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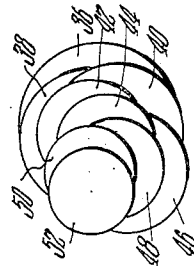
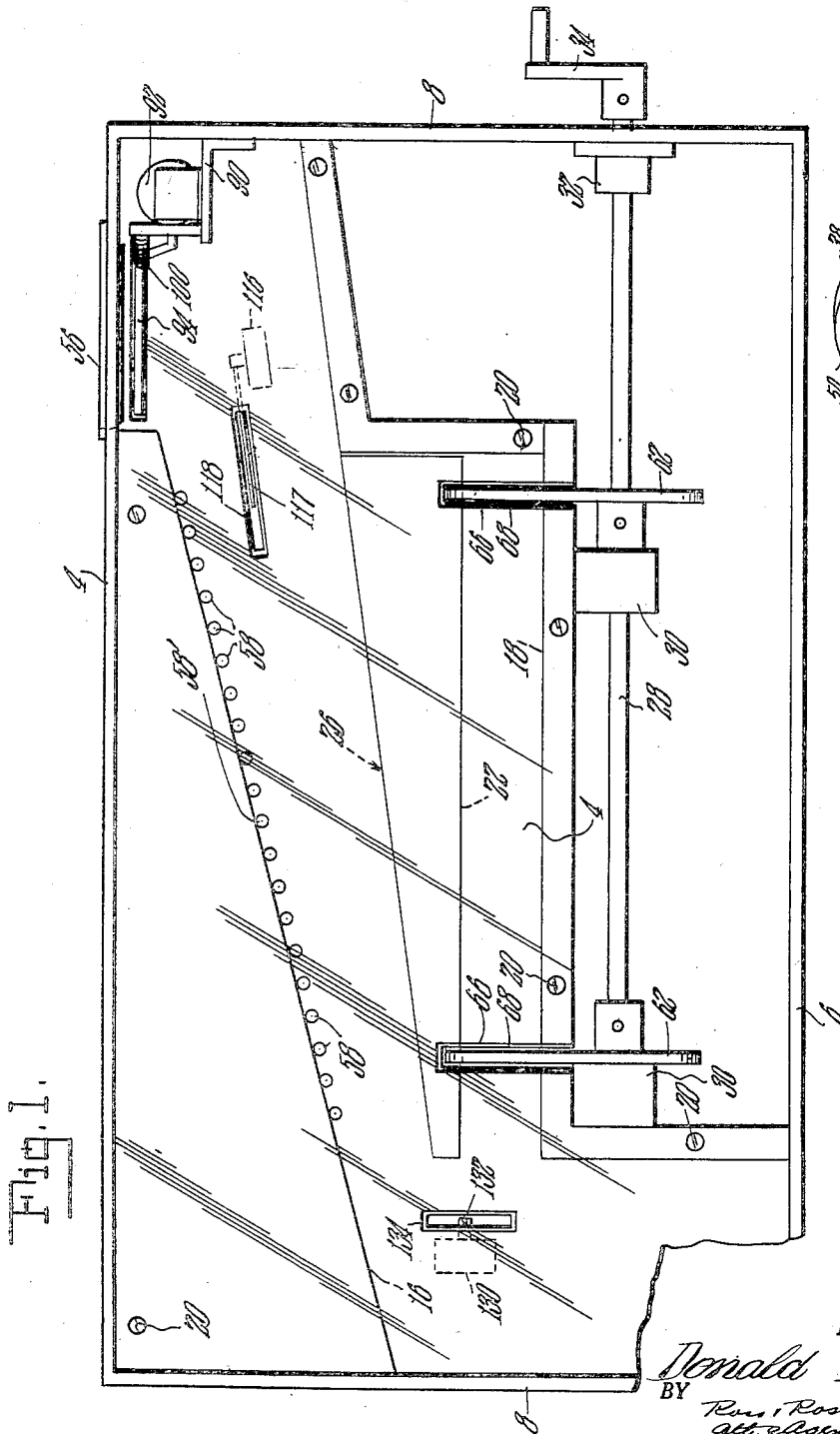
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**2,773,579**

