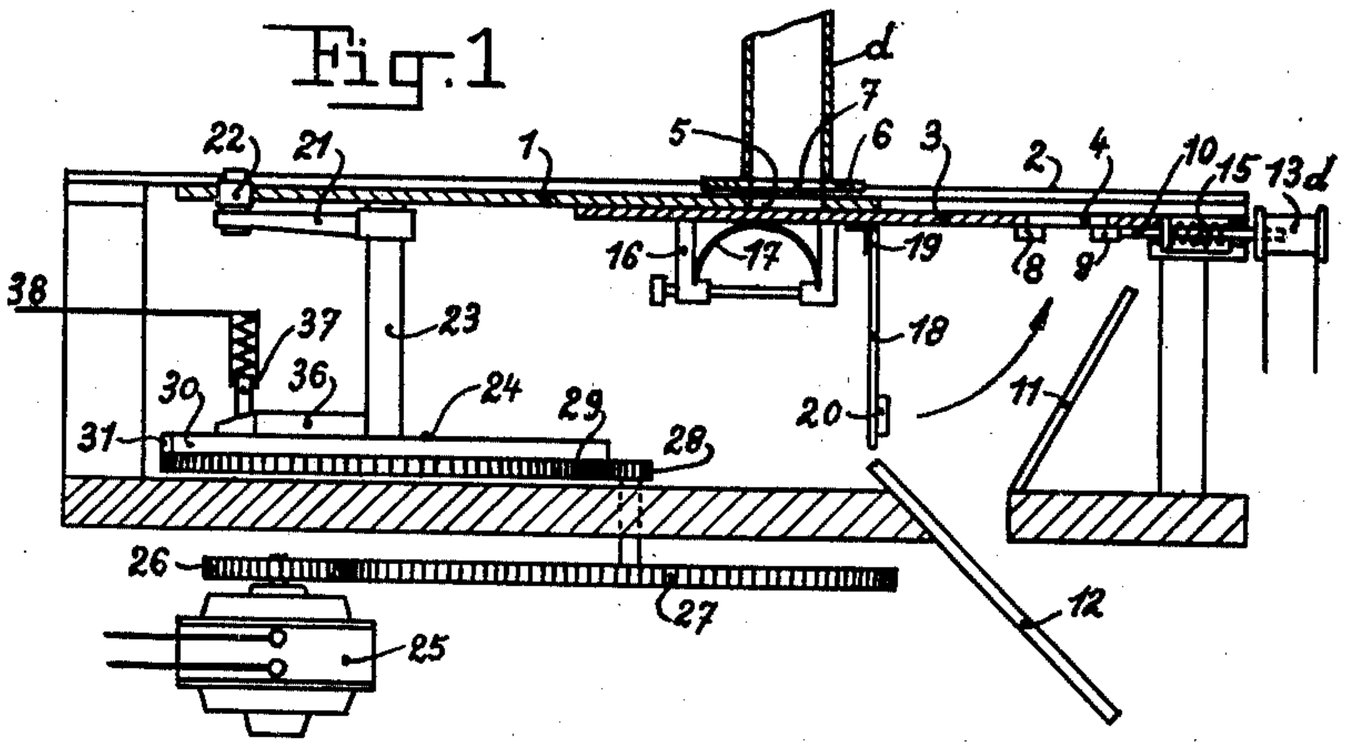
June 5, 1934. F. VELAZQUEZ 1,961,537

COIN CONTROLLED VENDING AND CHANGE MAKING MECHANISM

Filed Dec. 9, 1930 3 Sheets-Sheet 1

Fig. 1



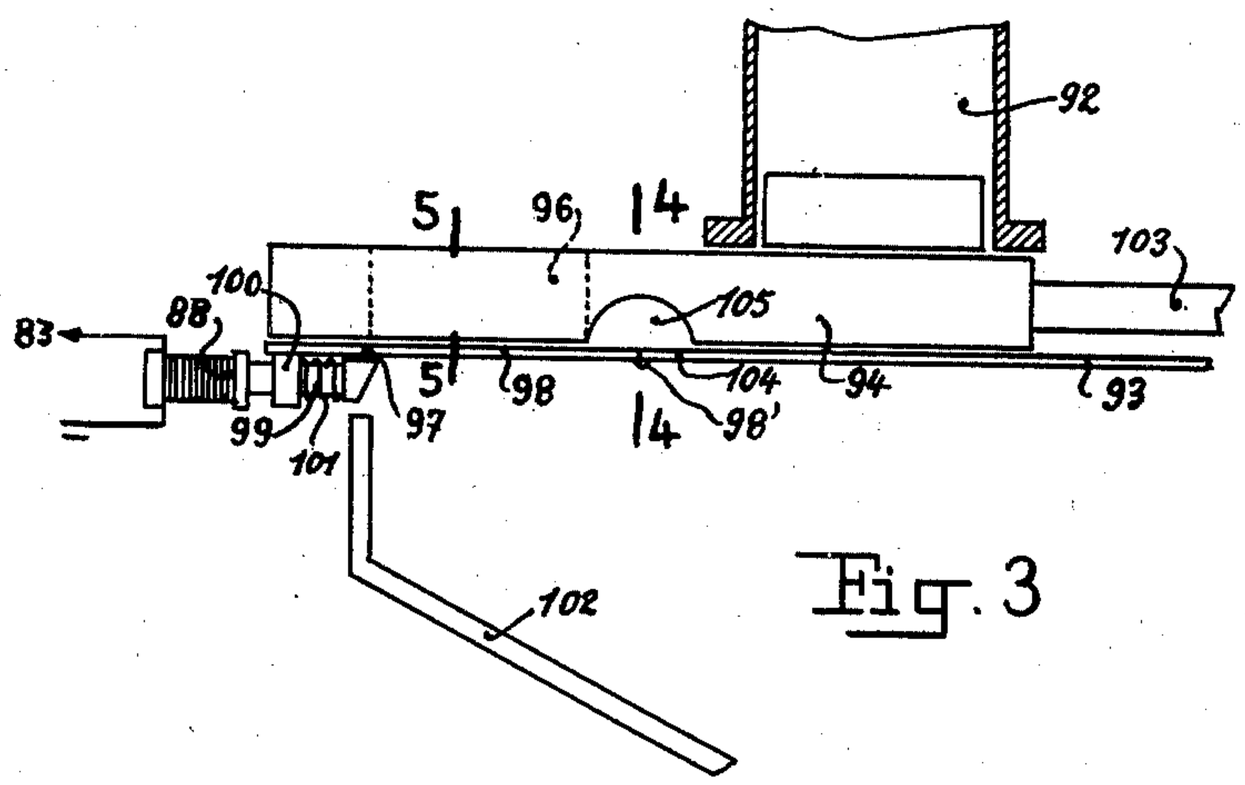


Fig. 3

Fig. 4

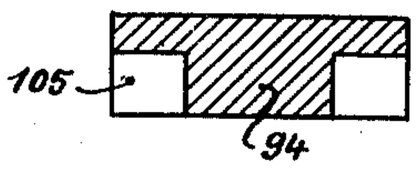


Fig. 5

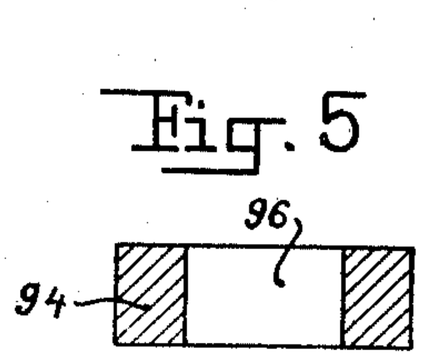
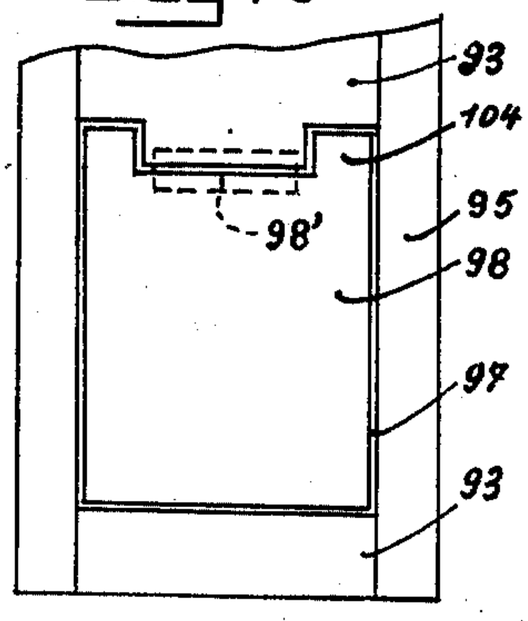


Fig. 6



Inventor
Fédérico Velazquez
By B. Singer, atty.

