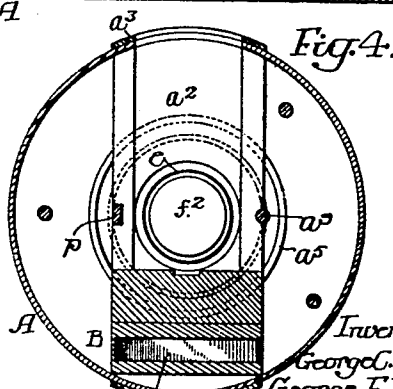
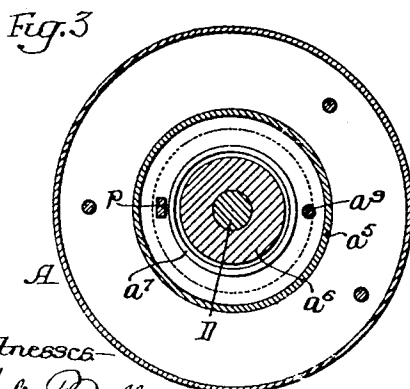
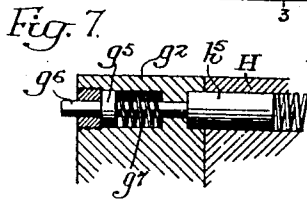


COIN SELECTOR.

APPLICATION FILED MAR. 16, 1909.

3 SHEETS--SHEET 1.

944,819.



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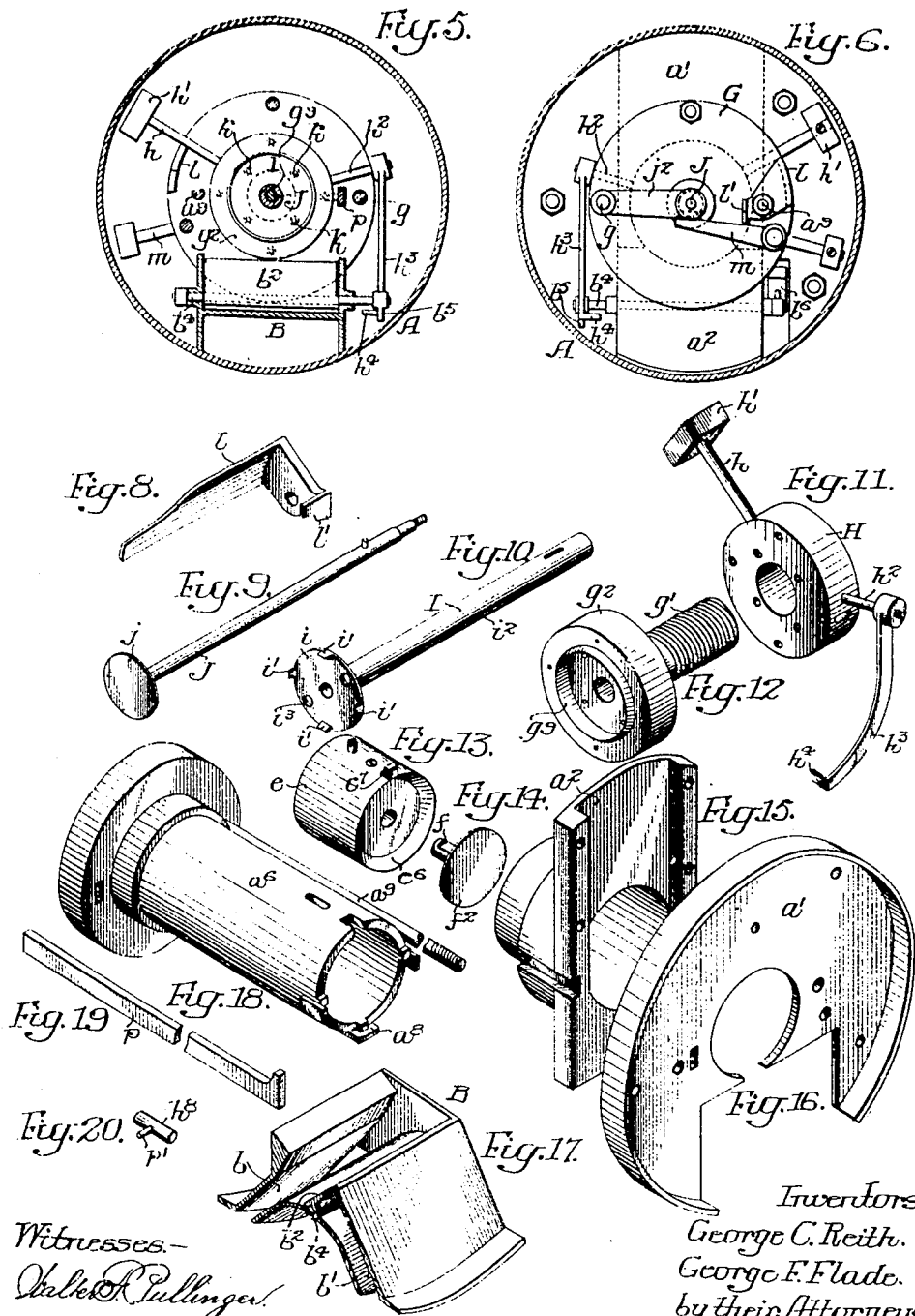
G. O. REITH & G. F. FLADE.
COIN SELECTOR.

