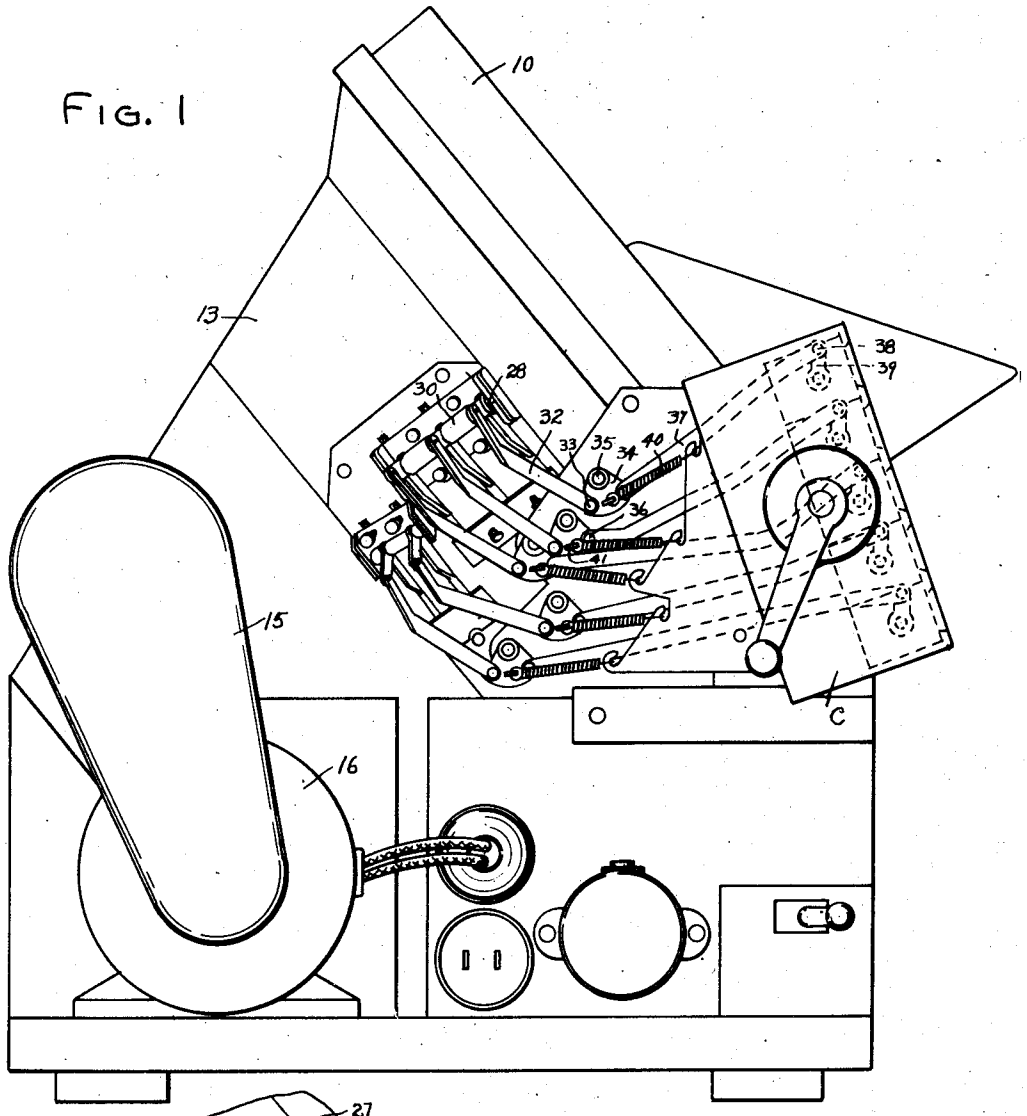
June 23, 1953 A. R. BUCHHOLZ 2,642,882

COIN SORTING AND COUNTING MACHINE

Filed Aug. 30, 1950 2 Sheets-Sheet 1

FIG. 1



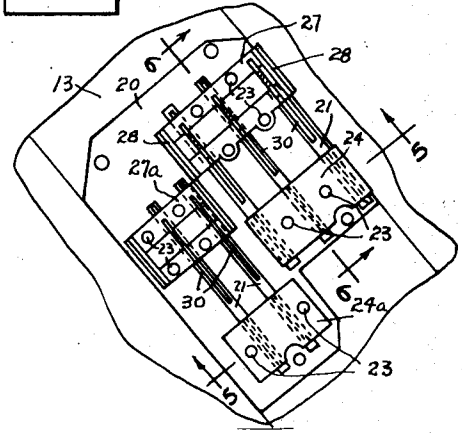


FIG. 3

