May 12, 1936. E. B. MOORE 2,040,151

COIN SELECTOR

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Fig. 1.

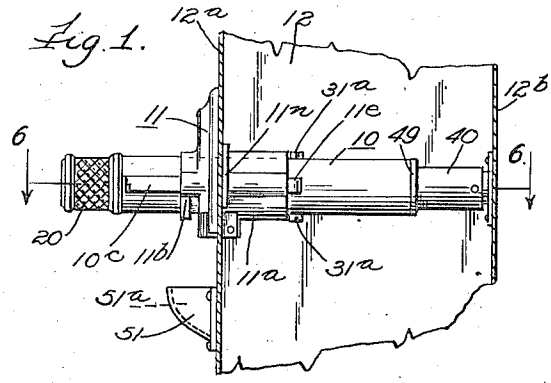


Fig. 2.

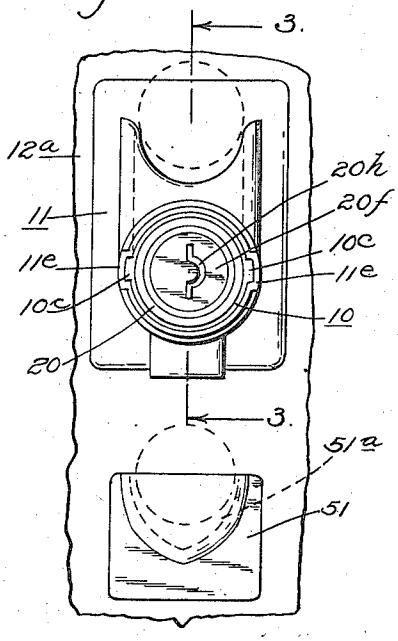


Fig. 7.

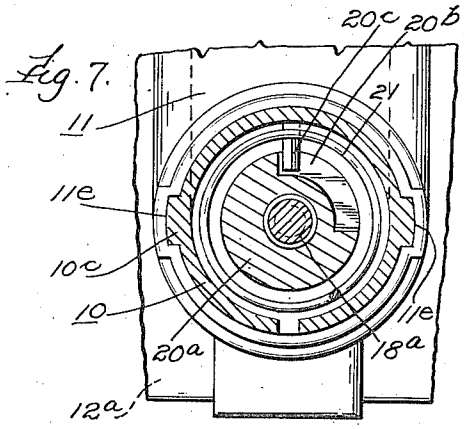
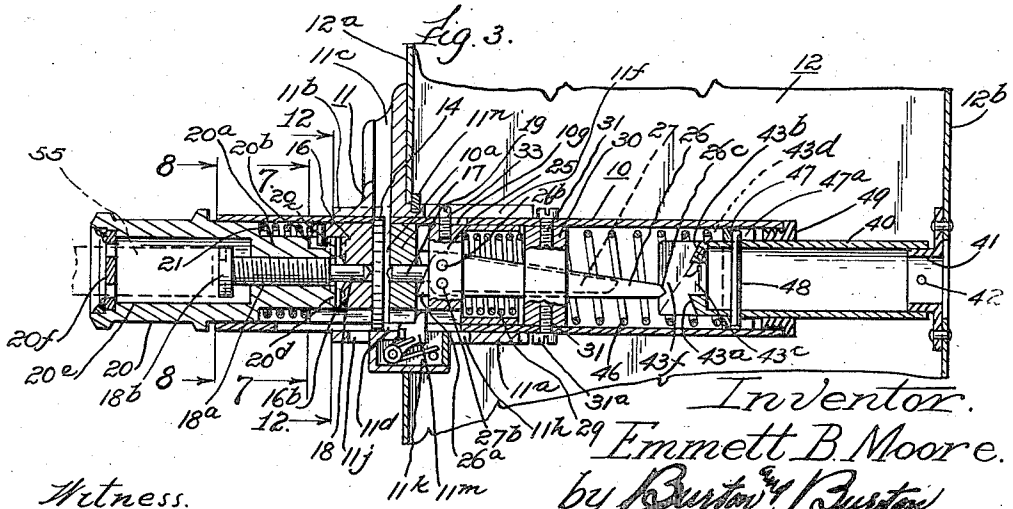


Fig. 3.



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COIN SELECTOR

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Fig. 4.

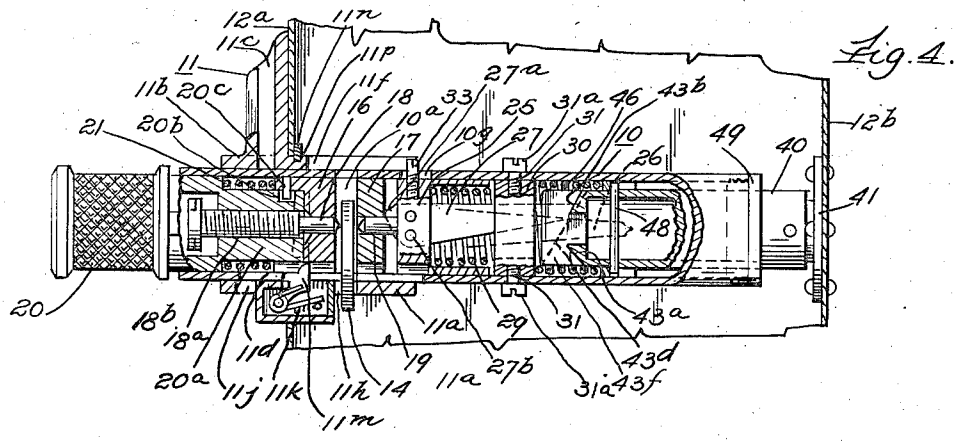


Fig. 5.