June 5, 1934. F. VELAZQUEZ 1,961,537

COIN CONTROLLED VENDING AND CHANGE MAKING MECHANISM

Filed Dec. 9, 1930 3 Sheets-Sheet 2

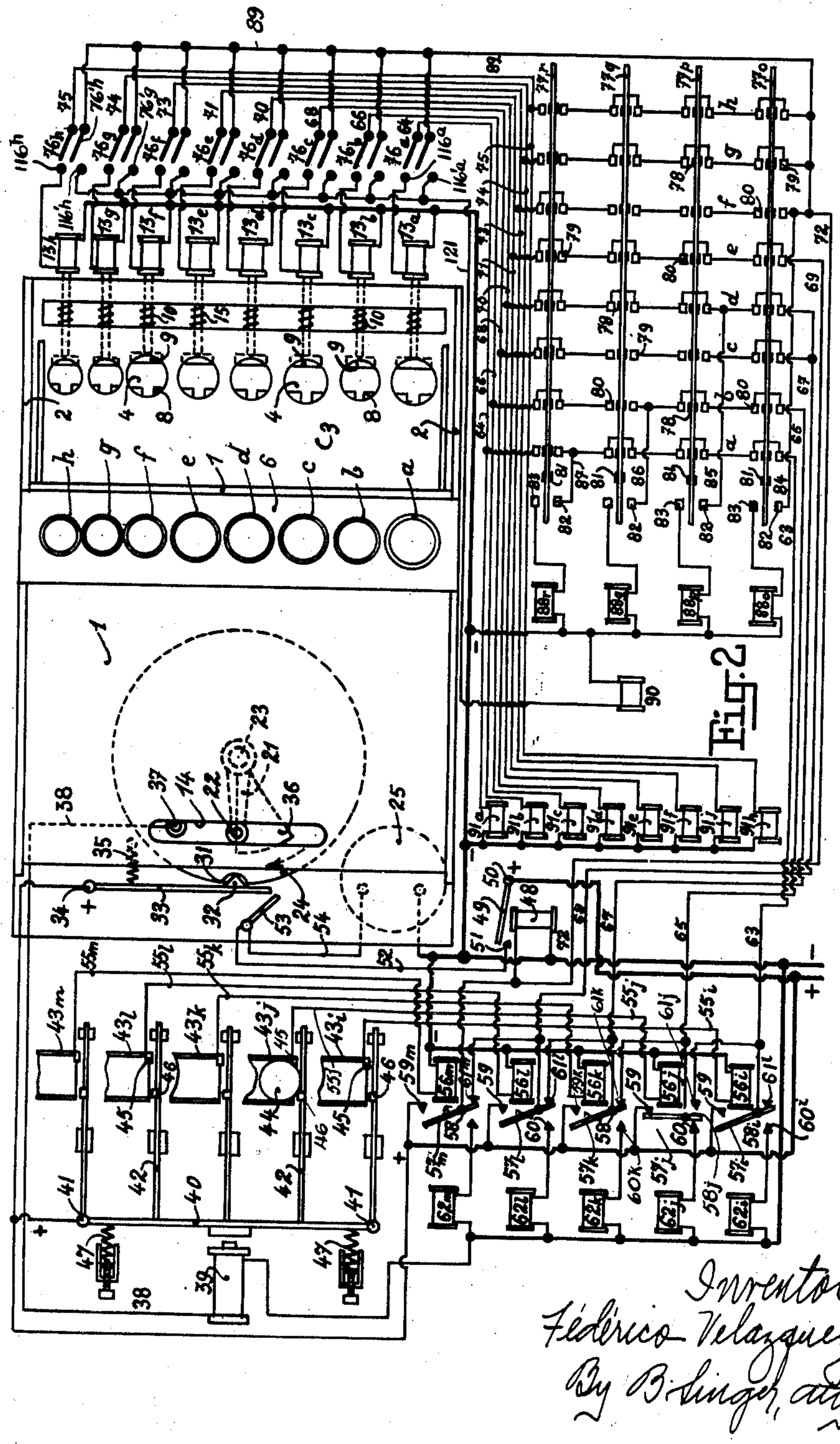


Fig. 2

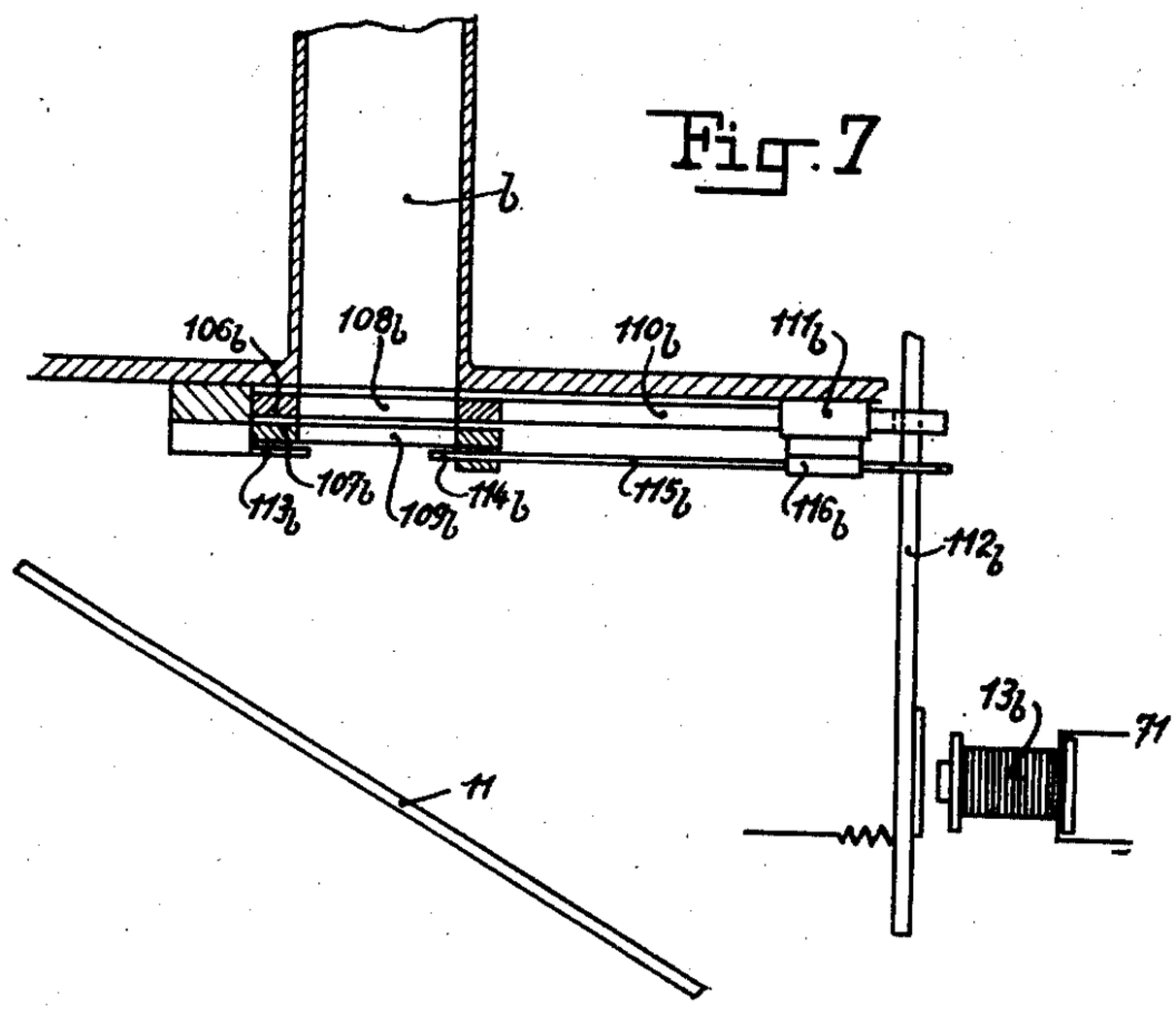
Inventor
Federico Velazquez
By B. Singer, Atty.