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FIG. 2

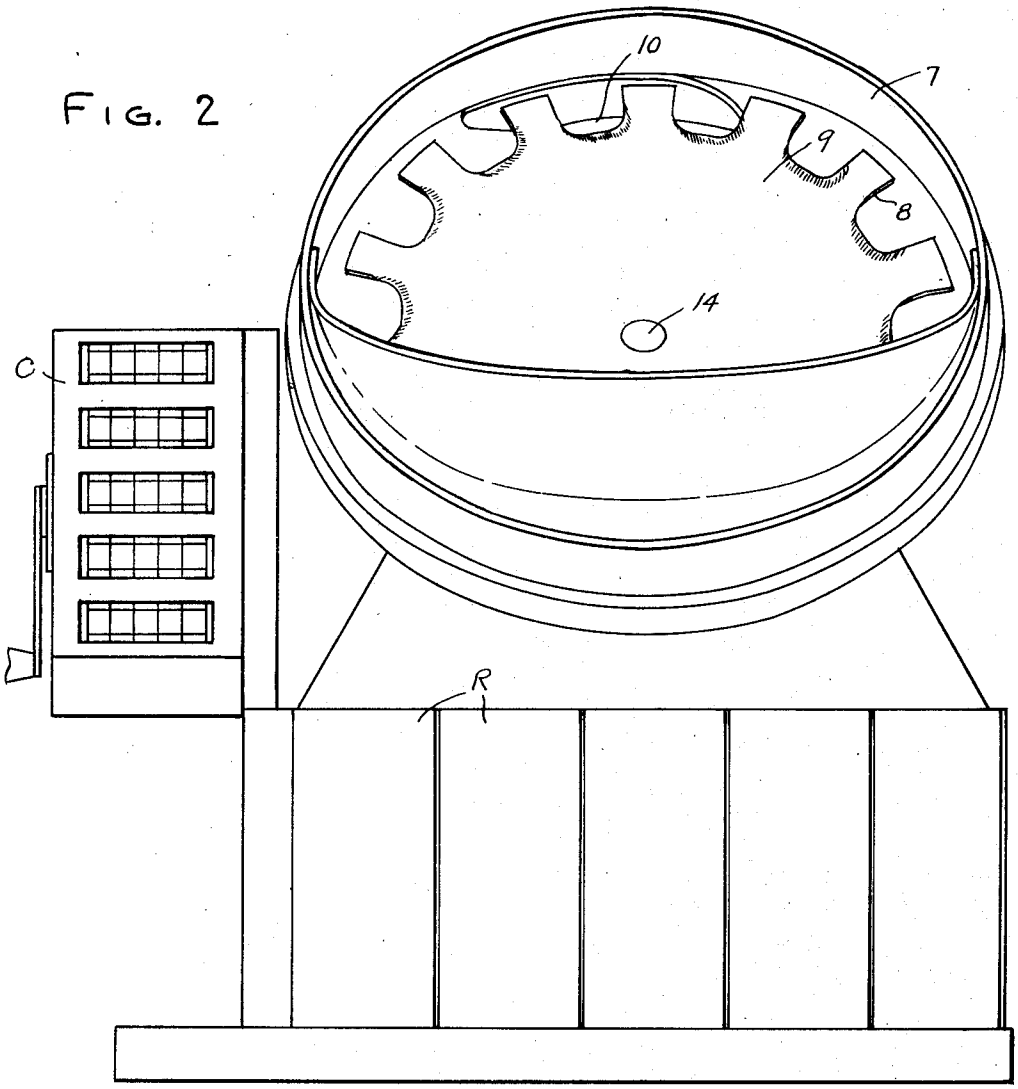


FIG. 4

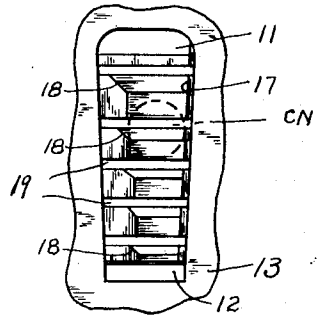


FIG. 5

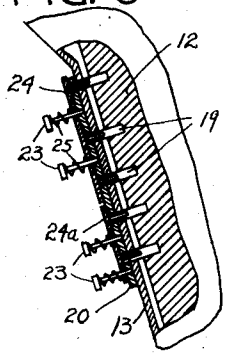
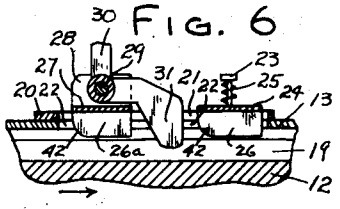