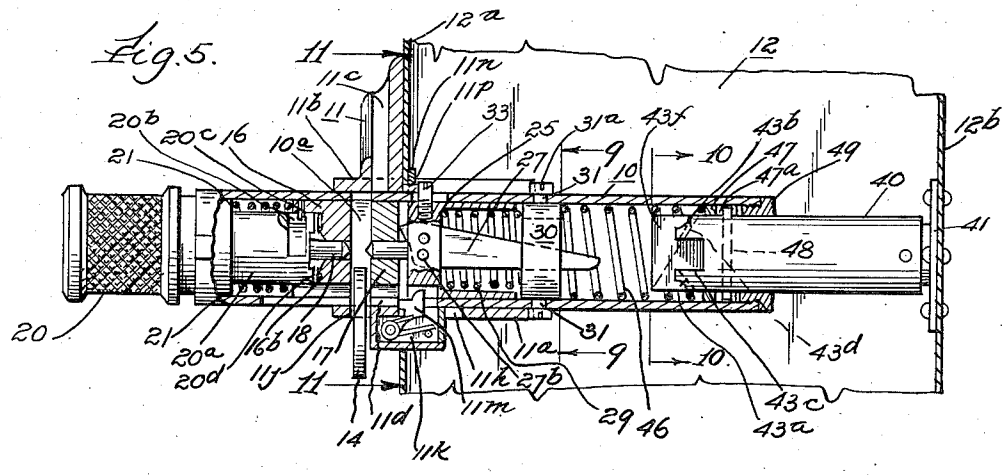
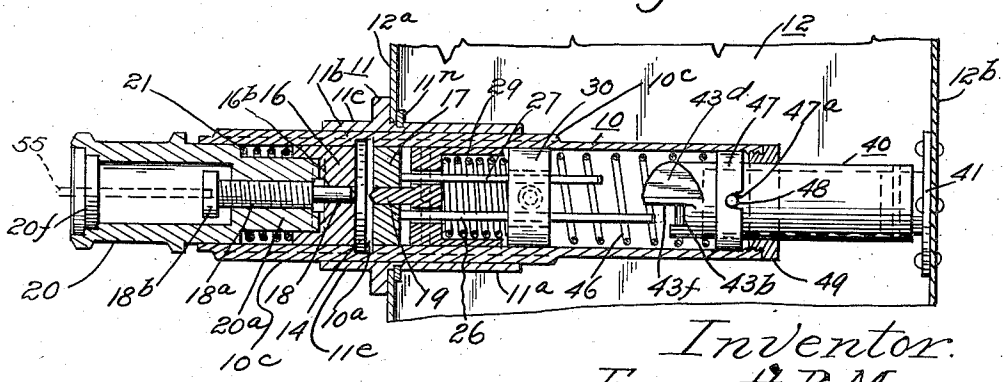


Fig. 6.



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COIN SELECTOR

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Fig. 8.

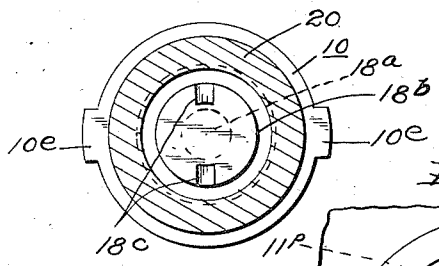


Fig. 10.

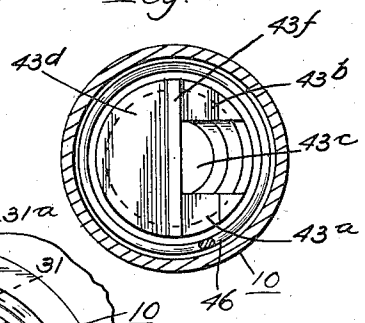


Fig. 9.

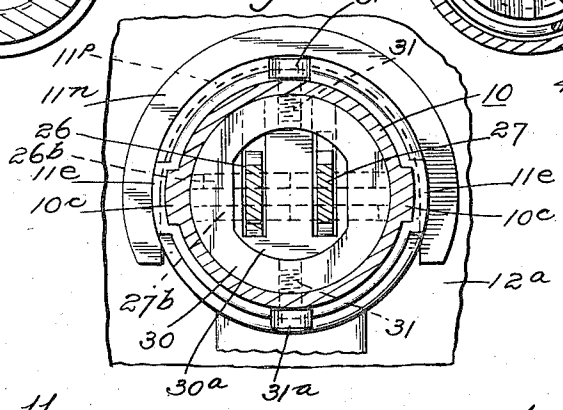


Fig. 11.

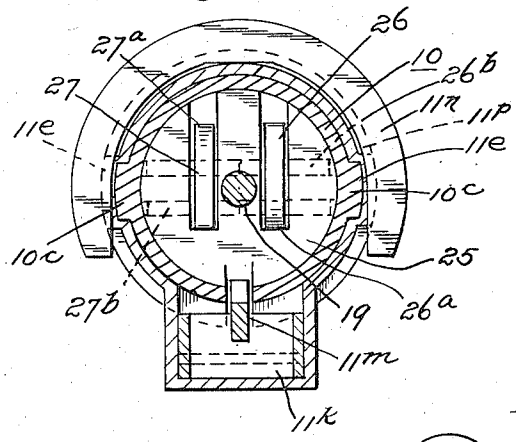


Fig. 12.