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944,819.

Patented Dec. 27, 1909.

3 SHEETS—SHEET 2.



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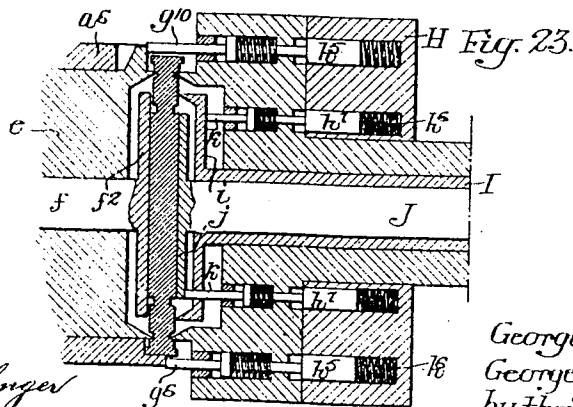
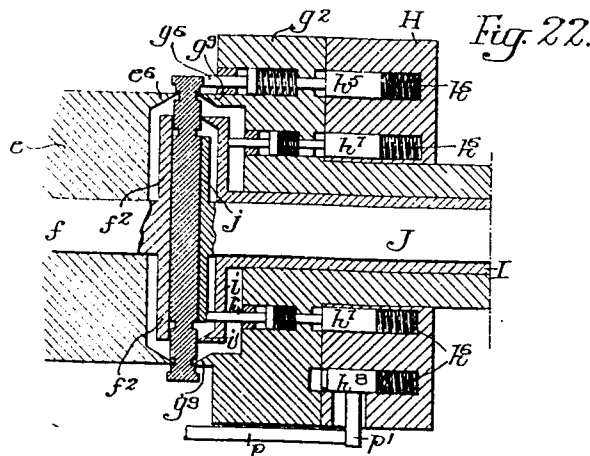
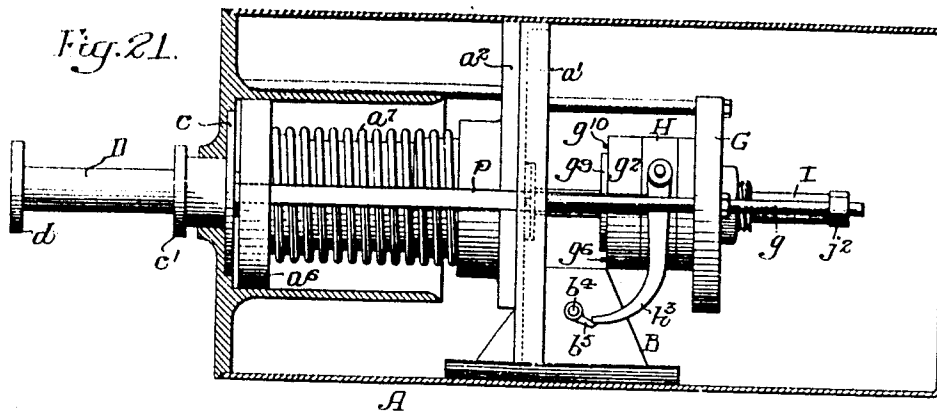
G. O. REITH & G. F. FLADE,
COIN SELECTOR.

APPLICATION FILED MAR. 16, 1909.

Patented Dec. 28, 1909.

3 SHEETS—SHEET 3.

944,819.



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UNITED STATES PATENT OFFICE.

