May 13, 1952 R. BROUSSARD 2,596,122

PARKING METER AND COIN SLOT THEREFOR

Original Filed March 27, 1945 4 Sheets-Sheet 1

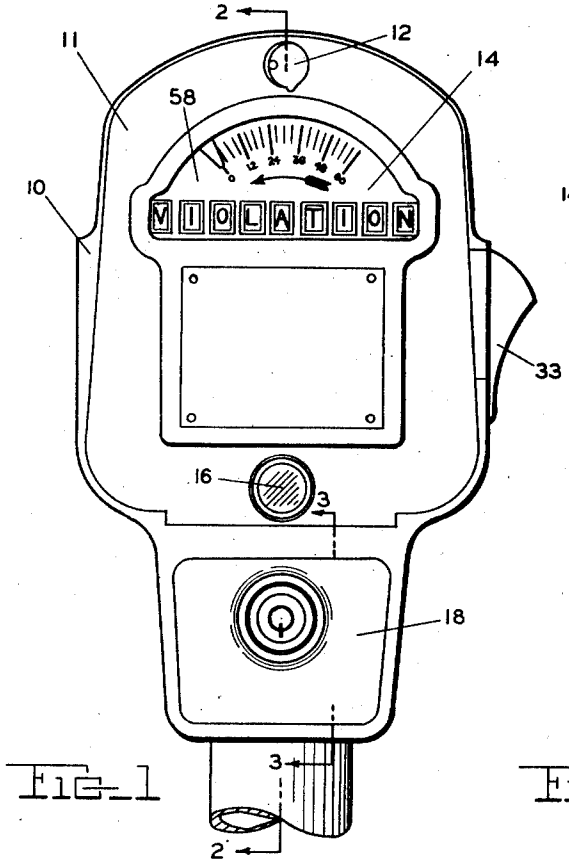


FIG. 1

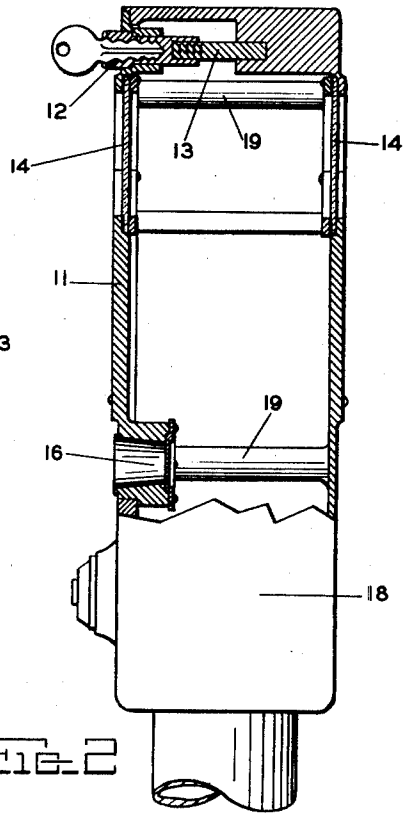


