

Dec. 8, 1925.

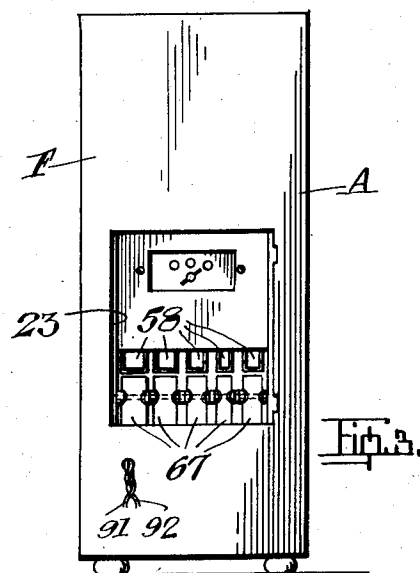
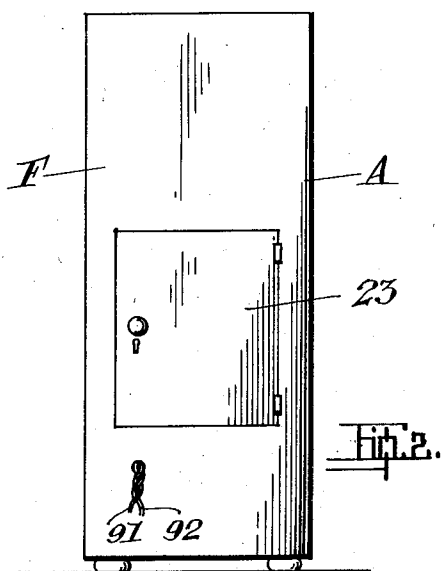
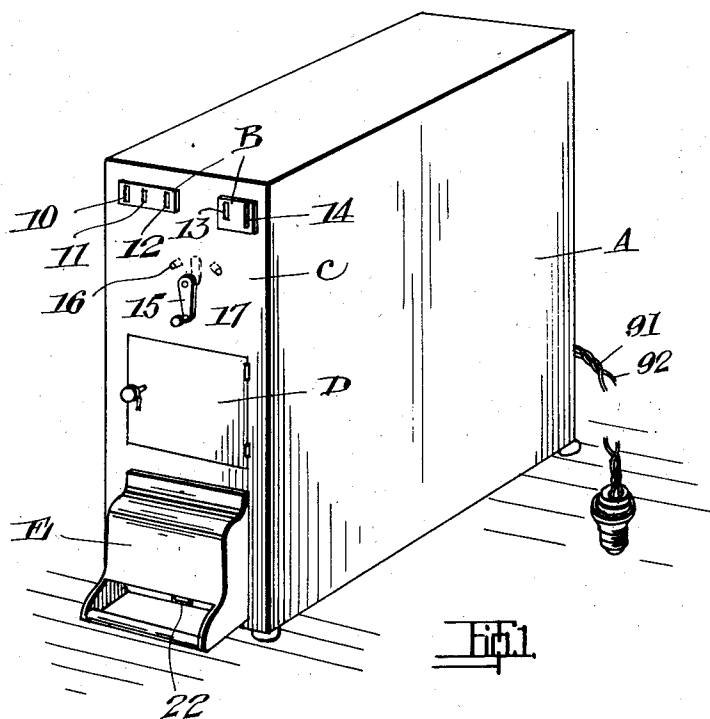
1,564,383

G. S. VARCOE

COIN CONTROLLED VENDING MACHINE

Filed July 14, 1923

7 Sheets-Sheet 1



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1,564,383

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COIN CONTROLLED VENDING MACHINE

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7 Sheets-Sheet 2

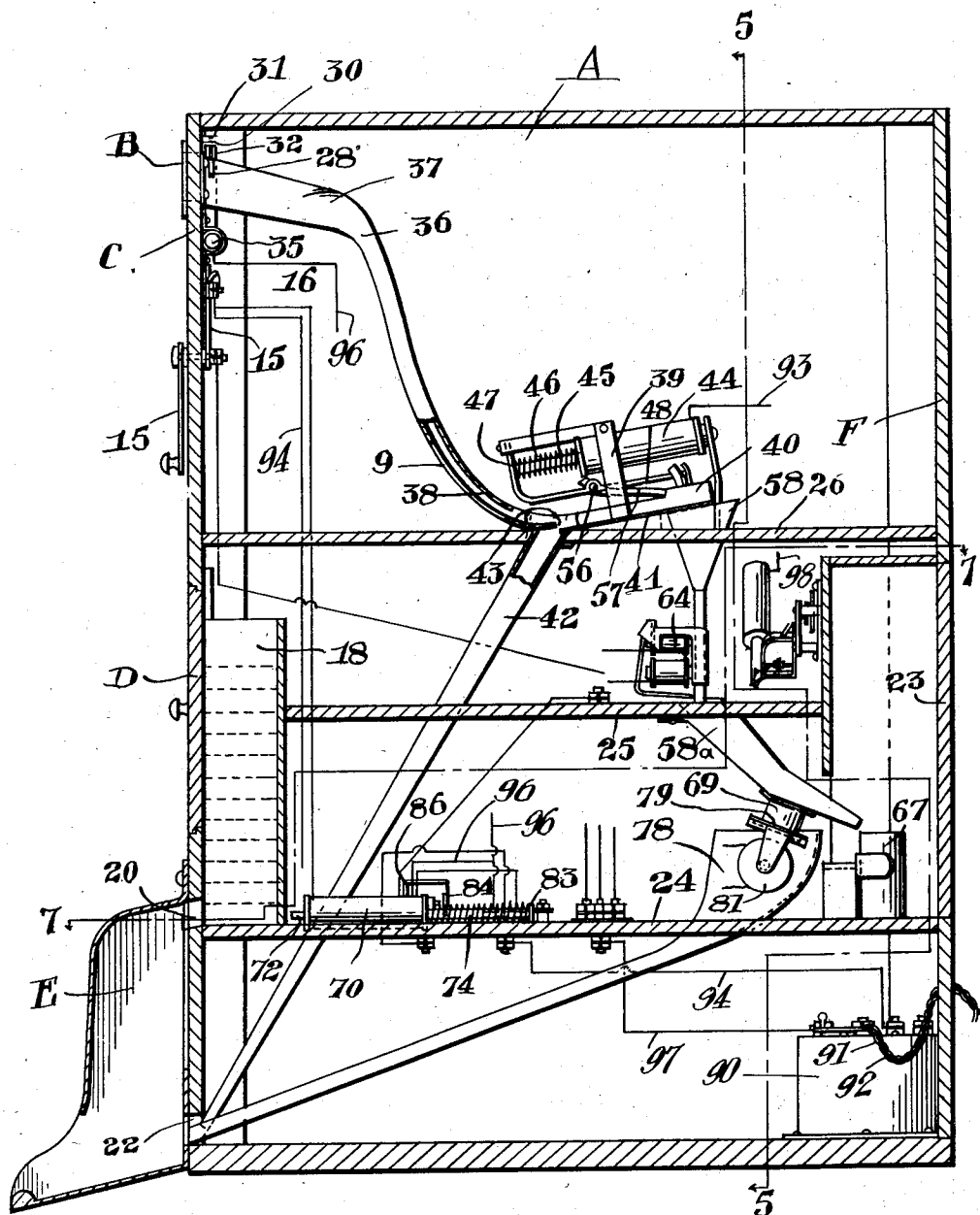


FIG. 4.

