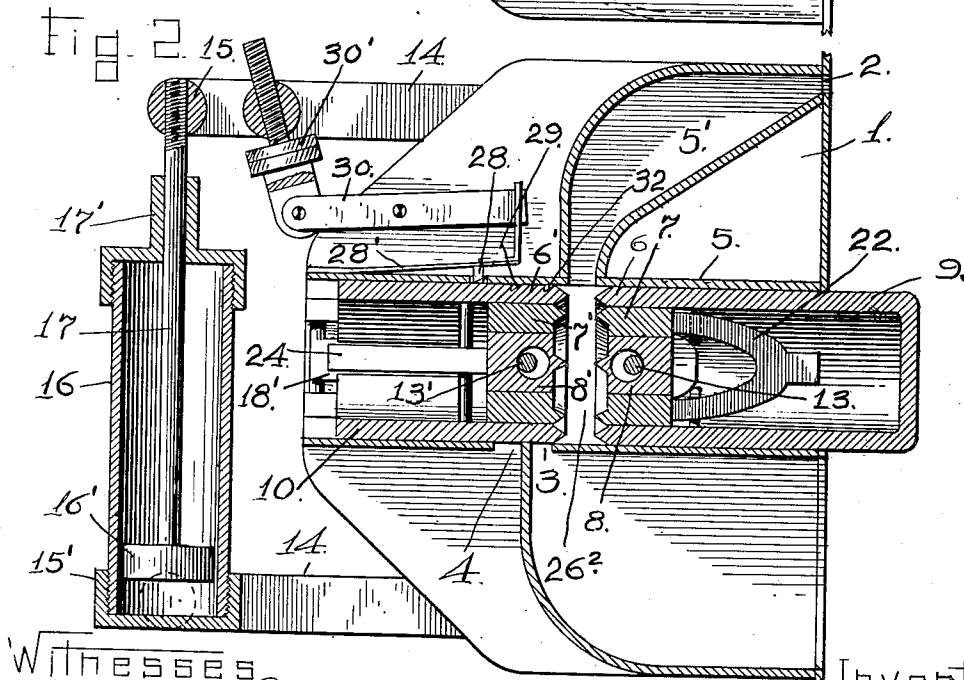
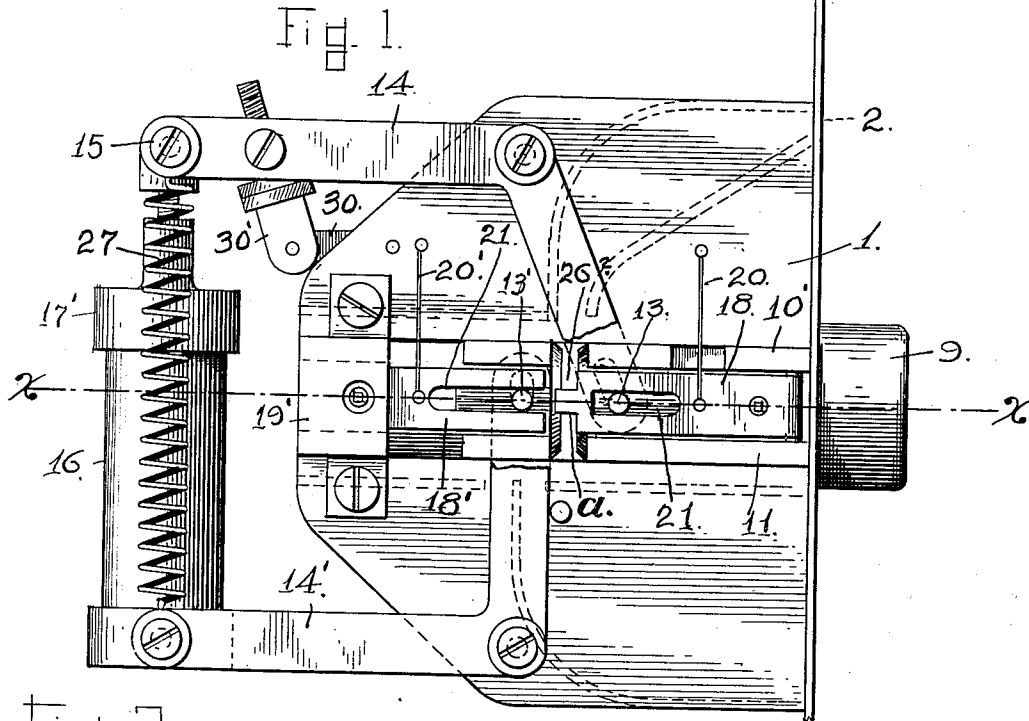


H. A. BULLARD.
COIN SELECTING MECHANISM.
APPLICATION FILED APR. 25, 1911.

1,050,336.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.