FIG. 2

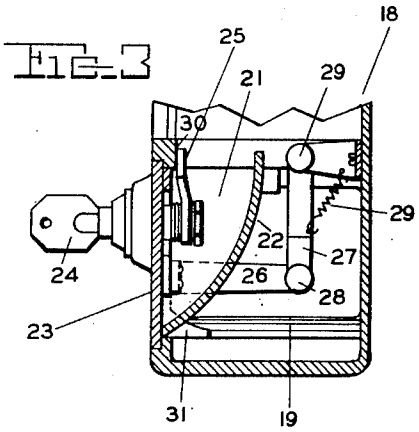


FIG. 3

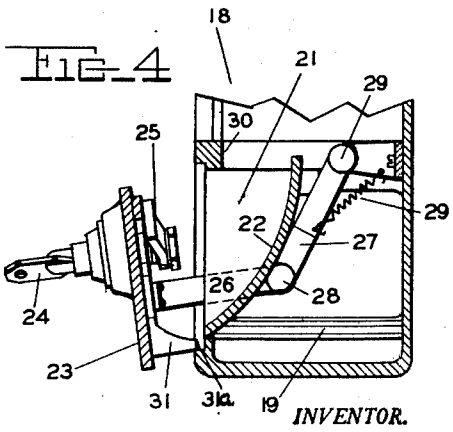


FIG. 4

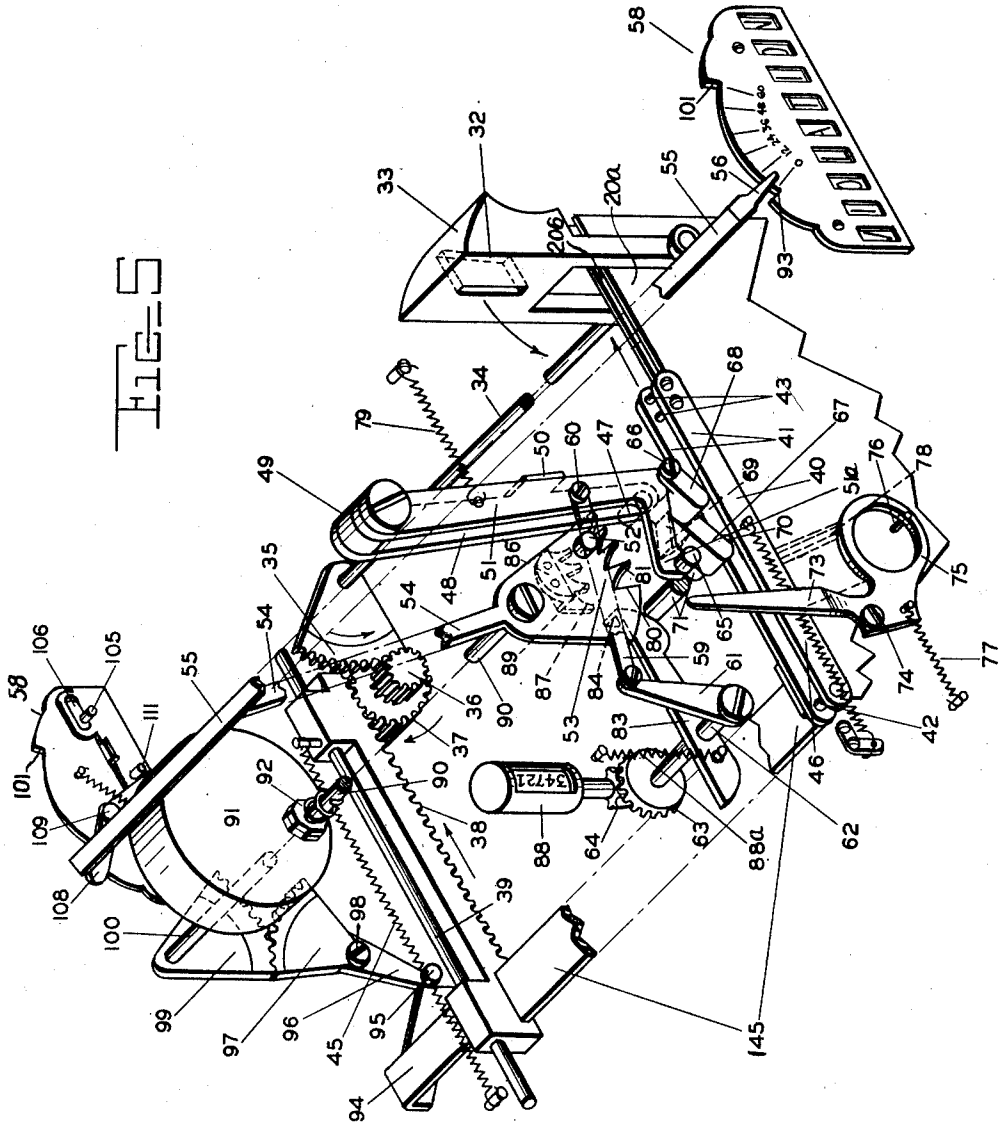
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FIG. 5



