

G. C. REITH & G. F. FLADE.

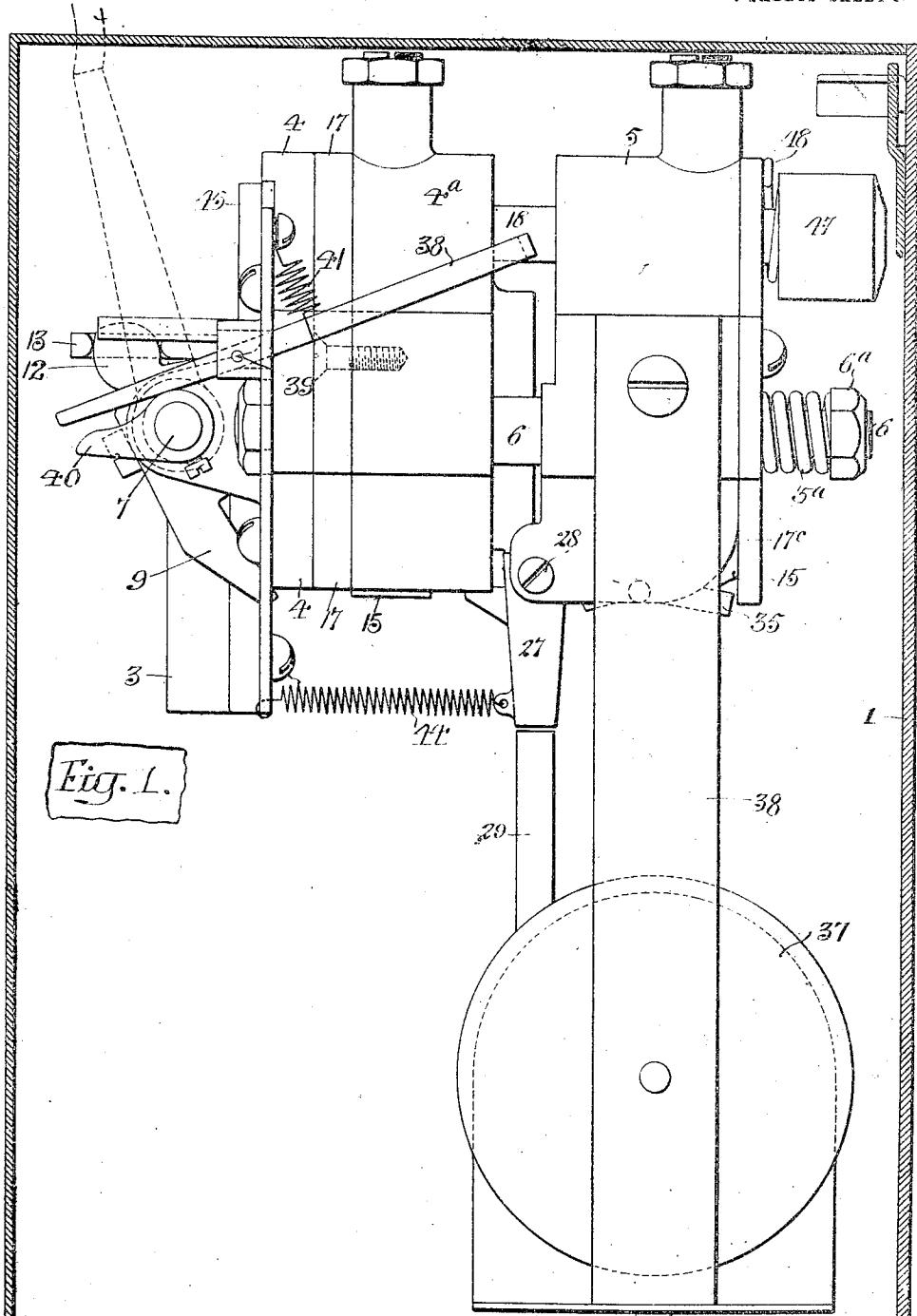
COIN SELECTOR.

APPLICATION FILED AUG. 1, 1910.

999,124.

Patented July 25, 1911.

6 SHEETS—SHEET 1.



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G. C. REITH & G. F. FLADE

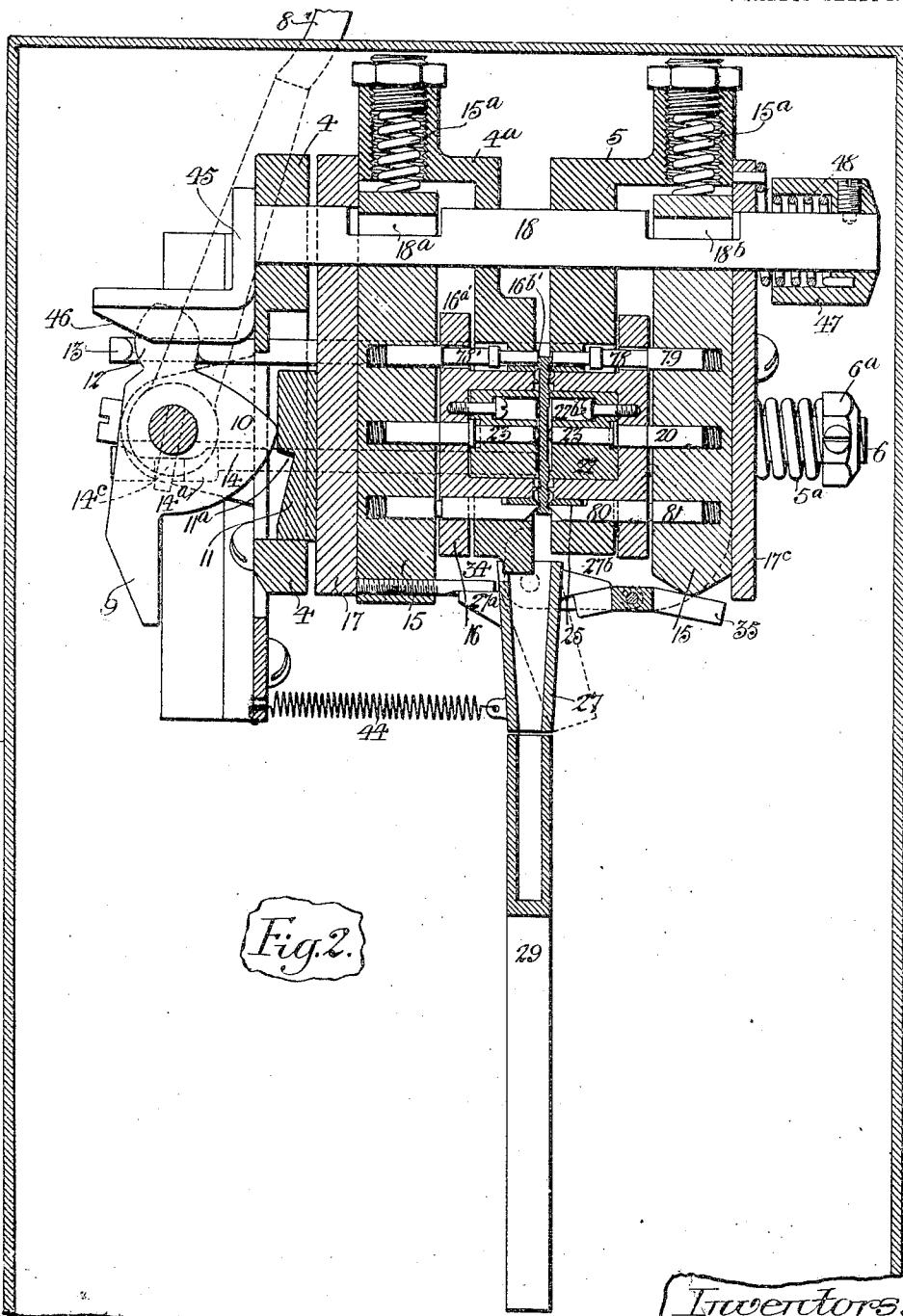
### COIN SELECTOR.