GEORGE C. REITH AND GEORGE F. FLADE, OF PHILADELPHIA, PENNSYLVANIA.

COIN-SELECTOR.

944,819.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed March 16, 1909. Serial No. 483,802.

To all whom it may concern:

Be it known that we, GEORGE C. REITH and GEORGE F. FLADE, both citizens of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Coin-Selectors, of which the following is a specification.

One object of our invention is to provide a device which may be attached to any form of vending or slot machine, whereby imperfect coins or tokens or coins of improper denominations shall be detected and discharged from the machine, while perfect coins of the correct denomination shall be permitted to pass so as to properly actuate the vending or other machine with which our said invention is used.

We further desire to provide a machine capable of securing the above end, which shall have its parts so constructed and arranged as to be exceedingly sensitive in its operation; it being capable of detecting abnormally worn coins as well as dummies or washers inserted with fraudulent intent.

These objects and other advantageous ends we secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figures 1 and 2 are vertical longitudinal sections taken at right angles to each other, illustrating the detail construction of our improved coin selector; Figs. 3, 4, 5 and 6 are respectively transverse vertical sections, taken on the line 3—3, 4—4, 5—5 and 6—6 Fig. 1; Fig. 7, is a fragmentary section illustrating the preferred construction of one of the spring pins; Figs. 8 to 20 inclusive, are perspective views illustrating the construction of certain of the detail parts of our invention; Fig. 21, is a longitudinal vertical section showing in elevation certain of the operating mechanism of our invention, and Figs. 22 and 23 are enlarged sectional elevations illustrating, to some extent diagrammatically, the manner of operation of our machine.

In the above drawings A represents a substantially cylindrical casing containing the mechanism constituting our invention and A' is a coin box rigidly connected to and depending from said casing.

It will be understood that the device as a whole may be attached to or inserted in vending or other forms of slot machines and for this purpose its shape may be modified

as desired, without departing from our invention.

One end of the casing A is provided with a head *a*, while transversely placed within it is a partition *a'* against which is mounted a coin chute *a''*. In the top surface of the casing is a slot *a'''* communicating with the upper end of the passage *a'* in the coin chute, which extends about two thirds of the distance from the bottom of the casing.

Mounted within the casing to the rear of and below the coin chute is a coin guiding structure B having a forked passageway, one branch *b* of which leads down and forwardly so as to discharge a worn or spurious token outside of the machine, while the other branch *b'* leads into the coin box A'. A valve *b''*, hereafter described in detail is mounted within the upper portion of the guideway so as to be capable of directing a coin into one or the other of said branches.

The head *a* is provided with an inwardly extending guide cylinder *a''*, containing a plunger *a'''*, a portion of whose body is designed to fit within and be guided by said cylinder, while the remainder carries a spring *a''''*, extending between the first and larger portion of the plunger and the rear of the coin chute *a''*.

Between the inside face of the head *a* and the adjacent end of the plunger *a'''* is mounted a plate *c* having a collar *c'* projecting through said head so as to be capable of being engaged by the head *d* of a plunger rod D. Said rod extends into the plunger *a'''*, with which it is yieldingly connected by means of a spring *d'*; there being a set screw *d''* carried by the said plunger and extending into an elongated slot in the rod for the purpose of limiting the relative movement of said plunger and rod.

From Fig. 15, it will be seen that the coin chute *a''* has extending through it a cylindrical chamber or passage into which projects the hollow rear end of the plunger *a'''*, as shown in Fig. 1, and in said hollow end is mounted a cylindrical block *e* having a spring *e'* mounted between its forward end and the bottom of the plunger recess. A set screw *e''* is carried by this block and extends into a slot in the plunger *a'''* so as to limit the relative movement of these parts, while a second set screw *e'''* extends from said block into a centrally placed cavity thereof in which is mounted a stem *f* having a head

f^2 in the form of a flat plate, there being a spring c^8 mounted between the forward end of the stem and the bottom of the cavity in which it is carried.

The various parts are so designed that in their normal positions, the rear face of the circular plate f^2 is immediately to the front of the passage a^1 in the coin chute, at the bottom of which is a lip or lug a^3 projecting from the lower rear end of the plunger a^5 so as to catch and support a coin placed in said chute.