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Fig. 6

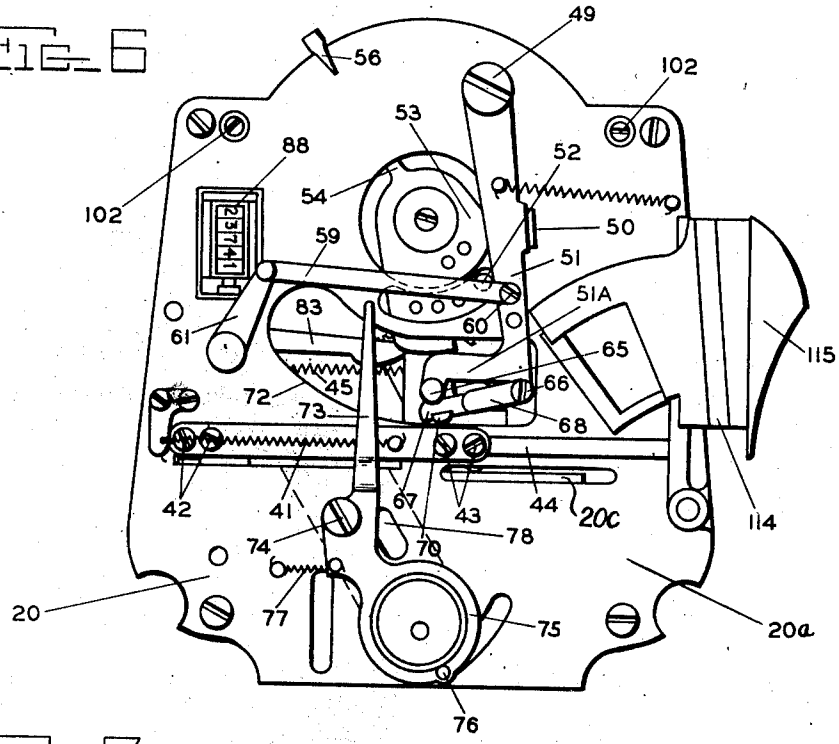
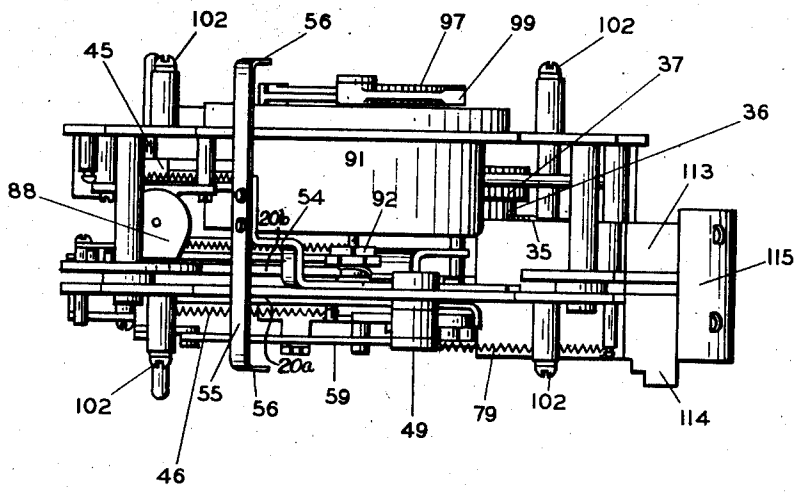


Fig. 7



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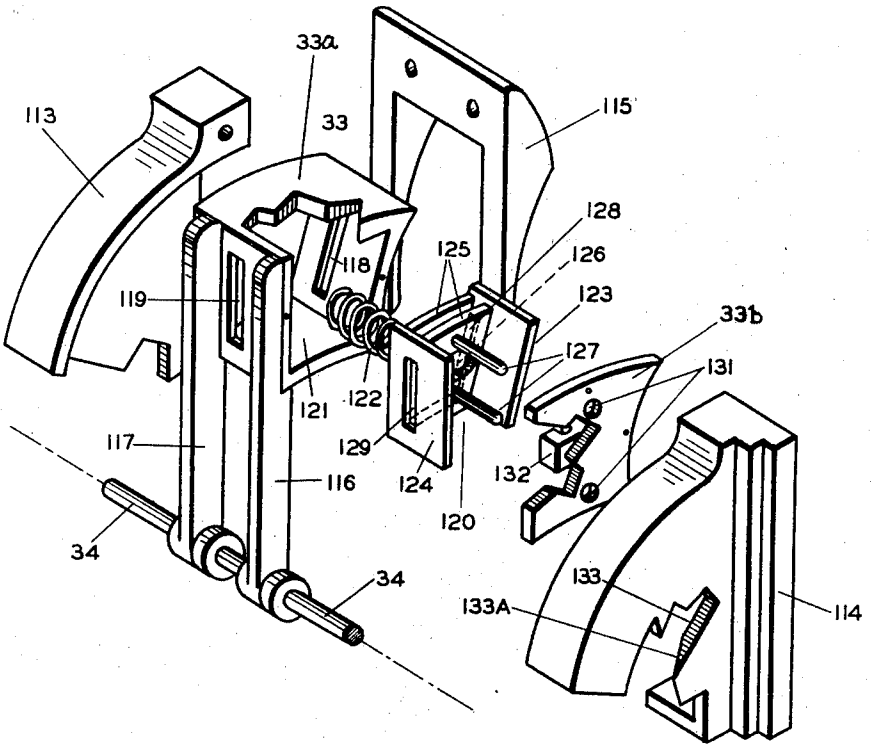
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FIG-8