APPLICATION FILED AUG. 1, 1910.

999,124.

Patented July 25, 1911.

6 SHEETS—SHEET 2.



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

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6 SHEETS-SHEET 3.

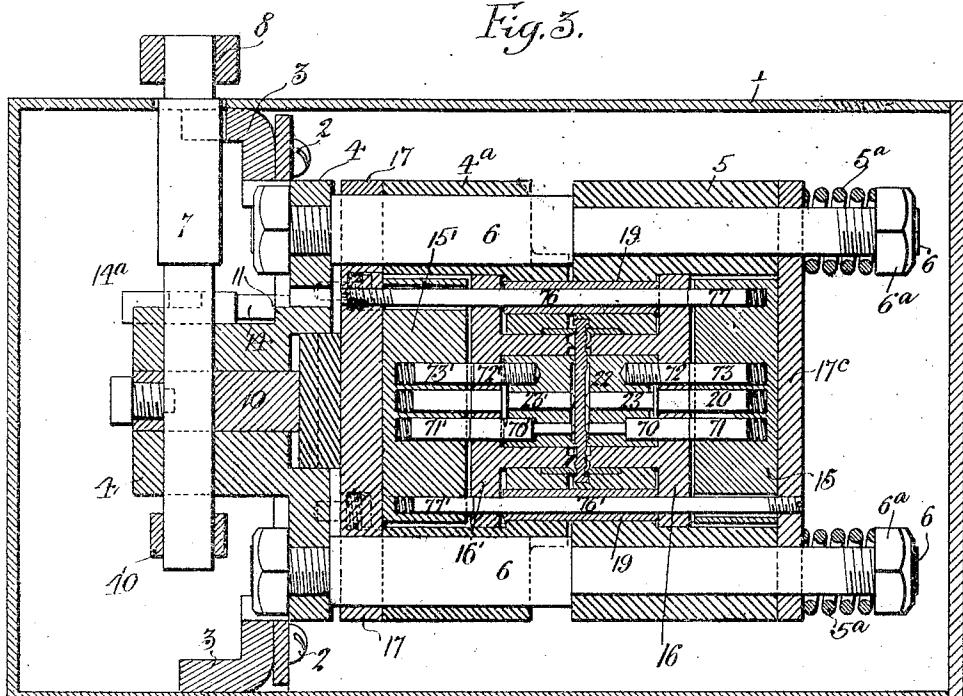
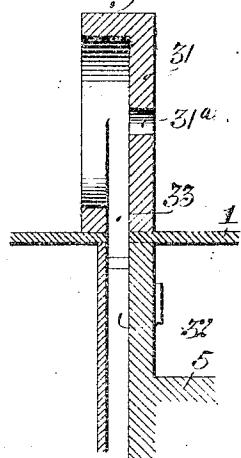


Fig. 5.



5 Fig. 9.

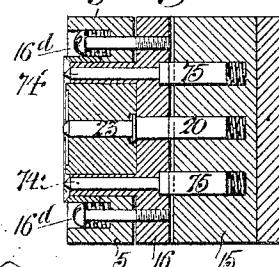


Fig. 10.

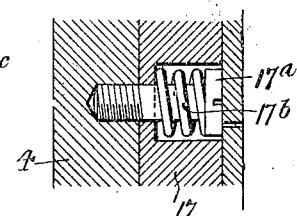
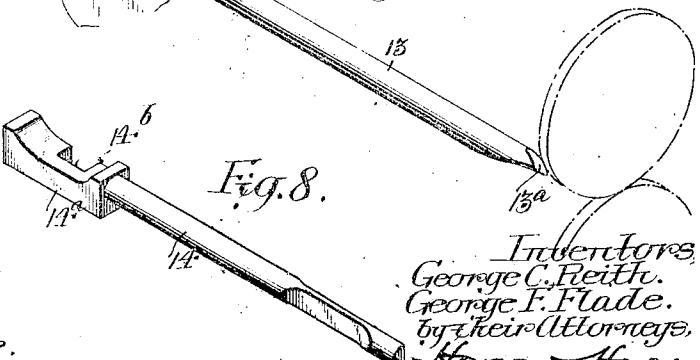


Fig. 7.



### Witnesses:

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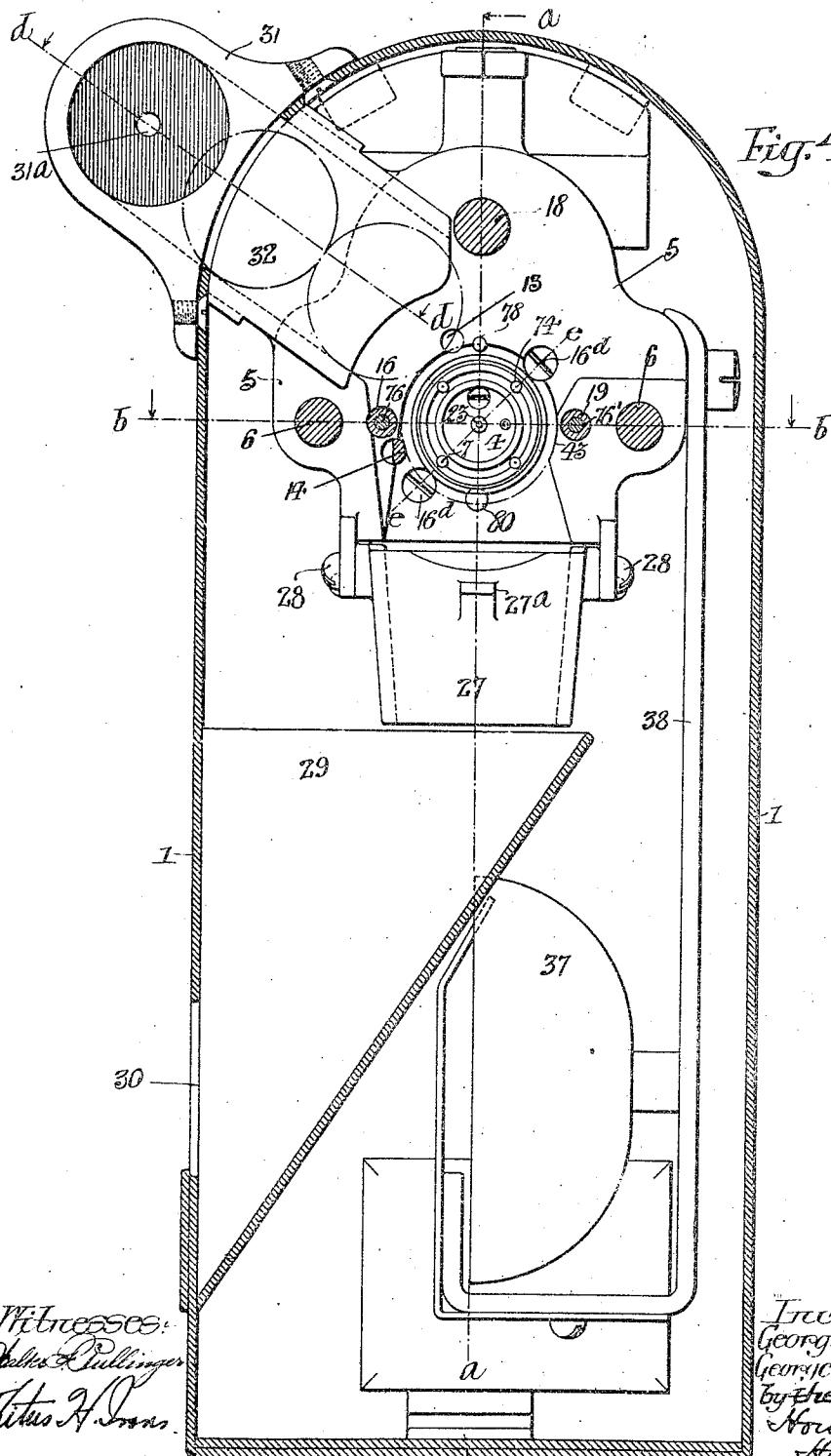
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6 SHEETS—SHEET 4.



