

Dec. 19, 1944.

C. G. EMERSON ET AL

2,365,257

CHANGE MAKER

Filed Jan. 29, 1943

3 Sheets-Sheet 1

Fig. 1.

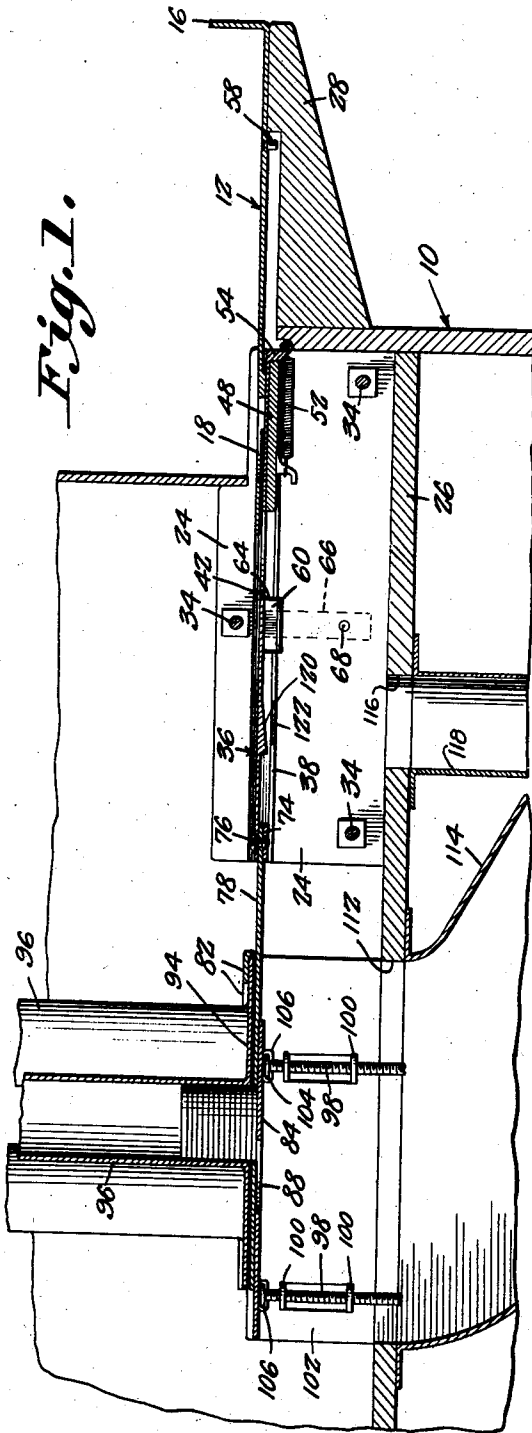
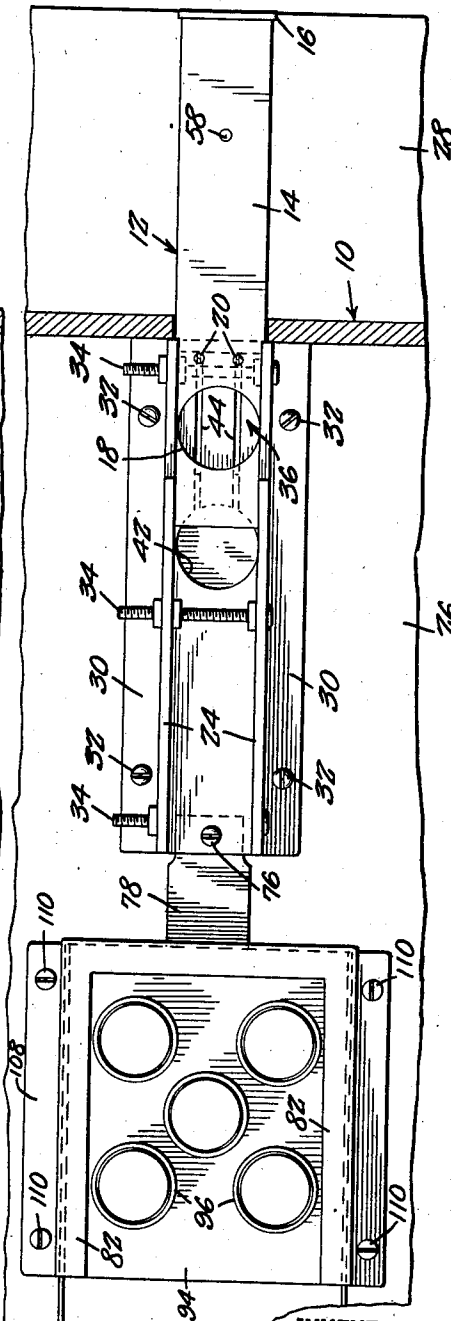