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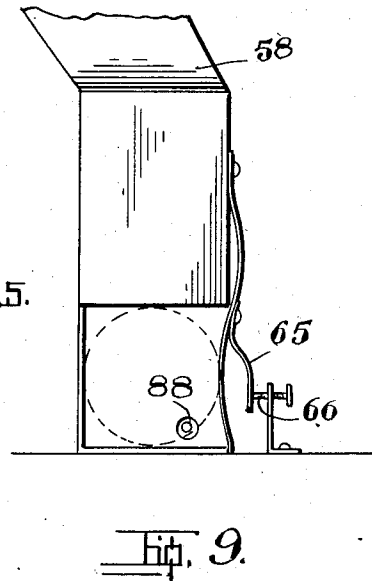
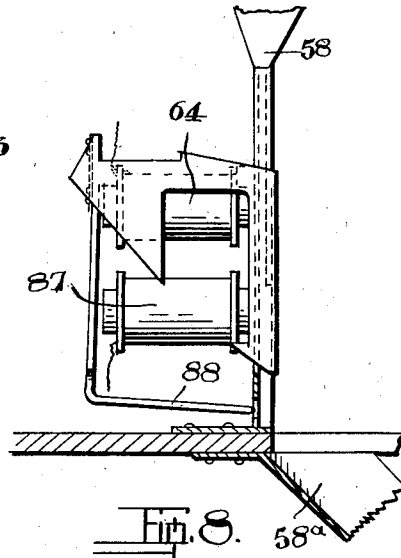
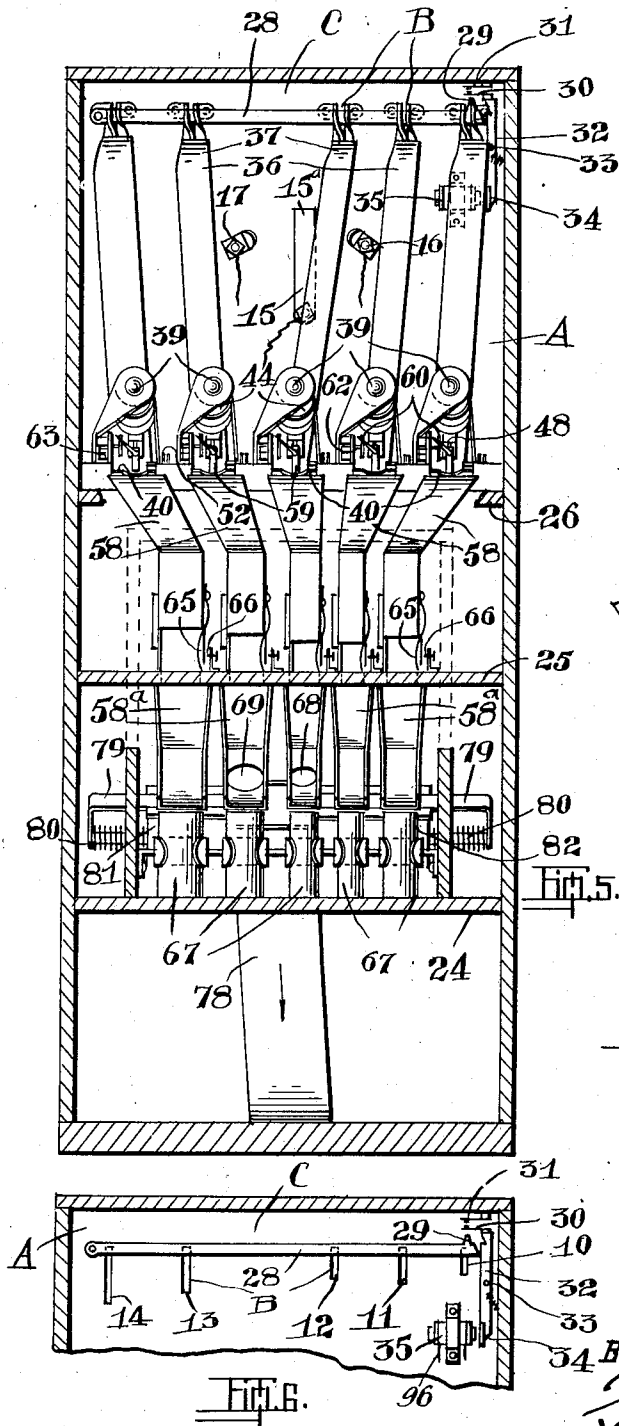
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COIN CONTROLLED VENDING MACHINE

Filed July 14, 1923

7 Sheets-Sheet 3



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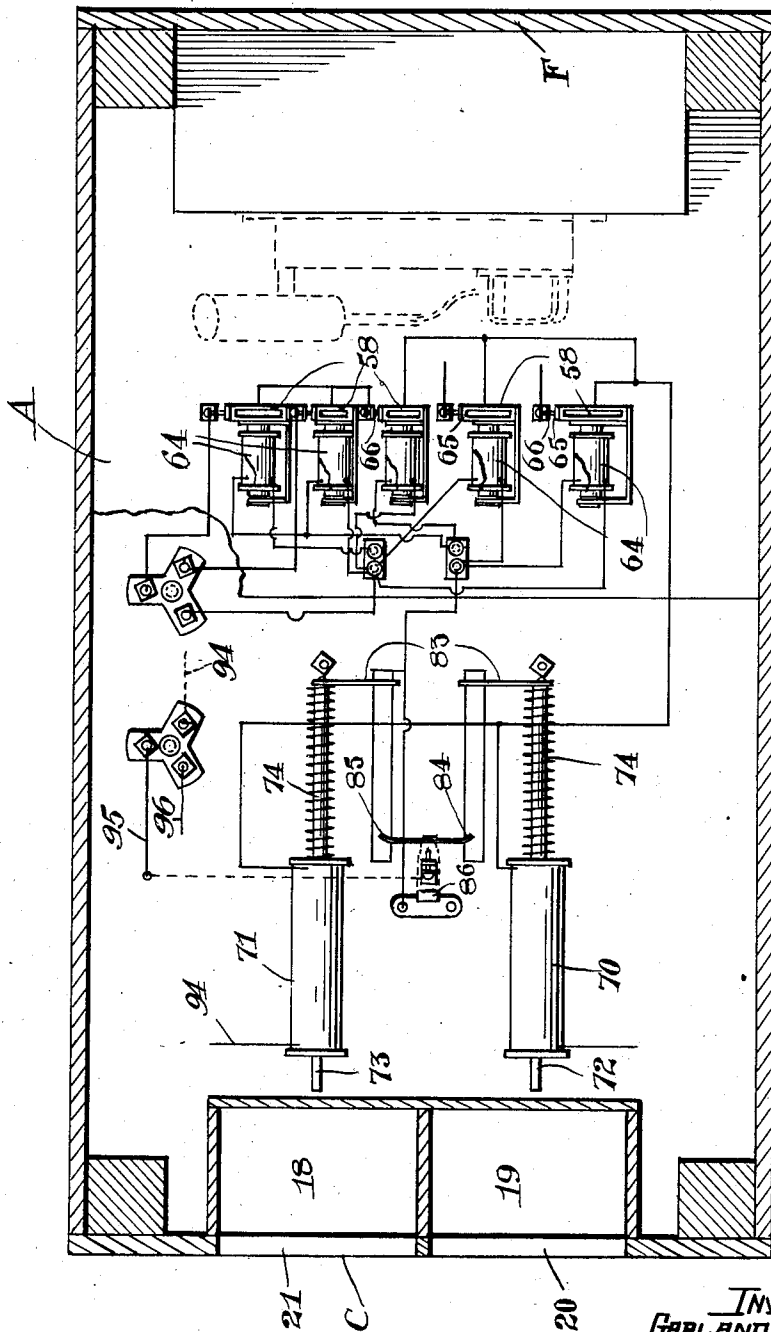
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COIN CONTROLLED VENDING MACHINE