June 5, 1934. F. VELAZQUEZ 1,961,537

COIN CONTROLLED VENDING AND CHANGE MAKING MECHANISM

Filed Dec. 9, 1930 3 Sheets-Sheet 3

Fig. 7



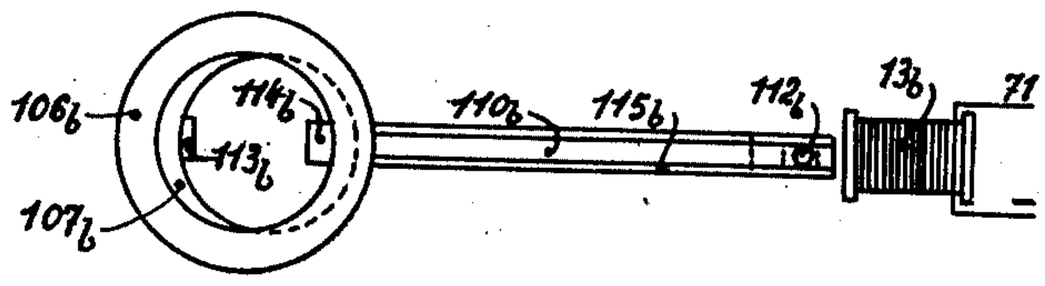


Fig. 8

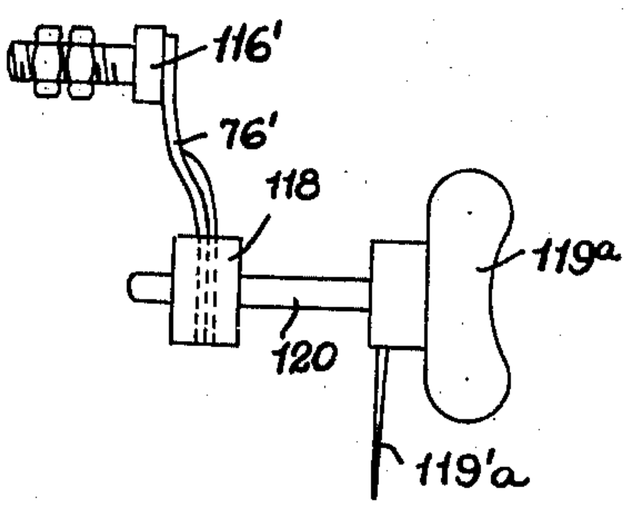


Fig. 9.

Inventor
Federico Velazquez
By B. Singer, atty.