Witnesses:

G. C. REITH & G. F. FLADE.

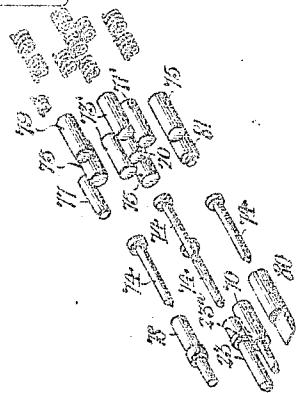
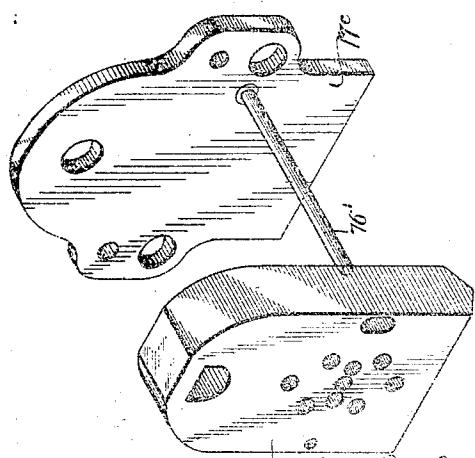
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6 SHEETS—SHEET 5.



G. C. REITH & G. F. FLADE.

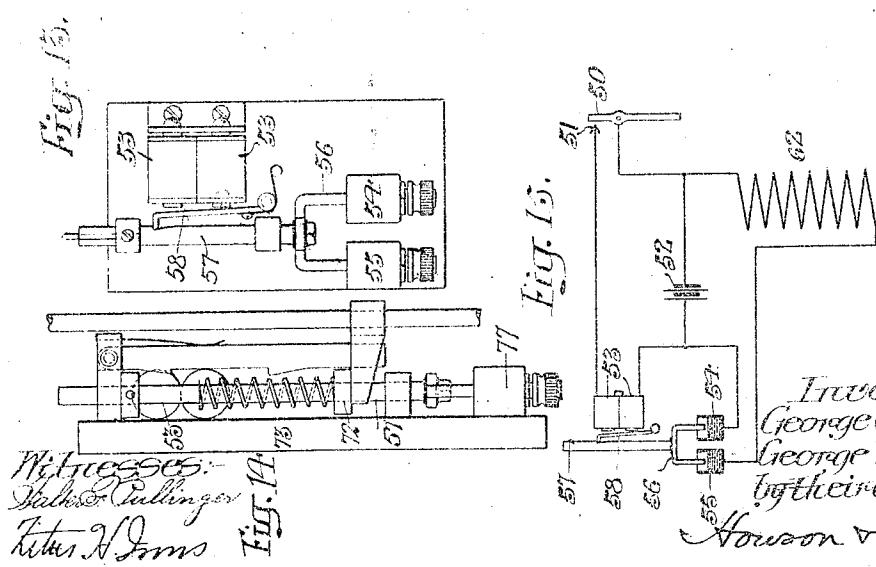
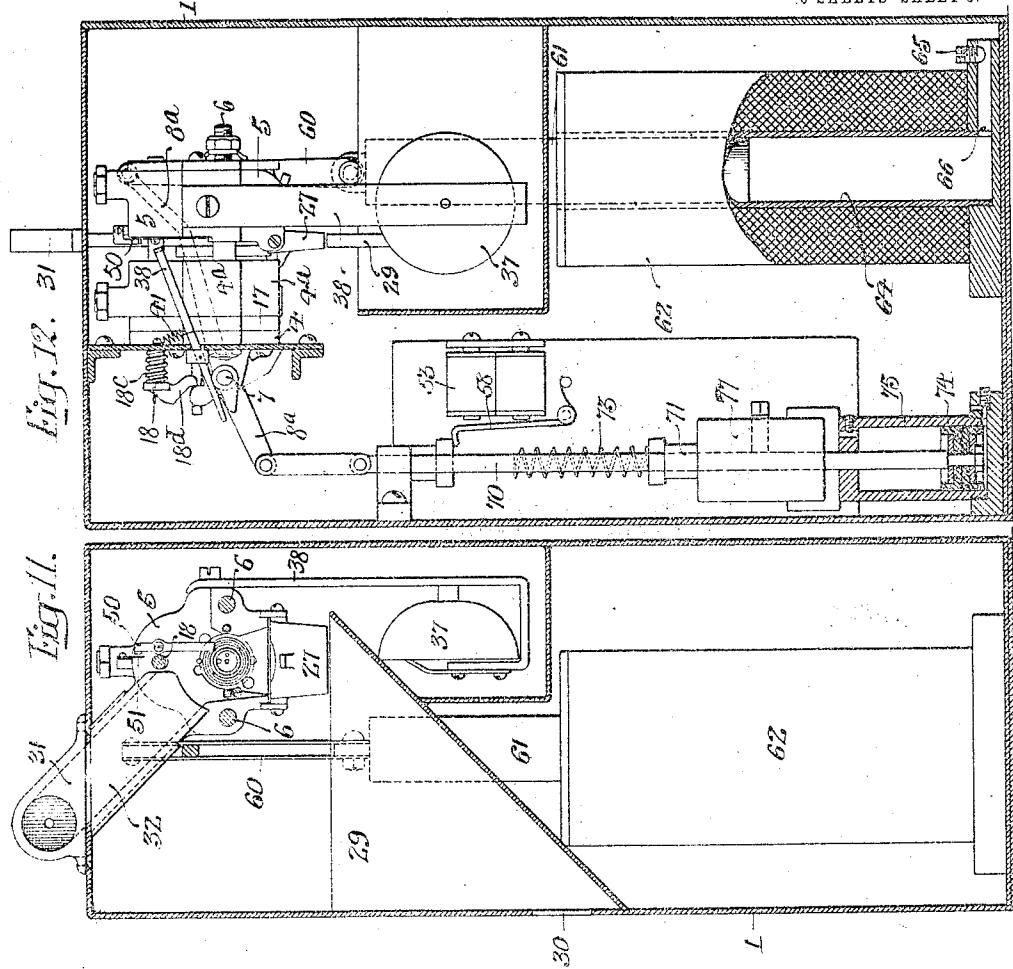
COIN SELECTOR.

APPLICATION FILED AUG. 1, 1910.

999,124.

Patented July 25, 1911.

6 SHEETS-SHEET 6.



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# UNITED STATES PATENT OFFICE.

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

## COIN-SELECTOR.

999,124.

Specification of Letters Patent. Patented July 25, 1911.

Application filed August 1, 1910. Serial No. 574,758.

To all whom it may concern:

Be it known that we, GEORGE C. REITH and GEORGE F. FLADE, citizens of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in 5 Coin-Selectors, of which the following is a specification.

Our invention relates to that class of machines particularly designed to separate 10 standard coins from counterfeits, slugs, washers, or the like, and operating on the broad principles disclosed and claimed in our Patent No. 944,819, dated December 28, 1909, and in our application No. 527,639, 15 filed November 11, 1909.

In the machines heretofore invented by us it was necessary that the measuring points be so adjusted as to be capable of separating standard coins from counterfeits, etc., regardless of which face of such coin was presented to said points; that is to say, the mechanism of the selector had to be so designed as to refuse slugs, washers, counterfeits, etc., and yet receive a standard coin regardless of whether its "head" or its "tail" 25 was presented to the measuring points or tumbler controlling pins. As a result, the operation of the machine was, under certain conditions, not as satisfactory as could be 30 desired, since it would occasionally refuse a standard coin.

One object of the present invention is therefore, to so construct a coin selector of the above noted general class, that a coin 35 may be presented to it, in either of the two possible positions, without affecting the accuracy or certainty of the operation of the machine and without requiring the delicate adjustment otherwise necessary.