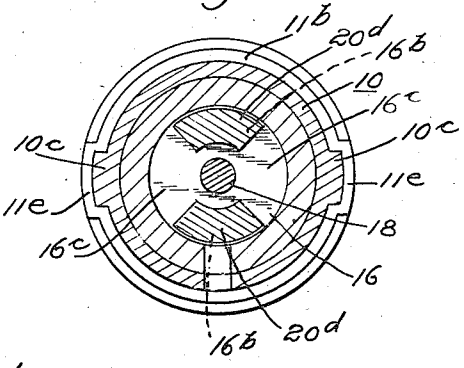
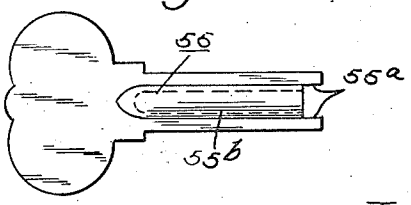


Fig 13.



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Patented May 12, 1936 2,040,151

UNITED STATES PATENT OFFICE

2,040,151

COIN SELECTOR

Emmett B. Moore, Evanston, Ill.

Application May 5, 1934, Serial No. 724,043

19 Claims. (Cl. 194—102)

The present invention relates to coin mechanisms for controlling the operation or release of certain mechanisms for accomplishing various functions, such as in vending machines, games of amusement, closures, meters, devices for communication, such as telephones, etc.

One of the main objects of my invention is to provide an improved device of this character which is simple in construction and operation, and which is provided with novel means for selecting and detecting spurious coins, slugs, etc. to preclude or render operation of the device ineffective.

Another object is to provide novel means for measuring or calibrating the thickness of a coin adjacent its central area, when it is inserted in the device, for controlling the operation of the device.

A further object is to provide an improved coin mechanism having relatively sensitive control means which is rendered operable upon insertion of coins whose dimensions fall within a limited predetermined range.

A still further object resides in the provision of means for selectively adjusting the measuring or calibrating means at will, for accommodating coins whose dimensions are within certain predetermined ranges.

And still another object is to provide an improved device of the character mentioned which may be economically manufactured.

The invention consists in certain elements and features of construction, in combination, as herein shown and described and as indicated in the claims.

In the drawings:

Figure 1 is a view in side elevation of the coin selector device embodying the present invention, shown mounted in a supporting structure of a vending machine cabinet.

Figure 2 is a front elevation.

Figure 3 is a vertical axial section taken substantially as indicated at lines 3—3 on Figure 2, showing the device in normal, inoperative position.

Figure 4 is a sectional view similar to Figure 3, showing the device in operation after the coin has been transferred, and is ready to be deposited inside the machine.

Figure 5 is a sectional view similar to Figure 3, showing the mechanism in another position of adjustment for ejecting or discharging a spurious coin or slug.

Figure 6 is a horizontal axial section through the device taken at lines 6—6 on Figure 1.

Figures 7 and 8 are transverse sectional views taken at lines 7—7 and 8—8 respectively on Figure 3.

Figures 9, 10, and 11 are transverse sections taken substantially as indicated at lines 9—9, 10—10 and 11—11 respectively on Figure 5.

Figure 12 is a transverse section taken at lines 12—12 on Figure 3, and

Figure 13 is a side view of a key for adjusting the device for accommodating coins of a different range of thicknesses.

It has long been recognized in this art that it is an exceedingly difficult task to devise a coin detector and selector mechanism which will positively exclude every form of spurious coins and slugs, as well as preventing operation of the device by paper wadding, gum, etc. The present invention, however, is directed to an improved coin controlled device which overcomes the above disadvantages to a relatively high degree; and this is accomplished by measuring or calibrating the thickness of the coin adjacent its central area. As will hereinafter appear, the device may be adjusted so as to permit operation of the mechanism by coins whose thickness falls within a relatively narrow predetermined range; in fact, the device may be so adjusted that it will not permit operation of the mechanism by coins varying from a predetermined thickness by a few thousandths of an inch.

Referring now to the drawings in detail. The device includes a coin transfer member, 10, of tubular form which is mounted for reciprocable movement in journal bearings, 11a and 11b, of an escutcheon plate, 11, which is secured in place on the front panel, 12a, of a vending machine casing, 12. In the particular construction herein illustrated, the coin transfer member is substantially circular in cross section, and the diameter is substantially the diameter of the denomination of the coin for which it is designed to be operated by, as may be seen in section in Figure 3. This tubular member is provided with a coin-receiving slot, 10a, which normally is registered or aligned with the upwardly open coin slot, 11c, of the escutcheon plate, 11.

The lower portion of the escutcheon plate is formed with an outwardly extending transverse flange or lip, 11d, which serves as a stop or rest for the coin indicated at 14 when it has been dropped into the slot. Because the tubular transfer member is slotted to the extent of its diameter the two sections of the tubular member are rigidly connected together by a pair of exterior, longitudinally extending ribs, 10c, arranged in diametrically opposite relation. These ribs slid-

ably guide the transfer member in its reciprocable movement in cooperatively formed grooves, 11e, formed in the bearings of the escutcheon plate, as seen in Figures 1 and 7 of the drawings.