## ELECTRICAL INDICATING MECHANISM

Filed Oct. 9, 1953

2 Sheets-Sheet 1



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ELECTRICAL INDICATING MECHANISM

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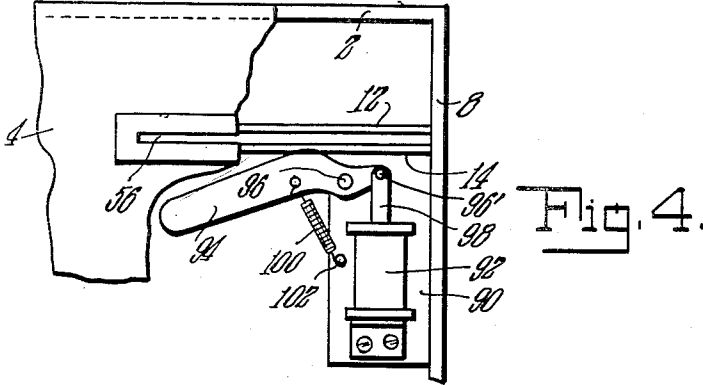


Fig. 4.

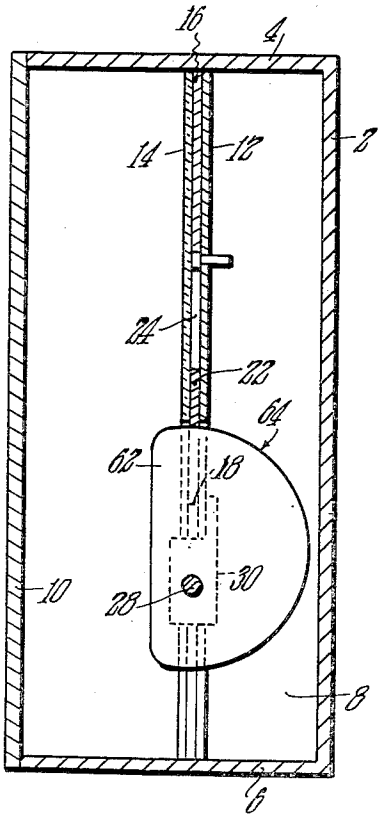


Fig. 3.

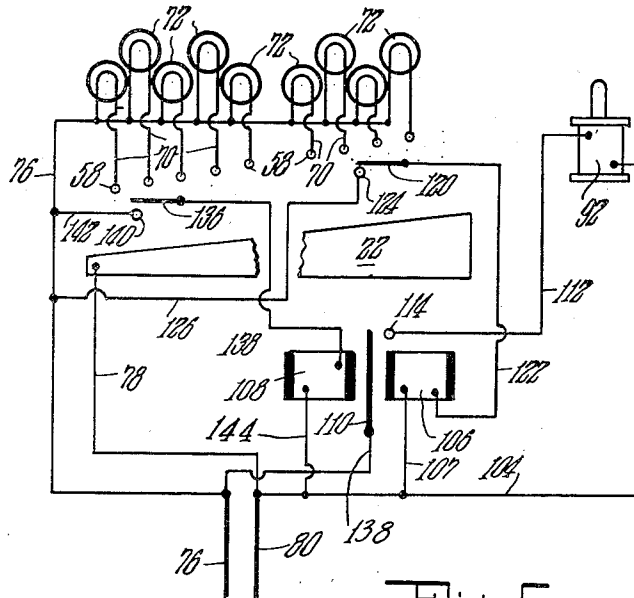


Fig. 5.

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## ELECTRICAL INDICATING MECHANISM

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2 Claims. (Cl. 194—8)

This invention relates to improvements in electrical indicating mechanism.

The principal object of the invention is the provision of electrical indicating mechanism which is adapted for various purposes but is particularly adapted for use where it is desired to indicate an amount of money due and to provide indications of credits thereagainst.

As an example, the mechanism may be used in a restaurant or the like where the customer would be given a debit chip corresponding to the amount of his purchase which is indicated by a signal which may be called a debit signal. As the customer deposits coins in payment of the debit chip, the value of the coins is credited against the debit and signals indicate the unpaid balance.