Patented June 5, 1934 1,961,537

UNITED STATES PATENT OFFICE

1,961,537

COIN CONTROLLED VENDING AND CHANGE MAKING MECHANISM

Federico Velazquez, Paris, France

Application December 9, 1930, Serial No. 501,110
In France December 12, 1929

10 Claims. (Cl. 194—7)

The object of this invention is to provide an improved apparatus for automatically exchanging a piece of money introduced into the same for an equivalent amount in smaller coins, and for also exchanging the money for merchandise distributed by the apparatus, such as chocolate, chewing gum and the like; and is also operative for the delivery of a ticket after the introduction of a piece of money, by the actuation of one or several keys, and retaining the monetary value marked on the ticket delivered and restoring the difference with regard to the coin introduced, if the value of this coin is superior to that of the ticket.

This improved apparatus is especially adapted for use in certain little trades, such as coffee-houses, bars and the like, where at first a ticket must be taken corresponding to the value of the merchandise to be purchased.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a sectional view of an embodiment of a money distributor.

Fig. 2 is a general diagram of distributors and selectors with their connections.

Fig. 3 is a sectional view of a goods distributor.

Fig. 4 is a section according to line 4—4 of Fig. 3.

Fig. 5 is a section according to line 5—5 of Fig. 3.

Fig. 6 is a plan view of the trap of the distributor.

Figs. 7 and 8 are embodiments of a money distributor.

Fig. 9 is a detail sectional view of the control means for the switches controlling the printing of the tickets.

In an apparatus made as an example according to the invention, one of the essential parts consists in the money distributing device.

This device comprises cylindrical tubes for use as magazines and the number of which varies according to the monetary system of the country.

In adapting the apparatus for example for the monetary system used in the United States of America, eight tubes are provided, designated by the letters *a, b, c, d, e, f, g, h* (Fig. 2).

The tube *a* contains in this case pieces of 50 cents, the tube *b* pieces of 25 cents, the tube *c* pieces of 10 cents, the tubes *d* and *e* pieces of 5 cents and the tubes *f, g* and *h*, pieces of 1 cent of a dollar.

The tubes *a, b, c, d, e, f, g* and *h* are carried by a metal bridge 6 secured to the frame of the apparatus as will be explained later.

The distributor is arranged below these tubes.

According to an embodiment of the invention this distributor comprises a metal plate 1 sliding between two guides 2 carried by the frame of the apparatus (Figs. 1 and 2).

The plate 1 displaces itself above a second protecting metal plate 3 fixed to the frame.

The plate 3 is provided with openings 4 whose diameters correspond to those of the different pieces of money current in the country in which the apparatus is used.

The movable plate 1 has openings 5 whose centers are situated in the same lines as the centers of the openings 4 provided in the fixed plate 3. The diameters of the openings 5 are the same as those of the openings 4 and it will be understood that the openings of the plate 1 may superpose themselves over the openings of the plate 3 when the movable plate 1 is at the end of its stroke.

The metal bridge 6 is fixed above the guides 2 and is also provided with openings 7 of diameters corresponding to those of the plates 1 and 3. To the peripheries of the openings 7 are fixed the tubes *a, b, c, d, e, f, g, h* for receiving the pieces of money.

Each of these tubes places itself exactly over the corresponding opening 5 of the movable plate 1 when the latter is in its position of rest.

Below the openings 4 of the plate 3 are fixed small stops 8 which partially obstruct the said openings.

Opposite the fixed stops 8 are provided, also below the fixed plate 3, movable abutments 9 each supported by a rod 10 sliding longitudinally with respect to the apparatus.

The pieces 8, conjointly with the parts 9, in their position of rest, prevent the pieces of money from passing through the openings 4; but as soon as the movable abutments 9 slide and clear these openings the pieces of money supported only by the fixed stops 8 pass across said openings and are slightly turned. They fall into a funnel 11 guiding them toward an inclined wall 12 which leads them to the exterior of the apparatus.

The sliding movement of the movable abutments 9 is ensured by electro-magnets 13_a, 13_b, 13_c, 13_d . . . . . exerting their attraction upon the ends of rods 10 forming cores of the solenoids formed by the magnets, and said core rods. Springs 15 tend constantly to maintain the movable abutments below the openings 4 corresponding to them.

Below the plate 1 is fixed a sledge 16 supporting a spring blade having a curved section and abutting against the lower surface of the fixed plate 3. This spring follows all displacements of the plate 1 and is adapted to act, during the same, upon rods or the like 18 articulated by hinges 19 to the fixed plate 3.

These parts 18 carry at their free extremities pieces 20 which engage between the fixed stops 8 and obturate the openings 4, the spring 17 moving with the plate 1 toward the said opening and pivoting the said rods or the like 18 around their hinges 19. These rods or the like 18 may be replaced by metal plates articulated by their hinges.

In such a case the parts 20 are disposed in such manner that at the moment of the plate pivoting toward the openings 4, each part 20 engages between the stops 8. The pieces 20 are of suitable thickness so that when situated between the orifices 4, the depth preserved in these orifices corresponds to the thickness of the piece they ought to contain.

The displacement of the movable plate 1 is obtained by means of a crank 21 keyed to a vertical shaft 23. The pin of the crank 21 is provided with a roller 22 displacing itself in a guide slot 14 provided in the plate 1.

The shaft 23 serves as an axle for a wheel 24 fixed to said axle and actuated by an electric motor 25 through the medium of toothed wheels 26, 27, 28.

The pinion 28 acts upon teeth 29 occupying a half only of the thickness of the wheel 24. The other half 30 of the thickness is smooth and presents a recess 31 into which may engage a wedge 32 carried by a metal pallet 33. This pallet is articulated to a terminal 34 connected to one of the poles of the source of the current, (for example to the positive pole). A spring 35 maintains constantly the wedge 32 in contact with the periphery of the wheel 24.

Upon the wheel 24 is provided an elevation 36 with an inclined plane and adapted to enter into contact with a brush 37 supported by the frame, at the time of the said wheel effecting a part of its revolution.

The brush 37 is connected by a wire 38 to the winding of an electro-magnet 39. The other extremity of the said winding is connected to the negative terminal of the source of current.

The electro-magnet 39 acts upon an armature 40 articulated to the terminals 41 connected to the positive pole of the source of current. This armature acts, with its free extremity upon parts 42 sliding below the tubes 43 containing pieces 44 to be exchanged.

The said tubes are disposed in the apparatus in the best suitable way and communicate with a device selecting money of current type. This device receives the coins introduced into the apparatus to be changed or in payment of the merchandise desired. This insertion is made in as many slots provided on one of the fronts of the apparatus, as there are kinds of coins in the monetary system of the country, and the value of which represents at least one of the articles delivered by the apparatus. Thus there are as many tubes 43 as there are slots to receive the coins, and the selective device is interposed between said slots and the tubes 43.