Fig. 2.



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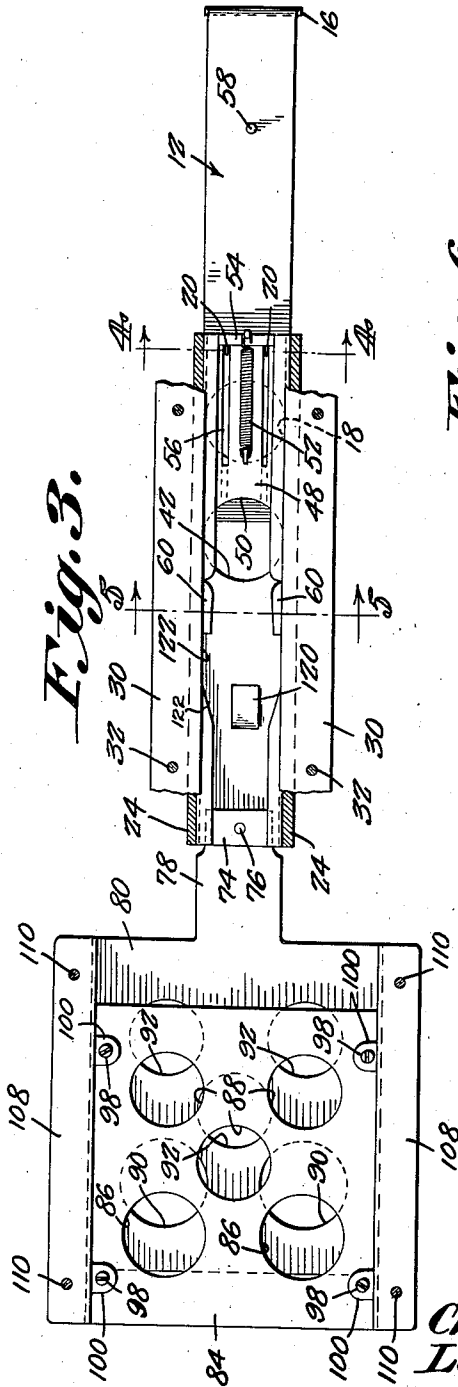
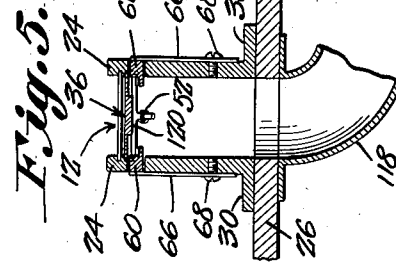
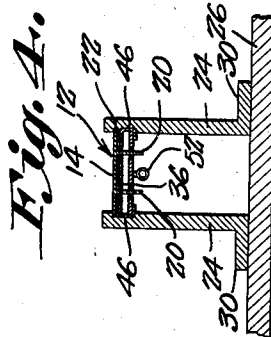
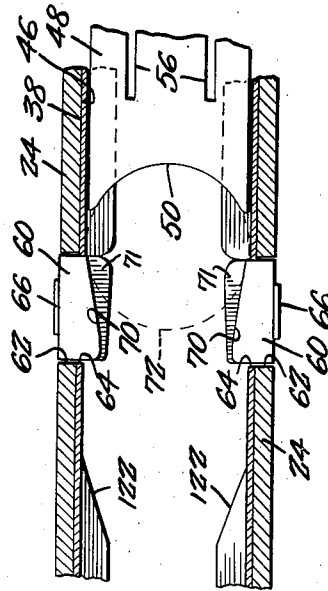


Fig. 6.