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2,596,122

UNITED STATES PATENT OFFICE

2,596,122

PARKING METER AND COIN SLOT THEREFOR

Robert Broussard, Washington, D. C., assignor, by mesne assignments, to Duncan Parking Meter Corporation, Chicago, Ill., a corporation of Illinois

Original application March 27, 1945, Serial No. 585,152. Divided and this application July 18, 1946, Serial No. 684,579

7 Claims. (Cl. 194—101)

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My application is a division of my copending application Serial No. 585,152, filed March 27, 1945, now Patent 2,580,400, issued January 1, 1952, and entitled Parking Meter and Coin Slot Therefor, and the invention relates to parking meters, for use along streets, roadways and in conjunction with vehicle stalls and parking areas for example.

An object of my invention is the provision of a simple, practical and inexpensive parking meter of rugged construction having a cam feed means, forming an integral and essential part of the same, which is adapted for setting timing mechanism of the apparatus to initiated position while feeding a coin.

Another object is to provide a device of the character indicated wherein driving energy for included set-initiated timing means is stored as an incident to the time-setting operation and in which energy imparted to coin feeding means of the meter is stored for driving the meter timing means.

Another object of my invention is the provision, in a device of the character indicated, of timing apparatus for selective setting to measure any one of several differing periods of time corresponding to different coin values payable to the meter.

A further object is to provide coin feed means in a parking meter, by which an inserted coin is automatically fed to effect the setting of associated timing mechanism only after external control over the feed means is relinquished; also the provision of a simple arrangement for encasing or housing the timing and coin feed mechanism; and coin receiver means for passing coins through the meter casing, which while either active or inactive, precludes tampering with the inner workings of the meter through the coin passage.

Another object of my invention is the provision in coin feed means of the character indicated of a coin receiver for passing genuine coins through the meter housing and for arresting spurious coins for return to the receiver outlet all while affording protection against external tampering.

A further object of the invention is to provide a device of the character indicated wherein the receipts that have accumulated incident to use are collected within the meter casing in a coin box characterized by certain advantageous features for emptying the same.

Other objects in part will be obvious and in part referred to hereinafter.

The invention accordingly consists in the combination of elements, features of construction and

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arrangement of parts as described herein and particularly set forth in the claims at the end of this specification.

In the accompanying drawings, in which like reference characters denote like parts throughout the several views, there is illustrated a parking meter embodying certain features of my invention.

Figure 1 is a front elevation view of a preferred form of my parking meter;

Figure 2 is a partial sectional view in elevation along the line 2—2 of the meter housing with the meter operating mechanism removed;

Figure 3 is a fragmentary sectional side elevation view of the meter coin deposit box along a line 3—3 of Figure 1, showing the coin box door closed;

Figure 4 is a view similar to Figure 3 showing the coin box door open;

Figure 5 is a schematic isometric exploded view of meter operating mechanism in which the interaction of certain movable parts are illustrated;

Figure 6 is a front elevation view of the meter mechanism;

Figure 7 is a plan view corresponding to Figure 6;

Figure 8 is an exploded isometric view of a preferred coin receiver and its mechanism.