For the monetary system chosen as example there will be five slits for admission of pieces to be exchanged, and five tubes 43. The tube 43_i receives the 1 dollar pieces, the tube 43_j the 50 cent pieces, the tube 43_k the 25 cent pieces and the tube 43_l the 10 cent pieces and the tube 43_m the 5 cent pieces.

At the bases of the tubes 43 are arranged fixed stops 45 obstructing a part of the lower openings of said tubes. To the sliding piece 42 are fixed stops 46 which in the position of rest of the parts 42 prevent the pieces 44 from falling. Adjustable springs 47 maintain normally the parts 42 in their position of rest.

The apparatus is completed by an electro-magnet 48 (Fig. 2) acting upon an armature 49 articulated to a terminal 50 connected to the positive pole of the source of current. The free extremity of the armature 49 gets into contact with a piece 51 connected by a wire 52 to a fixed piece 53 situated opposite the pallet 33 and getting into contact with said pallet at the time of the wheel 24, pushing back the wedge 32 and consequently the pallet 33.

Another wire 54 connects the piece 53 to the electric motor 25 (Fig. 1) connected at the other part with the negative pole of the source or current.

Stops 45 situated at the bases of the tubes 43 are each connected by a wire 55 with the windings of electro-magnets 56 communicating at the other part with the negative pole of the source of current.

These electro-magnets 56 act upon levers 57 oscillating around terminals 58 and arranged to get into contact with three plugs 59, 60, 61 arranged in such manner that when attracted by their corresponding electro-magnets 56, they establish contact between the parts 59 and 60, and when, on the contrary, being in their position of rest, the contact is established between the terminals 58 and the parts 61. A spring maintains each lever in the said position. It must be noted that in the case of the lever being attracted by the electro-magnet, the communication is also established between the part 59 and the articulation terminal 58.

Each contact 59 is connected to the positive pole of the source of energy and the terminal 58 of each lever is connected to the contact 61 of the following device. In this manner the terminal 58, for example, of the electro-magnet 56_i is connected to the contact 61 of the electro-magnet 56_j; the terminal 58 of the latter is connected to the contact 61 of the electro-magnet 56_k and so on.

The terminal 58_m of the last electro-magnet 56_m is connected to the winding of the electro-magnet 48 destined to close the circuit of the motor 25.

All contacts 60 of the electro-magnets 56 are connected to the windings of relays 62 actuating a device counting the pieces. This device may be of any known type, which consequently is neither represented nor described in the present invention.

The working of the money distributing device will be readily understood:

The tubes *a, b, c, d, e, f, g, h* are at first filled with divisional classified money pieces. These pieces can therefore pass through the apertures 7 of the bridge 6 and drop into the openings 5 of the movable plate 1.

At this moment this plate is maintained in its position of rest by the wedge 32 engaging the recess 31 of the wheel 24. The thickness of the plate 1 being at the locality of the openings such that the opening 5 may contain one or two pieces of coin according to the case, the orifice 5 in registry with the tube *a* receives one piece of 50

cents, the one of the tube *b* one piece of 25 cents, the one of the tube *c* one piece of 10 cents.

The opening of the tube *d* is of the size and depth to receive one 5 cent piece, the opening of the tube *e* one 5 cent piece, the opening of the tube *f* two 1 cent pieces, the orifice of the tube *g* two 1 cent pieces, and the orifice of the tube *h* one 1 cent piece.

At starting, the openings are loaded with one or two corresponding pieces of money, according to the orifice.

If a piece of money to exchange is introduced into one of the tubes 43, for example a coin 44 of 50 cents into the tube 43_j, the coin introduced closes the circuit: the positive pole, the terminals 41, armature 40, rod 42, contact 46, coin 44, contact 45, wire 55_j, winding 56_j, the negative pole. The lever 57_j is attracted and closes the circuit: positive pole, terminal 59_j, lever 57_j, contact 58_j, contact 60_j, electro-magnet 62_j, negative pole. The armature 49 is attracted and closes the circuit: pole +, terminal 50, armature 49, contact 51, wire 52, wire 54, motor 25, the negative pole.

The motor 25 commences to rotate and drives the wheel 24 which, through the medium of the crank 21 moves the plate 1 in its guides 2.

The pieces of money introduced into the openings 5 are in this way taken along by the said plate and cannot fall because the plate 3 situated below the plate 1 constantly obturates the openings at their bases. At the other part, the plate 1 prevents the pieces from falling out of the tubes *a, b, c* and so on. Consequently the pieces are moved to the openings 4 of the plate 3 and drop into those openings, whose pieces are sunk into the funnel. The stops 8, 9 prevent them from falling.

At the other part, the sledge 16 driven or taken along by the plate 1 causes pivoting of the rods or plates 18 and the stops 20 completely obturate the bases of the openings 4 and hence prevent the downward movement of pieces occupying by chance an oblique position in the openings 4.

During the rotation of the wheel 24 the elevated part 36 enters into contact with the brush 37 and the following circuit is closed: pole +, terminal 34, pallet 33, wedge 32, wheel 24, the elevation 36, the brush 37, the wire 38, winding 39, the negative pole. The armature 40 is attracted and takes along the rods 42 which displace the wedges 46. The piece 44 which is no longer supported drops into the cash of the apparatus or is automatically re-distributed into the tube *a* corresponding to its value.

Simultaneously, during the rotation of the wheel 24, the wedge 32 is driven back by the smooth part of the wheel 24, at which moment the extremity of the pallet 33 enters into contact with the fixed piece 53 which closes the following circuit: pole +, terminal 34, pallet 33, piece 53, wire 54, motor 25, the negative pole. Hence it will be understood that the first temporary feeding circuit of the motor 25, is replaced by a permanently feeding circuit. The first feeding is possible only during the time the piece of money is in contact with the contacts 45, 46, and as soon as this piece has fallen, the feeding would be stopped and the motor would be arrested. At this moment the plate 1 will have resumed its starting position in such manner that the openings 5 are again positioned exactly below the tubes *a, b, c* etc. The openings 5 which are emptied of their coins upon their passage above the cavities 4 from which the coins have been freed, will find themselves then again filled with one or two coins, according to the case in question, falling from the tubes *a, b, c*, etc.

The extremity of the attracted lever 57_j gets in touch with the contact 60 and closes the following circuit: pole +, terminal 59, lever 57_j, contact 60, relay 62_j, pole —. This relay actuates the device (not described) for counting the pieces.

It is also in this way obvious that the pieces of money have been deposited into the openings 4 and that they are kept there by the stops 8 and 9.