Rigidly secured in the tubular member in alignment with and defining a continuation of the coin slot, 10a, are blocks indicated at 16 and 17, respectively, through which slidably project a pair of spaced apart, centrally located, cooperating coin-engaging pins, 18 and 19, which are adapted to embrace opposite sides of the coin, 14, for calibrating its thickness, and by virtue of which certain mechanism hereinafter described, is caused to be positioned for controlling the operation of the coin transfer member. The pin, 18, is formed as an integral part of a threaded screw member, 18a, which is carried by an external knob, 20, slidably journalled in the outer end of the coin transfer member, 10. The knob, 20, is formed with a reduced cylindrical portion, 20a, about which is circumscribed a coiled compression spring, 21, which reacts against the shoulder formed by the reduced portion of the knob and against the adjacent side of the supporting block, 16, normally tending to separate the knob and the block, 16. As may be seen in Figure 3 of the drawings, the reduced portion, 20a, of the knob is connected for a limited range of axial movement with respect to the rigid supporting block, 16, by means of a pin, 20c, carried in the block and projecting downwardly into a longitudinally extending slot, 20b, the purpose of which connection will hereinafter appear.

Mounted for a limited range of axial movement in the tubular transfer member just rearward of the supporting block, 17, is a carrier member, 25, to which is rigidly connected the other measuring pin, 19. Pivotally mounted at 26b and 27b, in the carrier are two transversely spaced apart lever members, 26 and 27; these lever members being pivotally connected relatively close to one end, and the opposite ends extending rearward in the tubular transfer member, as seen in Figure 3. The ends of said levers adjacent the pivot connections are formed with cam surfaces, 26a and 27a, which are yieldingly urged against the rearward surface of the stop block 17 by a coil spring, 29, reacting against the carrier and a fixed block 30, which is secured in the coin transfer member, by a pair of studs, 31. This fixed block, as may be seen in Figure 9 of the drawings, is provided with an aperture, 30a, through which the lever members, 26 and 27, extend. The studs, 31, are provided with heads 31a, projecting exteriorly of the coin transfer member, 10, and normally are spaced a short distance away from the end of the bearing, 11a. These heads serve as stops for limiting the reciprocable movement of the transfer member in one direction, as will hereinafter appear.

The lever carrier is permitted a limited range of axial movement within the coin transfer member, due to engagement of the block, 17, with the cam 27a, of the lever 27, during the initial movement of the transfer member, 11. The carrier block is guided in such movement by a stud, 33, which projects exteriorly through a slot, 10g, in the coin transfer member, and the outer portion or head of said stud extends into an elongated slot, 11f, formed in the upper side of the rearwardly extending bearing, 11a, of the escutcheon plate. The bottom side of the bearing sleeve, 11a, of the escutcheon plate is provided with a transverse slot, 11h, with which the slot, 10a, of the transfer member may be aligned so that the coin, 14, may be deposited into the machine when the coin transfer member has been moved through its operative range; and the outer bearing, 11b, of the escutcheon plate beyond the lip, 11d, is also provided with a downwardly open slot, 11j, through which spurious coins, slugs, etc. may be conveniently ejected from the mechanism as will hereinafter appear.

Adjacent and in alignment with the free ends of the levers, 26 and 27, are cooperating fixed abutments which are carried on a sleeve member, 40, which in turn is anchored on a bracket, 41, by a pin, 42, which journal bearing is rigidly secured to the rear wall, 12b, of the vending machine casing, 12. The abutment for the control lever, 26, includes two vertically spaced, oppositely inclined surfaces, 43a and 43b, separated by a substantially centrally located aperture, 43c. Normally (when no coin, or a coin of improper dimensions, or a slug is in the slot) the lever, 26, is positioned so as to strike the lower or upper inclined surfaces, 43a and 43b, during an initial range of reciprocable movement of the transfer member, and thus prevents further movement thereof. However, when a coin of proper predetermined thickness is inserted in the slots, 10a and 11c, as hereinafter explained, the lever, 26, will be positioned in registration with the aperture, 43c, to permit the maximum range of reciprocable movement of the transfer member. As may be seen in Figure 3 of the drawings, the extreme end portion of the lever, 26, is formed with oppositely diverging cam faces, 26c, and the cooperating abutment surfaces, 43a and 43b, on opposite sides of the aperture, 43c, also being inclined, it will be apparent that the control lever, 26, must be accurately aligned with the aperture, 43c; otherwise the lever will be deflected up or down as the case may be, against the fixed abutments, 43a and 43b, and thus prevent further movement of the transfer member. The abutment surface for the lever, 27, is formed inclined, as indicated at 43d, so that when the lever, 26, has been properly aligned with its aperture, 43c, and passes therethrough during the maximum reciprocable movement of the coin transfer member, the end of the lever, 27, is caused to engage and ride up the inclined abutment surface, 43d, (as seen in Figure 4). Such movement swings the lever, 27, upwardly and causes its cam surface, 27a, to forcibly engage against the rear side of the fixed supporting block, 17, and thereby yieldingly shift the carrier block, 25, rearwardly away from the support, 17. Such movement simultaneously withdraws the pin, 19, from engagement with the coin, 14, and permits it to be discharged through the slot, 11h, as seen in Figure 4 of the drawings. The abutment surfaces, 43a, 43b and 43d, are separated by a vane or rib, 43f, to provide guidance for the levers, 26 and 27, in their longitudinal movement.