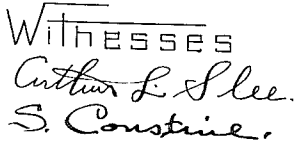


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UNITED STATES PATENT OFFICE.

HERBERT A. BULLARD, OF BERKELEY, CALIFORNIA.

COIN-SELECTING MECHANISM.

1,050,336.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed April 25, 1911. Serial No. 623,135.

To all whom it may concern:

Be it known that I, HERBERT A. BULLARD, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Coin-Selecting Mechanism, of which the following is a specification.

The hereinafter described invention relates to a simple, effective, and durable device for selecting or segregating acceptable coins or tokens from spurious or badly worn coins or tokens, the apparatus being designed for use in connection with coin actuated mechanism generally, such as telephone-boxes, vending machines, and all types of mechanism placed into operation by the deposit of a given coin or token within a receptacle designed for the receiving of the same in payment for that which is supplied to the purchaser; the invention relating more particularly to an improvement on that form of a coin selector fully set forth and described in United States Letters Patent No. 964,848, granted unto me on the 19th day of July, 1910, for coin controlled mechanism, the object of the present invention being to dispense with the electrically operated features disclosed in said Letters Patent and required therein for operating the coin selecting or segregating mechanism thereof, and by so doing making the operation of the parts purely mechanical, more positive, and likewise less complicated than where electro-mechanical means are employed.

To comprehend the invention, reference should be had to the accompanying sheets of drawings, wherein—

Figure 1 is a view in side elevation disclosing the working parts in normal position. Fig. 2 is a vertical sectional view of the improved coin selector with its working parts in normal position. Fig. 3 is a sectional plan view taken on line $x-x$ Fig. 1 of the drawings. Fig. 4 is a similar view of the calipering features of the selector and the stop pawls or arms actuated thereby, said view illustrating a non-acceptable coin or token deposited within the apparatus, grasped or clamped between the calipering members, which are in closed position and locked against full inward movement, the said coin or token being positioned for discharge into the chute or runway for receiving the non-acceptable coins or tokens

and ejecting the same. Fig. 5 is a similar view of the said mechanism illustrating an acceptable coin or token as grasped between the calipering members and said members moved inwardly their full distance for positioning the coin immediately over the runway or chute for conveying the same within the coin receptacle on a release of the calipering members. Fig. 6 is a front elevation of the inner calipering member. Fig. 7 is a rear elevation of the said member. Fig. 8 is an enlarged detail broken view of the calipering members with a coin grasped between the same.

The improved coin selector is designed for use in connection with coins of any denomination, although preferably for those of small size and value, the obverse and reverse sides of which usually differ to such an extent as to distinguish the same from what are known as "slugs" which are generally smooth on both faces, or when stamped present the same degree of depression or upraise on both faces thereof, which condition in the main serves to distinguish a "slug" from a coin.

It will be understood that the calipering members of the apparatus are specially designed to successfully operate in conjunction with a coin of given value and diameter for the acceptance thereof, and the rejection of such coins or tokens as do not conform thereto, a mutilated or excessively worn coin of the acceptable value being treated as a spurious or non-acceptable coin and rejected by the selector in the same manner as a "slug."

In the drawings, the numeral 1 is used to designate a coin receiving box or casing of any desired type capable of sustaining the working mechanism of the selector, and which is primarily intended for direct attachment to the coin actuated machine for use in connection with which the present invention is designed. The said casing constitutes a housing for the hereinafter described calipering means, and the same is provided with a receiving slot 2 for the deposit therein of a coin or token, and a discharge opening 3 through which the rejected coin or token is ejected to the outside, and a discharge opening 4 through which the acceptable coin or token is delivered into a suitable runway leading to the interior of the casing for the retention of the said coin or token. These discharge openings are