Filed July 14, 1923

7 Sheets-Sheet 4



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G. S. VARCOE

COIN CONTROLLED VENDING MACHINE

Filed July 14, 1923

7 Sheets-Sheet 5

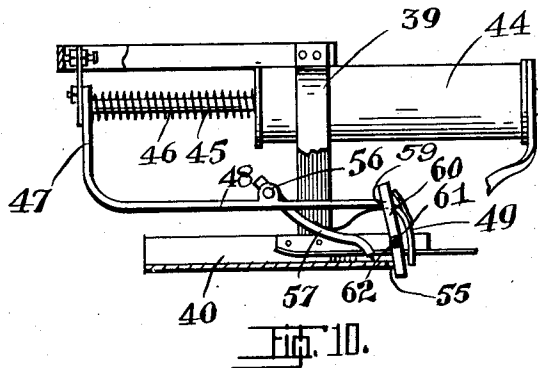


Fig. 10.

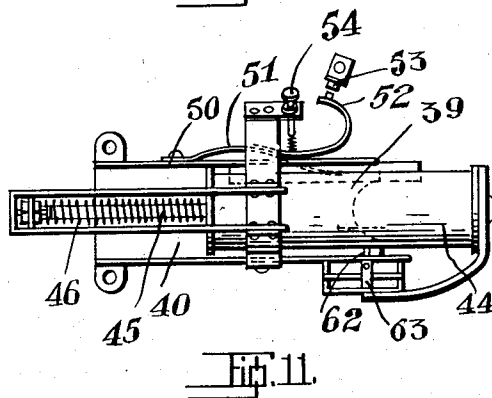


Fig. 11.

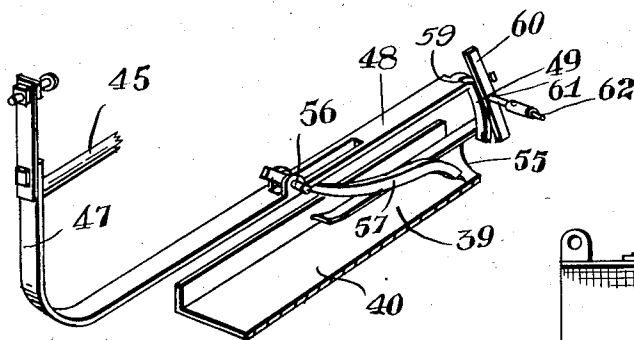


Fig. 12.

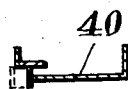


Fig. 14.

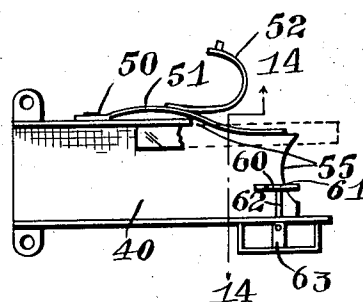


Fig. 13.

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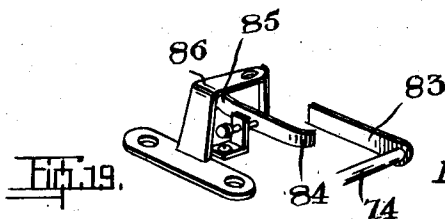
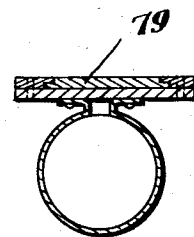
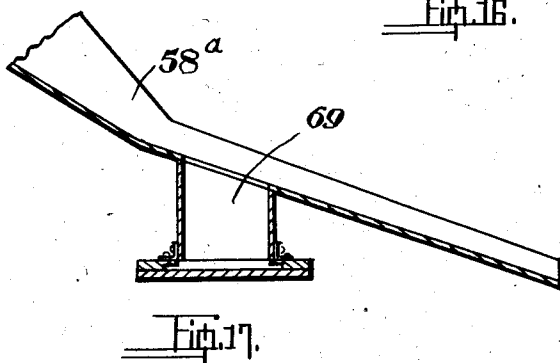
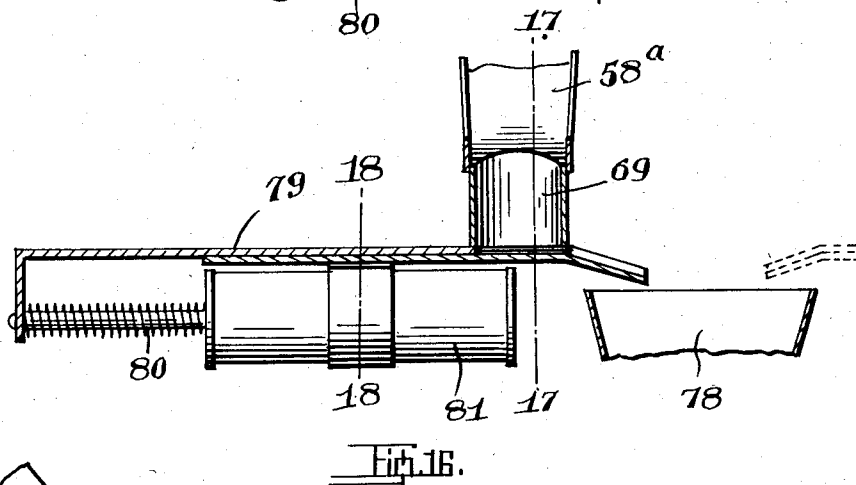
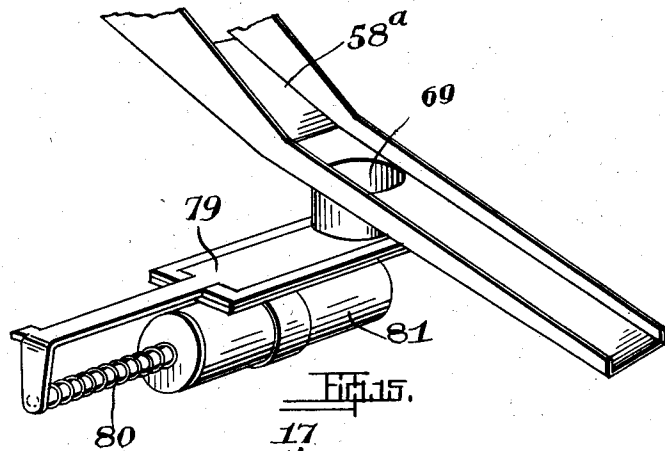
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COIN CONTROLLED VENDING MACHINE