The operation of my novel coin selector device is substantially as follows: When a coin, indicated at 14, has been dropped through the slots, 11c and 10a, and arrested on the shelf, 11d, the measuring members or pins, 18 and 19, are sufficiently separated to conveniently accommodate said coin, as seen in Figure 3 of the drawings. An initial movement of the knob, 20, preparatory to operating the device, moves the pin, 18, in contact with the coin, and continued movement of the knob moves the coin so that its opposite surface engages the pin, 19. Now, if the thickness of the coin adjacent its central area, which

is engaged by the pins, 18 and 19, is within the predetermined range of thickness for which the pins have been adjusted, the fixed block, 17, will act against the cam, 26a, of the lever, 26, which is yieldingly held thereagainst by a spring, 29, and swing the far end of the lever into registration with the aperture, 43c, to permit continued reciprocable movement of the transfer member, 11. During such continued movement, the ejecting lever, 27, is rocked upwardly by engagement with the inclined surface, 43d, moving the carrier, 25, rearwardly from the block, 17, and thus moving the measuring pin, 19, out of engagement with the coin, 14, to permit it to be discharged by gravity through the slot, 11b, as seen in Figure 4 of the drawings. The coin transfer member is then returned to normal position by a coil spring, 46, reacting against the rear side of the fixed block, 30, and a sleeve, 47, mounted on the support, 40. This sleeve, as may be seen in Figure 6 of the drawings, is provided with a pair of rearwardly open slots, 47a, for engaging and stopping against a transversely extending pin, 48, in the supporting member, 40. The rearward end of the coin transfer member, 10, is guided by a stop member, 49, threaded therein and slidably mounted on the support, 40.

In the event that a spurious coin, slug, etc. has been inserted into the slot, and by virtue of which insertion, the measuring pins 18, 19, do not properly position the control lever, 26, provision has been made for conveniently ejecting such coins and slugs by merely pulling the knob, 20, in an outward direction against the reaction of the coil spring, 21. By this movement the coin transfer member, 10, will be withdrawn due to the connection between the pin, 20c, engaging in the slot, 20b, of the knob, 20, and by which movement the coin slot, 10a, of the transfer member will be aligned with the slot, 11j, in the outer bearing of the escutcheon, 11, through which slot the spurious coins and slugs are caused to be discharged, as seen in Figure 5 of the drawings. For convenience, I provide a mounting indicated at 51 just below the slot, 11j, of the escutcheon on the exterior of the panel, 12a, of the vending machine casing, and this member, 51, is formed with a pocket indicated at 51a, for catching and receiving the spurious coins, slugs, etc. The coin transfer member is limited in its outward movement by the heads, 31a, of the studs, 31, of the block, 30, which strike against the end of the bearing, 11a, of the escutcheon, as seen in Figure 5. The slots, 47a, in the sleeve, 47, thus permit this short range of outward movement of the coin transfer member for ejecting spurious coins, slugs, etc.

In order to prevent any attempt of continued operation of the coin mechanism by causing a coin of proper denomination and dimensions from being adhesively secured in the slot, such as by gum, the escutcheon is formed adjacent its bottom with a rectangular-shaped housing forming a cavity, 11k, in which is mounted a spring-pressed dog, 11m, which is caused to be depressed by the coin, 14, as the transfer member is shoved inwardly. After the coin has passed beyond the dog, the coin transfer member on its outward stroke will cause the coin to engage the face of the dog and thereby be positively ejected through the slot, 11h. In order to accommodate the dog, 11m, the supporting blocks, 16 and 17, and the carrier block, 25, are all provided with longitudinally extending aligned slots, as seen in Figure 3 of the drawings. The front panel, 12a, of the vending machine housing is formed with a slot for accommodating the rectangular housing of the escutcheon plate, when mounted on the panel, and assists in anchoring it in a fixed position of adjustment. The escutcheon plate is rigidly secured to the panel, 12a, by a horse-shoe-shaped retaining member, 11n, which snugly fits in a cooperatively formed annular groove, 11p, formed in the periphery of the rear bearing, 11a, of the escutcheon, as seen in Figures 3, 9, and 11 of the drawings. It will be understood that this annular groove is located so that the retaining member, 11n, and the outer face of the escutcheon snugly embrace the opposite sides of the panel, 12a, as seen in Figure 3 of the drawings.

Since at the present time we have two or more species of coins of the same denominations, as for example, the "Buffalo" nickel and the "Liberty" nickel, and these coins are not of the same thickness through their central area, it may be desired to so construct the coin selector device for convenient adjustment to accommodate either type of nickel. For this purpose the cooperating abutting surfaces of the end of the reduced portion, 20a, of the knob, 20, and the adjacent surface of the supporting block, 16, are formed with two different sets of cooperating surfaces, so that the measuring pin, 18, may be projected into the coin slot different distances. As may be seen in Figures 3 and 12 of the drawings, these cooperating surfaces consist of two diametrically opposite embossments, 16b, formed on the surface of the supporting block, 16, and embossments, 20d, formed on the cooperating end of the reduced portion, 20a, of the knob. These abutment surfaces, 16b and 20d, may be aligned by rotation of the knob approximately 90 degrees, and such rotation is permitted by forming the slot, 20b, for receiving the pin, 20c, about 90 degrees angular extent, as seen in Figure 7 of the drawings, and the ends of the arcuate portion of the slot serve as stops for engaging the pin, 20c, and thus arrest the knob with either set of cooperating surfaces in alignment. It will be understood that in the position of adjustment of the knob, as seen in Figure 12 of the drawings, the embossments, 20d, of the reduced portion of the knob are aligned for engaging the surfaces, 16b, and the surfaces indicated at 16c, intermediate the embossments, 16b, of the supporting block, 16, may be engaged by the embossments, 20d, when the knob is rotated 90 degrees. It will be understood that since the variation in thickness between the two different types of nickels is only a few thousandths of an inch, the embossments, 16b, correspond exactly to this variation in dimensions.