Another object of our invention is to provide a coin selector which shall be capable of 40 operating on both faces of the coin presented but which shall be of such a nature that the coin directing means shall be actuated by that part only of the mechanism which is affected by a predetermined one of the two coin faces.

A further object of the invention is to provide a double acting coin selector having 45 two independent sets of coin engaging points, either of which, however, shall be capable of actuating a coin directing valve or equivalent device for separating spurious from standard coins.

We also desire to provide novel and rela-

tively simple means for automatically causing the selector to be operated both when the object presented to it is a metallic coin and also when it is a non-conductor of electricity; the invention further contemplating 60 novel devices for preventing the introduction to the machine of coins of improper size and for preventing injury to or interference with the apparatus due to the introduction of a number of coins before the machine is operated.

In addition we desire to provide a coin selector of the general type above noted whose detail construction shall be relatively simple, substantial and compact, as well as of such 70 a nature that it may be relatively inexpensive to build, reliable in operation, and not likely to get out of order.

These objects and other advantageous ends we secure as hereinafter set forth, reference 75 being had to the accompanying drawings, in which:

Figure 1, is a side elevation, partly in section, illustrating a coin selector constructed according to our invention; Fig. 2, is a longitudinal vertical section on the line *a*—*a*, Fig. 4; Fig. 3, is a horizontal section on the line *b*—*b*, Fig. 4; Fig. 4, is a transverse vertical section on the line *c*—*c*, Fig. 3; Fig. 5, is a fragmentary section on the line *d*—*d*, Fig. 4; Fig. 6, is a detached perspective view showing the various parts constituting one of the two sets of coin controlled, valve governing mechanism; Figs. 7 and 8 are perspective views of two of the rods and their 90 associated parts forming a part of our coin selector; Fig. 9 is a fragmentary section on the line *e*—*e*, Fig. 4; Fig. 10, is a fragmentary section showing the construction of the yielding connection between certain parts of 95 our machine; Figs. 11 and 12 are vertical sections illustrating our machine as equipped with electro-magnetic operating means; Figs. 13 and 14, are respectively front and side elevations of the switch and its control- 100 ling means employed in that form of our invention shown in Figs. 11 and 12, and Fig. 15, is a diagrammatic view illustrating the electrical connections of the electrical operating apparatus shown in Figs. 11 and 12. 105

In Figs. 1 to 12 inclusive of the above drawings, 1 represents the inclosing casing within which our machine is preferably mounted, and while said machine is shown as held within said casing by means of 110

2  
screws 2 engaging lugs 3 projecting from the inner walls thereof, it is obvious that any other desired and suitable means may be employed for supporting it.

5 The machine proper includes a frame consisting of two castings 4 and 5 rigidly though not immovably connected to each other and spaced apart by two horizontally extending bolts 6 having portions of relatively large diameter on which is slidably mounted a third casting 4<sup>a</sup>. The ends of these portions serve as abutments against which the casting 5 is held by springs 5<sup>a</sup> acting between a back plate 17<sup>a</sup> and nuts 15 suitably placed on said bolts. The casting 4 has bearings for an operating shaft 7, which in this particular case extends through one side of the casing 1 and has fixed to its outer end an operating handle or lever 8. The 20 bearings aforesaid are spaced apart and there is fixed on the operating shaft between them a cam, having three active portions, of which one, indicated at 9, is designed to engage the lower portion of the casting 4 and thereby limit the forward movement of 25 the handle 8. Another portion of the cam, indicated at 10, co-operates with a plate 11 hereafter referred to, while a third part 12 engages a longitudinally movable bar or 30 rod 13 designed to prevent a number of coins placed in the coin chute one immediately after the other, from interfering with the proper operation of the apparatus.

As indicated in Fig. 2, the shaft 7 is provided with a pin 7<sup>a</sup> designed to engage a slot 14<sup>b</sup> of the head 14<sup>a</sup> of a longitudinally movable bar 14 (Fig. 8), as hereafter noted.

Between the castings 4 and 5 is mounted a third casting 4<sup>a</sup> in such manner as to be capable of sliding toward and from said casting 5 upon the bolts 6; there being a plate 17 likewise mounted on said bolts and rigidly connected to the front face of the casting 4<sup>a</sup> but movably held to the casting 4 by a pair of screws 17<sup>a</sup> arranged as shown in Fig. 10. The heads of said screws fit in recesses in the plate 17 and have springs 17<sup>b</sup> confined between them and the bottoms of the recesses, so that while this plate is free 50 to move on the bolts 6 away from the casting 4 for a limited distance, it and the casting 4<sup>a</sup> tend to return under the action of said springs to a normal position with said plate in engagement with the casting.

55 Movement of the casting 4<sup>a</sup> and plate 17 on the bolts 6 may be caused by the action of the part 10 of the operating cam through a plate 11 which is free to slide vertically for a limited distance in a recess of the casting 4 and which has a depression in its front face, as indicated at 11<sup>a</sup>.

Confined within the interior of the casting 5 by means of the back plate 17<sup>a</sup>, is a vertically movable slide 15 normally acted on 60 by a spring 15<sup>a</sup> confined at the top of said

casting, so that it continually tends to move downward, but is normally locked from so doing by means of a rotatable bolt 18 and a number of spring actuated tumblers hereafter described, which project from recesses 70 in said slide into similar recesses in a plunger plate 16 confined between the slide and the rear interior face of the casting 5. This plunger plate has an annular extension 16<sup>a</sup> projecting forwardly through a preferably circular opening in the front portion of the casting 5 and provided on its forward face with a circular knife edge 16<sup>b</sup> as shown, which, in the case of a machine designed for the reception of nickels, is of a diameter 80 slightly less than that of the circle of lettering just within the flanged rim on the "tail" side of this coin. The plate 16 is movably connected to the forward part of the casting 5 by means of screws 16<sup>d</sup> (Fig. 9) and is 85 yieldingly held in engagement with said casting by springs acting on the heads of said screws as shown.

Within the annular extension of the plunger plate is a cylindrical block 22 likewise 90 provided with a knife edge 22<sup>a</sup>, in this case of a relatively blunt form and designed to engage the wreath of the "tail" face of a nickel. The forward movement of this block is limited by a set screw 22<sup>b</sup> (Fig. 2) or 95 other suitable means which enters the plunger plate 16; the arrangement being such that said block is free to move to a limited extent longitudinally within the extension 16<sup>a</sup>.

100 A third knife edge 25 is set in the front opening of the casting 5 concentrically with the extension 16<sup>a</sup> and its diameter is such that in a nickel receiving machine it will engage the low flat portion of the "tail" face of a coin immediately within the flanged rim and outside of the circle of lettering. The block 22 has centrally mounted within it a longitudinally movable pin 23 whose front end is pointed and whose rear end extends through and terminates adjacent to the rear face of the plunger plate 16; there being on said pin a collar 23<sup>a</sup> operative in a recess of the block and capable of engaging and moving rearwardly said plunger plate under certain conditions. This pin co-operates with a tumbler 20 mounted in a recess of the slide 15 and normally pushed toward said pin by a spring 110 as shown in Fig. 2; there being in addition to the pin 23 a pin 70 extending through the block 22. This pin likewise has a pointed end projecting slightly beyond the front face of said block and its rear end also terminates adjacent the rear face of the plunger plate 16, in position to co-act with a tumbler 71 which is at all times pushed toward it by a spring acting in the recess of the slide 15 in which it is mounted.

110 A third pin 72 is immovably fixed to the 115

rear part of the block 22 and extends through the plunger plate 16 to the rear face thereof so that when said block is in a certain position, its rear end will be flush 5 with the rear face of said plate. A spring pressed tumbler 73 mounted in the slide 15 is placed to coöperate with this pin.

It may be noted in passing that while the pin 23 is so placed that its point will engage the low central portion of the "tail" face of a nickel, the pin 70 is mounted to engage some portion of the flat surface of a nickel immediately outside of the V.