Filed July 14, 1923

7 Sheets-Sheet 6



INVENTOR
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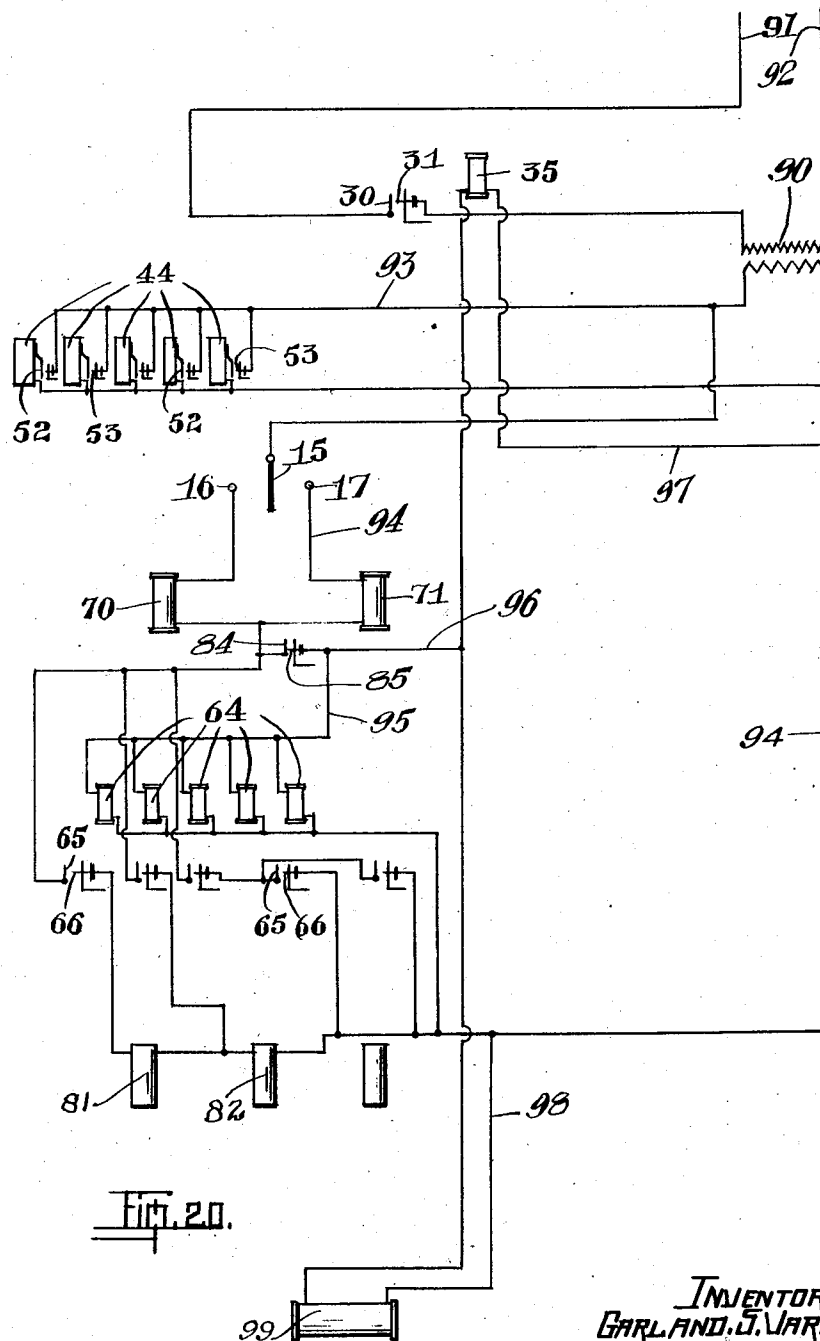
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COIN CONTROLLED VENDING MACHINE

Filed July 14, 1923

7 Sheets-Sheet 7



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Patented Dec. 8, 1925.

1,564,383

UNITED STATES PATENT OFFICE.

GARLAND SLATER VARCOE, OF FENELON FALLS, ONTARIO, CANADA.

COIN-CONTROLLED VENDING MACHINE.

Application filed July 14, 1923. Serial No. 651,514.

To all whom it may concern:

Be it known that I, GARLAND SLATER VARCOE, a subject of the King of Great Britain, and resident of the town of Fenelon Falls, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Coin-Controlled Vending Machines, of which the following is a specification.

19 This invention relates to improvements in coin-controlled vending machines, which are designed to be operated or released upon the insertion of a coin or the like of predetermined value corresponding to or greater than the amount required to be paid.

15 The objects of this invention are to provide a machine of this character particularly adapted for use for the sale of specific articles at a predetermined price and also adapted for use in places of amusement for the sale of tickets or the like at a predetermined price and in general designed to provide automatic, efficient and convenient means for selling articles in which the amount received is automatically accounted for and retained, and further a machine in which, where more than the predetermined amount is deposited therein, the difference will be returned as change with the article sold.

30 Still further objects are the provision of a vending machine of this kind formed with different compartments in which to store or house different articles.

35 Yet another and essential object of my improved vending machine is the provision therein of means whereby only bona fide coins are allowed to pass through the machine, anything in the way of a mutilated coin, slug or otherwise after insertion being immediately directed into the discharge chute and returned.

40 Still further objects are to provide a coin-controlled and electrically-operated vending machine of comparatively few parts, which can be economically manufactured, and in which the several parts are so arranged as to more satisfactorily perform the various functions required of them, and further constitute a compact machine of light build that can be easily transported and set up where required.

50 With these and other objects in view, the invention consists essentially in the novel construction and arrangement of parts de-

scribed in the present specification and illustrated by the accompanying drawings that form part of the same, in connection with which it is to be clearly understood that one embodiment only of my invention is here described and shown, which is, therefore, not to be interpreted in a limited sense.

Referring now to the drawings, in which like characters of reference indicate corresponding parts in each figure.

60 Figure 1 is a perspective view of an embodiment of my machine as a whole.

Figure 2 is a rear view.

Figure 3 is a similar view to Figure 2, with the door removed.

70 Figure 4 is a longitudinal section of the machine.

Figure 5 is an enlarged section on line 5—5 on Figure 4.

Figure 6 is a detail of the slot bar mechanism.

Figure 7 is an enlarged section on line 7—7 Figure 4.

Figure 8 is a detail of the electromagnet operating mechanism to divert coin into discharge chute.

Figure 9 is a front elevation of Figure 8.

Figure 10 is a side elevation of the slug detector.

Figure 11 is a top plan view of the detector.

Figure 12 is a perspective detail of coin-propelling and slug-discharging elements in the detector.