If it is desired to adjust the calibrating pins, 18 and 19, for accommodating a different range of thicknesses of coins, the pins may be selectively adjusted to a plurality of positions of fixed adjustment, and this is accomplished by adjusting the screw, 18a, which is integrally connected to the pin, 18, in the reduced portion, 20a, of the knob. The screw, 18a, includes a head, 18b, which may be engaged by a key indicated at 55 in Figure 13 of the drawings. In order to preclude unauthorized tampering with the adjusted pin, 18, the head, 18b, of the screw, 18a, is formed with special notches, 18c, for engagement by cooperatively formed projections indicated at 55a, on the end of the key. It may be understood that the key, 55, may be of any desired shape, and as shown, is formed with a central offset annular rib, 55b, and the end of the knob, which is re-

cessed at 20e, for accommodating the head of the screw, is provided with a ward plate, 20f, fixedly secured therein and formed with a properly shaped key slot indicated at 20h, for accommodating the key, 55.

It will be manifest that by virtue of the construction herein employed, the device can be made to accommodate and be operable upon insertion of a plurality of coins, such as a dime and a nickel, inasmuch as the calibrating or measuring pins, 18 and 19, may be spaced apart the proper distances for measuring the total thickness of the coins.

Although I have shown and described a preferred embodiment of my invention, it will be manifest that it is capable of considerable modification and variation without departing from the spirit and scope thereof. I do not therefore wish to be understood as limiting myself to the particular construction herein shown and described except as indicated in the appended claims.

I claim:

1. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving opening, means normally blocking movement of said transfer member during a portion of its range of movement, and measuring means carried by the transfer member and adapted to engage both sides of a coin adjacent its center while it reposes in said opening, the coin-engaging portions of said means being spaced apart a distance greater than the thickness of the coin and being movable into contactual engagement with said coin during an initial portion of movement of said transfer member, and said measuring means being movable in response to a predetermined thickness of a coin for reacting on said blocking means, during such initial movement of the transfer member, for rendering said blocking means ineffective, and permitting maximum reciprocable movement of said transfer member.

2. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving opening, means normally blocking movement of the transfer member during a portion of its range of movement, and measuring means carried by said transfer member, including a pair of cooperating, normally spaced apart stop surfaces for engaging opposite sides of a coin, adjacent its center, while it reposes in said opening, said stop surfaces being relatively less in cross sectional area than the surface area of the side of the coin, and one of said surfaces being movable with respect to the other, said stop surfaces being moved into positive engagement with the sides of the coin during an initial portion of movement of said transfer member, and said movable stop surface being movable in response to a predetermined thickness of a coin for reacting on said blocking means, during such initial movement of the transfer member, for rendering said blocking means ineffective, and permitting maximum reciprocable movement of the transfer member.

3. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving opening, means normally blocking movement of the transfer member during a portion of its range of movement, and measuring means carried by said transfer member, including a pair of cooperating, normally spaced apart stop surfaces for engaging opposite sides of a coin, adjacent its center, while it reposes in said opening, said stop surfaces being relatively less in cross sectional area than the surface area of the side of the coin, and one of said surfaces being movable with respect to the other, said stop surfaces being moved into positive engagement with the sides of the coin during an initial portion of movement of said transfer member, and said movable stop surface being movable in response to a predetermined thickness of a coin for reacting on said blocking means, during such initial movement of the transfer member, for rendering said blocking means ineffective, and permitting maximum reciprocable movement of said transfer member.

4. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving slot therein, the side walls of said slot being spaced apart a distance substantially more than the thickness of the coin for which it is adapted, means normally blocking movement of the transfer member during a portion of its range of movement, and means carried by the transfer member for measuring the thickness of a coin through its central area, including a pair of cooperating stops extending into the slot at opposite sides of the coin, and normally spaced apart a distance greater than the thickness of the coin, and one of said stops being movable with respect to the other, said stops being caused to engage the sides of the coin during an initial portion of movement of said transfer member, and said movable stop being movable in response to a predetermined thickness of a coin for reacting on said blocking means, during such initial movement of the transfer member, for rendering said blocking means ineffective, and permitting maximum reciprocable movement of said transfer member.

5. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving slot therein, the side walls of said slot being spaced apart a distance substantially more than the thickness of the coin for which it is adapted, means normally blocking movement of the transfer member during a portion of its range of movement, and means carried by the transfer member for measuring the thickness of a coin through its central area, including a pair of cooperating stops whose measuring surfaces are less in cross sectional area than the surface area of the side of the coin, said stops extending into said slot at opposite sides of the coin, and normally spaced apart a distance greater than the thickness of the coin, and one of said stops being yieldingly urged toward the other, said stops being caused to engage the sides of the coin during an initial portion of the movement of said transfer member, and said yieldable stop being movable in response to a predetermined thickness of a coin for reacting on said blocking means, during such initial movement of the transfer member, for rendering said blocking means ineffective, and permitting maximum reciprocable movement of said transfer member.

6. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving slot therein, the side walls of the slot being spaced apart a distance substantially greater than the thickness of the coin for which it is adapted, means for measuring the thickness of a coin

through its central area, including a pair of cooperating stops extending into the slot at opposite sides and normally spaced apart a distance greater than the thickness of the coin, one of said stops being movable relatively to the other, and means for blocking movement of said transfer member during a portion of its range of movement, said means being operably connected to said movable stop, said cooperating stops being caused to engage the sides of the coin during an initial portion of the movement of the transfer member, and said movable stop being responsive to a predetermined thickness of a coin for adjusting said blocking means for permitting maximum reciprocable movement of said transfer member.