To the rear of the partition a' and rigidly carried therefrom by means of bars g , is a plate G in which is mounted a forwardly projecting tubular guide g' having a flange g^2 at its front end. The front face of this flange has a forwardly projecting and relatively sharp annular abutment g^0 whose diameter is preferably, though not necessarily, equal to the diameter of the most deeply indented part of the coin just within its rim. The exterior surface of this guide is threaded and has mounted on it a nut g^3 whereby its flanged end is maintained at a definite distance in front of the plate G ; there being also a nut g^4 holding said guide to said plate. In the space between the flange g^2 and the nut g^3 is mounted a ring H so arranged as to be free to turn upon the guide g' and having at one side a projecting rod h carrying a weight h' . From its other side extends a second rod h^2 carrying a downwardly projecting curved lever h^3 whose end h^4 is turned inwardly at right angles to the general plane of said arm.

Within the guide g' is slidably mounted a tube I at whose forward end is a head i provided at its periphery with four or any other suitable number of forward projecting points i' , and in this tube there is a longitudinally slidable rod J having a head j capable of abutting against the surface of the head i within the circle defined by the points i' . The rear end of this rod is threaded for the reception of a nut j' and it is noted that the tube i has in its under side a notch i^2 . As shown in Fig. 2, the nut j' holds to the rod J an arm j^2 guided on an extension of one of the bars g and serving for the attachment of one end of a spring j^3 whose other end is connected to the plate G .

The ring H has formed in its forward front face a series of cylindrical cavities in which are mounted small plungers normally pressed outward by means of springs h^6 . Normally, said plungers, under the action of springs h^6 , extend beyond the face of the ring H into the cavities of the flange g^2 and this latter is also provided with a number of plungers g^5 , all of which have stems g^6 in the shape of pins projecting from its forward face. The rear ends of these stems extend into cavities in the rear face of said head so as to abut upon the forward ends of

the plungers h^5 , although they are pressed forward by springs g^7 . Certain of the plungers g^5 are so placed that their stems g^6 all lie in a circle whose diameter is equal to the diameter of the rim of the coin which the machine is designed to properly receive;—in the present instance, a nickel. Another plunger, in the present instance the lowest, is so placed as to be engaged by the lug or lip a^3 on the end of the main plunger a^5 .

The front face of the flange g^2 within the abutment g^0 is preferably depressed and into this depressed portion extend four or any desired number of additional plungers h which have the same detail constructions as those shown in Fig. 7, and like them engage the front faces of four plungers h^7 also carried by the ring H . These latter plungers are the same in construction as those shown in Fig. 7, and like them are capable of being pushed into said ring H by the stems of their abutting plungers of the flange g^2 so that their forward ends may be brought flush with the front face of the ring. Of the plungers h , two of them extend through openings i^3 in the head i of the rod I so as to engage the rear face of the head j of the rod J , while the other two of said plungers merely abut upon the rear face of said head i .

From Fig. 2, it will be seen that there is a bar p extending through and guided by the plunger a^5 , the coin chute a^2 and the partition a' , so that its forward end abuts upon the rear face of the plate c while its rear end is capable of engaging a stud p' projecting from a plunger h^8 , Fig. 22;—it being noted that said plate c is capable of limited inward movement sufficient to longitudinally move the rod and so press to the rear the said plunger h^8 . This latter when so moved for a sufficient distance also has its front end brought flush with the front face of the ring H .

From Fig. 13 it will be noted that the cylindrical block e has a rearwardly projecting and relatively sharp annular edge e^6 of the same diameter as the edge g^0 of the flange g^2 , and at the top of said block is a projection e^7 which under working conditions comes into engagement with the end of a pin g^{10} connected to one of the plungers g^5 of the flange g^2 . This plunger like those hitherto described, has a rearward extension abutting on a plunger h^5 carried by the ring H and so constructed that under predetermined conditions it moves said plunger against the action of its spring h^6 into a position with its front end flush with the face of said ring H .

The plate G and the partition a' serve as guiding means for a rod a^9 whose forward end is rigidly connected to the plunger a^5 while its rear end carries a cam l , as shown in Figs. 2 and 6. This cam extends forwardly so as to engage or be immediately

adjacent to the weighted arm h of the ring II and is provided with a rear extension l' which, with the various parts in the positions shown in Fig. 2, is capable of engaging a weighted lever m and tripping the same so as to move it out of the notch z in the tubular rod I. This lever m is pivoted to the plate G and is normally pressed against the under side of said rod I so as to be capable of entering the notch z therein under certain conditions hereafter noted.