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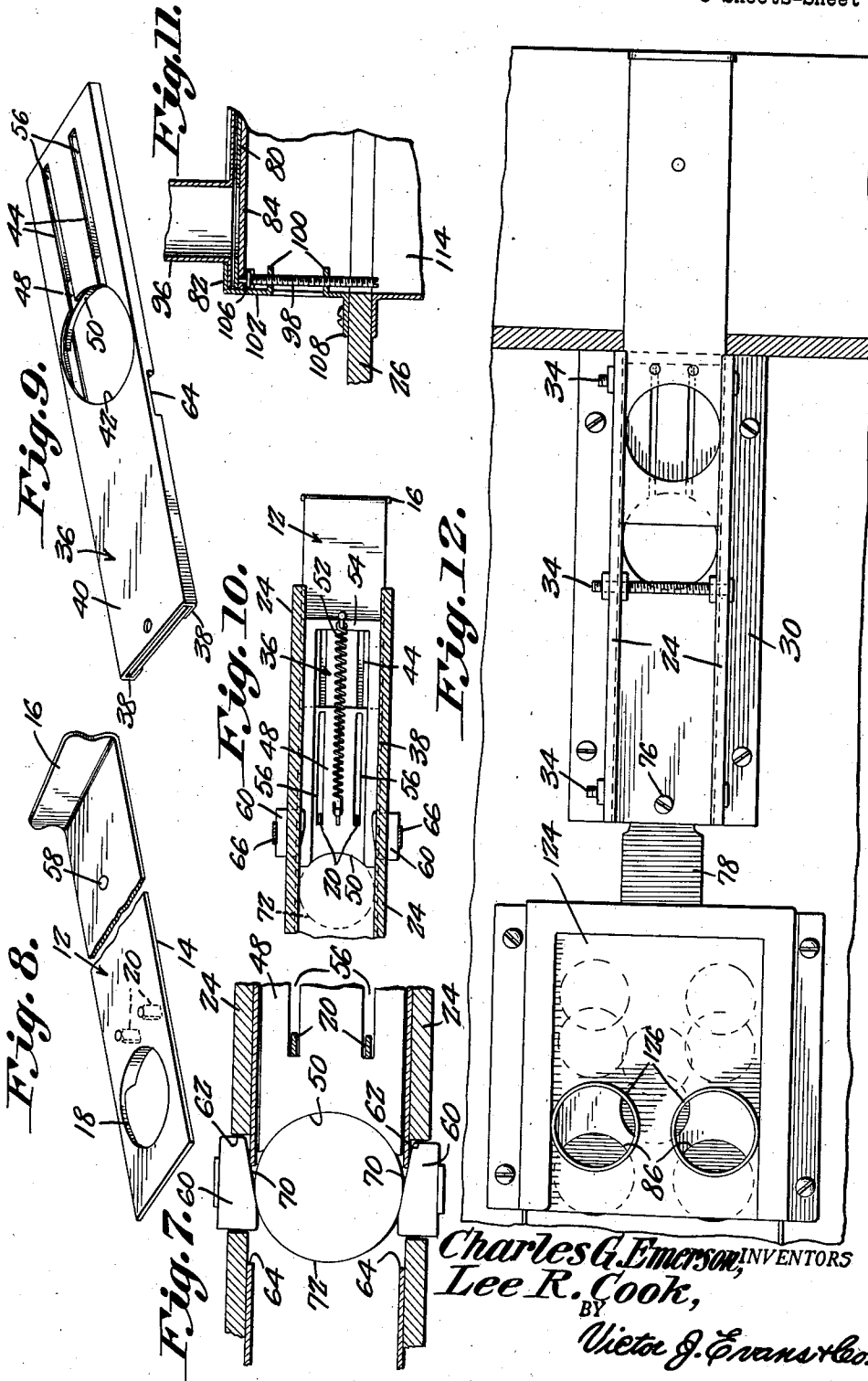
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UNITED STATES PATENT OFFICE

