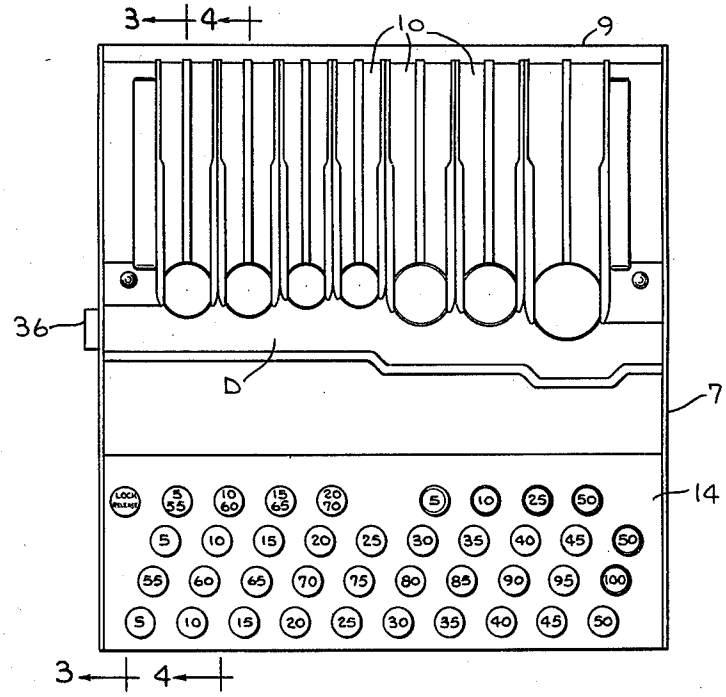
April 3, 1951 A. R. BUCHHOLZ ET AL 2,547,563