FIG. 6



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UNITED STATES PATENT OFFICE

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COIN SORTING AND COUNTING MACHINE

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Application August 30, 1950, Serial No. 182,209

2 Claims. (Cl. 133—8)

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The invention relates to coin sorting and counting machines and more particularly to that type of coin sorting machine in which the coins are fed from a hopper into side pockets of graduated width formed on the peripheral portion of a drum rotatably mounted in an enclosing housing and usually driven by an electric motor which also rotates a scalloped or notched feeder plate disposed at the bottom of the hopper.

In machines of the type above described just before the sorted coins are discharged into their separate receptacles they pass by parts of counter operating drives, one for each coin denomination, which operate their respective counters to indicate the number of coins of any particular denomination that have been sorted. Heretofore, trouble has been experienced with these counter drives because the coins have been loosely positioned on the sorter drum when they pass by these drives and because the coin engaging members of these drives have been rigidly mounted sometimes, in the case of mutilated coins, causing jamming of the coins. Also the counter drives have been quite complicated. The object of the present invention is to provide means to hold the coin properly in its pocket on the sorter drum while being counted to reduce abrasive action usually occasioned by movements of the coins in the pockets and consequently reduce wear and tear on the sorting units and the inner wall of the enclosing shell or housing and to permit a yielding movement of said holding means and a part of said counter drives in case mutilated coins are sorted.

The invention further consists in the several features hereinafter described and more particularly defined by the appended claims.

In the drawings:

Fig. 1 is a side elevation view of a coin sorting and counting machine embodying the invention;

Fig. 2 is a front elevation view of the machine;

Fig. 3 is a detailed developed view of parts embodying the invention;

Fig. 4 is a detailed front elevation view of a portion of the sorting drum;

Fig. 5 is a detailed vertical sectional view taken on the broken line 5—5 of Fig. 3;

Fig. 6 is a detailed vertical sectional view taken on the line 6—6 of Fig. 5.

The sorting mechanism is of known construction and so much thereof as is necessary for an understanding of the novel improvements later described herein has been shown. The machine includes a hopper 7 supported on the frame thereof at an angle so that the coins to be sorted

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may be carried upwardly in the notches 8 of a rotary bottom plate 9 and allowed to drop through into a feed slot 10 which communicates with a series of coin sorting slots 11 formed on the periphery of a sorting drum or core 12 which rotates within a fixed enclosing shell 13 and carries the shaft 14 secured to the bottom plate 9. Rotation of the drum and its connected parts is accomplished by a suitable transmission drive, part of which is indicated by the cover 15, connected to the shaft of an electric motor 16.

The sorter is of the type in which the slots 11 form a series of radially disposed channels 17 whose width decreases from top to bottom, one side of these channels at spaced intervals having inclined shelf or ledge portions 18 forming a series of graduated stops for arresting coins of different denominations. Thus in Fig. 4, in which a portion of the drum is shown through an opening in the shell, the top shelf 18 arrests a half dollar, the next a quarter, one of which is shown in dotted, the next a nickel, the next a penny, and the next or lower slot a dime. As the drum is revolved, coins fed through the slot 10 are free to drop down into the slots 11 of the drum as they pass by this slot, and in dropping they are caught by one or the other of the shelves 18, depending upon their denomination and are carried around by the drum past counter actuating mechanism and then deposited through suitable discharge mechanism in one or the other of a series of coin receptacles R. The present invention deals with an improved construction for keeping the coins flat against the bottom sides of the channels 17 as they are carried past the counter drive mechanism, to prevent mutilated coins jamming the machine while being counted and to simplify the counter drive for the denomination counters C.