To the terminals 58 are attached wires leading to the windings of bobbins 13 after the passage through an apparatus selecting the merchandise and described later on; for the moment each section *a, b, c, d, e* . . . . . of the same will be considered as a continuous wire.

In this manner the terminal 58_i is connected to the bobbin 13_a by the wire 63, the section *a* of the selector and the wire 64. The terminal 58_j is connected to the bobbin 13_b by the wire 65, the section *b* of the selector and the wire 66. The terminal 58 is connected to the bobbins 13_c and 13_d by the wire 67, the sections *c* and *d* of the selector and the wires 68 and 70.

The terminal 58_l is connected to the bobbin 13_e by the wire 69, the section *e* of the selector and the wire 71.

Finally, the terminal 58_m is connected to the bobbins 13_f, 13_g and 13_h by the wire 72, the sections *f, g, h* of the selector and the wires 73, 74 and 75.

If consequently the piece 44 of 50 cents has been introduced into the tube 43_j the openings 4 having been preliminarily filled with money, while the counter of the 50-cent pieces has been actuated, the current established by the relay 56_j will flow in the wires 65, 67, 69 and 72 and then in the wires 66, 68, 70, 71, 73, 74 and 75 connected to the bobbins 13_b, 13_c, 13_d, 13_e, 13_f, 13_g, 13_h. The cores 10 of these bobbins are attracted and the stops 9 attracted rearwardly uncover the opening 4 of the plate 3. The pieces lodged in this orifice fall upon the funnel 11 and are evacuated along the inclined plane 12.

It will be understood that in the example chosen the following pieces will fall: one 25 cent piece, one 10 cent piece, two 5 cent pieces and five 1 cent pieces, exactly corresponding to 50 cents of little money.

The electro-magnet 13_a alone has not worked because the wire 63 has not been traversed by any current.

The device distributing money operates in the same manner for all pieces comprised between 1 dollar and 5 cents, to be changed.

The apparatus according to the invention may be completed by a device distributing merchandise.

This device comprises a selector consisting of a series of pushers 77_o, 77_p, 77_q, 77_r. The number of these pushers is equal to that of the different values of the goods to be distributed.

On these pushers, that is to say on their rods, are provided contacts 81 coacting with contacts 82, 83 provided at both sides, when the pushers are pushed, the contact between the plugs 78 and the plugs 79 and 80 being at the same time interrupted.

The contacts 79 of the first pusher are connected to the wires 63, 65, 67, 69 and 72 and the contacts 79 of the other pushers are connected to the contacts 80 of the immediately preceding pushers. Finally the contacts 80 of the last pusher are connected to the wires 64, 66, 68, 70, 71, 73, 74 and 75. It will be understood that these wires are

connected to the wires 63, 65, 67, 69 and 72 through the medium of contacts as long as the pushers are at rest. As soon as a pusher is acted upon, the communication between the said wires is interrupted.

The connections between the contacts 79 and 80 of one and the same section are established only on the sections which correspond with the electro-magnets 13 freeing the deposited change coins, the total of which represents the value of the purchasing coin introduced, minus the value of the merchandise. The contacts 78 act only on those sections which correspond to the electro-magnets, freeing the coins whose total value is equal to that of the merchandise, the ejection of which will be controlled by the pusher member.

The wires 64, 66, 68, 70, 71, 73, 74 and 75 having been connected respectively to the switches 76_a, 76_b, 76_c, 76_d, 76_e, 76_f, 76_g and 76_h which are always considered as establishing the only communication with the electromagnets 13, the device for distributing the merchandise, would then actuate the electromagnets 13 serving to establish the point representing the difference between a coin of greater value than that of the merchandise delivered.

However, in order to obtain this result it is necessary to establish supplementary connections between the contacts 79 and 80 of certain sections.

If, for example, the pusher 77_o is destined to distribute goods of a value of 2 cents, each pair of the contacts 79 and 80 of this pusher are interconnected by shunt wires, as indicated in Fig. 2, except those of the section *f* corresponding to 2 cents.

If the pusher 77_p serves for merchandise of a value of 12 cents only, contacts 79 and 80 are used which belong to the sections *c* and *f* corresponding to 10 and to 2 cents.

If the pusher 77_q serves for merchandise of 37 cents, the contacts 79 and 80 of the sections *b*, *c* and *f* are made use of, because these sections correspond to 25, to 10 and to 2 cents.

If, finally, the pusher 77_r is destined for merchandise of 53 cents, the contacts 79 and 80 of the sections *a*, *g* and *h* are not connected because these sections correspond to 50, to 2 and to 1 cent.

At the other part, the contact 82 of each pusher is connected to the wire of the section leading to the electro-magnet 13 liberating the pieces whose highest value is still within the price of the merchandise, that is to say, that the contact 82 coacting with the pusher 77_o is connected by a wire 84 to the wire 72 of the section *f*; the contact 82 of the pusher 77_p is connected by a wire 85 to the section *d*; the contact 82 of the pusher 77_q is connected by a wire 86 to the section *b* and the contact 82 of the pusher 77_r is connected by a wire 87 to the section *a*. All these sections represent the value of the highest piece within the price of the mechandise.

The pusher-contacts 83 are connected to an electro-magnet 88_o, 88_p, 88_q, 88_r respectively, actuating the device ejecting the merchandise.

The operation will be easily understood. After introduction of a purchasing coin, a piece of, say, 50 cents into the tube 43_j in order to obtain merchandise of a value of 37 cents, which merchandise is distributed by the pusher 77_q, it will suffice to manually push the latter so as to start the ejector and to receive the difference in change with regard to the money paid in.

The piece 44 introduced into the tube 43_j establishes, as previously explained, a current in the wires 65, 67, 69 and 72. By pushing home the pusher 77_q the contacts 78 do not get in touch with the contacts 79 and 80; on the contrary, the contact 81 of this pusher gets in touch with the contacts 82 and 83 corresponding to the same. Hence the current of the wire 67 does not pass to the wire 68, nor the current of the wire 72 to the wire 73.

On the contrary, the current of the wires 67 and 69 passes into the wires 70 and 71 and the current of the wire 72 passes to the wires 74 and 75 through the sections *g* and *h*. Only the magnets 13_d, 13_e, 13_g and 13_h will be actuated and liberate two parts of 5 cents each and three pieces of 1 cent each, hence totaling 13 cents constituting the difference between the money introduced—50 cents—into the apparatus, and of the price of the merchandise=37 cents.

Simultaneously, the current of the wire 65 will be shunted by the wire 86 with regard to the contact 82 of the pusher 77_q and will pass, by the contact 81 to the contact 83 and to the electro-magnet 88_q actuating the ejector of the merchandise for 37 cents.