7. In a device of the character described, a coin transfer member of tubular form, reciprocably movable in a predetermined range, and having a coin-receiving slot therein adjacent its outer end, and a chamber at its opposite end, a movable member in said chamber, coin measuring means including a pair of cooperating stop members having coin-engaging surfaces extending into the slot, and normally spaced apart a distance greater than the thickness of the coin, one of said stop members being rigidly connected to said movable member and being movable toward and away from the other stop member, and the surface of the movable stop member being less in cross sectional area than the area of the side of the coin, and means cooperating with the movable member in the chamber for controlling movement of the coin transfer member, said stop members being movable into engagement with the sides of the coin during an initial portion of the movement of the coin transfer member, and said movable stop member being responsive to a predetermined thickness of a coin, during such initial movement of the transfer member, for adjusting said control means to permit maximum reciprocable movement of said coin transfer member.

8. In a device of the character described, a coin transfer member of tubular form, reciprocably movable in a predetermined range, and having a coin-receiving slot therein adjacent its outer end, and a chamber at its opposite end, a movable member in said chamber, coin measuring means including a pair of cooperating stop members having coin-engaging surfaces extending into the slot, and normally spaced apart a distance greater than the thickness of the coin, one of said stop members being rigidly connected to said movable member and being movable toward and away from the other stop member, and the surface of the movable stop member being less in cross sectional area than the area of the side of the coin, means resiliently urging said movable stop member into the coin slot, toward the other stop member, and means cooperating with the movable member in the chamber for controlling movement of the coin transfer member, said stop members being movable into engagement with the sides of the coin during an initial portion of the movement of the coin transfer member, and said movable stop member being responsive to a predetermined thickness of a coin, during such initial movement of the transfer member, for adjusting said control means to permit maximum reciprocable movement of said coin transfer member.

9. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, including a tubular member having a coin-receiving slot therein separating it into two chambers, and a member mounted in the outer chamber of said tubular member, means mounted in the other chamber for controlling a portion of the range of movement of said transfer member, and coin measuring means including a pair of cooperating stop members disposed in said tubular member and projecting into the slot for engaging opposite sides of a coin adjacent its center while it reposes in said slot, said stops normally being spaced apart a distance greater than the thickness of the coin for which it is adapted, one of said stops being mounted in said member in the outer chamber of the tubular member for adjustment toward and away from the other stop member, and one of said stop members being movable with respect to the other, said cooperating stops being movable into engagement with the sides of the coin during an initial portion of the movement of the transfer member, and said movable stop being movable in response to a predetermined thickness of a coin for acting on said control means for rendering it ineffective, and permitting full reciprocable movement of said transfer member.

10. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, including a tubular member having a coin-receiving slot therein separating it into two chambers, and an operating knob having a portion extending into the outer chamber and having a connection thereto to permit a limited range of axial movement with respect to said tubular member, means mounted in the other chamber for controlling a portion of the range of movement of said transfer member, and coin measuring means including a pair of cooperating stop members in said tubular member projecting into the slot for engaging the opposite sides of a coin, adjacent its center, while it reposes in said slot, said stops normally being spaced apart a distance greater than the thickness of the coin for which it is adapted, one of said stops being mounted in said knob, and adjustable therein toward or away from the other stop, said cooperating stops being caused to engage the sides of the coin during the axial movement of the knob in the tubular member, and one of said stops being responsive to a predetermined thickness of the coin during such movement of the knob for moving said control means to release position for permitting maximum reciprocable movement of the transfer member.

11. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, including a tubular member having a coin-receiving slot therein separating it into two chambers, and an operating knob having a portion extending into the outer chamber and having a connection thereto to permit a limited range of axial movement with respect to said tubular member, means mounted in the other chamber for controlling a portion of the range of movement of said transfer member, and coin measuring means including a pair of coperating stop members in said tubular member projecting into the slot for engaging the opposite sides of a coin, adjacent its center, while it reposes in said slot, said stops normally being spaced apart a distance greater than the thickness of the coin for which it is adapted, one of said stops being mounted in said knob and adjustable therein toward or away from the other stop, the other stop being movably mounted and yieldingly urged toward the first mentioned stop, whereby axial movement of said knob in the tubular member causes said stop member carried by the knob to engage the

coin and urge it against and impart movement to said yieldingly movable stop for reaction on said control means, said stops being responsive to a predetermined thickness of the coin for moving the control means to release position for permitting maximum reciprocable movement of said transfer member.

12. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, including a tubular member having a coin-receiving slot adjacent the front end, means for controlling a portion of the range of movement of said tubular member, including a carrier block mounted in the chamber rearwardly of the slot and having connections to said tubular member to permit a limited range of independent movement therein, and means for measuring the thickness of a coin including a pair of cooperating stop members extending into said slot at opposite sides for engaging the sides of a coin adjacent the center, while it reposes in said slot, one of said stop members being rigidly connected to said carrier block, and having its coin engaging surface of substantially less cross sectional area than the surface area of the sides of the coin, said stop members being caused to engage the sides of the coin in response to an initial movement of the transfer member, such initial movement serving to impart movement to said movable stop and carrier block, and said movable stop being responsive to a predetermined thickness of a coin during such initial movement, for rendering the control means ineffective to permit maximum reciprocable movement of the transfer member.