Figure 13 is a plan view of the channel portion of the detector.

Figure 14 is a section on line 14—14 of Fig. 13.

Figure 15 is a perspective detail of the change-giving mechanism.

Figure 16 is a side elevation of Figure 15.

Figure 17 is a section on line 17—17 Fig. 16.

Figure 18 is a section on line 18—18 Fig. 16.

Figure 19 is a perspective detail of the circuit regulator for the ejector solenoid.

Figure 20 is a diagrammatic view of the wiring.

105 In the drawings, the example of the machine illustrated is adapted to sell articles at a predetermined price of fifteen cents, also to return change and to discard mutilated coins, slugs or the like, and is constructed of any suitable material, compris-

110

ing a suitable casing A having a series of coin slots B in the top of the front C.

These slots, as shown in Figure 1, are arranged in a series of three on one side spaced from a series of two on the other side, and are designated by the numerals 10, 11 and 12 to the series of three and 13 and 14 to the series of two, 10 being for the ordinary five-cent coin, 11 for the new Canadian five-cent piece, and 12 for a ten-cent piece, while 13 and 14 are designed to receive twenty-five and fifty-cent pieces, respectively. It should here be noted that each chute is made of different dimensions to fit a coin to be inserted through the slot with which the chute is connected, and further that each chute is formed with a slot or opening 9 in the bottom, whereby a coin smaller than that for which the chute is designed will fall therethrough. In other words, these slots are designed to prevent the machine being tampered with or improperly used.

15 is a switch lever adapted, when the machine is connected up to the source of electric energy, to move to the right or left to operate a double point switch 15^a to contact with stops 16 and 17 according to the article required to be purchased.

D is a door communicating with compartments 18 and 19 within the casing and in which are stored different articles to be sold. Below this door on the front of the machine is mounted an arrester E communicating with the compartments 18 and 19 through openings 20 and 21 in the casing, whereby the articles sold are discharged into the arrester, while 22 is a third opening in the casing beneath compartments 18 and 19 designed for change to be discharged into the arrester E.

The arrester E is adapted to hold the article and change after they have been ejected from the inner part of the machine, and it also prevents anyone, by protecting the apertures where the articles come out, from obtaining them without first having placed a coin in the slots.

The end F of the casing is also provided with a door 23 communicating with a compartment formed within the casing in which are arranged detachable coin-tubes, as shown in Figure 3, and hereinafter more fully described.

Within the casing proper are arranged supporting partitions 24 and 25 and 26, adapted to support the operating mechanism.

28 is a suitable bar extending transversely of the casing on the inside across the top of the slots, hingedly mounted on one end and provided at the other end with a fibre block 29 designed in operation to press together the contacts 30 and 31, whereby the primary circuit as illustrated in Figure 20, is complete. This bar is adapted to extend slightly

beyond the fibre block 29 to engage with a notched member 32 pivotally mounted at 33 and adapted to contact at 34 with energizing means in the form of an electromagnet 35 (see Figure 6).

In operation, the switch lever having been set to contact with one of the stops 16 and 17 and when a coin is placed in any of the slots it will cause the bar 28 to rise, thereby, through the block 29, pressing the contacts 30 and 31 together to complete the primary circuit. At the same time, the end of the bar engages the armature or notched member 32 to hold the bar in position. This bar is released when the armature 32 is subsequently attracted by the energizing of electromagnet 35 which is designed to open the primary circuit.

Suitably connected to the series of slots are a plurality of coin chutes 36 suitably bent at 37 and 38 and communicating at their lower ends with oppositely sloped and suitably mounted slug detectors 39.

A feature that should be noted with regard to these chutes and the slug detectors is the way they are bent and sloped, respectively, to provide substantially a switch-back formation for the travel of the coin, which enables, the slug to be returned to the discharge chute.

Referring now more particularly to the detectors 39, including mechanism for the detection and discharge of improper coins as well as mechanism for the delivery of the correct coin to its next chute and, as illustrated, in Figures 10, 11 and 12, this mechanism comprises a channel member 40 fixedly secured at 41 in the casing and designed to slope upwardly from the inner end where it is connected with the lower end of the coin chute 36 so that any but a bona fide coin will be readily returned to the discharge chute 42 connected also to the inner end of the channel member 40 in such a way as to provide a space 43 between it and the coin delivery chute 36.

Adjacent the channel member 40 is a solenoid 44 provided with an armature 45, spring actuated by means of a coil spring 46 wound thereon and connected at its inner end to an arm 47 in turn connected to a longitudinally extending rod member 48 parallel with and above the channel member 40. This rod at its outer end is suitably and downwardly bent at 49 while the channel member has fixedly mounted at 50 the compression spring 51 branched at its other end to form the contact points 52 and 53 and provided adjacent these points with an adjusting screw member 54.

In connection with these contact points, it will be noted that the bottom and side of the channel member is partially cut away at 55 so that the coin when it reaches this portion instead of contacting with the side

thereof will contact with the compression spring 51 to press against it, and, as above mentioned, cause the contact points 52 and 53 to touch, with the result, also above stated, that a circuit is completed and the solenoid 44 energized to attract the armature.

In combination with this mechanism, there is pivotally mounted substantially midway of its length on the rod 48 at 56 a suitably bent and pointed catch member 57 which is designed to engage with the rim of the coin and to move it forwardly until the coin reaches the outer end of the channel member, there to drop into the coin chute 58.

The foregoing mechanism is designed particularly to deal with the ordinary and bona fide coin. If on the other hand, a slug has been inserted in the machine, the member 57 does not engage with it but passes over the rim of the slug which remains in the channel member 40 until a projection 59 on the rod 48 strikes an arm member 60 pivotally and centrally mounted at 61 adjacent the outer end of the channel member on a spindle 62 suitably supported on a bracket 63 and designed to swing thereon. This causes the end of the arm member 60 to strike the slug, moving it backwardly through the opening 43 into the discharge chute 42.

From the foregoing, it will be seen that on solenoid 44 being energized, the armature will shoot inwardly and then automatically outwardly, operating, as already described, the mechanism to further the travel of a coin and to discharge a slug.

We have now reached the stage in the operation and description of this machine where the coin has travelled through the slot and reached and cleared the slug detecting mechanism, during which travel a primary circuit is closed by the insertion of a coin in the slot, and a secondary circuit is also closed automatically by the coin in its travel exerting pressure through a compression spring to close contact points 52 and 53. There is a slug ejecting apparatus, it may be mentioned, adapted for use in combination with each slot.

From the foregoing it will be seen that the essential features in the operation and construction so far described are the slug detectors in combination with the chutes connected directly to the coin slots, in which chutes the coin on being inserted, automatically through contact with operatively mounted bar means, closes a primary circuit, and then travels by gravity down the chute and upwardly into the oppositely sloping channel shaped portion of the detector, and automatically to contact with the compression spring to close a secondary circuit, whereby the solenoid connected to the detector is energized and the detector mechanism automatically and momentarily oper-

ated to impel a coin on its way, or in the case of a slug, to discharge it.