COIN HANDLING MACHINE

Filed Oct. 31, 1946 3 Sheets-Sheet 1

FIG. 1



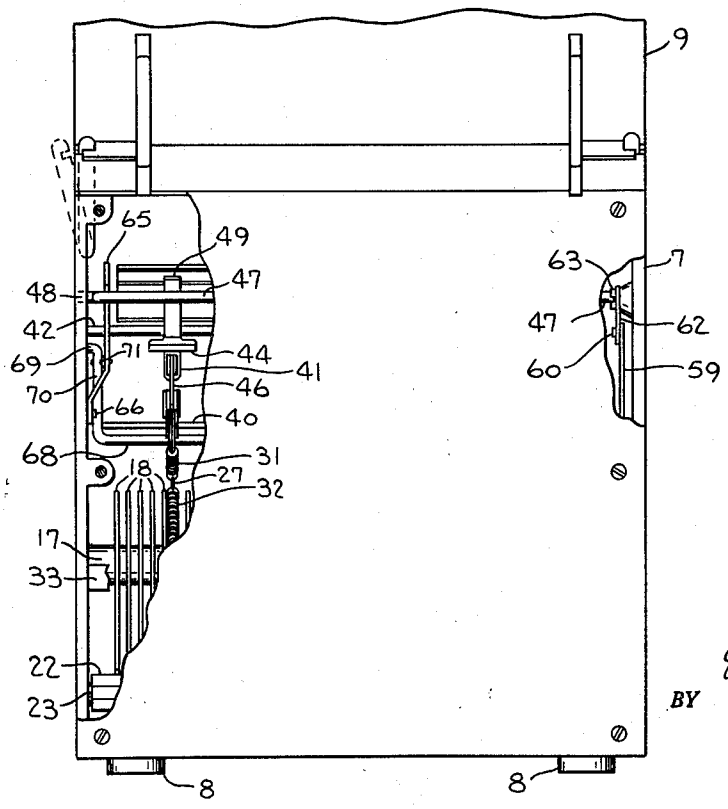


FIG. 2

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COIN HANDLING MACHINE

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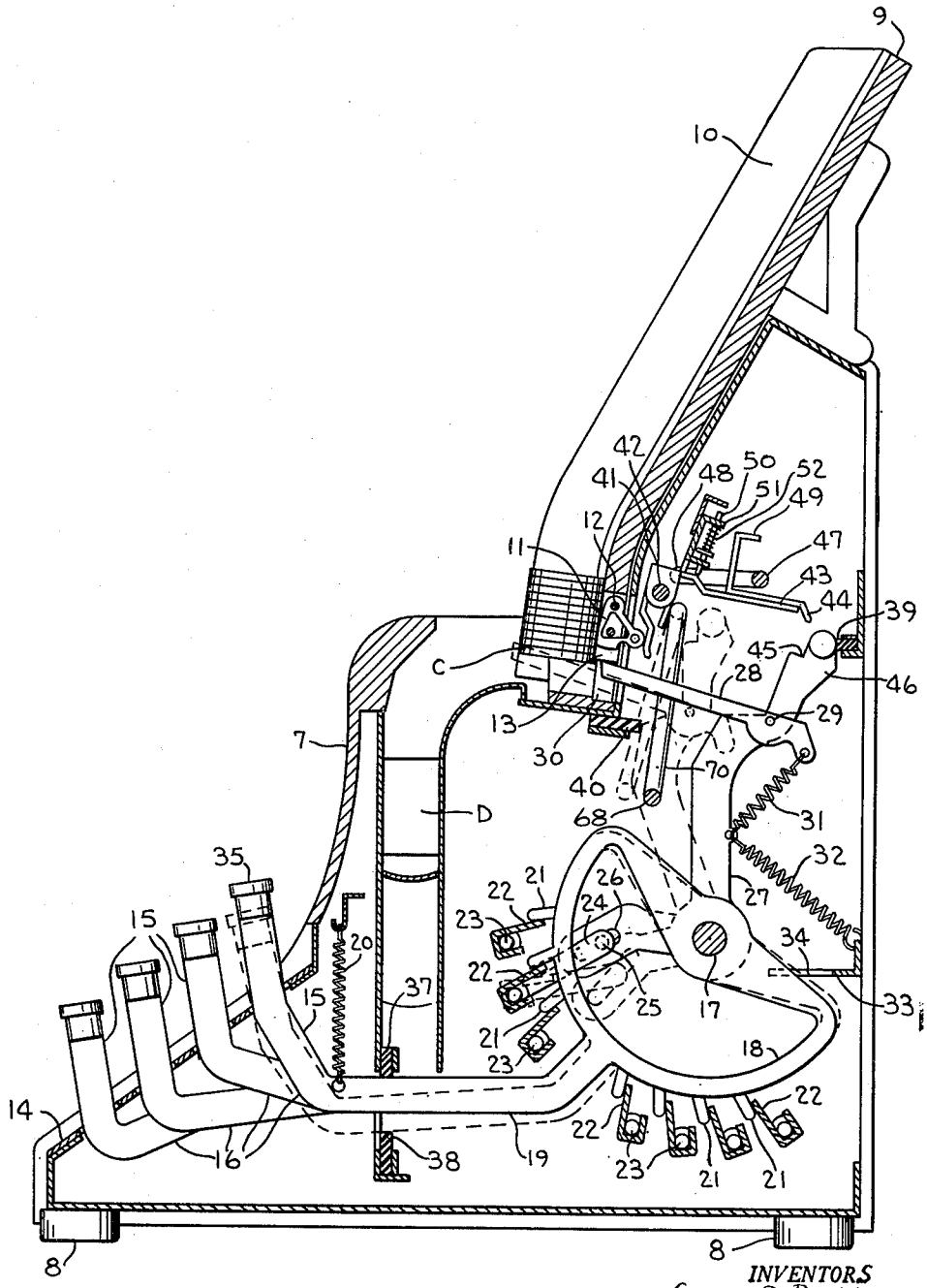

FIG. 3

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COIN HANDLING MACHINE

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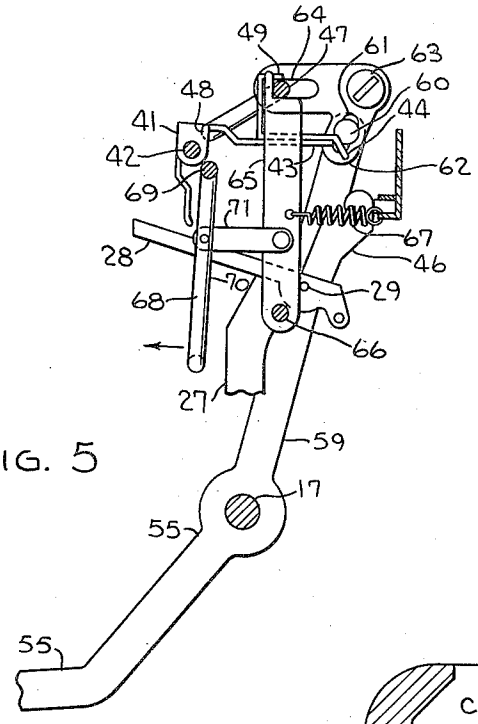