formed in the lower portion of a horizontally disposed guide-way 5 formed within the casing, with the interior of which guide-way the coin or receiving runway 5' communicates. Within the said guide-way 5, works a pair of spaced or separated longitudinally movable calipering members, the outer one of which comprises a plurality of concentric plungers 6, 7 and 8, and the inner one a plurality of similar plungers 6', 7' and 8', the plunger 6 of the outer calipering member terminating in a cylindrical extension thumb piece 9, and the outer plunger 6' of the inner calipering member terminating in a cylindrical guide or trunk extension 10, the parts 9 and 10 being slidable within the guide-way 5, and held against rotation therein by means of the upper and lower guide pieces 10' and 11 carried respectively by said parts moving within suitable ways formed in the interior wall of the guide-way 5. The plurality of concentric plungers of the calipering members are held together respectively by means of the transverse rods 13 and 13' extended therethrough, although the inner two of the concentric plungers of each calipering member are independently movable for a limited distance, due to the diameter of the bore through which the said rods extend being somewhat greater than that of the bores through the outer plunger of each of the said members, Figs. 3, 4, 5 and 8 of the drawings.

To the outer side walls of the casing 1 are fulcrumed the upper and lower crank levers 14 and 14', the upper ones of which are connected at their inner ends by the tie rod 15, while the lower ones are connected to a cross supporting plate 15', which supports intermediate the said spaced levers 14' a vertical cylinder 16. Within this cylinder, which is filled with glycerin or other fluid, works a plunger 16', the stem 17 of which extends through the cylinder head 17' and is connected to the cross rod 15. The outer downwardly extended ends of the crank levers 14 are slotted and held to the outer calipering member by means of the rod 13, while the outer upwardly extended slotted ends of the crank levers 14' are held to the inner calipering member by means of the transverse rod 13'.

The side walls of the guide-way section 5 are cut away longitudinally and within such cut away portions work the outwardly swinging stop arms or pawls 18 and 18', which are hinged respectively to the supports 19 carried by the outer calipering member, and the fixed supports 19' located adjacent the rear end portion of the cylindrical extension of the inner calipering member. The stop arms or pawls 18 are acted on by the pressure actuated devices of the outer calipering member, while the stop arms or pawls 18' are acted on by the cor-

responding pressure actuated devices of the inner calipering member on the inward movement of the said members with an acceptable coin or token gripped between the faces thereof. The stop arms or pawls 18 and 18' are held normally inwardly pressed by means of the springs 20 and 20' secured to the side walls of the casing or housing 1, Fig. 1 of the drawings. The opposing pairs of hinged stop arms or pawls are so positioned relative to each other that their free ends bear against each other or about on the thumb piece 9 being forced inwardly a given distance, in case of a spurious or non-acceptable coin or token placed within the machine being received between the opposing faces of the calipering member and thus limits the inward movement of the said members, for the same cannot be forced inwardly their full distance until two of the said arms or pawls have been forced or swung outwardly to clear the ends of the opposing stop arms, Fig. 5 of the drawings. The projecting ends of the rods 13 and 13' work respectively within the slotted portion 21 of the said stop arms 18 and 18', so that the calipering members are free to reciprocate longitudinally without interference with the hinged stop arms.

Within the cylindrical extension of the plunger 6 of the outer calipering member two outwardly swinging levers 22 and 22' are hinged, the inclined faces of which work through slotted openings 23 in the wall of said cylindrical extension, while within the cylindrical extension 4 of the plunger 6' a similar pair of outwardly swinging levers 24 and 24' are hinged, the inclined faces of which levers project a slight distance beyond the sphere of the said cylindrical extension, Figs. 3, 4, and 5 of the drawings. The inner end of the levers 22 and 24' are forked to partly straddle the central plungers 8 and 8' respectively, Figs. 2 and 7 of the drawings, as the said plungers are forced within the cylindrical extensions 9 and 10, the said levers being acted on respectively by the plungers 7 and 7', while the levers 22' and 24 are operated respectively by the inward movement of the central plungers 8 and 8'. The mentioned levers operate through the medium of the adjustable plugs or pins 25 and 25' and 26 and 26' to swing outwardly the hinged stop arms or pawls 18 and 18' respectively, in accordance with the movement of the plungers of the calipering members.

The crank levers 14 and 14' are held together at their inner ends by the tension of the connecting springs 27, Figs. 1 and 2 of the drawings.

When the parts stand in normal position, Figs. 1, 2 and 3 of the drawings, the space 28' between the adjacent faces of the concentric plungers of the calipering members is

sufficient to permit of a coin or token of proper denomination and diameter to be dropped from within the runway 5' between the opposing faces of the calipering members, the said coin being supported therebetween by the bottom of the guide-way 5, the interior dimension of which guide-way and the diameter of the faces of the calipering members corresponding approximately to the diameter of the coin or token used.