The valve b^2 is fixed to a spindle b^1 mounted in bearings in the guideway B and has at one end a projecting arm b^3 so placed as to be engaged by the end h^4 of the arm h^3 carried by the ring II. Said arm b^3 carries a weight b^4 and the arrangement of parts is such that although the valve is normally held in the position shown in Fig. 1 by reason of the engagement of this arm by the arm h^3 , it always tends under the action of the weight to move to its other position in which it closes the branch b of the guideway B.

Under operating conditions, a coin is introduced into the casing A through the opening a^5 so that it falls into the passage a^1 of the coin chute a^2 and comes to rest at the bottom thereof upon the projection a^3 of the plunger a^4 and immediately in front of the head f^2 and block e . If now the rod D be moved inwardly, either by hand pressure exerted directly upon the head d or through the agency of any device connected to said rod, the plunger a^4 is moved inwardly with it against the action of the spring a^7 . The edge e^6 of the block e and also the head f^2 are thus caused to engage the coin in the manner shown in Figs. 22 and 23 and said coin is moved first against the head j of the rod J. When this has been moved a short distance to the rear it permits the coin to be engaged by the points z' of the head i . The continued rearward movement of the rod D against the action of the spring a^7 finally brings both the rod J and with it the rod I into such a position that the rear face of the head i is brought into engagement with certain of the pins g^6 of the plungers h^3 , while others of said pins are similarly brought into engagement with the rear face of the head j until the coin ultimately comes to rest with the circular edge g^9 of the flange g^2 in engagement with the lowest portion of its face. It will be understood that the diameter of this sharp edge g^9 is such that it strikes that portion of the flat or lowest plane surface on one face of the coin between the stars or printed matter as the case may be, and the raised rim:—the coin being guided so as to be centrally placed by means of a number of arms a^{10} which surround the opening in the center of the partition a' through which the rear end of the plunger a^4 passes. Since the coin

can move no farther to the rear, the further inward pressure upon the rod D compresses not only the springs d' , e^3 and e^4 , but also moves inwardly all of the plungers g^5 and h by reason of the engagement of their pins g^6 with the various parts of the coin. Under these conditions, as shown diagrammatically in Figs. 22 and 23, in which certain of the various plungers have been illustrated as lying in a vertical plane, the head j is in engagement with the head or eagle at the center of the coin, while the points z' strike the stars or wreath near its periphery. As a consequence the two plungers h engaging the head j are pushed inwardly to such an extent that if the coin is of the proper thickness at its central parts engaged by the head j , certain of the plungers h^3 are pushed so far to the rear that their front ends lie flush with the front face of the ring II. Similarly, if the stars or wreath are correctly placed and of the right thickness the head i causes certain others of the plungers h to be pushed to the rear to a distance sufficient to bring the front ends of others of the plungers h^3 into the plane of the front face of the ring II. Again, certain of the plungers g^5 are pushed to the rear by reason of the engagement of their measuring points g^6 either with the rim of the coin, or with the projections a^8 and c^7 , so that if the coin be a good one, their corresponding plungers h^3 are also pushed to positions in which their front ends are flush with the front face of the ring II. Finally when the rod D has moved to the rear to its fullest extent, its head d engages the end e' of the tubular extension belonging to the plate c and through the rod p , moves the plunger h^3 through the projection p' into a position with its end flush with the front face of the ring II. This full inward movement also brings the tubular rod I into such a position that the weighted lever m enters its notch z and temporarily prevents the return of this rod and its connected parts to their normal positions. Under these conditions the ring II is free to turn on its supporting member g' and under the action of its weight h^4 , makes a partial revolution, carrying upward with it the lever arm h^3 . The weight b^4 , connected to the valve b^2 , is now free to turn said valve through an angle of about 90°, which thus opens the way into the branch b' of the guide section B. If now the pressure be released from the rod D, this with its plunger a^4 is at once returned to its normal position under the action of the springs a^7 and d' , and the coin, being unsupported owing to the withdrawal of the lug a^8 , falls down the branch b' of the guideway into the coin box A' or into any other receptacle or chute to which said branch may be connected. Since the plunger a^4 is connected through the rod a^9 to the cam l , this moves

forward with the rod D and engages the arm *h* so that the ring II is turned to its original position while the lever arm *h*³ attached thereto presses downwardly upon the arm connected to the valve spindle *d*¹ which is thus also returned to the position shown in Fig. 1. This forward movement of the cam *l* also brings the cam *l'* into engagement with the weighted arm *m*, and turning it on its pivot, causes it to release the rod I, which with the rod J, returns to the normal position under the action of the spring *j*³.