FIG. 5

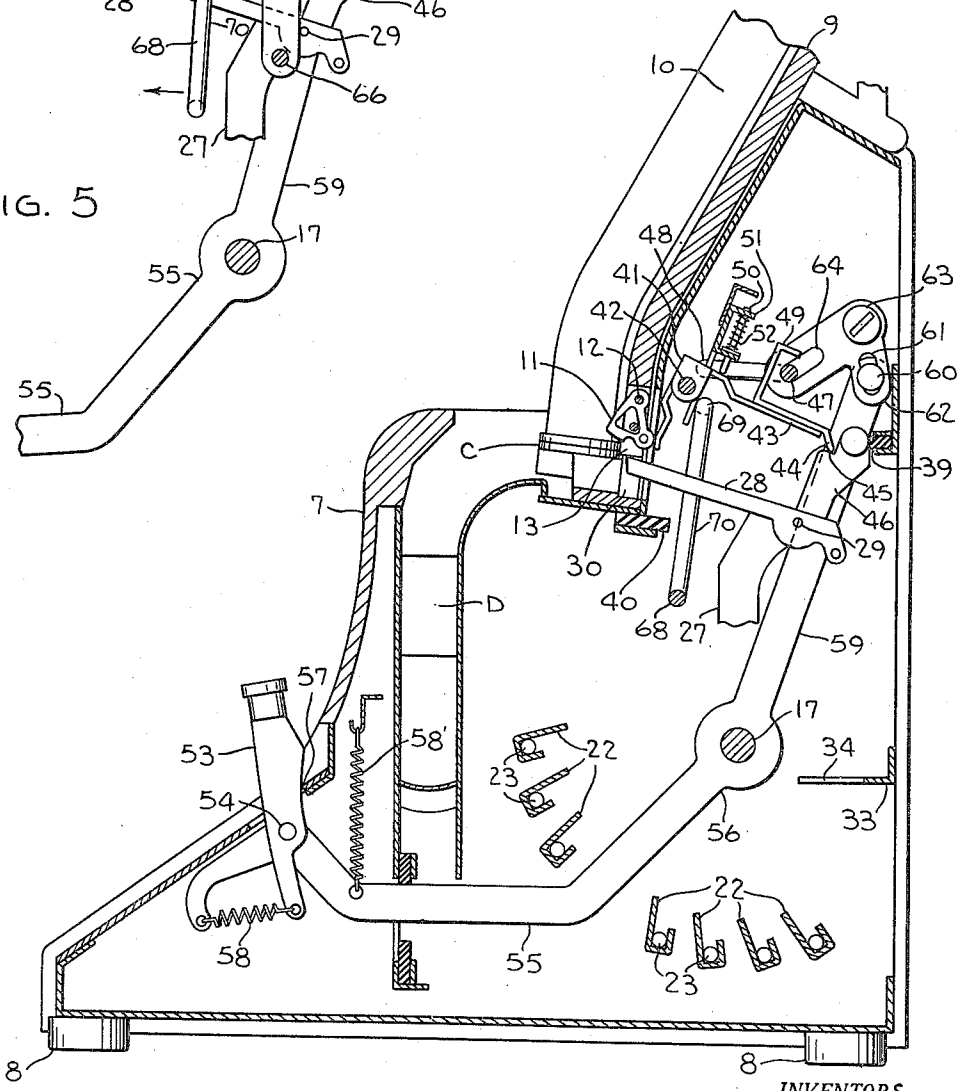

FIG. 4

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Patented Apr. 3, 1951

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2,547,563

COIN HANDLING MACHINE

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Application October 31, 1946, Serial No. 706,834

1 Claim. (Cl. 133—5)

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The invention relates to coin handling machines and more particularly to a so-called coin changer for dispensing either a certain amount of coins or a certain amount of coins representing the change due from a certain amount of money received.