Referring now, more particularly, to the practice of my invention, attention is directed to the drawings, notably Figures 1 and 2. The meter will be seen to comprise an external housing 10 (Fig. 1) into which is seated a housing door 11. The door is held in place by a screw type lock 12 which engages with post 13 fixed into the housing as best illustrated in Figure 2. The upper part of the door is cut away to provide a glass window 14 for revealing a time indicator and signal plate which is to be discussed in detail later. A similar window for revealing a like time indicator and signal plate is provided in the back of the housing. In the housing door 11 there is a coin window 15 which displays, from inside, the last coin which has served to set the meter. A coin receiver 33 for manipulation in setting the meter extends through the right hand side of the housing (Fig. 1). The lower portion of the housing comprises a coin deposit chamber 18 for receiving coins after display of the same at window 16. The housing is sturdily reinforced with reinforcing ribs 19 and on inside walls is shaped to conform with the curvular edges of face plates 20, 20a and 20b (shown in Fig. 6) so that the meter mechanism is firmly held in place in the housing without necessity for bolting and yet is easily removed.

After the coins have enabled setting of the meter for a paid-for parking period, which operation will be discussed later, they are released into coin chamber 21 enclosed by coin retaining wall 22 and coin chamber door 23. Door 23 is firmly locked by key 24 and latch 25. Attached to door 23 are lever arms 26 and 27 which restrict outward movement of the door within limits of rotation about hinges 28 and 29. The lever arms 26 are held in position shown in Figure 3 by means of spring 29. When key 24 is turned in a clockwise direction, latch 25 is rotated clear of latchstop 30. Following this the operator can open the coin chamber door with one hand and with the other hand collect coins which are now free to slide (see Fig. 4) from coin retaining wall or bottom 22 and down between seating elements 31 located one on each side of the bottom of the door for the purpose of seating the door in position when closed and for supporting the door (when the door is in open position) on ledge 31*a* of the meter housing. In wide open position, the door extends lever arms 27 and 28 on each side to their full run which prohibits complete removal of the door. By this hinged action, the door can be pulled free bodily with one hand without danger of dropping and when released slides back under action of spring 29 and guided by seating elements 31, to closed position.

In Figure 5, substantially all frame work, face plates, housings, and the like, of the meter have been omitted to facilitate a clearer understanding of certain features of my invention. The mechanism illustrated is adapted for receiving a coin, for example a nickel or a penny, which is inserted in outside end of slot 32 of coin receiver 33. The receiver then is pushed in (counterclockwise) for delivering and depositing the coin to a cooperating carrier or slide for feeding the coin in a manner more particularly discussed hereinafter. This motion of the receiver is transmitted along shaft 34 to sector gear 35 which in turn causes gear 36 and pinion 37 to rotate clockwise driving rack 38 to the right as indicated by arrow in Figure 5. The rack 38 is guided during movement by guide rod 39 whose position is fixed.

The coin carrier or slide 40, composed of two parallel plates 41 connected by lugs 42 and 43 moving in slot 44 (Fig. 6) provided in parallel faced plates 20*a* and 20*b* (Fig. 5), is rigidly attached to rack 38 by connecting plate 145. The plates 20*a* and 20*b* form the walls of a compartment for the actuating coin as appears more fully hereinafter. A bottom plate 20*c* between the plates 20*a* and 20*b* adjacent slot 44 (see Fig. 6) forms a floor or track for supporting the coin during the carrying action. As the rack is driven to the right, so is the slide such that when coin receiver 33 has moved down through the entire path of its arc, the coin slide has moved in synchronism to its extreme right hand position. At this point, the coin is discharged from the receiver (this will be described in detail later) and drops between plates 20*a* and 20*b* and onto bottom plate or track 20*c* to seat just in front of lugs 43.

The coin receiver 33 referred to hereinbefore, in a preferred form (as illustrated in exploded view in Fig. 8), is movable between fixed side housing members 113 and 114 and through fixed front housing member 115 which in the drawing have been exploded out for better revealing certain parts of the receiver. It will be understood that the housing members just mentioned

form a part of the meter housing 10. The receiver proper includes a casing made of chambered portion 33*a* having an open side and casing plate 33*b* for covering the open side. The casing is mounted on connecting arms 116 and 117 which are attached to shaft 34 for rocking motion with the shaft as an axis. By this arrangement, the receiver casing is free to reciprocate through the meter housing, that is, through front housing member 115.