More particularly, an object of the invention is to provide a coin control mechanism incorporating a mechanism for registering the value of one or more coins of similar or varying denominations, which mechanism may be employed to register payments made thereto and to reflect the credit registered thereby.

The invention is especially adapted for use in highway toll stations, subway terminals, short order restaurants and like places where different customers are expected to pay different amounts of money for goods received or services rendered.

By means of this invention, it is now possible to eliminate the necessity of locating a cashier at these aforementioned places, the device being self-operating so that the customer is permitted to make his own payments directly to the mechanism which registers and credits same.

Broadly speaking, the invention contemplates the provision of a self-operating mechanism wherein is permitted the insertion thereof of coins of various denominations which establish certain registrations of credit, which registrations are synchronized with simultaneous registrations of amounts still owed so as to reflect at any certain moment the unpaid balance on a particular account.

With the above primary objects in view, it is another object of my invention to provide a construction of the above described character in which the number of operating parts is greatly reduced and which is compact in accordance with the demands and desires of manufacturers and purchasers alike and which is not only distinctive in its appearance and practical in its value but also reliable in its operation and efficient in its use.

It is a still further object to provide a device which is constructed of relatively simple parts which are adapted to be readily assembled and which when once assembled are positively and securely retained in operative relationship and which cannot be readily separated from each other, either accidentally or otherwise.

Other prime objects of invention include: first, the securing of a higher degree of accuracy and greater degree of variety in the manner of work performed therewith than has heretofore been possible with prior devices known in the art; second, the attainment of a higher

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speed of construction and assembly of the device due to its simplification of design and its unique composition of parts; third, the attainment of a flexibility or a capability of adjustment by which a large variety of work can be produced by means of the same device; fourth, the achievement of a greater ease in adjustment and repairs; fifth, the provision of an improved electrical indicating mechanism, which may be made more economically and with fewer operations in the manufacture of its parts, as well as in the assembly of the same, than prior devices known in the art; sixth, the provision of a construction which may be readily installed with respect to the various purposes for which it is intended, and seventh, the provision of such other improvements in and relating to coin control mechanisms of the type above referred to as are hereinafter described and claimed.

All of the above cited objects I accomplish by means of such structure and relative arrangement of parts thereof, as will fully appear by a perusal of the description below and by various specific features which will be hereinafter set forth. To these above and other ends and with the foregoing and various other and ancillary features and advantages and objects of my invention as will become more readily apparent as the description proceeds, my invention consists in certain novel features of construction in a mode of operation and in the combination organization and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereto annexed and more fully described and referred to in conjunction with the accompanying drawings wherein:

Fig. 1 is a front elevational view of mechanism embodying the novel features of the invention;

Fig. 2 is a plan view of a group of debit chips for the mechanism;

Fig. 3 is a vertical sectional elevational view through the apparatus shown in Fig. 1;

Fig. 4 is a top plan view of the housing shown in Fig. 1 having the entrance slot for the debit chips; and

Fig. 5 is a diagrammatic wiring diagram to explain the operation.

In the accompanying drawing, I have illustrated a complete example of a physical embodiment of the invention in which the parts are combined and arranged in accordance with one mode which I have devised for the practical application of the principles of the invention.

It will, however, be understood that changes and alterations are contemplated and may be made in these exemplifying drawings and mechanical structures, within the scope of the claims, without departing from the principles of the invention.

In the following description and claims, various details will be identified by specific names for convenience. These names, however, are intended to be as generic in their application as the art will permit.

Referring now to the drawing more in detail, in which similar characters of reference indicate corresponding parts in the several figures and referring more particularly to the preferred form of my invention selected for illustrative purposes, I have shown a housing having a rear wall 2, top and bottom and end walls 4 and 6 and 8 respectively, and a front wall or cover 10.

The housing may be made in any form or shape and from any material desired.

A vertically disposed rear plate member 12 extends between the end walls 8 and 8 and is secured thereto by any suitable means.