The invention affords finally the possibility of distributing tickets with the apparatus afore described, a value being imprinted upon said tickets, which is determined by the user himself.

The operation is performed by means of the switches 76 shown in Figures 2 and 9. Each of these switches comprises two branches of elastic contact, those of the several switches being indicated at 76_a, 76_b, 76_c, 76_d, 76_e, 76_f, 76_g, 76_h, $76'_a$, $76'_b$, $76'_c$, $76'_d$, $76'_e$, $76'_f$, $76'_g$, $76'_h$ mounted on one and the same insulating hub 118 moved from the exterior of the apparatus by a button 119_a fixedly secured, like the said hub on stem 120. Each switch individually controlled may take two positions, the change position and the ticket printing position. The button 119_a of each switch is provided with a finger $119'_a$, enabling it to be seen from the exterior in which of the two positions the switch has been arranged. The branches 76_a, 76_b, 76_c, 76_d, 76_e, 76_f, 76_g, 76_h are respectively connected to wires 64, 66, 68, 70, 71, 73, 74, 75 leading from the selector of the distributor system of the merchandise. The branches $76'_a$, $76'_b$, $76'_c$, $76'_d$, $76'_e$, $76'_f$, $76'_g$, $76'_h$ are all connected to the wire 89 which is connected to the wire 72. In the "change" position, the branches 76_a, 76_b, 76_c, 76_d, 76_e, 76_f, 76_g, 76_h enter respectively into contact with the terminals 116_a, 116_b, 116_c, 116_d, 116_e, 116_f, 116_g, 116_h connected respectively to the electro-magnets 13_a, 13_b, 13_c, 13_d, 13_e, 13_f, 13_g, 13_h, while the branches $76'_a$, $76'_b$, $76'_c$, $76'_d$, $76'_e$, $76'_f$, $76'_g$, $76'_h$ remain without contact.

In the "ticket printing position" the branches $76'_a$, $76'_b$, $76'_c$, $76'_d$, $76'_e$, $76'_f$, $76'_g$, $76'_h$ enter into contact with terminals $116'_a$, $116'_b$, $116'_c$, $116'_d$, $116'_e$, $116'_f$, $116'_g$, $116'_h$ which are all connected to the same wire while the branches 76_a, 76_b, 76_c, 76_d, 76_e, 76_f, 76_g, 76_h remain without contact.

The wire 121 is connected to the coil of an electro-magnet 90 which actuates a locking element which renders immovable the device for printing the tickets. The ticket printing device cannot enter into operation unless some one of the buttons, for instance the button 119_a has been operated to cause the branch, for instance the branch $76'_a$ of the respective switch to enter into contact with its contact $116'_a$, and unless by the wire 121 the electro-magnet 90 has been energized and caused to release the printing device.

The device for printing the tickets may be of any suitable form, such as is well known.

The apparatus shown as an example only, comprises only a money changing device and a merchandise distributor, but it would be possible to add thereto any ticket printing device comprising eight keys or equivalents controlled as shown in Figure 2, by eight controlling relays 91_a, 91_b, 91_c, 91_d, 91_e, 91_f, 91_g, 91_h. The wires 64, 66, 68, 70, 71, 73, 74 and 75 are extended so as to get to the windings of the said relays.

If, for example, a piece of 50 cents has been introduced into the tube 43_j after a preliminary turning of the buttons 119_b, 119_c, and 119_f by the utilizer in order to obtain a ticket corresponding to 37 cents, the current sent into the wires 65, 67, 69 and 72 will pass to the wires 66, 68, 70, 71, 73, 74, 75 and 89.

The current of the wire 66 cannot arrive at the electro-magnet 13_b because the switch 76_b has been turned, and passes across the relay 91_b actuating the imprinting system for an impression of 25 cents.

The current of the wire 68 does not arrive at the bobbin 13_c but passes through the relay actuating the system imprinting 10 cents.

The current of the wires 70, 71 flows to the electro-magnets 13_d and 13_e which liberate two pieces of 5 cents each.

The current of the wire 73 does not pass across the electro-magnet 13_f but across the relay 76_h which effects impression of 2 cents.

Finally, the current of the wires 74 and 76 flows through the electro-magnets 13_g and 13_h which liberate three pieces of 1 cent.

The ticket imprinted shows the impression 0,37 and the utilizer will receive 13 cents as difference between the money paid in (50 cents) and the value impressed.

The switches 76 could equally derive the current of the wires 64, 66, 68, 70, 71, 73 and 75 across their knives 76_a, 76_b etc. directly to the relays 91. The current would flow to each one of the said relays, only after pivoting of the hand-levers or the like of the switches.

This device necessitates, besides the general locking obtained by the relay 90, to provide a mechanical locking of each printing key controlled by the hand-leverage.

Numerous distributors of goods may be utilized, one embodiment of such a distributor being hereafter described simply in the way of an example (Figs. 3 to 6).

The goods are arranged in tubes 92 disposed in a certain height above a plate 93. Between the lower end of the tubes 92 and the said plate 93 is arranged a block 94 sliding on the plate 93.

Two guides 95 placed at each side of the plate 93 ensure rectilinear to and fro movement of the block 94.

The front part of the block 94 is provided with an opening 96 of the same shape and dimensions as the packets in the tubes 92, containing the merchandise (Fig. 5).

The plate 93 is also provided with an aperture 97 of the same shape and dimensions as the aperture 96 in the block 94.

Below the aperture 97 is provided a trap-door 98 articulated by hinges 98' to the plate 93 (Fig. 3).

The side of the trap-door, opposite to the hinges is kept in the closing position (closing the aperture 97) by a small latch 99 oblique at its free extremity and sliding in a guide 100. This latch forms at its other extremity a plunger forming in connection with the coils penetrating into one of the electro-magnets a solenoid. The solenoids are respectively designated at 88_o, 88_p and so on. A spring 101 maintains the latch constantly in the closed position.

Below the plate 93 is arranged a funnel 102 for evacuation.

A rod 103 soldered to the block 94 is terminated at the exterior of the apparatus by a pusher.

A trap-door 98 is provided at both sides of its articulation 98' with extensions 104 (Fig. 6) entering at the moment of pivoting of the plate around its articulation, into semi-circular recesses 105 provided in the block 94 (Fig. 4).

The operation of this device is as follows:

The block 94 is pulled manually in such manner that its orifice 96 coincides with the basis of the reservoir 92 whereby the lowermost packet enters the said orifice.