Coin entrance slot 118 and coin exit slot 119 located in opposite faces of the coin receiver casing are obliquely situated with respect to each other, such as illustrated in Figure 8. A coin passage assembly 120 fits into interior chamber 121 of the receiver casing against coil spring 122. The coin passage assembly 120 consists of a front face plate 123, back face plate 124, two separated coin passage plates 125 one of which has a slotted opening 126, upper and lower follower posts 127, a slot 128 in the front face plate and a slot 129 in the back face plate. Between the plates 125 and preferably in the same plane with the bottoms of slots 128 and 129, is a coin passage bottom enabling free feed of a coin in either direction through the passage assembly. Slots 128 and 129, although on the oblique with respect to each other, are positioned on the vertical to enable sequential alignment thereof with the space between the coin passage plates 125.

The casing plate 33*b* encloses the coin passage assembly in chamber 121, and has upper and lower holes 131 therein in such position as to permit entry of the follower posts 127. The plate is shown cut away to reveal a permanent magnet 132 attached thereto on the inside face in such position that when the coin receiver is assembled the magnet protrudes through slotted opening 126; the plate being securely mounted, as by means of screws, to close off the open side of chambered portion 33*a* of the casing.

Considering now that these parts are assembled as explained above, the operation is as follows: When a coin (either a penny or a nickel) is inserted in coin entrance slot 118 of coin receiver 33, it passes through slot 128 in the front face plate of coin passage assembly 120 and then into the slot between coin passage plates 125. These are maintained directly in line in the following manner: The follower posts 127 which are attached to the coin passage assembly 120 and protrude through holes 131 in casing plate 33*b* are riding against the inside wall of the housing member 114. This wall is machined to provide a cam surface 133 (the housing member is cut away in Fig. 8 to illustrate this). When the coin is first inserted, the follower posts 127 are riding against an upper section of the cam surface 133 which projects inwards so that the coin passage assembly is forced well back into interior chamber 121 of coin receiver 33, in which position coin entrance slot 118 and the slot between coin passage plates 125 are lined up (note however that at this point the coin exit slot 119 is not lined up with the slot between the coin passage plates 125 so that the coin cannot pass out of the exit end of the coin receiver 33). With the coin lodged in the slots between the coin passage plates 125, the person depositing the coin pushes receiver 33 forward rotating it about shaft 34. As it moves forward the follower posts 127 being guided down cam surface 133 begin to move outwards forced by spring 122 as the follower posts 127 enter the bevelled portion of the cam surface 133*a*. When the follower posts have

reached the end of the bevelled portion of the cam surface which occurs at least before completion of the in stroke of the receiver reciprocating movement, the coin passage assembly has shifted so that the slot 129 in the back face plate of the coin passage assembly is now lined up with the coin exit slot 119. The coin is now free to drop out of the coin receiver by gravity onto the coin slide 40. The movement of the coin passage assembly, therefore, is so designed that when the coin is first deposited it will not pass through the receiver and is held in the coin passage assembly until the coin receiver has been pushed all the way in. Once the receiver is pushed in no tampering can be brought to bear upon the coin for alignment no longer exists with the inlet opening.

In the event that a slug is deposited, the slug is rejected preferably in the following manner: As the slug enters the coin entrance slot and then into the slot between the coin passage plates 125 the permanent magnet 132 on the rear face of the coin receiver plate 130 is held away from the slug because the coin passage assembly 120 is held back away from it by follower posts 127 being depressed by cam surface 133. As the coin receiver 33 rotates forward, however, coin passage assembly 120 moves forward in chamber 33a so that now the slug is directly adjacent to magnet 132. Since slugs, as distinguished from genuine coins, are generally of a ferrous base alloy and are therefore magnetic, the magnet 132 grasps the slug and now that the slot 129 in the back face plate of the coin passage assembly 120 is in line with the coin exit slot 119, instead of passing through into the mechanism the slug is held firmly against the magnet to initiate return of the same to the inlet opening. As the coin receiver retracts in a clockwise direction when pressure against it is released, the coin passage mechanism is again depressed by action against cam surface 133 so that the slug carried in the slot between the coin passage plates 125 is moved back and away from the magnet. After the coin receiver 33 returns with shaft 34 to normal position, at which slot 126 in front face plate 123 once more is aligned with coin entrance slot 118, the slug is discharged from the coin receiver 33 through the latter slot. The gravity discharge of slugs through slot 118 and of genuine coins through slot 119 conveniently is achieved by construction of the meter to ensure that the coin passage floor between plates 125 is carried to neutral gravity feeding position somewhere intermediate normal and fully depressed positions of the tiltable receiver, yet is tilted toward slot 118 in normal position of the receiver and toward slot 119 when the receiver is in fully depressed position. When nickels or pennies are deposited, being non-ferrous, they are not held by magnet 132 on the feed stroke and thus are allowed to pass through coin exit slot 119 into the coin slide to set the meter timing mechanism.