According to the present invention, the side of the drum is provided with a series of peripheral grooves 19 so spaced that each groove passes through the approximate center of a coin CN resting on one of the shelves or ledges 18, as shown in Fig. 4. A foundation plate 20 curved to fit the curvature of the outer shell 13 is suitably secured thereto and has a series of longitudinal slots 21 therein alined with the grooves 19 in the drum and with slot 22 in the shell. A plurality of sets of spaced headed guides in the form of screws 23 are mounted in the plate 20. For the first three coin denominations, that is, the half dollars, quarters, and nickels, a shoe plate 24 is vertically slidably mounted on one set of guides 23 and is yieldingly urged inwardly against the

plate 20 by springs 25 interposed between said plate and the heads of the guides 23. The plate 24 carries coin engaging shoes 26 which work in the alined slots 21, 22 alined with the grooves 19. For the pennies and dimes a similar shoe plate 24a is vertically slidably mounted on another set of guides 23 and is similarly yieldingly urged inwardly by springs similar to the springs 25 and carries coin engaging shoes similar to the shoes 26 and working in other alined slots 21, 22 alined with grooves 19. In front of the shoe plates 24 and 24a another set of shoe plates or brackets 27 and 27a are provided, each of which is vertically slidably mounted on spaced sets of guides 23 and is yieldingly urged inwardly against the plate 20 by springs, similar to the springs 25, each of these plates carrying spaced shoes 26a similar to the shoes 26 and working in alined slots 21, 22 alined with grooves 19. The spaced arms 28 of each bracket 27 or 27a carry a pivot shaft 29 and pivotally mounted on each shaft are a series of bell crank levers 30, one arm of which is in the form of a finger 31 that extends down through slots 21 and 22 and into one of the grooves 19, so that it may contact the advancing edge of a sorted coin being carried around by the core and be raised or tilted by said coin as it passes by. The other arm 32 of each lever 30 is pivotally connected by a pin 33 to a swinging plate or lever 34 pivotally mounted on the frame of the machine at 35, and pivotally connected by a pin 36 to one end of a link 37 whose other end is pivotally connected at 38 to a counter operating lever 39 for one of the counters C. A tension spring 40 anchored at one end on frame parts of the machine and suitably connected at 41 with the lever 34 serves to move and normally hold the counter drive linkage above desrcribed in a position in which the finger 31 will contact an advancing coin.

It will be noted from the drawing that there is a counter lever 30 for each denomination of coin and linkage similar to that above described for each lever.

With the above construction, as the coins sorted by the drum 12 revolving in the direction of the arrow shown in Fig. 6 are carried therewith past the counter drive levers 30, one of the shoes 26a will engage a sorted coin and press it inwardly flat against the bottom face 42 of the channel 17 and hold it there while finger 31 of this particular denomination is engaged and swung outwardly by the sorted coin, and before this finger leaves this coin, the shoe 26 engages and holds the coin flat against the bottom of channel 17 in that portion thereof where one of the ledges 18 has stopped it in the sorting operation. It will be noted that the front end 42 of the shoes 26 and 26a are curved to facilitate movement of the coins. Since the sorted coin is being held flat while it is engaging the lever 30, it will be held clear of any contact with the outer shell 13, so that the wear and tear of a loose coin on the sorting unit and the shell has been eliminated. If during sorting, a mutilated coin, such as a slightly bent coin, is carried around past the counter operating mechanism, then since the levers 30 and the shoes are mounted on yieldably mounted supports 27 or 27a and 24, the outward movement of these supports will let a mutilated coin pass the lever 30, and jamming of the machine will be prevented.

It will also be noted that the drive to each counter is very simple comprising in each instance but two levers and a link.

The outward swinging movement of each lever 31 by its contact and movement by a sorted coin in each instance acts through the linkage comprising the lever 30 carrying said finger, the lever 34, and the link 37 to turn the counter actuating lever 39 through a sufficient arc to cause a single registration of the sorter counter with which said lever is associated, the linkage above described being returned for another counting stroke under the action of the spring 40.

I desire it 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 accompanying claims.

What I claim as my invention is:

1. In a coin sorting machine of the type in which the coins are sorted in a rotary member provided with radially disposed slots having graduated width pockets for different denominations of coins, and a counter for each denomination of sorted coins and coin operated counter drive mechanism for each of the counters, each drive mechanism including a movable finger disposed to project into a slot extending across a pocket and movable toward the bottom thereof to be engaged and moved by a sorted coin in said pocket as it passes beneath said finger, the combination with said movable finger of shoes disposed in front of and in back of said coin operated finger and engageable with a sorted coin in said sorting pocket as the coin is carried by said rotary member face up in contact with and past said finger, a support for said shoes, said shoes being yieldingly mounted on said support for radial movement relative to said rotary member and acting to yieldingly hold a sorted coin flat against the bottom side of said pocket while engaged by said finger.

2. The structure as defined in claim 1, wherein some of the yieldingly mounted shoes also support the coin operated fingers.

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