13. In the construction defined in claim 12, said control means also including a lever pivotally mounted adjacent one end to said carrier block, and its free end being displaceable in proportion to the ratio of the lever arms, a stop fixedly mounted in said tubular member forwardly of the carrier in position to act camwise against the short end of said lever, and a fixed abutment surface adjacent the long end of said lever with which said lever contacts to prevent maximum movement of said transfer member when a coin of improper thickness is inserted in the slot, said abutment surface having an aperture intermediate its length, in the direction of swing of said lever, to permit said lever to pass therethrough when it has been so registered, in response to actuation of the movable stop and carrier block, effected by a coin of proper thickness for permitting maximum movement of said coin transfer members.

14. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range and having a coin-receiving slot, a carrier carried by said transfer member and having a limited range of independent movement relative thereto, means for measuring the thickness of a coin through its central area, including a pair of cooperating stop members extending into the slot at opposite sides of the coin, and normally spaced apart a distance greater than the thickness of the coin, one of said stops being connected to said carrier for movement toward and away from the other of said stops, said stops being caused to grip the sides of the coin in response to movement of the transfer member, a lever pivotally mounted adjacent one end to said carrier, and extending in the direction of movement of the transfer member, a fixed abutment on said transfer member forwardly of the carrier against which said short end of the lever reacts camwise, spring means urging the carrier toward said abutment and said movable stop toward the other stop and an inclined cam surface disposed in alignment with the longer arm of said lever, whereby movement of said transfer member causes the end of the long lever arm to engage the cam surface and swing the lever about its pivot, causing the opposite end of said lever to react camwise against said fixed abutment, forcing the carrier rearwardly therefrom, and withdrawing the movable stop from engagement with the coin to permit the latter to be discharged.

15. In the construction defined in claim 14, said transfer member being of tubular formation and having a pair of registering slots at top and bottom, together with an escutcheon member serving as a support and guide for the transfer member, said support having an outwardly projecting transverse flange extending below said bottom slot for retaining the coin in said transfer member preparatory to actuation thereof.

16. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving slot, means for controlling movement of the transfer member during a portion of its range of movement, in one direction, said means including a carrier block carried by said transfer member and mounted for a limited range of independent movement thereon, means for measuring the thickness of a coin while reposing in said slot, including a pair of cooperating stop members extending into said slot at opposite sides for engaging the sides of the coin adjacent the center, said stops normally being spaced apart a distance greater than the thickness of the coin, one of said stop members being rigidly connected to said carrier block, said stops being caused to grip the sides of the coin in response to an initial movement of the coin transfer member, such movement imparting movement to the carrier block, said control means also including a lever pivotally mounted adjacent one end to said carrier block, a fixed stop carried on said transfer member forwardly of the carrier block, against which stop the end of the short lever arm acts camwise, the free end of said lever being displaceable laterally in proportion to the ratio of the lever arms, a fixed abutment surface adjacent the end of the long lever arm for preventing maximum movement of the transfer member when a coin of improper thickness is inserted in the slot, said abutment surface having an aperture intermediate its length in the direction of swing of said lever to permit said lever to pass therethrough when it has been so registered in response to action on the movable stop and carrier block when a coin of proper thickness has been inserted in the slot, for permitting maximum movement of the transfer member, spring means yieldingly urging the carrier block toward said fixed stop, and said movable stop toward the other stop, and coin discharge means including a second lever pivotally mounted on the carrier block with its short end positioned to react against said fixed stop, and an inclined cam surface disposed in alignment with the long end of said lever, whereby movement of said transfer member upon proper adjustment of the control means causes said end of the lever to engage the cam surface to swing the lever about its pivot causing the short end thereof to react camwise against said fixed stop, forcibly moving the carrier rearwardly

with respect to said fixed stop, thereby withdrawing the movable stop from engagement with the coin, permitting it to be discharged.

17. In a device of the character described, a coin transfer member reciprocably movable in a predetermined range, and having a coin-receiving opening, means controlling a portion of the movement of said transfer member in one direction, measuring means including a pair of cooperating stop members carried by the transfer member adapted to engage both sides of the coin, adjacent its center, while it reposes in the opening, said stops normally being spaced apart a distance greater than the thickness of the coin, and being movable into contactual engagement with the sides of the coin during an initial portion of the movement of the transfer member, said stops also being movable in response to a predetermined thickness of the coin for reacting on said control means during such initial movement, for rendering said control means ineffective and permitting maximum reciprocable movement of the transfer member, and selectively adjustable means associated with a portion of said measuring means for instantaneously adjusting said stops relatively to each other to accommodate a plurality of coins of different predetermined thicknesses.

18. In the construction defined in claim 17, said selectively adjustable means including a rotary member for moving one of said stops to one of a plurality of fixed positions for varying the effective operative distance between said stops.

19. In a device of the character described, a support having a transverse flange, a coin transfer member carried in said support and reciprocable movable in a predetermined range, said member being of tubular form and having a pair of registered slots at top and bottom for accommodating a coin therein, the lower slot normally registering with the transverse flange of the supporting member, one of said members having yielding means for limiting the outward movement of the transfer member with respect to the support, control means normally blocking movement of the transfer member during a portion of its range, means responsive to a coin of certain predetermined dimensions for adjusting said control means to release the transfer member for maximum movement, said yielding means being constructed and arranged to permit a limited range of outward movement of the tubular transfer member with respect to the support for disposing the bottom slot laterally beyond the transverse flange of the support to permit discharge of coins, slugs and the like of improper thickness.

EMMETT B. MOORE.