A front panel 14 overlies the plate 12 and is preferably formed from transparent material such as glass, plastic or the like.

Upper and lower spacers 16 and 18 respectively are disposed between the plate 12 and panel 14 to space them

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apart. The plate 12, panel 14 and spacers 16 and 18 are secured together by any suitable means such as by screws 20 or the like.

An elongated slide 22 is slidable up and down in the space 24 between the plate 12 and panel 14 and has an upper edge 26 which inclines from its right hand end and the corresponding end of the housing which may be called the entrance end.

A shaft 28 is journaled in bearings 30 fixed to the rear wall 2 and in a bearing 32 fixed to one of the end walls. For illustrative purposes, a crank 34 is fixed to the shaft 28 for rotating it in a step-by-step manner.

It will be understood and appreciated that the crank 34 is shown for purposes of simplification. Other means for rotating the shaft 28 may be substituted therefor.

A group of debit chips or blanks are indicated by 36 to 52 inclusive. Said chips will be relatively thin and formed from metal. For purposes of description, it will be assumed that the diameters are so graduated that the smaller one represents five cents and the next larger one represents ten cents, etc., with the largest one of the group representing one dollar.

A debit chip entrance slot 56 for the receipt of the chips is provided in the upper right hand rear corner of the housing.

The rear plate 12, front panel 14 and spacers 16 and 18 are formed from non-metallic or insulating material.

A series of contacts such as 58 are secured to the rear plate 12 and are disposed in the space between the rear plate 12 and the panel 14.

Said contacts are spaced substantially equal distances apart in a row which declines downwardly from the receiving end of the housing and are above the upper edge 26 of the slide 22.

As will hereinafter appear, each contact 58 and the slide 22 are connected in an electrical circuit which includes an indicator of some type which for purposes of illustration may comprise a light bulb or bulbs.

As a debit chip is deposited into the slot 56, it strikes and rolls along the inclined upper edge 26 of the member 22 until, according to its particular diameter, it abuts and rests against one of the contacts 58, thus completing a circuit which indicates on the indicator a particular debit or indebtedness according to the particular debit chip employed.

The row of contacts 58 and the upper edge 26 of the slide 22 form a generally horizontal elongated chute for the chips and has upper and lower sides which converge from an entrance to a discharge end.

The slide 22 is movable up and down in a vertical plane so that, in its uppermost position, the chute has a lesser vertical height or width than when the slide is in its lowermost position.

Cams 62 are fixed on the shaft 28 and the lower edge of the slide 22 has slots receiving the peripheries 64 of the cams so that the slide 24 is supported by the cams.

The rear plate and panel are provided with slots 66 and 68 for rotation of the cams.

The contacts are arranged so that with the slide in the upper position shown, the large chip representing one dollar will rest on the slide and make the contact at the right of the row thereof. The next chip smaller in size would make the second contact from the right and so on with the smallest chip making the leftmost contact.

As shown in Fig. 5, each contact 58 is connected by connections 70 to an indicator which may be an electric light bulb 72. The bulbs are connected to one side 76 of a source of energy. The slide 22 is connected by 78 to the other side 80 of the source of energy.

The bulbs may have associated therewith indications representing debits from five cents to one dollar, the debits being spaced apart by five cents. When a chip representing a certain amount is deposited in the slot 56 it comes to rest on the slide and against that contact

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representing that certain amount. A circuit is closed and the bulb connected to that certain amount is lighted and indicates a certain debit. Assume the chip deposited represents fifty cents then the particular bulb indicates a debit of fifty cents.

The fifty cent debit is to be cancelled out on payment by the customer of coins and the rotation of shaft 28 to lower the slide 22. A certain angle of rotation of the shaft and cam represents five cents, twice that angle represents ten cents, five times that angle represents twenty-five cents, etc. As the slide is allowed to descend by the cams, the chip deposited rolls along the slide until it makes some other contact.

Suppose ten cents is to be credited against the fifty cent debit. The cams are rotated to lower the slide so that the chip rolls and makes the forty cent contact. The bulb connected to that contact is energized then the debit is shown as forty cents.