As shown in Figs. 2, 4, and 6, we provide 15 four pins 74 which operate in suitable cavities in the body and extension of the plunger plate 16; their positions being such that their points are concentric with the knife edge 16<sup>b</sup>, while their rear ends co- 20 operate with spring pressed tumblers 75 in the slide 15. The length of these pins is such that under certain conditions the plane of their rear faces is co-incident with the plane of the rear face of the plate 16. Rigidly 25 fixed in the plate 17 and extending through the casting 4<sup>a</sup> with its associated parts, into the casting 5 and through the plunger plate 16, is an elongated pin 76 whose rear end terminates adjacent the rear face of said 30 plate 17 in position to co-act with a spring pressed plunger 77 in the slide 15. As shown in Figs. 2 and 6, we also provide a coin engaging pin 78 whose front or reduced end extends through the casting 5 to 35 a point adjacent its front face in such position as to be capable of engaging the rim of a coin, while its rear end projects through and terminates adjacent the rear face of the plunger plate 16. A spring pressed tumbler 40 79 is mounted in a suitably placed cavity in the slide 15 so as to coöperate with this pin. Finally, we provide a pin 80 mounted in 45 the casting 5 so that its front end, which is in this case knife edged in form, projects into the circle of the knife edge ring 25 in position to be capable of engaging the low, plane part of a coin immediately inside of its rim or flange. The rear end of this 50 pin 80 terminates adjacent the rear face of the plunger plate 16 and has co-acting with it a spring pressed tumbler 81 which like all of the other tumblers, is mounted in the slide 15. It is to be noted, however, that the projecting end of this tumbler is of reduced diameter for a purpose hereafter 55 noted.

The casting 4<sup>a</sup> is of a construction substantially similar to that of the casting 5 (except in so far as it is modified by reason 60 of its contained parts being placed to operate on that face of the coin distant from the casting 5) and it carries parts which likewise are substantially duplicates of those carried by said casting 5. The arrangement of 65 these parts, however, is such that the coin

engaging pins indicated at 23', 70', 78', and 80' as well as the three knife edges 22', 16<sup>b</sup>', and 25', have their coin engaging ends directed toward the similarly formed ends of the pins and the knife edges of the casting 5 so as to be capable of engaging or being actuated by a coin supported between said two castings. The casting 4<sup>a</sup> thus also has a vertically movable slide 15', a spring 15<sup>a</sup>', for actuating the same, a plunger plate 16' mounted between the slide and the rear portion of the casting, and a cylindrical block 22', all having functions the same as those of the similar parts of the casting 5.

The slide 15', though normally pressed down by the spring 15<sup>a</sup>' is ordinarily held from moving by the bolt 18 as well as by the tumblers 21', 71', 73', 75', 77', 79', and 81', or their coöperating pins; said tumblers tending under the action of their springs, to move into the cavities of the plunger plate 16'. In this case, however, there is a long pin 76' fastened into the back plate 17' and projecting through the slide 15', plunger plate 16', castings 5 and 4<sup>a</sup> and terminating 90 adjacent the front face of the plunger plate 16' where its end coöperates with the spring pressed tumbler 77' in the slide 15'.

It is noted that both the slides 15 and 15' have elongated slots for the passage of the pins 76' and 76 so that their vertical movement is not interfered with by these latter. Mounted in the two castings 4<sup>a</sup> and 5 in such position as to receive the two elongated pins 76 and 76', are two tubes or sleeves 19 of such length as to be capable of engagement by the adjacent faces of the plunger plates 16 and 16' after their respective knife edges have approached to within a predetermined distance of each other. In other words, these tubes or sleeves are designed to space apart said plunger plates so that after the plate 16' has moved toward the plate 16 a predetermined distance, movement or pressure is directly transmitted from the former of these plates to the latter, through the tubes 19.

As is best shown in Figs. 1 and 2, the castings 4<sup>a</sup> and 5 under normal conditions are separated from each other by a vertically extending space, below the center of which we mount a coin directing valve 27, pivoted by means of screws 28, to the casting 5 so that when in its mid or normal position it is capable of receiving a coin and directing the same into a receiving chute 29 whence it passes out of the casing 1 through an opening 30 in the side of the same.

For delivering a coin to the machine we mount on the outside of the same a receiving conduit 31 formed with a cylindrical cavity having the diameter of the standard coin which the machine is designed to receive. This cavity is open on one face for the reception of a coin and at its opposite end 130

communicates through an opening 33 with a coin directing chute 32 leading to the space between two castings 4<sup>a</sup> and 5. The closed end of the cylindrical cavity in the conduit 31 has a small opening 31<sup>a</sup> for the introduction of a wire or suitable tool whereby any material which may have been maliciously placed within said cavity may be forced out of the same. The coin delivered from the chute 32 is supported concentrically with the central coin engaging pins or rods 23 and 23' partly by means of an abutment 43 belonging to the casting 5 and partly by means of the longitudinally movable rod 14, which, as shown clearly in Fig. 8, has a portion of one end notched or cut away for the reception of the coin. It will be noted that this rod is reduced in section at a distance from its rear end so that this latter is more or less springy for a purpose hereafter noted.

It is obvious that if the object inserted in the coin chute 32 be a coin or token of a diameter materially less than the standard, it will not be supported by the abutment 43 and the rod 14, but will pass between these parts and fall through the valve 23 directly into the return chute 29.

From Fig. 2, it will be seen that the slide 15' has a rearwardly projecting rod 34 placed to engage a projecting lug 27<sup>a</sup> on the valve 27, so that when said slide moves downwardly, the valve is swung on its pivot against the action of a spring 44 into the position shown in dotted lines. For transmitting movement from the second slide 15 to the valve, we provide a lever 35 pivoted to the casting 5 and having one arm placed to be engaged by said slide. The second arm of the lever engages a lug 27<sup>b</sup> on the valve so that when said slide 15 moves downwardly, the valve 27 is also swung into the dotted position, in which case a coin passing through it does not enter the return chute 29, but is delivered into the interior of the casting. The spring 44 is so placed as to normally hold the valve in position to discharge a coin into the chute 29.

In order that there may be no possibility of injuring the various parts of the machine in case the coin or token inserted should be of too great thickness, the casting 5 and its attached parts are movably mounted on the two bolts 6, as heretofore noted, so that if a coin of abnormal thickness should get between the castings 4<sup>a</sup> and 5, the springs 5<sup>a</sup> which yieldingly hold said casting 5 in its forward position against suitably placed shoulders on said bolts 6 would be compressed when the machine was operated, without injury thereto. The bolt 18, which as before noted extends completely through all three of the castings 4, 4<sup>a</sup>, and 5, has two semi-cylindrical cut away portions 18<sup>a</sup> and 18<sup>b</sup> where it passes through the slides 15' and

15, so as to permit of their downward movement when they are released by their tumblers and when said bolt is in a suitable position. This bolt 18 at its front end has an L-shaped head 45, one arm of which is beveled or inclined as indicated at 46 and is designed to be engaged by the part 12 of the operating cam. Ordinarily, when the parts are in the positions shown in Fig. 1, the bolt is held with its reduced parts revolved to their upper positions in which they would prevent downward movement of the two slides, but when, the operating handle 8 is moved to the position shown in Fig. 2, the part 12 of the cam acts on the head 45 to give said bolt almost a quarter turn, thereby bringing its reduced portions to such positions that both slides are unsupported so far as it is concerned. In order to return the bolt 18 to its normal position when the operating handle is released, we extend it rearwardly beyond the back plate 17<sup>a</sup>, and fix to it a cap 47 having a torsion spring 48 connected between it and said plate, by which means its reduced portions are also caused to act on and raise either of the slides 15' or 15 from their lower to their upper positions, in case they should have been permitted to drop.