2,365,257

CHANGE MAKER

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Application January 29, 1943, Serial No. 473,990

4 Claims. (Cl. 194—58)

Our invention relates to change makers, and has among its objects and advantages the provision of an improved change making device wherein a plurality of coins of predetermined denomination are arranged in a series of columns, in which novel means are provided for removing the lowermost coin in each column upon insertion of a coin of predetermined larger denomination and subsequent actuation of the device.

Coins of a given denomination vary in thickness because of wear. In change making devices wherein a predetermined number of change coins is removed from a column, considerable difficulty has been experienced in removing the right number of coins because of variation in the total thickness of the coins being removed. The coins frequently total a thickness either too great or too small which makes it difficult to devise a pusher mechanism which will operate efficiently under such conditions. The present invention is so designed as to be capable of efficient operation in that the pusher means are concerned with one coin thickness only.

In the accompanying drawings:

Figure 1 is a longitudinal sectional view taken through the central portion of the device.

Figure 2 is a top plan view.

Figure 3 is a bottom plan view.

Figure 4 is a sectional view along the line 4—4 of Figure 3.

Figure 5 is a sectional view along the line 5—5 of Figure 3.

Figure 6 is an enlarged sectional plan view of a coin actuated slide latch.

Figure 7 is a similar view illustrating the coin in a latch releasing position.

Figure 8 is a fragmentary perspective view of a coin slide.

Figure 9 is a perspective view of a coin actuated pusher.

Figure 10 is a fragmentary bottom view of the parts of Figures 8 and 9.

Figure 11 is a vertical sectional view through one of the change tubes, and

Figure 12 is a plan view of the invention illustrating the substitution of twenty-five cent piece change tubes in lieu of the five cent piece change tubes of Figure 2.

In the embodiment of the invention selected for illustration, we make use of a cabinet 10 which may be of any desired shape or size. Suffice it to say that the cabinet should enclose the change making device, with the exception of the coin slide 12. In Figure 8 the slide 12 com-

prises a flat metallic strap 14 having an upturned outer end 16. A coin receiving opening 18 is provided in the strap 14 adjacent its inner end, and two depending lugs 20 are attached to the strap.

The strap 14 is slidably guided in grooves 22 in spaced walls 24 fixed to a supporting floor 26 inside the cabinet 10, see Figure 4. In Figure 1, the coin slide 12 is normally in the position shown, and overlies a ledge 28 fixed to the cabinet 10. In Figure 2, the walls 24 have flanges 30 bolted at 32 to the floor 26, and the walls are effectively braced by spacing screws 34.

Lying underneath the coin slide 12 is a pusher 36, see Figure 9. This pusher is bent along its side margins to provide channels 38 facing in the direction of each other and underlying the strap area 40 of the pusher. A coin receiving opening 42 is formed in the strap part 40, and the strap part is provided with spaced slots 44 communicating with the opening 42. These slots are spaced to receive the lugs 20, which move freely in the slots.

The pusher 36 parallels the coin slide 12 and is slidably guided in grooves 46 in the walls 24, see Figure 4. Slidably mounted in the channels 38 is a plate 48 having a concaved coin engaging end 50. A tension spring 52 has one end connected with the plate 48 and its other end attached to a bar 54 fixed to and bridging the channels 38, so that the plate 48 is normally held in inoperative position with its inner concaved or arcuately recessed end 50 in registration with the corresponding outer edge portion of the opening 42, as shown at Figures 1 and 3. Slots 56 are provided in the plate 48 for reception of the lugs 20, which engage the bar 54 in the fully retracted position of the coin slide 12.