The construction and arrangement of the plurality of concentric plungers of each calipering member is such that the two inner plungers of one of said members must be forced inwardly their full distance within the cylindrical extension of the outer plunger of the series of concentric plungers in order to swing the pair of hinged levers of such member to force outwardly the pair of stop arms or pawls associated therewith, so as to clear the path of the opposing stop arms or pawls to permit of the calipering members moving inwardly their full distance to position an acceptable coin or token over the innermost discharge slot 4 for the deposit of the same for retention with the machine on a separation of the calipering members. For this purpose, the size, position, and movement of each of the concentric plungers of each calipering member is so constructed and disposed relative to each other as to conform to the valleys or depressions and the upraises appearing on the faces of the coin or token of the required denomination for use within the machine, so that the concentric plungers will register and coact with opposing surfaces or faces of only such coins or tokens for which the calipering members are designed to co-operate, a refusal of action taking place when any other coin or token is employed or where a coin or token of the required denomination is so worn as to prevent the proper working of the concentric plungers of the opposing calipering members.

In operation, assuming a "slug" 27' to have been deposited within the receiving slot 2 and delivered by the coin runway between the opposing faces of the calipering members. The depositor thereof in accordance with instructions then pushes inwardly the cylindrical thumb piece extension 9 carrying therewith the outer calipering member until the "slug" or spurious coin or token is clamped between the opposing faces of the said members. Inasmuch as there is no proper registry between the faces of the deposited "slug" or spurious coin and the edges of the concentric plungers of the calipering members, the applied pressure on the cylindrical thumb piece extension 9 simply results in only carrying inwardly the outer calipering member and the token therewith until the shouldered portion α of the free ends of the stop arms

or pawls 18 bear against the free ends of the stop arms or pawls 18' of the opposing calipering member, Fig. 4 of the drawings, by which time the said inner calipering member will have been carried inwardly a slight distance, sufficient to uncover the discharge opening 3 and positioning the "slug" 27' thereover. During this movement of the calipering members the crank levers 14 and 14' will have been thrown inwardly, separating the inner arms thereof and raising the plunger 16' within the dash pot cylinder 16. By the time this position of the calipering members is reached and the "slug" positioned over the discharge slot 3, a dog 28 carried by a spring arm 28' and extended through an opening in the guide-way 5 moves into locked engagement with a notch 29 cut in the cylindrical extension 10 of the inner calipering member and holds the said member temporarily in such adjusted position. As the operator releases the pressure on the thumb piece 9, the tension of the springs 27 come into action and draw together the inner arms of the crank levers 14 and 14', the movement of which is retarded by the action of the plunger 16' within the dash pot cylinder 16, the outer arms of the levers 14 first acting to move outwardly and separate the outer calipering member from the inner calipering member to release the deposited rejected "slug" or spurious coin or token and permitting the same to discharge through the opening 3 of the outside of the machine, and then through the medium of a fulcrumed lever 30, connected to the crank levers 14 by an adjustable link 30', acting against the free end of the spring arm 28' and lifting the outer end thereof to raise the dog 28 and release the same from engagement with the notch 29, when the movement of the outer arms of the crank levers 14' act to force the said released calipering member to normal position, the retardation of the inner calipering member being sufficient to permit of the release of the clamped token. In case of a coin or token 31 of the required denomination and thickness being inserted within the machine and delivered into the space 26' between the opposing faces of the calipering members and pressure applied by the operator to the cylindrical thumb piece extension 9, the result will be that as the coin is clamped between the faces of the opposing calipering members the contact surfaces of the concentric plungers of the respective calipering members will register with the valleys or depressions and the upraises on the respective faces of the deposited coin, the upraised surfaces acting on the coin being clamped to force inwardly the inner concentric plungers, depending upon the positioning of the coin, say, 7 and 8 of the outer calipering member their full