If, instead of being perfect, the coin introduced into our machine should be worn to an extent which may be provided for in designing the machine, or being a slug or an imperfectly formed counterfeit, should have its various portions above referred to of dimensions other than the standard, one or more of the plungers *h*², *h*⁷ or *h*⁸ will fail to come to rest with its end flush with the front face of the ring II even though the rod D be moved inwardly to its fullest extent, and the ring II will not be unlocked. In such case the release of the pressure upon said rod will, as before, permit the various parts to return to their normal positions, but the valve *b*² being still in the position shown in Fig. 1, will cause the coin, when released, to be delivered into the branch *b* of the guideway, from which it will be discharged outside of the machine or into a receptacle *A*² from which it can be conveniently taken.

It is obvious that the sensitiveness of the machine may be varied in any of a number of different ways, as for example, by making the ring II of such thickness as to change the closeness of the joint between its front face and the adjacent face of the flange *q*². From the above description it will be noted that the rotatable ring II is effectually locked in place by the various plungers carried by it until such time as the measuring pins or points have all been actuated to a predetermined extent by a standard coin and is released from such locking mechanism when proper operation of the rod D has presented the standard coin to said measuring points as above described, thereby permitting operation of the coin directing device comprised by the valve and its associated parts.

We claim:—

1. The combination in a coin selector, of a structure provided with a branched passage, a plurality of longitudinally movable pins mounted to engage the faces of the coin, and mechanism controlled by said pins and governed by variations in the thickness of the parts of a coin for directing said coin into one or the other of the branches of said passage.

2. The combination in a coin selector, of a coin directing device, means for actuating said device, a locking device for the actuat-

ing means, and means for presenting a coin to the locking device so as to cause it to release the actuating device.

3. The combination in a coin selector, of coin directing means, controlling mechanism for said means depending for its action upon the thickness of a coin presented, said controlling mechanism including a plurality of longitudinally movable pins placed to engage the face of a coin at different points thereof.

4. The combination in a coin selector, of a structure having a branched passage, a valve capable of directing a coin to either passage, and controlling means for said valve, the same including a plurality of bodily movable members yieldingly engaging the face of a coin at a plurality of different points.

5. The combination in a coin selector of a branched passage having a valve, a movable member controlling the action of said valve, means normally locking said movable member in place, with a device for presenting a coin to said locking means to cause the same to release said member when the coin is of predetermined dimensions.

6. The combination in a coin selector of a movable member having means normally tending to actuate it, a coin directing device controlled by said member, means normally locking the member in one position, and means for presenting a coin to said locking means to cause the latter to release the member when the coin is of predetermined dimensions.

7. The combination in a coin selector of a valve, a rotatable member capable of changing the position of said valve locking means normally holding said member from turning, and means for presenting a coin to said locking means to cause it to release the member when said coin is of predetermined dimensions.

8. The combination in a coin selector of a casing having a hand operated plunger, a series of measuring points placed to be engaged by a coin acted upon by said plunger, and coin directing means controlled by said measuring points and constructed to separate spurious from standard coin.

9. The combination in a coin selector of a casing having a hand operated plunger, a series of measuring points placed to be engaged by a coin acted upon by said plunger, a valve, a structure having two passages controlled by said valve, and a movable member controlling the valve and normally locked by said measuring points though capable of being released from said points when the coin presented is of predetermined dimensions.

10. A coin selector consisting of a casing having within it a structure provided with a plurality of passageways, a valve control-

ling the entrance of a coin into said passageways, a spring pressed measuring point or points, a movably mounted member having locking means controlled by said point or points for preventing its movement, means for connecting the valve and said member, and a hand operated plunger for presenting a coin to said measuring point or points.

11. The combination in a coin selector of a coin directing device, means for controlling said device consisting of a supporting structure having a rotatable ring, means normally tending to move the ring, a spring pressed plunger or plungers capable of locking together the ring and supporting structure, a measuring point or points placed to be operative on said plunger or plungers, and means for presenting a coin to said measuring point or points so as to cause them to move the plungers into position to release the ring when the coin is of the proper dimensions.

12. The combination in a coin selector of a supporting structure, a series of measuring points operative on various portions of the face or faces of a coin, a movable element having a number of devices structurally independent of the points normally locking it in position and placed to be actuated by said measuring points to release the member under predetermined condition, with a valve controlled by said member, and means for presenting a coin to the measuring points.