One of the objects of this invention is to simplify and improve the key controlled coin ejecting mechanism of machines of this type.

Another object of the invention is to dispense with the usual locking key for the ejecting mechanisms and provide a machine in which when any one of the coin chutes becomes almost depleted, successive operation of the lock release key will permit further dispensing of coins from this particular chute each time the coin ejector keys are operated.

The invention further consists in the several features hereinafter set forth and more particularly defined by the claim at the conclusion hereof.

In the drawings:

Fig. 1 is a plan view of a coin handling device embodying the invention;

Fig. 2 is a rear view of the device, parts being broken away;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a detailed vertical sectional view taken on the line 5—5 of Fig. 1.

Referring to the drawings, the machine includes a frame 7 provided with pads 8 for mounting on any suitable support and having a coin chute structure 9 removably mounted thereon and comprising a plurality of chutes 10 for receiving coins of different denominations with a coin engaging finger 11 at the lower end of each chute and mounted on a pivot 12 to swing in a longitudinally extending slot 13 in the back wall of each chute.

The machine has a key board 14 through which the upwardly projecting portions 15 of a series of keys 16 project. Each of the keys 16 is pivotally mounted on a fixed shaft 17 running lengthwise of the machine and anchored in the sides of the frame 7 and has a arcuate shaped portion 18 at its pivotal end and an arm portion 19 connecting the portions 18 and 15 together, each key being normally urged upwardly at its outer end by a tension spring 20 connected to it and to said frame. The arcuate shaped portions 18 are provided with one or more toothed projections 21 engageable with one or more of a series of pivoted

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levers 22 whose centers are equi-distantly radially disposed about the center of the shaft 17.

Each lever 22 is in the form of a bar or rocker extending lengthwise of the machine and bent to turn about a pivot shaft 23, so that one lever may be engaged by a predetermined number of keys 16 through their projections 21. There are as many levers 22 as there are coin chutes 10. One arm 24 is secured to each bar forming the levers 22 and carry pins 25. The pin 25 of each arm 24 is adapted to engage in the slotted end 26 of a bell crank lever 27 pivotally mounted on the shaft 17 and having a coin ejector finger or member 28 pivoted thereto intermediate its ends at 29, said finger working in a slot 30 and normally urged upwardly against the top of said slot by a spring 31, the lever 27 being normally urged to a finger retracting position by a spring 32. The levers or keys 16 are guided or held in spaced position relative to the shaft 17 by a fixed bar 33 provided with guide slots 34.

With the above construction depression of button end 35 of a key 16 will swing the same about the shaft 17, so that one or more of levers 22 will be swung in a clockwise direction to in turn swing the slotted ends 26 of the levers 27 in a counterclockwise direction and thus swing the upper ends of said lever 27 forwardly or toward the left, as viewed in Fig. 3, to move one or more of the coin ejector fingers 28 forwardly to eject the lowermost coin C from one or more of the chutes 10. The ejected coin C passes into a delivery chute D whose bottom is inclined to deliver the coin through the spout 36 at one side of the machine.

The arrangement of the keys 16 and their connection with the levers 22 is such that depending upon which of the keys is operated either the change to be paid out from either fifty cents or a dollar received by the cashier will be dispensed by the machine which is taken care of by the three lower rows of keys or amounts from five to fifty cents may be dispensed direct from the keys at the right hand end of the upper row and change for twenty-five or seventy-five cents from the keys at left hand end of the upper row. Different combinations of payments are obtained by cutting off the teeth or prongs 21 from the key levers 16 for the chute from which payments are not desired, leaving the teeth 21 on said levers for the coin channel or channels which are required to make the desired payment. Stops 37 and 38 limit the swinging movement of the key levers 16 while stops 39 and 40 limit the swinging movement of the levers 27.