A further essential detail of the above construction is the mechanism whereby a circuit is closed automatically by momentary contact with a coin in its travel. This construction is applied, as will be noted hereinafter, generally to the coin chutes, in combination, as in the case of the detectors with solenoids. The coin, as above mentioned, having passed through the detector mechanism, the secondary circuit is automatically opened, the coin at the same time continuing on its travel into the chutes 58.

Referring now more particularly to these chutes 58, they are designed to communicate with the detectors 39, and are, as here shown, vertically arranged, each being provided with an electromagnet 64. These chutes are also formed substantially the same as the member 40, in that they are cut out at their lower ends and there provided with spring actuated means adapted to be operated by the coin passing therethrough to cause contact points 65 and 66 to touch and to close circuits individually, hereinafter more fully described.

These vertical chutes 58 communicate in turn individually with discharge chutes 58^a leading to a series of interchangeable coin tubes 67, as illustrated in Figure 5, the construction of the vertical chutes 58 being more particularly illustrated in Figures 8 and 9.

It will thus be seen that when coins of the value corresponding to the total of the selling price of the article to be disposed of, as in this case fifteen cents, pass through the chutes 58, they will in their travel in the different chutes 58 cause contact points 65 and 66 to touch, to close a third circuit, whereby goods ejector mechanism is energized to discharge the article purchased, the coins at the same time travelling into the interchangeable coin tubes 67 through the discharge chutes 58^a, as illustrated in Figure 5. On coins of a denomination greater than fifteen cents, namely fifty cents and twenty-five cents, reaching the chutes 58 communicating with the slot and discharge chutes for these denominations, contact points 65 and 66 automatically close the third circuit also energizing the goods ejector mechanism and, in addition, mechanism for returning change, in the case of fifty cents, thirty-five cents, by connecting in series solenoids 81 and 82 and in the case of twenty-five cents, ten cents change, by energizing only solenoid 82 the fifty-cent coin passing directly to the fifty-cent tube, and the twenty-five cent coin to the twenty-five cent tube, or the storage well therefor, by means of the discharge tubes 58^a.

With regard to these coin discharge chutes 58^a, leading to the detachable tubes 67, the ten-cent discharge chute is provided with a

storage well 68, substantially made out of its length. This well is adapted to hold a number of ten-cent pieces for returning change, as hereinafter more fully described, while a well 69 similar to the well 68 is also provided in the twenty-five cent coin discharge chute. The fifty-cent and five-cent discharge chutes communicate directly, without any storage well interruptions, with the fifty-cent and five-cent container tubes.

Leaving the matter of change for the moment on one side, we will now deal with the means, in combination with the mechanism already described, for ejecting the articles purchased. This consists of a pair of ejector solenoids 70 and 71 suitably supported in the casing and provided with rods 72 and 73 of nonmagnetic material fastened to an armature 74 and designed to eject one at a time through the openings 20 or 21 in the compartments 18 and 19 the article purchased into the arrester E.

Either of these solenoids are energized on a coin or coins amounting to fifteen cents or over momentarily reaching the lower ends of the vertical chute 58, there operating the compression spring to in turn operate the contact points 65 and 66 to close, as above mentioned, the different circuits.

Referring now more particularly to the giving of change and the means whereby this is carried out, the coin wells 68 and 69 are provided at their lower ends with discharge chutes leading into a main discharge chute 78, in turn discharging through the aperture 22 in the casing, into the arrester E.

The operating mechanism for the wells consists of plates 79 mounted on the armatures 80 of a pair of oppositely disposed solenoids 81 and 82, designed to be energized when the coin or coins for which change is required pass through the vertically arranged chutes 58. These plates 79, on the solenoid being energized, are adapted to move inwardly to contact with the lowest of the coins in the wells 68 and 69 to shove them into the discharge chute 78.

In other words, when change is required, the ejector solenoids 70 and 71 as well as these change operating solenoids 81 and 82 are energized.

As an example, on a fifty-cent piece being inserted and travelling, as already described, through the upper portion of the machine, including the detector 39, and on reaching, in its particular chute, the vertical chute communicating therewith, it will, on lodging in the bottom, compress the spring causing the contact points adjacent thereto to touch, as shown in Figures 8 and 9, thereby completing, in this case, circuit No. 3, Figure 20, energizing the solenoids 81 and 82, and also either of the solenoids 70 and 71.

Figures 15 and 16 illustrate more particularly the change returning mechanism oper-

ated by solenoid 81 for returning the twenty-five cent piece simultaneously with the travel of the fifty-cent piece through its own discharge chute into the fifty-cent container, while solenoid 82, similarly constructed, operates mechanism to return a ten-cent coin in change. This mechanism, as already described, comprises an arm mounted on the armature of the solenoid 81 and designed, when the solenoid is energized, to move inwardly to contact with one of the twenty-five cent pieces in the well 69 and eject it into the discharge chute and from thence into the main discharge. The ten-cent tube acts exactly the same, and thus out of fifty cents the thirty-five cents is returned as change, while simultaneously with the change giving operation either of the solenoids 70 and 71 is operated to eject the article purchased.

To impel the coin on its travel after contacting, as above described, with the compression spring in the vertical chute 58, the arm 83 of the plunger 74 of the solenoid 71 moves inwardly pressing together contact points 84 and 85 of part 86, completing another electric circuit. The completion of this circuit, energizes the electromagnets 64 (see Figure 7) attracting armature 87 to cause the arm 88 to strike the coin in the chute 58, knocking it into the discharge tubes 58^a (see Figure 8).

Simultaneously with the closing of circuit No. 5, a circuit No. 6 is also closed to energize the electromagnet 35, as already described, attracting the armature 32 and thereby releasing the slot bar and thus opening the primary circuit.

A further circuit No. 7 is also closed, which is designed to operate the adding mechanism. This mechanism, however, is not shown in the present application as it constitutes new patentable matter for another application.

In further explanation of the operation of my improved vending machine as here arranged for articles at fifteen cents, and assuming in the first instance that the purchaser has not the correct amount but has fifty cents, this coin is inserted in the slot 14 and travels by gravity, as already described, operating the bar 28 to in turn complete the primary circuit or circuit No. 1 by bringing the contact points 30 and 31 together.

The coin now proceeds on its way through the chute 36 into the channel member 40, where it momentarily, by means already described, causes the contact points 52 and 53 to touch, thereby completing a secondary circuit and energizing the solenoids 44 whereby the coin is impelled on its way into the vertical coin chute 58, here causing the contact points 65 and 66 of the third circuit to meet, thereby energizing either

of the ejector solenoids 70 and 71 according as the double switch 15^a is set and at the same time energizing both change-giving mechanism solenoids 81 and 82 to cause
 5 a twenty-five cent piece to be ejected into the discharge chute from the twenty-five cent well and at the same time a ten-cent piece from the ten-cent well, the article bought and the change being delivered practically simultaneously to the arrester E.

From the wiring diagram in Figure 20 it will be seen that a twenty-five cent piece will complete circuit 4, closing the contact points 65 and 66 in which only the ten-cent
 15 change-giving mechanism is connected in series with the ejector solenoids, thereby only returning a ten-cent piece in change.