As many possible embodiments may be made of my invention and as many changes may be made in the embodiment hereinbefore set forth, it is to be understood that all matter described herein, or shown in the accompanying drawings, is to be interpreted as illustrated and not as a limitation.

I claim:

1. In combination, a coin receiver having separately disposed vertical slotted inlet and outlet openings therein, coin passage means forming a part of said receiver, means for laterally shifting said passage means alternatively into registry with said inlet and outlet openings for enabling the discharge of a coin in either direction therefrom to said openings, and detector means for contacting and restraining a spurious coin from being discharged from said passage means to said outlet opening but releasing such spurious coin for discharge through said coin passage means to the inlet opening.

2. In combination, a coin receiver mounted for forward and return movement and having oppositely disposed inlet and outlet openings therein, detector means for a coin in the receiver, and means bringing by lateral movement said detector means and coin into contact for restraining a spurious coin from discharge through said outlet opening of the receiver upon forward movement of said coin receiver but separating detector and coin and releasing the coin for discharge back through said inlet opening upon return movement of said coin receiver.

3. In combination, a coin receiver horizontally pivoted for oscillating movement in a vertical plane and having oppositely disposed inlet and outlet openings therein for gravity discharge of a coin through the outlet opening upon forward position being reached or back through the inlet opening with the return position being reached, restraining means for a coin inserted into said receiver, and means operated by the receiver so as to bring by lateral movement said restraining means and a coin into contact so as to hold a spurious coin in the forward position of said receiver and to separate magnetic means and coin to release the same for discharge back through the inlet opening in the return position of said receiver.

4. In a parking meter, a coin receiver mounted for reciprocating movement and having separately disposed slotted inlet and outlet openings therein, coin passage means forming a part of said receiver with means for laterally shifting said coin passage means with reciprocating movement of the receiver alternatively into registry with said inlet and outlet openings and enabling discharge of a coin from the passage means to said one of said coin receiver openings as determined by the stroke of said reciprocating movement, and means for restraining a spurious coin from being discharged from said passage means to said outlet opening upon forward movement of said coin receiver but releasing such a coin for discharge through said passage means to the inlet opening upon return movement of said coin receiver.

5. In a parking meter, a coin receiver mounted for forward and return movement and having an inlet opening therein and outlet opening out of alignment with said inlet opening, laterally moveable coin passage means in said receiver for receiving a coin for discharge, magnetic means for engaging a spurious ferrous coin, and means laterally shifting said coin passage means to bring a coin into contact with said magnetic means and into alignment with said outlet opening for discharge upon forwardly moving said receiver and away from said magnetic means and into alignment with said inlet opening for rejection of a spurious coin upon return of said receiver.

6. In a coin-actuated parking meter, a coin receiver horizontally mounted for oscillating movement in a vertical plane above the axis of the horizontal mounting and having oppositely disposed inlet and outlet openings therein, means

limiting the oscillating movement of the coin receiver to give a backward tilt of the receiver with included outlet opening upon the forward position being reached and a forward tilt of the receiver and inlet opening upon the return position being reached, restraining means for a coin inserted into the meter, and means operated by the receiver so as to bring said restraining means and the coin into contact so as to hold a spurious coin in the forward position of the receiver and to separate restraining means and coin to release the same for discharge back through the inlet opening in the return position of the receiver.

7. In a coin-actuated parking meter, a coin receiver having a vertical coin-slot therein, means horizontally mounting said receiver for forward and return movement in a vertical plane above the axis of mounting, spring means urging said receiver toward return, means limiting the forward movement to give a backward tilt of the receiver and vertical slot upon the forward position being reached, means limiting the return movement to give a forward tilt to the receiver and vertical slot upon the return position being reached, means for contacting a coin inserted into the meter coin-slot, means operated by the receiver so as to bring said contacting means and coin into contact so as to hold a spurious coin while the receiver is in forward position and to separate contacting means and coin to release the same for discharge through the receiver slot in the return position of the receiver.

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