13. The combination in a coin selector of a valve, a supporting structure having rotatably mounted on it a ring, means tending to rotate the ring, a series of spring actuated plungers mounted in the ring and normally extending into cavities in the adjacent portion of the supporting structure, a series of spring actuated measuring points mounted in the supporting structure and operative upon the plungers on the ring, with means for presenting a coin to said measuring points to cause them to bring the plungers of the ring flush with one face thereof under predetermined conditions.

14. The combination in a coin selector of a casing having a coin chute, a plunger capable of passing through an opening in said coin chute, a movable member in line with the plunger and capable of engaging a coin, a structure having two passages, and means capable of acting on the coin held between the plunger and said member in line therewith and capable of causing a standard coin to be directed into one passage and a spurious coin to be directed into the other.

15. The combination in a coin selector of a casing having an operating plunger, a member in line with said plunger, means for delivering a coin between said member and the plunger, an abutment for engaging the coin after the plunger and said member have

been moved to a predetermined extent, a measuring point or points placed to be actuated by the coin when it engages the abutment, and means controlled by said measuring point or points for separating spurious coins from standard coins.

16. The combination in a coin selecting device of a supporting structure having a plunger, two movable members extending in a line or lines substantially parallel to the line of said plunger so as to hold a coin between itself and said plunger, a measuring point or points actuated by said members, and means controlled by said points for separating spurious from standard coin.

17. The combination in a coin selecting device of a supporting structure having a plunger, two movable members extending in a line or lines substantially parallel to the line of said plunger so as to hold a coin between itself and said plunger, a measuring point or points actuated by said members, and other measuring points actuated directly by the coin, and means controlled by all of said points for separating spurious from standard coins.

18. The combination in a coin selector, of a supporting structure, two concentrically mounted rods, a coin chute mounted adjacent to one end of said rods, a plunger extending in substantially the line of the rods and capable of being actuated to remove a coin from the chute so as to cause it to be engaged by the end portions of said rods, and a valve controlling two passageways in the supporting structure, means holding said valve in one position, with a series of measuring points actuated by the coin and capable of controlling the action of the valve to determine the passageway into which the coin shall pass when released by the plunger.

19. The combination in a coin selector of a plunger, a yielding member in line with the plunger, means for delivering a coin between said member and the plunger, an abutment placed to limit the movement of a coin displaced by the plunger, a series of measuring points placed to be actuated by the coin, and a coin directing mechanism placed to be unlocked when the points are actuated by a standard coin.

20. The combination in a coin selector of a plunger, a yielding member in line with the plunger, means for delivering a coin between said member and the plunger, an abutment placed to limit the movement of a coin displaced by the plunger, a series of measuring points placed to be actuated by the coin, a coin directing mechanism placed to be unlocked when the points are actuated by the standard coin, with means whereby such unlocking is prevented until the plunger has been moved inwardly to its full extent.

21. The combination in a coin selecting

device, of a supporting structure, a plunger, a movable member supported in line with said plunger, means for delivering a coin between the plunger and said member, normally locked coin directing mechanism placed to be actuated by the coin when the plunger is moved to a predetermined extent, a spring acting on said member to oppose movement of said plunger, and means for temporarily holding said member from following the plunger when the latter returns to its normal position.

22. The combination in a coin selecting device of a supporting structure, a plunger, a movable member supported in line with said plunger, means for delivering a coin between the plunger and said member, normally locked coin directing mechanism placed to be actuated by the coin when the plunger is moved to a predetermined extent, said mechanism including a valve, with means acting on the member to oppose movement of the plunger, and a device for temporarily holding said member from moving after the plunger has been released so as to allow a coin to pass the valve.

23. The combination in a coin selecting device of a structure having two passageways, a valve normally closing one of said passageways, a device normally tending to move said valve to open said passageway, means normally preventing said device from acting, and means for presenting a coin to said action preventing means so that the valve operating device is freed by a standard coin but is incapable of acting when a spurious coin is presented.

24. The combination in a coin selector, of a supporting structure, a plunger, a series of longitudinally movable pins placed to be engaged by a coin acted on by said plunger, and means controlled by said pins for separating standard coins from others.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

GEORGE C. REITH.
GEORGE F. FLADE.

Witnesses:

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WM. A. BARR.