Thus sufficient credits cancel out the debit.

The shaft and cams are rotated step-by-step through an angle or multiples thereof until the debit has been cancelled at which time the chip rolls off from the left hand end of the slide and out of the chute.

The shaft 28 will be operated by coin controlled or actuated mechanism well known in the art. That is such as will rotate the shaft through a certain angle on the deposit of five cents, another angle on deposit of ten cents and so on.

It is desired that the entrance slot 56 for chips be closed while a chip is in the slide. To that end, a bracket 90 is secured to end wall 8 (see Fig. 4) to which a solenoid 92 is secured. A stop lever 94 is pivoted at 96 to the bracket 90 for swinging from the position shown to a stop position beneath the slot 56. Said lever is pivoted at 96' to an armature 98 of the solenoid. A spring 106 is attached to a stud 102 of the bracket and to lever 94 to return the lever to the open position shown.

Said solenoid 92 is connected by 104 to one side 80 of the source of energy, see Fig. 5. A relay has coils 106 and 108 and an arm 110 and the other side of the solenoid is connected by 112 to a contact 114 engageable by arm 110. Coil 106 is connected by 107 to 104.

A switch 116 is secured to the rear of rear plate 12 and is of the normally open type having an actuating member 117 extending through slots 118 of the rear plate and front panel so as to be disposed in the path of a chip deposited in slot 56, see Fig. 1. An arm 120 of switch 116 is connected by 122 to coil 106 and a contact 124 of the switch is connected by 126 to connection 76.

A chip deposited through slot 56 engages member 118 of switch 116 to close said switch whereby coil 106 is energized to cause arm 110 to make contact 114. Thereby solenoid 90 is energized and member 94 is swung to position closing slot 56.

A switch 130 is secured to the back plate which is of the normally open type and has an actuating member 132 extending through slots 134 in the back plate and front panel (see Fig. 1). As a chip leaves the slide, it engages the member 132 to close the switch 130. Said switch 130 (see Fig. 5) has an arm 136 connected by 138 to relay coil and a contact 140 connected by 142 to connection 76. Said relay is connected by 144 to connection 104.

As switch 130 is closed relay coil 108 is energized, arm 110 breaks contact with contact 114, solenoid is de-energized, and stop 94 swings to open position as shown in Fig. 4.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by

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the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claims are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

1. Apparatus of the class described comprising, a supporting structure including a rear plate and a front transparent panel secured together in vertical horizontally spaced planes for receiving therebetween discs in vertical planes and provided with a disc receiving entrance at the upper side and adjacent one end thereof, a slide member between said plate and panel having an upper elongated edge for rollably supporting and releasing a disc, operating means for moving said slide member up and down to position the upper edge thereof in various disc supporting positions and in lower disc releasing position, a row of relatively spaced contacts carried by said plate along and above the upper edge of the slide member, said row of contacts and the upper edge of said slide member arranged in a generally declining and converging relation and generally horizontally from said disc entrance whereby a disc of a certain diameter on the upper edge of the slide member in one supporting position thereof will engage a contact different from that engaged by said disc in a different supporting position and successive movements of the slide member to disc releasing position will cause said disc to engage successive contacts.

2. Apparatus of the class described comprising, a sup-

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porting structure including a rear plate and a front transparent panel secured together in vertical horizontally spaced planes for receiving therebetween discs in vertical planes and provided with a disc receiving entrance at the upper side and adjacent one end thereof, a slide member between said plate and panel having an upper elongated edge declining from the horizontal and relative to said entrance for rollably supporting and releasing a disc, operating means for moving said slide member up and down to position the upper edge thereof in various upper disc supporting positions and in lower disc releasing position, a row of relatively spaced contacts carried by said plate along and spaced above the upper edge of the slide member, said row of contacts declining from the horizontal and relative to said entrance, said row of contacts and upper edge of the slide member relatively converging from said entrance whereby a disc of certain diameter on the upper edge of the slide member in one supporting position thereof will engage a contact different from that engaged by said disc in a different supporting position and successive movements of the slide member to disc releasing position will cause said disc to engage successive contacts.

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