliary slide between the lower end of the magazine and the main slide.

5. In a check delivery apparatus, a horizontal base plate, a horizontal top plate carried thereabove in spaced relation, posts to support the top plate, an upright magazine carried in the top plate, a main slide operable to and fro horizontally between the posts over the base plate and under the lower end of the magazine to eject checks therefrom, means to move the main slide, means to hold the main slide against upward movement off the base plate, an auxiliary slide carried above the main slide below the top plate for movement with the main slide to eject irregular checks and thereby prevent jamming of the main slide, there being a space between the top plate and auxiliary slide to allow the latter to yield bodily upwardly, and means between the top plate and auxiliary slide for yieldingly pressing the latter downwardly.

6. In a check delivery apparatus, a horizontal base plate, a horizontal top plate thereabove, four spaced vertical posts forming a passageway, sleeves respectively surrounding the posts to carry and space the top plate above the base plate, an upright tube carried by the top plate, each sleeve including a horizontal flange, said flanges lying in a common horizontal plane, a main slide movable over the base plate below said flanges and between the posts to eject checks from the tube, an auxiliary slide carried on the flanges below the top plate for movement with the main slide to eject an additional check, and means to move the main slide, and means whereby said auxiliary slide may yield bodily upwardly against spring pressure between the said flanges and top plate.

7. In a check delivery apparatus, a horizontal base plate, a horizontal top plate thereabove, four spaced vertical posts forming a passageway, sleeves respectively surrounding the posts to carry and space the top plate above the base plate, an upright tube carried by the top plate, each sleeve including a horizontal flange, said flanges lying in a common horizontal plane, a main slide movable over the base plate below said flanges and between the posts to eject checks from the tube, an auxiliary slide carried on the flanges below the top plate for movement with the main slide to eject an additional check, a spring pressed plunger carried by the top plate, said plunger bearing on the auxiliary slide for

yieldingly holding the auxiliary slide pressed down on the flanges, and means to move the main slide.

8. In a check delivery apparatus, horizontal base and top plates, vertical sleeves to space said plates, the sleeves being arranged in spaced pairs to provide a passage, each sleeve respectively including a guide lying in the same plane, a vertical tube carried by the top plate, a main slide on the base plate below the guides to eject checks from the tube, and an auxiliary slide resting on the guides and movable with the main slide to eject a check which would jam the main slide, and means interposed between the auxiliary slide and top plate whereby the auxiliary slide may have yielding bodily movement up and down independently of the main slide.

9. In a check delivery apparatus, a horizontal base plate, a horizontal top plate carried spaced above the base plate, a vertical tube carried in the top plate, a main slide operable over the base plate to eject checks from the tube, an auxiliary slide carried for yielding movement between the main slide and top for movement with the main slide when it is necessary to prevent jamming of the main slide, said auxiliary slide having an elongated opening therein, and a boss depending from the top plate and disposed in said opening.

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