The rod 13, which as shown in Fig. 7 is engaged by the part 12 of the operating cam, has its rear end 13<sup>a</sup> beveled in both directions and is so placed that said end is immediately adjacent to the curved edge of a coin when this latter rests upon the abutment 43 and the rod 14 between the castings 4<sup>a</sup> and 5. Moreover, the rod 13 is so placed that it is in position to be interposed between a coin so supported in the machine and a second coin in the chute 32, so that there is no possibility of such second coin falling after the machine has begun its cycle of operations on the first coin delivered to it, and thereby injuring any part of the device. Another object of this beveled end is to force the lowermost coin into proper position on the rod 14 in order to centralize or align it relatively to the pins and knife edges; the said rod 14 being capable of springing slightly to permit of this action if this be necessary as in the case of a new coin.

With the above described arrangement of parts, if a standard coin be introduced into the receiving conduit 31 and pushed all the way toward the rear end thereof, it immediately rolls down the coin chute 32 and comes to rest upon the abutment 43 and the rod 14, between the castings 4<sup>a</sup> and 5. Now when the handle 8 is moved rearwardly to the position shown in Fig. 2, the operating shaft 7 is given a partial revolution and the part 10 of its cam presses against the plate 11, thereby forcing the casting 4<sup>a</sup> and its attached parts to slide rearwardly upon the

rods 6. Without at once setting forth the results of this movement, it may be noted that after the shaft 7 has been turned a predetermined distance, the highest point of 5 the part 10 of the cam enters the depression or recess 11<sup>a</sup> in the slide 11, thereby permitting the casting 4<sup>a</sup> and its attached parts to immediately return to their normal positions under the action of the springs 17<sup>a</sup>. 10 As the handle 7 when released returns to its normal position indicated in Fig. 1, the corresponding revolution of the cam causes the plate 11 to be moved vertically in engagement with the front face of the plate 15<sup>a</sup> without however, causing any rearward movement of the casting 4<sup>a</sup> or any of its parts. Finally just before the cam has reached its normal position, the highest point of the part 10 moves entirely out of 20 the recess 11<sup>a</sup>, thereby permitting the plate 11 to fall under the action of gravity to the position shown in Fig. 2. The rearward movement of the handle 7 in addition to the actions above noted also, through the part 25 12 of the cam, moves rearwardly the rod 13, thus causing this to interpose its wedge shaped end 13<sup>a</sup> between the coin which is in proper position to be tested and a succeeding coin which may have been placed 30 in the receiving conduit 31 and chute 32. This second coin, as well as any others, is thus effectually held up in the chute; being moved upwardly out of the way by said wedge shaped or beveled end of the rod 13. 35 In addition this end of said rod properly centers the coin between the two sets of pins and knife edges. The rearward movement of the part 12 of the cam also causes a partial revolution of the rod 18, thus moving its 40 cut away portions 18<sup>a</sup> and 18<sup>b</sup> into the positions shown in Fig. 2 and leaving the two slides 15 and 15' free to move downwardly under the action of their springs 15<sup>a</sup> and 15', if their various tumblers be moved to 45 their releasing positions. Owing to the peculiar relative positions of the pin 14<sup>c</sup> of the operating shaft 7 and the slot in the head 14<sup>a</sup> of the rod 14, this latter is not withdrawn sufficiently to release the coin until 50 this latter has been engaged by the various knife edges so as to be supported thereby.

The rearward movement of the casting 4<sup>a</sup> with its various parts causes the front face of the coin supported as above described to 55 be first of all engaged by the various points of the pins 23', 70', 74', 78', and 80', and then by the three knife edges 16<sup>b</sup>, 22<sup>a</sup>, and 25' of the casting 4<sup>a</sup>, by which it is moved slightly to the rear so that its rear face is 60 brought into engagement with the similar pins and knife edges of the casting 5. If, as above indicated, the coin is standard as to its dimensions and symbols, etc., the casting 4<sup>a</sup> will be moved sufficiently to the rear 65 to cause the pins 76' and 76 to force their

respective tumblers 77' and 77 into such positions that their planes of engagement with said pins will coincide with the planes of the rear face of the slide 15' and of the front face of the slide 15 respectively, so as to release these latter. Such a condition of course could only exist in case the knife edges 25 and 25' engage the low parts of a standard coin immediately inside of its rim. 70 If the rim of the coin is of the proper thickness, the pins 78' and 78 which engage this part from opposite sides would likewise move their co-operating tumblers into slide releasing positions, while the knife edges of the two plunger plates 16' and 16, coming 75 into engagement with the proper portions of the opposite face of the coin when the casting 4<sup>a</sup> is moved to its fullest extent to the rear, are caused to assume definite positions each with one of its faces immediately 80 adjacent, but spaced way from, the adjacent face of the slides 15' and 15 as the case may be. This distance between the slide 15 for example and the adjacent face of its plunger plate 16 is made equal to the predetermined allowable variation between new 85 coins and those worn to an allowable extent, so that the slide will be released if the coin under test comes within this permissible amount of what would literally be the 90 standard dimensions. The two cylindrical blocks 22 and 22' are likewise brought to predetermined positions if their knife edges 22<sup>a</sup> and 22<sup>b</sup> engage a standard coin, 95 so that either one of the pins 72 and 72' 100 fixed to them is moved sufficiently relatively to its co-acting plunger plates 16 or 16' to bring the co-operating tumblers 73 or 73' to its slide releasing positions. Likewise the other pins and tumblers are similarly acted 105 on by the standard coin, although according to the present invention the machine is so adjusted that certain of the pins and knife edges of either set can move their co-operating tumblers to the slide releasing positions 110 only if they are engaged by the "tail" face of a standard coin.

Even though certain of the pins and their tumblers of one set were moved by the "head" face of the coin to their slide releasing positions, others of them, such as the pin engaging the center of the coin, will not be moved sufficiently to bring their co-operating tumbler or tumblers to such releasing positions, so that while that slide 15 or 15' which is adjacent the "tail" face of the coin, will be released, the other will remain locked by one or more of its tumblers even though the coin operated on be a standard.

Assuming that the head of the coin is directed toward the front of the machine, i. e. (the handle end thereof) and that the two sets of pins and their tumblers are adjusted to release their slides only when engaged by

the "tail" of the coin, it is obvious that the slide 15 will be altogether released when the casting 4<sup>a</sup> has been moved rearwardly to its full extent. Said slide is thus forced to move downwardly under the action of its spring 15<sup>a</sup> and swings the valve 27 on its pivot screws 28 through the lever 35 and the lug 27<sup>b</sup>. By this time the pin 14<sup>c</sup> of the operating shaft has moved sufficiently to cause the rod 14 to move forwardly so that just after the valve has swung into the position shown in dotted lines in Fig. 2, the rear end of said rod is moved from under the coin, which is thus permitted to drop into the valve 27, and by it be directed into the interior of the casing 1. Said casing preferably has a bell 37 carried on a bar 38 hung from the casting 5 in such position as to be struck by the falling coin which there- 20 by gives an audible indication to the operator that, being standard, it has been received by the machine. By this time the part 10 of the operating cam has moved downwardly to an extent sufficient to permit its highest point to enter the cavity 11<sup>a</sup> of the slidable plate 11, so that under the action of the springs 17<sup>b</sup>, the casting 4<sup>a</sup> and its attached part is moved forwardly to the normal position.

30 For a purpose hereafter noted we pivot a lever 38 to the casting 4 at 39 so that it extends in a general line at right angles to the operating shaft 7, and may be caused to turn on such pivot by means of an auxiliary cam 40 mounted on said shaft. The rear end of this lever is turned at right angles to its length so as to be capable of moving into the space between the castings 4<sup>a</sup> and 5 when acted on by said cam 40, so that if a coin fails to drop from between the castings 4<sup>a</sup> and 5 at the time of the withdrawal of the end of the rod 14, owing to the presence of some previously applied adhesive, this lever 38 forcibly moves it down into the valve 27. A spring 41 is connected to said rod 38 so as to return it to its normally raised position as soon as the handle 8 is released and permitted to return to the position shown in the drawings. This forward 40 movement of the handle causes the part 12 of the operating cam to move forwardly the rod 13, thereby permitting another coin from the chute 32 to fall into position upon the abutment 43 and rod 14 and likewise 45 permitting the bolt 18 to make a partial turn under the action of its spring 48. The cam surface formed by the reduced portions of said rod 18 engage and force upwardly the slide 15 against the action of its spring 15<sup>a</sup>, raising it to such a height that its various tumblers 20, 71, 73, etc., finally enter the various cavities of their co-acting pins 23, 70, 74, etc., and again lock it in such upper position. Owing to the action of the spring 60 44, the valve 27 is likewise caused to re-

turn to its mid or normal position where, as shown in Fig. 2, it is held by reason of the engagement of its lug 27<sup>a</sup> with the bar 34.