In machines of this type it is usual to provide

means for preventing the normal operation of the keys 16 by the operator after the coins in any one or more of the chutes become depleted to such an extent as to need replenishment. This means includes the fingers 11, one for each chute, normally moved outwardly to the position shown in Fig. 3 by the coins in the chute. Each finger is held against the stack of coins by a small bell crank lever 41 pivotally mounted on a transversely extending shaft 42 with its one arm 43 weighted so as to tend to swing the other arm and said finger toward the left as viewed in Fig. 3, and when the coins in any chute become depleted as mentioned above, this movement takes place, thereby permitting the arm 43 to drop downwardly into the position shown in full in Fig. 4 in which its end 44 engages a notch 45 in the end portion 46 of a coin ejector lever 27, so that the key 16 which normally operates this lever cannot be depressed. To permit a limited number of operations of the machine after the coins of any one chute need to be replenished, the levers 41 are adapted to be engaged by a pressure release bar 47 extending across the machine and pivotally mounted at its bent ends 48 in the frame of the machine, the body of said bar being so positioned that on swinging upwardly it engages a projection 49 on the arm 43 of each lever 41 so as to swing said lever upwardly to a coin finger release position and against the action, near the end of its movement, of a pin 50 slidably mounted in a fixed guide 51 and normally urged downwardly against said lever 41 by a spring 52. For moving the bar 47 to a lock release position a lock release key 53 is pivotally mounted intermediate its ends at 54 on one arm 55 of a bell crank lock release lever 56 and yieldingly urged against the upper side of keyboard slot 57 by a spring 58 connecting said levers together, said lever and key being normally moved to an inoperative position by a spring 58'. The lever 56 is pivoted on the shaft 17, and its other arm 59 carries a pin 60 working in a slot 61 of one arm of a small bell crank lever 62 pivotally mounted on a screw 63 secured to the frame of the machine, the other arm of said lever 62 being slotted at 64 to receive the bar 47. With this arrangement depression of the key 53 swings the arm 59 toward the left, thus swinging the lever 61 in a clockwise direction and moving the bar 47 upwardly to engage the projection 49 on any of the levers 41 which may be in locking position and thus permit the coin ejector lever for the chute having partially depleted coins to be operated. After the movement of the bar 47 to its lock release position, the same is releasably held in this position by a detent or latch 65 (see Fig. 5) pivotally mounted on a stud 66 and yieldingly urged into locking engagement with the bar 47 by a spring 67. Thus depression of the lock release lever key 53 releases any of the levers 41 that may be in a locked position relative to the ejector operating levers 27, so that the machine may be again operated.

After operation of the key 53 when any of the change keys 16 are depressed to thereby swing the upper end of any one of the levers 27 toward the left as viewed in Figs. 4 and 5, said lever engages a latch release bar 68 extending across the machine and pivotally mounted at 69 in the frame thereof and operatively connected intermediate its bent end portions 70 by a link 71 with the intermediate portion of detent

65, so that swinging of said bar 68 toward the left as viewed in Fig. 5 swings said detent 65 in the same direction to permit the bar 47 to swing down out of engagement with the lever 41 as the ejector lever 27 is moved forwardly to coin ejecting position, so that after this operation is completed, the lever 41 will prevent further operation of the machine until the lock release lever key 53 is again depressed. Thus while the mechanism above described prevents normal operation of the machine when the coins in any of the chutes become depleted to a predetermined number, it permits through the operation of the lock release key, a limited number of further operations during which time the operator may replenish the coins in a stack of depleted coins, so that normal operations can continue.

It is to be noted that the bars 47 and 68 are of U-shaped form with the end of the legs of U-shape bent outwardly to form pivots for the mounting of said bars in the sides of the frame.

It will be noted that the present invention eliminates the usual lock key heretofore used in conjunction with a lock release key, thus simplifying the mechanism and reducing the number of parts and the operations necessary to effect the dispensing of coins therefrom.

It is to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the appended claim.

What we claim as our invention is:

In a coin handling machine, the combination of a plurality of coin receptacles, a movable coin ejector for each receptacle for pushing the lowermost coin or coins in its associated receptacle from the same, a pivoted operating lever for each ejector to reciprocate the same, key controlled means for operating said levers, a keyboard for said keys means for locking said levers against actuation in case the coins in any one of the coin receptacles becomes substantially depleted including a coin engaging finger and a locking lever associated with said finger and movable into locked engagement with its associated operating lever, a single pivotally mounted lock release key operable from said keyboard, a single swinging bar adapted to engage all of said locking levers, lever means connecting said bar with said lock release key to move the same to a locking lever release position on the operation of said key, a pivoted latch engageable with said bar to hold it in its lever releasing position, and a latch release bar operatively connected to said latch and engageable by any one of said operating levers to release said latch on the single subsequent movement of any one of said operating levers by said key controlled means.

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