distance, which results in the levers 22 and 22' acted on respectively by said plungers being swung outwardly their full distance, causing the inclined surfaces thereof to act against the pins 25 and 25' to swing outwardly the stop arm 18 to clear the ends of the hinged stop arms 18' for the opposing inner calipering member, Fig. 5 of the drawings; consequently, with a continuance of the applied pressure the calipering members with the clamped coin are moved inwardly their full distance, placing the coin 31 immediately over the discharge opening 4, when the dog 28 carried by the spring arm 28' moves into locked engagement with the notch 32 in the cylindrical extension 10 of the inner calipering member, the action of the crank levers 14 and 14' being the same as that previously described in connection with the deposited "slug" or spurious coin or token. On a release of the applied pressure the outer calipering member is first moved outwardly to release the clamped coin 31 and permit of its escape through the slot or opening 4 to the interior of the coin box or casing. The spring arm 28' is then raised by the previously described action of the fulcrumed lever 30, and the parts restored to normal position, the hinged stop arms 18 being restored to position by the applied pressure of the springs 20. In case the upraised surface of the deposited coin is presented to the face of the inner calipering member, then the concentric plungers 7' and 8' are forced inwardly for actuating the levers 24 and 24' to swing outwardly the stop arms 18' to clear the stop arms 18 of the outer calipering member, the device thus operating on an acceptable coin or token irrespective as to the positioning thereof within the coin receiving opening 2.

By the use of the present invention the electrical means illustrated, described and employed in connection with the device disclosed by United States Letters Patent No. 964,848 of July 19, 1910 are dispensed with, and the coin selector made purely mechanical as to its working parts, providing a more durable device than where electrical means are employed for controlling the acceptance and rejection of the deposited coins or tokens; in fact, the working parts of the selector are materially simplified over that disclosed in said United States Letters Patent, and a more perfect and positive device produced, one not liable to get out of order by reason of the rough usage to which devices of this character are subjected, as there are no wires or sensitive electrical connections to be taken care of.

It is obvious that changes or variations may be made in the construction of the associated cooperating parts without departing from the spirit of the described inven-

tion, the workings of which are controlled by an externally applied pressure causing the calipering members to throw into actuation the mechanically operated releasing means and to hold the same locked against movement in accordance as to whether the deposited coin or token is of such a character as to place the movable elements of the calipering members in register with the face surfaces thereof to such an extent as to cause an inward movement thereof on an applied pressure to place the stop means of one calipering member free of the stop means of the opposing calipering member.

Having thus described the invention what is claimed as new and desired to be protected by Letters Patent is—

1. In a coin selector, the combination with reciprocating opposing calipering members, of devices associated therewith for holding the same locked against movement, and pressure actuated means carried by the calipering members for controlling the release of the locking devices in accordance as to whether the coin or token deposited between said members is an acceptable or non-acceptable one, whereby coins or tokens of a given character gripped thereby may be accepted and coins or tokens of another character will be rejected.

2. A coin selector, the same comprising reciprocating opposing calipering members each consisting of a plurality of independently movable plungers, means for actuating said plungers under given conditions and pressure controlled devices actuated by said plungers whereby a coin or token of a given character gripped by the calipering members may be accepted and a coin or token of a different character will be rejected.

3. A coin selector, the same comprising a pair of reciprocating opposing calipering members, each consisting of a plurality of independently movable devices, means for positioning a token between the calipering members, and pressure actuated mechanism for controlling the movement of the calipering members whereby a coin or token of a given value, and dimension gripped between the said members will be accepted and a coin or token of a different character will be rejected.

4. A coin selector, the same comprising reciprocating opposing gripping means by which a coin may be gripped therebetween, pressure actuated devices carried thereby and thrown into action on a coin or token of a given character being gripped between the said means, stop devices for controlling the movement thereof in one direction, connections between the stop devices and the pressure actuated devices for moving the stop devices on the pressure devices being actuated by engagement with the surfaces

of an acceptable coin or token clamped by the gripping means, and mechanism for restoring the gripping means to normal position.

5 5. In a coin selector, the combination with a pair of opposing slidably mounted gripping members, means by which the said members may move in unison for a limited distance, and pressure controlled devices
10 actuated by an acceptable coin or token gripped between the said members by means of which the gripping members may move in unison for a greater distance.

6. In a coin selector, the combination with
15 opposed reciprocating spaced gripping members, stop means for limiting the inward movement within a confined distance on a non-acceptable coin or token delivered to the gripping members, and pressure actuated
20 means for releasing the stop means to permit of a full inward movement of the gripping means on an acceptable coin or token being delivered to and clamped by the said gripping means.

25 7. A coin selector provided with opposed reciprocating gripping means, the faces of each being composed of a plurality of independently movable members thrown into action on an acceptable coin or token being
30 delivered to and clamped between the gripping means.