If the "head" of a standard coin inserted in the machine is directed toward the rear thereof and the machine be operated, the slide 15 is held in its raised position since all of its tumblers are not moved to the pre-determined extent by the symbols, lettering etc., on this face of said coin. On the other hand, the slide 15' is released, since, as above noted, its tumblers and their co-acting parts are adjusted to be moved to their releasing positions under the action of the various parts of the "tail" of the coin. In such case the downward movement of the slide 15' causes the bar 34 to swing the valve 27 into the position shown in dotted lines, thus again directing the coin into the interior of the casing 1.

If the coin delivered to the machine is a counterfeit all of whose dimensions are not standard, or if it be of a nationality or dimensions other than those for which the machine is designed, it is obvious that one or more of the various pins will not be moved a sufficient distance to cause the co-acting tumbler or tumblers to release either of the slides, so that since the valve 27 is not moved from its vertical position, such spurious coin is delivered through said valve into the return chute 29 and thence out of the machine through the opening 30 in the casing 1.

As must be obvious, any washer or uncoined disk could by no possibility operate the machine, since even less than a counterfeit could it properly actuate the several pins and their co-acting tumblers. As an example, if all parts of the spurious coin or token were so proportioned that when the machine was operated they moved all of the pins of one set, except the pin 23, sufficiently to bring their co-acting tumblers to the releasing positions, this pin, by being moved to the rear slightly too far, as by too great a central thickness of the coin, would bodily move the plunger plate 16 to the rear and prevent any of the tumblers from releasing. Again, if the counterfeit was so well made that all of the pins released their tumblers except the pin 80', it is conceivable that the slide 15' might actually begin to drop, since said latter pin, being the last acted on under operating conditions, might permit its tumbler to pass through its releasing position in moving to a locking position. The full downward movement of the slide is, however, effectually prevented, since even after its vertical movement has begun, the small diameter part of the tumbler 81 is projected sufficiently to catch on the plunger plate 16' and maintain said slide in a locked position.

In some instances it is desirable that the coin or token itself shall act automatically

to cause operation of the machine and in this case we pivot on the casting 5 a contact arm 50 in such position that its end hangs between the castings 4<sup>a</sup> and 5 in position to be engaged by a coin when this latter falls from the chute 32 onto the abutment 43 and the rod 14. A stationary contact 51 is also mounted on the casting 5 in position to be engaged by the end of the arm 50 when this is swung on its pivot by a coin, and as shown in Fig. 15, said arm and contact point form portions of an electric circuit. In this form of our invention the operating shaft 7 has attached to it a lever 8<sup>a</sup>, indicated in dotted lines in Fig. 12, which projects rearwardly within the casing 1 and is connected through a link 60 to the core 61 of a solenoid 62. This latter has an interior tube 64 within which the core slides as a plunger and there is thus formed a dash pot from which the escape or admission of air may be regulated by means of a set screw 65 placed within a passage 66 leading from said tube.

In circuit with the contact arm 50 and contact 51, we connect a source of current such as a battery 52, with an electromagnet 53; likewise connecting the winding of the solenoid 62 in a branch circuit with said current source and with a pair of contacts which in the present instance are indicated as mercury cups 54 and 55. The movable contact 56 for electrically connecting these two cups and so completing the circuit of the solenoid, is mounted on a bar 57 capable of being held in an elevated position by means of the armature 58 of the electromagnet 53. The said bar 57 is operatively connected to a counterweighted rod 70 through an arm 71 which engages a collar 72 loosely mounted on the bar, but having a cushioning spring 73 placed as shown. The lower end of the rod 70 has a piston 74 operative in a dash pot 75 while its upper end is connected to the lever 8<sup>a</sup>. With this arrangement of parts as soon as a coin falls from the chute 32 on to the abutment 43 and the rod 14, it swings the contact arm 50 into engagement with the contact 51, thereby completing the circuit of the electromagnet 53 and causing this latter to attract its armature 58. The bar 57 is thus released and falls under the action of gravity, thus causing the movable contact 56 to complete the circuit of the solenoid 62 through the mercury cups or contacts 54 and 55. Said solenoid is thus energized and draws down its core 61 at a rate which is determined partly by the rate of escape of air through the passage 66 and partly by the dash pot 75, thus operating the coin selecting elements of the machine as heretofore described. As the operating shaft is turned under the action of the lever 8<sup>a</sup>, this latter also raises the rod 70, which in turn raises

the bar 57 thus causing the movable contact 56 to break the circuit between the cups 54 and 55 and finally bringing said bar to such a height that it is held by the armature 58. The solenoid 62 is thus deenergized and the lever 8<sup>a</sup> with the core 61 are returned to their normal positions partly under the action of the spring 48 acting through the part 12 of the operating cam and the shaft 7, and partly by the action of the weight 77 75 on the rod 70. As is obvious, this arrangement causes the operation of the machine regardless of whether the object inserted is a metallic coin or token or a fiber disk or washer of the correct diameter. In any 80 case, the machine operates to separate standard coins from counterfeits, or other disk like objects such as washers, metallic tokens, or disks of non-conducting material. Moreover, it is particularly accurate in its operation, since its points can be adjusted with the utmost nicety to release one of the slides when the coin presented is of standard dimensions. More or less variation from such a standard may be permitted if desired by 85 constructing the slides as illustrated in our application No. 527,639, filed November 11, 1909, though we preferably employ the arrangement herein described.

We claim:—

1. A coin selector consisting of a supporting structure; a coin directing device; and two independent sets of coin actuated mechanism capable of operating said device.
2. A coin selector having members capable of operating simultaneously on both faces of a coin; means for causing said members to so act on the coin faces; and coin directing means connected to be operated by either of said members.
3. A coin selector having two sets of measuring pins mounted to simultaneously operate on both faces of a coin; means for causing said pins to engage the coin faces; and coin directing means governed by said two sets of measuring pins to separate standard from spurious coins.
4. The combination in a coin selector of coin directing means; two members each capable of independently actuating said coin directing means; and locking devices for normally preventing action of the said members; said devices including elements respectively placed to be engaged by opposite faces of a coin.
5. A coin selector having coin directing means and two independent sets of mechanism for actuating said means; with two independent devices for respectively releasing said sets of mechanism, both adjusted to 125 be moved to an operative position by but one face of a coin or token.
6. The combination in a coin selector of members operative on opposite faces of a coin; and coin directing means controlled 130

by said members; either member being capable of causing actuation of said means when moved to a predetermined position and both of said members being set to be moved to 5 such positions by but one face of a standard coin.

7. The combination in a coin selector of a valve; two devices capable of actuating the valve; and two members placed to engage opposite faces of a coin for controlling 10 operation of said devices; both of said members being adjusted to be moved to an operative position by but one face of a coin.

8. The combination in a coin selector of a 15 supporting structure; members carried thereby in position to engage opposite faces of a coin; means for causing both of said members to simultaneously engage a coin; a device for separating standard from spurious 20 coins; means for moving said device; with locking elements normally preventing operation of the said moving means and controlled by said coin engaging members.

9. The combination in a coin selector of a 25 valve; two devices both normally tending to operate said valve; locking means for normally preventing the movement of said devices; with coin engaging members placed to be operative on opposite faces of the coin 30 and both set to be moved to releasing positions by a predetermined face of a standard coin.

10. The combination in a coin selector of a 35 casing; a chute for returning a coin; a valve normally in line with said chute; and two sets of mechanism controlled by a coin presented to the machine for independently 40 operating said valve to move it out of line with the chute.