Referring now to Figure 20, on a coin of ten or fifteen cent denomination being inserted, a primary circuit is closed automatically by the touching of the contact points 30 and 31. This primary circuit includes the leads 91 and 92 from the source of power to a transformer 90, lead 91 being
 20 interrupted by the contact points above referred to, 30 and 31.

On the coin, as above mentioned, reaching one of the detectors 39, into which it is shot by gravity, it momentarily closes a
 30 secondary circuit comprising a lead and return 93 to transformer 90, interrupted by the contact points 52 and 53 on the closing of which the solenoids 44 are energized to propel the coin on its way or to discharge a slug.

Dealing now with a third circuit, and assuming the double switch 15 to be in contact with the point 17, to operate the solenoid 71 for the ejector mechanism, this circuit
 40 comprises lead and return 94 from the transformer 90, and interrupted by the double switch 15, and then by contact points 65 and 66 for coins of fifty-cent denomination, and whereby on this circuit being closed, solenoid 71 is energized to operate the ejector mechanism and also solenoids 81 and 82 for the change-giving mechanism.

Circuit No. 4 comprises the same lead and return 94 to the transformer with, however, different contact points interrupting for
 50 twenty-five cent coins, which, on contacting, close circuit No. 4 to operate solenoids 71 and 81 simultaneously, also as the armature of solenoid 71 moves, circuit No. 5 is closed by the contact points 84 and 85 touching. This circuit No. 5 comprises lead 95 from the transformer through 94 and contacts 84 and 85, to electromagnets 64 energized (when this circuit is closed), and then
 55 through return lead 94 back to transformer.

The energizing of the electromagnets 64 also closes a sixth circuit, comprising lead 96, electromagnet 85, and return 97 to transformer 90 through lead 94, whereby
 60 the slot bar is released.

Simultaneously with the closing of circuit No. 6, a circuit No. 7 is also closed, comprised of lead 96 and return 98, to return 94 to transformer and which, being closed, is designed to operate a solenoid 99
 70 for adding mechanism, as shown.

On a coin of ten or five cent denomination reaching the third circuit, as above described, the contact points 65 and 66 are closed, thereby closing a circuit comprising
 75 lead 94 interrupted by contact points 65 and 66 and return 94 to transformer, which energizes the ejector solenoid 71 only.

In further operation, it should be noted, with regard to the storage wells and the giving of change, that before the machine is set
 80 up these wells can be filled with twenty-five and ten-cent pieces, respectively, when in each case the twenty-five and ten-cent pieces inserted in the machine and subsequently in their travel will pass over the wells, the
 85 coins therein being on a level with the surface of the chute. If, however, no coins are placed in the wells before the machine is set up, these coins as inserted will be deposited
 90 in the wells until they are full and so on.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention, within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings, shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:

1. A vending machine comprising, in combination, a plurality of suitably bent coin chutes, slots communicating with said chutes and adapted to receive coins, a plurality of
 105 detectors for said chutes and means in combination with the coin slots operable on the insertion of a coin whereby a primary circuit is closed to automatically operate the detectors and means operated by the coin in
 110 its travel for automatically opening said circuit after the coin has passed through the detectors, a plurality of coin containers in the bottom of the casing and a plurality of coin discharge chutes adapted to convey
 115 the coins to said containers, a plurality of vertically-arranged coin chutes connecting the first-mentioned chutes with the discharge chutes, compartments in the casing adapted to hold the articles to be purchased, ejectors
 120 for said compartments and means carried by said vertical chutes and automatically operated by a coin passing therethrough to close an electric circuit to operate said ejectors, change-giving means connected to the
 125 discharge chutes and adapted on certain coins passing through said vertical chutes to be operated simultaneously with said ejector means to return change, electromagnetic means in combination with said
 130

vertical chutes whereby the coin is discharged into the discharge chutes, a change discharge chute, and an arrester carried by the casing communicating with said discharge chute.

2. A vending machine of the character described comprising, in combination, a suitable casing having coin slots therein adapted to receive coins of different denominations, merchandise compartments in the casing and an arrester carried by the casing and communicating with said compartments, a plurality of fee tubes adapted to receive coins of different denominations, coin discharge chutes communicating with said fee tubes and storage means in said chutes for coins of certain denominations and a change discharge chute communicating with said storage means and with the arrester to deliver change into the latter, a plurality of coin chutes connected to said slots at one end and communicating at the other end with said discharge chutes, means intermediate of said slots and said discharge chutes for controlling the travel of the coin and means adapted to be automatically engaged by the coin to close one at a time a plurality of electric circuits to operate change giving mechanism to said storage chutes; ejector mechanism for the merchandise compartments and means for operating said mechanism simultaneously or individually,

3. A vending machine of the character described comprising, in combination, a suitable casing having slots therein adapted to receive coins of different denominations, having openings therein to drop coins of smaller denominations than the chutes, a plurality of coin chutes connected to said slots whereby the coins travel therein by gravity, a plurality of slug detectors communicating with the lower ends of said chutes, operatively mounted and partially closing means across said slots adapted to be raised by the insertion of a coin to close an electric circuit and energize the detector mechanism to impel the coin on its way or discharge a slug, compartments in the casing and ejector mechanism for said compartments, a plurality of coin fee tubes in the casing and change discharge means for said tubes, a plurality of coin discharge chutes for the tubes and a plurality of coin chutes connecting the detectors and said tubes and means carried by the latter automatically operated by the coin in its travel to close electric circuits to energize the ejector mechanism and the coin discharge mechanism simultaneously; automatically operable electric means for opening said circuit and the primary circuit.

4. A vending machine of the character described comprising in combination a suitable casing having merchandise compartments therein and provided with an arrester

communicating with said compartments, a plurality of coin fee tubes in said casing and a plurality of coin discharge chutes communicating with said fee tubes; coin storage means in said discharge chutes and electrically operated means for said storage means and means in combination with the storage means to discharge change into the arrester, ejector mechanism comprising solenoids provided with spring actuated armatures operatively connected to rod means adapted on the solenoids being energized to eject the article purchased from said compartments, a plurality of coin chutes for said slots, detector means for said chutes and means automatically operated by the insertion of a coin in the slots for closing a circuit to operate said detectors, a plurality of coin chutes connecting the detectors and the coin discharge chutes and means in said chutes automatically operated by the coin in its travel for closing an electric circuit to energize said ejector and change discharge mechanism.

5. In a machine of the character described, the combination with a suitable casing having slots therein adapted to receive coins of different denominations and a plurality of coin chutes connected to said slots, a plurality of coin fee tubes for said chutes, detector means intermediate of said chutes and communicating therewith and comprising a channel member, a solenoid adjacent said member provided with a spring actuated armature, a rod connected to said armature and means on the rod adapted to contact with and forwardly impel a coin in said casing on the solenoid being energized, a slug discharge chute for said casing member and means carried by the casing member in combination with a lug on said rod adapted to kick a slug backwards into said discharge chute; coin chutes communicating with said detectors and provided with spring actuated means adapted to close an electric circuit on contact with a coin travelling therethrough, means for ejecting merchandise from said compartments and means for returning change in combination with storage means carried by the coin chutes.