8. A coin selector comprising opposing longitudinally movable spaced gripping members, lock devices for controlling the
35 movement of said members, and pressure means acted on by the gripping members for releasing the lock devices in accordance as to whether a coin or token delivered between and clamped by the gripping mem-
40 bers is of an acceptable or non-acceptable denomination and size.

9. In a coin selector for the described purpose, the combination with a pair of opposing spaced movable gripping members be-
45 tween which a token is deposited, each comprising a plurality of movable elements registerable with the contour or faces of an acceptable coin deposited between the said members, means for delivering a coin or
50 token between the gripping members, pressure actuated devices acted on by the movable elements of the gripping members for controlling the movement thereof to position the deposited coin or token for either an
55 acceptance or a rejection thereof, and means for actuating the calipering members.

10. In a coin selector, the combination of a suitable casing provided with a coin inlet and a plurality of outlets, a pair of
60 opposing calipering members slidable in the casing and normally spaced for receiving a coin therebetween, lock devices for controlling the inward movement of the calipering members, and pressure actuated devices car-

ried by the gripping members for actuating 65 the lock devices to free said members in accordance as to whether an acceptable or non-acceptable coin or token is gripped thereby.

11. In a coin selector, the combination with a suitable casing provided with an in- 70 let opening and a plurality of outlet openings, a pair of opposing calipering members slidable therein, said members being normally separated to receive a coin therebetween, lock means permitting said members 75 to move in unison for a given distance, and pressure actuated devices thrown in operation on the movement of said members with an acceptable coin gripped thereby for releasing the lock means to vary the distance 80 which said members may move in unison.

12. In a coin selector for the described purpose, opposing coin gripping members normally spaced to receive a coin therebetween, a slide-way in which said members 85 are slidable, lock devices for limiting the movement of the gripping members in unison on a non-acceptable coin or token being gripped thereby, and pressure operated devices controlled by the contour of the 90 gripped coin for actuating the lock devices to release the gripping member for permitting a greater movement in unison on an acceptable coin or token being gripped thereby.

13. In a coin selector, the combination 95 with a pair of opposing slidable gripping members comprising each a plurality of independently movable concentric plungers, lock devices for controlling the inward movement in unison of the gripping mem- 100 bers, and levers thrown into action by the movement of certain of the concentric plungers for releasing the lock devices to permit of a greater movement in unison of the gripping members on an acceptable coin 105 or token being grasped therebetween.

14. In a coin selector, the combination with a suitable casing provided with an inlet opening and a plurality of outlet openings, of a guide or slide-way therein, a pair 110 of opposing normally spaced gripping members slidable therein each comprising independent movable concentric plungers, lock devices controlling the inward movement of the gripping members in unison, levers carried by and pivotally connected with said 115 gripping members, said levers having one end adjacent to the movable plungers, to receive the contact thereof when said plungers are moved by the gripping of an acceptable 120 coin or token, whereby said levers are turned on their pivotal connections, the other ends of the levers being disposed to contact with the locking devices to release them to permit of a greater movement in unison of the 125 gripping members on an acceptable coin or token being gripped between the same, and spring held fluid controlled crank levers for

restoring the gripping members to normal position on the release of the gripped coin or token.

15. In a coin selector, the combination
5 with a suitable casing provided with an inlet opening and a plurality of outlet openings, of a guide or slide-way therein, inwardly and outwardly opposing normally spaced gripping members each comprising a
10 plurality of independently movable plungers slidable within said way, lock devices normally limiting the movement in unison of the gripping members, levers carried by and pivotally connected with said gripping members, said levers having one end adjacent to
15 the movable plungers, to receive the contact thereof when said plungers are moved by the gripping of an acceptable coin or token, whereby said levers are turned on their pivotal
20 connections, the other ends of the levers being disposed to contact with the locking devices to release them and permit of a greater movement in unison of the said gripping members on an acceptable coin or token being gripped between the same, devices for

locking the inner gripping member when moved inwardly, and means for restoring the gripping members to normal position.

16. In a coin selector, the combination
30 with a pair of opposing normally spaced slidable gripping members, lock devices carried thereby for limiting their movement in unison on a non-acceptable coin or token being gripped thereby, movable pressure actuated devices carried by each gripping member and acted on by an acceptable gripped
35 coin to release the lock devices and permit of a greater movement in unison of the gripping members, and means for operating the said members to release the gripped coin or
40 token and restore the same to normal position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERBERT A. BULLARD.

Witnesses:

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D. B. RICHARDS.