The slide 12 moves freely relatively to the pusher 36 and the plate 48. In the absence of a coin in the opening 18, the slide 12 may be pushed inwardly to bring its lugs 20 to the forward limits of the slots 56, after which further inward movement of the slide advances the plate 48 against the tension of the spring 52. The slide 12 is moved sufficiently far to bring its opening 18 into registration with the opening 42 in the pusher 36 before the lugs 20 are brought into pushing engagement with the plate 48. Further advancement of the slide 12 after engagement with the plate 48 brings a stop 58 on the coin slide into engagement with the bar 54 and prevents further movement of the coin slide, since the pusher 36 is latched against movement by a coin actuated means, which prevents operation

of the pusher until a coin has been deposited in the coin slide.

Means for latching the pusher 36 against unauthorized actuation comprise two bodies 60 fitting loosely in openings 62 in the two walls 24, see Figure 6. These bodies also extend through recesses 64 in the channels 38 to latch the pusher 36 against endwise movement. Each body 60 is fixed to a spring arm 66 attached at 68 to the walls 24, see Figure 5. The bights of the two channels 38 are spaced sufficiently far to accommodate the coin deposited in the opening 42, with the flanges of the two channels constituting a floor for supporting the coin as it falls through this opening. The inner portions of the bodies 60, extending through the recesses 64, are rabbeted to form upper longitudinal rearwardly converging cam edges 70 and lower relatively protruding flanges 71. The forward ends of the respective cam edges 70 are normally held in approximate registration with the inner faces of the webs of the channels 38 while the flanges 71 are substantially flush with and in abutting relation with the bottom flanges of these channels, as shown at Figure 6, so that the edge of a coin 72, carried inward on the channels by the plate 48, will be guided into engagement with the cam edges to force the bodies laterally apart so as to release the pusher and permit further advancement of the latter through further inward movement of the coin slide.

To the inner end of the pusher 36 is attached a cross bar 74 riveted at 76 to one end of a bar 78 attached to a change slide plate 80. This plate lies between the flanges 82 and a bottom plate 84 having coin discharging openings 86 and 88. There are two openings 86 and three openings 88, the openings 88 being sufficiently large to drop five and ten cent pieces, while the openings 86 may additionally drop twenty-five cent pieces. The plate 80 is also provided with two large openings 90 and three smaller openings 92 respectively corresponding to the openings 86 and 88 with respect to size and arrangement.

Normally the plate 80 lies in the position of Figure 3 so as to substantially cover the floor plate 84. Between the plate 80 and the flanges 82 lie the marginal edges of a plate 94 having upstanding coin containing tubes 96. This plate is easily withdrawn so that other plates with coin tubes of different sizes may be substituted therefor. Figures 1 and 2 illustrate coin tubes of the five cent size. These coin tubes align with the openings 90 and 92 in the plate 80 when the latter is in its normal position of Figure 3, so that the lowermost coin in each coin tube 96 will lie at rest on the floor plate 84, the plate 80 being sufficiently thick to advance the coins on the floor plate 84 to bring the coins into alignment with the discharging openings 86 and 88.

The floor plate 84 may be precisely adjusted in a vertical direction through the medium of adjusting screws 98 threadedly connected with lugs 100 struck from side walls 102 having their upper edges bent to form the flanges 82. Each screw 98 has a head 104 rotatably connected at 106 with the floor plate 84 so that the floor plate may be accurately adjusted for spacing with respect to the plate 94. The walls 102 have flanges 108 bolted at 110 to the floor 26.

A large opening 112 is provided in the floor 26 for reception of coins dropped through the floor plate 84 for delivery to a coin chute 114 having a discharge end accessible from a position exteriorly of the cabinet 10. A second open-

ing 116 is provided in the floor 26 for the reception of coins dropped by the slide mechanism, which coins fall into a chute 118 leading to a receptacle not shown.

To the underside of the pusher 36 is attached a cam 120 which deflects the coins downwardly through the recesses 122 cut in the flanges of the channels 38.