11. The combination in a coin selector of a 45 casing; a chute for returning a coin; a valve normally in line with said chute; and two sets of mechanism having elements placed to act on opposite faces of a coin for independently 50 operating said valve to move it out of line with the chute.

12. The combination in a coin selector of a 55 coin chute; a valve normally in position to direct a coin into said chute; with two independent devices both capable of moving the valve to prevent the entrance of a coin to said chute; said devices both including a valve moving mechanism and coin engaging pins respectively operative on opposite faces 60 of a coin to govern the operation of said mechanism.

13. The combination in a coin selector of two 65 slides; means tending to move said slides; coin directing means controlled by the slides; a plurality of devices normally preventing movement of the slides; with coin engaging pins for actuating said devices.

14. The combination in a coin selector of 70 two slides; means capable of moving said slides; coin directing means controlled by the slides; a plurality of devices normally preventing movement of the slides; with coin engaging pins operative on opposite faces of the coin for actuating said devices.

15. The combination in a coin selector of two slides; means tending to move said slides; coin directing means controlled by the slides; a plurality of devices normally preventing movement of the slides; with 75 coin engaging pins operative on opposite faces of the coin for actuating said devices; the movement preventing devices for the slides being set to release the same only when a predetermined face of a standard coin is presented to their co-acting pins.

16. The combination in a coin selector of a supporting frame; two substantially similar sets of mechanism mounted thereon having members capable of engaging opposite 80 faces of a coin; coin directing means capable of being independently actuated by either of said sets of mechanism; with means for moving one set of mechanism bodily toward and from the other to cause it to act on a 85 coin.

17. The combination in a coin selector of a supporting frame; two substantially similar sets of mechanism mounted thereon and each including a pin placed to engage the 90 face of a coin; a coin directing valve; two devices capable of actuating said valve and respectively controlled by said coin engaging pins; with means for moving one of the sets of mechanism bodily toward the other to 95 cause it to act on the coin.

18. The combination in a coin selector, of a frame; two sets of mechanism mounted thereon and each including a spring actuated slide having a tumbler normally preventing its movement; a coin engaging actuating pin for each tumbler; a valve capable of being moved by either slide; and means for bodily moving one of the sets of mechanism toward the other to cause the pins of both sets of 100 mechanism to engage a coin.

19. The combination in a coin selector of a frame having a member provided with tumblers in position to normally prevent its movement; means tending to move said member; a plurality of coin engaging pins placed to co-act with said tumblers; coin directing means placed to be actuated by said tumbler governed member; means for presenting said pins to a coin; and an in- 105 closing casing for the apparatus; with means for yieldingly supporting said mechanism on the frame.

20. The combination in a coin selector of a supporting structure; a coin engaging element; a normally locked slide capable of being released by said element; means for moving said slide when it is released; a cam 110

operative on the slide for returning the same to its normal position; with means for presenting the coin engaging element to a coin.

21. The combination in a coin selector of 5 a supporting structure; a coin engaging element; a normally locked slide capable of being released by said element; means for moving said slide when it is released; a cam operative on the slide for restoring the 10 same to its normal position; with means for presenting the coin engaging element to a coin; said means being operative on said slide restoring cam to actuate the same.

22. The combination in a coin selector of 15 a supporting structure having coin directing means and a slide for actuating the same; an element having a cam operative on the slide to move it in one direction; a spring tending to move the slide in an opposite 20 direction; a locking tumbler normally holding the slide in a definite position; a coin engaging element placed to control said tumbler; and means for presenting said element to a coin.

25 23. The combination in a coin selector of a structure having two movable slides; means normally tending to move said slides; locking tumblers normally preventing the movement of the slides; two sets of coin 30 engaging members placed to respectively operate on the tumblers of the slides; means for presenting said elements to a coin; a revoluble bolt passing through both of the slides and having cam portions operative 35 thereon for moving said slides against the action of their springs; with means for turning the bolt.

24. The combination in a coin selector of 40 a supporting structure; coin directing means; bodily movable mechanism having elements operative on the face of a coin for actuating said coin directing means; relatively fixed mechanism also having elements operative on the face of a coin and capable 45 of actuating said coin directing means independently of the bodily movable mechanism; and means for moving said mechanism to present its elements to a coin.

25. The combination in a coin selector of 50 a supporting structure; coin directing means; bodily movable mechanism having elements operative on the face of a coin for actuating said coin directing means; and means for moving said mechanism to present 55 its elements to a coin; said moving means including a slidable plate having a recess; and an operating member having a cam capable of moving said plate with the mechanism when said member is turned in 60 one direction and being in position to enter a recess of said plate after moving said mechanism when the member is revolved in the opposite direction.

26. The combination in a coin selector of

a supporting structure; coin directing 65 means; a device for actuating said means; coin engaging pins controlling said device; a bodily movable supporting member for said device and pins; and mechanism for moving said member with its pins to present 70 the latter to a coin; the same including an operating shaft and cam thereon; a plate capable of moving with the pin supporting member under the action of the cam, away from the latter; said plate being also movable in a line at right angles to the shaft and having a recess for the reception of the cam after the latter has turned for a predetermined distance.

27. The combination in a coin selector of 80 two sets of mechanism each having coin engaging elements and a slide controlled thereby; a pivotally mounted coin directing valve; means for presenting said coin engaging elements to a coin; and two independent devices connecting the valve to the 85 slides, both capable of moving it in the same direction.

28. A coin selector including a supporting structure having a series of coin engaging 90 pins and a slide; coin directing means controlled thereby; means capable of causing movement of the slide; locking tumblers co-acting with said pins to prevent movement 95 of the slide; and a movable plunger plate having a face adjacent to the slide but normally held away from the same; said plunger plate having a coin engaging portion, and the planes of engagement of the tumblers and the pins lying between the adjacent 100 faces of said plate and said slide.

29. A coin selector including a supporting structure having a series of coin engaging pins and a slide; coin directing means controlled thereby; means capable of causing 105 movement of the slide; locking tumblers co-acting with said pins to prevent movement of the slide; a movable plunger plate having a face adjacent to the slide but normally held away from the same; said plunger 110 plate having a coin engaging portion; and the planes of engagement of the tumblers and the pins lying between the adjacent faces of said plate and said slide; one of the tumblers having a reduced portion at 115 its pin engaging end whereby it is capable of re-locking the slide after having released the same.

30. The combination in a coin selector of 120 a supporting structure having a plurality of coin engaging pins; a plunger plate and a movable block mounted in said structure and both having portions capable of engaging a coin; means for presenting said elements to a coin; a slide; tumblers actuated 125 by said plate and block and normally locking said slide from movement; actuating means for the slide; and coin directing

means controlled by the slide; said plunger plate and block being independently and bodily movable.

31. The combination in a coin selector of 5 a supporting structure; coin directing means; two sets of mechanism capable of independently actuating said means; and means for moving one set of mechanism bodily toward and from the other; each set 10 of mechanism including a movable element capable of actuating the coin directing means; a series of measuring pins; tumblers in the movable element respectively engaging the pins adjacent one face of said element; with a plate having a portion capable 15 of being acted on by a coin and bodily movable toward and from said face of the movable element.

32. The combination of a coin selector; 20 mechanism for operating on coins to separate standard from spurious coins; with a coin receiving structure; and means for preventing a second coin in the structure from interfering with the operation of said 25 mechanism.

33. The combination with a coin selector of means for operating the same consisting of a pair of contacts placed to be closed through the agency of the coin inserted in the machine; and an electric motor for actuating the coin selector controlled by a circuit including said contacts. 30

34. The combination with a coin selector having an operating shaft; of means for actuating said shaft including an electric motor; means for controlling said motor including a pair of contacts closed through the agency of a coin; and means for restoring the parts of the apparatus to their normal positions after the machine has operated. 35 40

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:

WILLIAM E. BRADLEY,  
Wm. A. BARR.