6. A vending machine of the character described comprising, in combination, a casing with coin slots designed to receive coins of different denominations, a plurality of coin receptacles within the casing, merchandise compartments within the casing, an arrester carried by the casing and communicating with said compartments, a change discharge chute communicating with the arrester, a plurality of coin chutes for said slots, a plurality of detectors communicating with said chutes and adjustable contact means across said slots whereby on a coin being inserted a primary circuit is closed, means carried by the detectors and automatically operable by contact with the coin for closing a second

circuit whereby the coin is impelled on its way and a slug ejected, a second series of coin chutes provided with means automatically operable by a coin to close a third circuit, ejector means connected with said compartments designed to be electrically operated on the closing of the third circuit and double switch means for controlling the operation of said ejectors, coin discharge chutes communicating with said second series of coin chutes and provided with coin storage means communicating with a change discharge chute, change-giving mechanism in combination with said storage means electrically operable on the closing of said third circuit simultaneously with the ejector means, and spring actuated means whereby coins of different denominations automatically close different circuits and means carried by the ejector mechanism in combination with contact points for automatically energizing electromagnets carried on the coin chutes to propel the coin on its way.

7. A vending machine of the character described comprising, in combination, a casing with coin slots therein designed to receive coins of different denominations, a plurality of coin receiving tubes in the casing and a plurality of coin chutes connecting said slots and said coin tubes, storage means for coins of certain denominations in said tubes and coin operable electric means in combination with a change discharge chute connected to said arrester for returning change and comprising a solenoid with a spring actuated armature designed on the solenoid being energized to eject from the bottom coin in the storage chutes and means connecting said storage means with the coin discharge chute whereby on the coin being ejected it is delivered to the coin discharge chute and into said arrester.

8. A vending machine of the character described comprising, in combination, a casing having slots therein designed to receive coins of different denominations, a plurality of coin tubes in the casing, merchandise storage compartments within the casing and arrester means carried by the casing and communicating with said compartments and with the coin tubes, a plurality of coin chutes connected to said slots and pivotally mounted bar means in combination with a coin inserted in said slots for closing a primary circuit, a plurality of coin detectors communicating with said coin chutes and arranged at an opposite slope to said chutes, a slug discharge chute connected to said detectors and means adapted to be automatically operated by a slug in its travel to close a second electric circuit to operate ejecting mechanism for said slug, a plurality of coin chutes communicating with said detectors and with the coin tubes and spring actuated means adapted on contact with the coin in

its travel to close a third circuit to eject the merchandise and to return change simultaneously.

9. In a vending machine of the character described and in combination with a suitable casing having coin slots therein adapted to receive coins of different denominations and provided with merchandise holding means and change-giving means and means for ejecting the merchandise carried in the casing and means for receiving the change and merchandise when ejected, a plurality of coin chutes connected to said slots and communicating through a series of coin detectors and with coin receiving tubes, electrically operated change-giving mechanism in combination with storage means carried in said chutes.

10. A vending machine of the character described and in combination with a suitable casing having a plurality of slots therein adapted to receive coins of different denominations and provided with merchandise-carrying compartments, an arrester communicating with said compartments and through a change discharge chute with a plurality of coin tubes, a plurality of coin chutes connecting said slots and said tubes, storage means in certain of said chutes and coin operable electric means actuated by a coin in its travel in combination with said storage means for returning change, ejector means for said compartments adapted to be operated simultaneously with said change-giving means to discharge merchandise from one of the compartments and means for controlling said ejector means.

11. An electrically-operated coin-controlled vending machine of the character described suitably connected to the source of power and comprising, in combination with a plurality of electric circuits and double switch controlling means, a suitable casing having a plurality of slots therein adapted to receive coins of different denominations and a plurality of coin tubes within the casing, a plurality of coin chutes connecting the slots with the tubes and electrically operated mechanism controlled by said circuits for, first, propelling the coin on its way and ejecting slugs and, secondly, ejecting the goods purchased and discharging change, said circuits being individually and automatically closed at certain points in the travel of the coin through said chutes and being individually and automatically opened at other points in the travel of the coin in said chutes.

12. In a coin vending machine of the character described and in combination with a suitable casing, a plurality of slots adapted to receive coins of different denominations and a plurality of coin tubes in said casing, a plurality of coin chutes connecting the slots and the tubes and storage means in said

chutes, a change discharge chute for said tubes and means connecting the storage chutes with the change discharge chute and electrically operable means for said storage chutes whereby the coins to be returned therefrom are ejected from the bottom into the discharge chute by electrically operated rods carried on the spring actuated armatures of suitable solenoids, said solenoids being energized through the automatic closing of an electric circuit by a coin of certain denomination and at a certain point in its travel through said chutes.

13. A vending machine of the character described comprising, in combination with a suitable casing having slots therein adapted to receive coins of different denominations and provided with merchandise-carrying compartments and a plurality of coin receiving tubes, said tubes and compartments communicating with an arrester carried by the casing, a plurality of coin chutes provided with coin detector means connecting the slots and the coin receiving tubes, ejector mechanism for the merchandise compartments and change-giving mechanism in combination with coin storage means carried by said chutes, a plurality of electric circuits adapted to be automatically and individually closed by a coin at certain points in its travel, the first circuit being designed to be automatically closed by the insertion of a coin, the second circuit being automatically closed by the coin reaching another point in its travel to propel the coin on its way or to eject a slug, the third circuit being closed by a coin above a certain denomination at a third point in its travel to operate the merchandise ejecting mechanism and the change-giving mechanism and to open the primary circuit and close a circuit to the adding mechanism.

14. In a vending machine of the character described, the combination with electrically operated mechanism adapted to receive coins of different denominations and to be operated thereby to actuate goods-ejecting mechanism and in the case of coins above a certain denomination to return simultaneously

change and in the case of coins of predetermined denomination to eject the goods only, of a plurality of electric circuits designed to be operated individually and automatically by the coin at certain points in its travel whereby the circuits are automatically closed, and means for automatically opening said circuits on the coin passing said points and means at another point in the travel of the coin for closing circuits to propel the coin on its way to open a primary circuit.

15. A machine of the character described designed to sell articles at a predetermined price and to return in change the difference between the amount inserted in the machine and said predetermined price and coin operated mechanism in combination with chute means for the travel of said coin whereby on a coin reaching certain points the mechanism is automatically operated and whereby on the coin passing said points the mechanisms automatically assume a normal position.

16. In a vending machine of the character described, the combination with detector, ejector, and change-giving mechanisms, of a plurality of coin chutes provided with electrically operated means designed at certain points to be automatically operated by a coin in its travel to individually close electric circuits to operate said mechanisms whereby coins totaling a predetermined amount automatically eject the goods and whereby coins of a greater amount than the predetermined amount similarly operate the ejector mechanism and simultaneously therewith the change-giving mechanism, arrester means for receiving the goods and change so ejected and means for automatically opening said electrical means on the coins passing the several contact points and means for controlling the ejecting of the articles and transformer means for the electrically operating means.

In witness whereof I have hereunto set my hand.

GARLAND SLATER VARCOE.