In operation, the structure of Figures 1 through 11 is designed for dispensing five five cent pieces for a twenty-five cent piece when all the tubes 96 are loaded with five cent pieces. When a twenty-five cent piece is inserted in the opening 18, the coin comes to rest on the slotted part of the pusher 36. When the coin slide 12 is pushed forwardly, the coin rides on the pusher as the coin slide is advanced to bring the coin into registration with the opening 42, after which the coin drops onto the flanges of the channels 38. Further advancement of the coin slide 12 brings the lugs 20 into pushing engagement with the plate 48. This plate presses the coin into camming engagement with the bodies 60 to press the latter outwardly with reference to the guide following which the coin contacts the cam 120 and is deflected downwardly and drops into the opening 116 and the chute 118. The outward movement of the bodies 60 in their recesses 64 is sufficient to clear the bottom flanges of the channels 38 so as to release the pusher 36. Engagement between the stop 58 and the bar 54 advances the pusher 36 to move the plate 80 and remove the lowermost coins in the openings 90 and 92 into alignment with the openings 86 and 88.

Figure 12 illustrates a construction wherein a floor plate 124 is provided with two coin tubes 126 of such size as to accommodate twenty-five cent pieces. These tubes align with the openings 86. Thus twenty-five cent pieces may be dispensed through insertion of a fifty cent piece, although it is first necessary to insert a coin slide and pusher assembly designed for fifty cent pieces.

Without further elaboration, the foregoing will so fully explain our invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

We claim:

1. In a change making mechanism, a slide member having an opening and connected with a pusher plate, a latch means acting on said slide member to normally restrain the latter from movement, a coin slide movable relatively to said slide member for depositing a coin in said opening, and means actuated by said coin slide and coacting with said slide member to shift a coin into engagement with said latch means to move the latter to a releasing position for freeing the slide member for actuation by said coin slide.

2. Coin controlled actuating mechanism for a change making machine comprising a first slide member having channels and provided with an opening, a coin slide movable relatively to said first slide member for depositing a coin of predetermined denomination into said opening, notches in said first slide member, spring pressed bodies engaging in said notches to restrain the first slide member from movement but extending into the path of said coin of predetermined denomination to be engaged thereby and moved to releasing positions, a coin engaging member slidably mounted on said first slide member for engaging the coin in said opening, said coin

engaging member and said first slide member having slots, lugs on said coin slide extending through said slots to provide a lost motion connection between the coin slide and said coin engaging member, and means on said coin slide engageable with said first slide member to advance the latter and actuate a coin pusher plate of the change making mechanism when said first slide member is released by said spring pressed bodies.

3. In a coin slide, the combination of a first slide member having a coin receiving opening and a coin discharging outlet, a coin slide movable relatively to said first slide member, a coin engaging member spring biased to a normal position with relation to said first slide member, an operating connection between said coin engaging member and said coin slide for advancing the former relatively to said first slide member when the coin slide is moved in the direction of said coin discharging outlet, and a latch means normally restraining said first slide member against movement but engageable by the coin in its movement to said coin discharging outlet for releasing the first slide member to actuate a coin pusher plate of a change making mechanism.

4. In a change making machine having change dispensing means, a coin controlled mechanism for operating the dispensing means comprising a support, a reciprocatory pusher member slidably mounted on the support and having an opening for the passage of a coin therethrough, means on the pusher for slidably supporting a coin after passage through the opening therein, said coin supporting means being recessed to permit the coin to drop therefrom, means for releasably restraining operative movement of the pusher, a bottom plate slidably mounted in the pusher and operative to move a coin on the coin support of the pusher into engagement with the restraining means to release the latter, means for yieldingly holding said bottom plate in inoperative position, a manually operable coin positioning member slidably mounted above the pusher having an opening permitting the passage of a coin therethrough, and projections on said manually operable member adapted to engage and successively move the bottom plate and the pusher through their operative movements.

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