By manually pushing home the pusher, viz. the rod 103 at this moment, the orifice 96 and the merchandise contained therein are moved above the trap-door 98. At this moment a piece of money introduced into the apparatus closes the circuit of the electro-magnet 88 which gets excited and attracts the latch 99.

The trap-door 98 released in this manner pivots and permits dropping of the merchandise into the funnel 102.

At this moment the extensions 104 of the trap-door 98 can pivot freely in the recesses 105 of the block 94 and adjust themselves vertically. On manually pulling now the rod 103 the piece 94 slides between the tube 92 and the plate 93 and acts thereby upon the tenons 104 so that they raise the trap-door until it engages above the latch 99 maintained by its spring 101 in the closed position, viz. in the position of locking.

The continued pulling of the rod brings anew the opening 96 below the tube 92 and a packet enters this opening. On pushing home the block 94 its orifice 96 gets above the trap-door 98 and so on.

All mechanical movements of the different devices may be obtained either by means of electric motors or by any other elements acted upon by hand or automatically.

It is obvious that the money distributor permits of a still more simple realization permitting the direct distribution of pieces without the intermediate retaining orifices. In such a case the motor 25, lever, hand-wheel or the like, is suppressed and the arrangement of the money-pieces is effected with aid of electro-magnets 13_a, 13_b and so on, as well as the ejection of said pieces.

The device described comprises always distributing tubes *a*, *b*. and so on.

The Figures 7 and 8 represent one only of these tubes, for example the tube *b*.

Below this tube *b* are placed two parts 106_b, 107_b provided with orifices 108_b, 109_b of the same diameter as the one of the tube *b*, in such manner that the clearance of the latter is continued down to the lower face of the piece 107_b.

The parts 106_b and 107_b are of a thickness equal to that of the money-pieces destined to be contained in the tube reservoirs. The piece 106_b is continued toward the front by a rod 110_b sliding in a guiding sleeve 111_b.

This rod takes along the piece 106_b in its to-and-fro movement imparted by an armature 112_b attracted by the electro-magnet 13_b. For this

purpose the extremity of the rod 110_b is of course articulated to the said armature.

Below the part 107_b are arranged a fixed stop 113_b and, just opposed, a movable stop 114_b continued by a rod 115_e sliding in a sleeve 116_b. The extremity of this rod is provided with an oblong slit into which engages the armature 112_b. The slit is disposed in such manner that sliding of the rod 115_b is possible only after the sliding of the piece 110_b effected by the armature 112_b.

The above description relates only to the elements corresponding to the tube *b*; it is obvious that similar elements are provided below each tube.

The operation of this device will be readily understood.

The tube reservoirs being filled with pieces of money, the opening 108_b, 109_b of the parts 106_b, 107_b will obviously contain each of them one piece of money. The action of the electro-magnet 13_b has the effect of moving the part 106_b between the tube *b* and the fixed part 107_b. The piece of money contained in the opening 108_b will be consequently displaced and abuts partly against the upper face of the part 107_b. At this moment only, the part 115_b is moved by the armature 112_b and the piece situated in the aperture 109_b is no longer supported and falls into the funnel 12.

The piece of money in the opening 108_b, prevents, by its position, all descent of pieces of money into the opening 109_b and as soon as the armature 112_b arrives in its position of rest, the part 106_b re-takes its original position. At this moment the piece contained therein drops into the orifice 109_b already obstructed by the stop 114_b and a piece drops from the tube *b* into the orifice 108_b, and so on.

According to this embodiment the wire 52 leads directly to the winding of the electro-magnet 39; the electro-magnet 48 remains installed in the same manner in the general distribution.

It is obvious that the distributors of goods and of tickets may be used either separately or in combination with distributors of money, which constitute the basis itself of the invention.

Consequently these distributors permit of further applications and hence of numerous modifications according to the particular requirements, without departing from the scope of the present invention.

What I claim, is:

1. In apparatus of the class described, a coin tube, a distributor plate arranged for reciprocating movement at the lower end of the tube and having a coin receiving opening in registry with said tube when said plate is in one position, a fixed plate under the distributor plate and having a coin receiving opening with which the coin receiving opening of the distributor plate registers when the distributor plate is in another position, said fixed plate also having a fixed stop below one side of its coin receiving opening; a movable stop below the opposite side of said opening and means to operate said movable stop.

2. Apparatus as claimed in claim 1, in which the means to operate the movable stop is an electro-magnet.

3. Apparatus of the class described, comprising means to deposit a coin for use as change, means to release such deposited coin, means to receive a coin for use in making a purchase, means to release such purchasing coin, means to eject goods, and means controlled by the purchasing coin to operate the change coin depositing and releasing means and also operate the goods ejecting means.

4. Apparatus as claimed in claim 3, including electrically actuated means controlled by the purchasing coin when deposited to actuate the change coin depositing and releasing means and to actuate the goods ejecting means.

5. Apparatus as claimed in claim 3, including a plurality of the change coin depositing means, a plurality of the change coin releasing means, a plurality of the purchasing coin receiving means, a plurality of the purchasing coin releasing means, a plurality of the goods ejecting means, and selecting mechanism to cause the operation of the change coin depositing means, any required number of the change coin releasing means, the purchasing coin releasing means, and any one of the goods ejecting means.

6. Apparatus as claimed in claim 3, including a plurality of the change coin depositing means, a plurality of the change coin releasing means, a plurality of the purchasing coin receiving means, a plurality of the purchasing coin releasing means, and independently operable selecting means one for each change coin depositing means, change coin releasing means, purchasing coin receiving means, purchasing coin releasing means, and goods ejecting means to cause the operation of such change coin depositing means, change coin releasing means, purchasing coin receiving means, purchasing coin releasing means, and goods ejecting means.

7. Apparatus as claimed in claim 3, in which the change coin depositing means comprises a slidable element and including a translating element to actuate such slidable element and an open circuit for such translating element, which circuit is closed by a coin when the same is placed in the coin receiving means for use in making a purchase.

8. Apparatus as claimed in claim 3, including a tube to receive a change coin and in which apparatus the means to deposit a coin for use as change comprises a slidable element below said tube having an opening to receive a coin from said tube, a fixed plate below said slidable element having an opening into which such coin drops when the slidable element is in one position and in which the releasing means for the coin is an element movable below and from one side of said opening in said fixed plate.

9. Apparatus as claimed in claim 3, including a plurality of the change coin depositing means, a plurality of the change coin releasing means, a plurality of the purchasing coin receiving means, a plurality of the purchasing coin releasing means, a plurality of the goods ejecting means, common operating means for the change coin depositing means, common operating means for the purchasing coin releasing means, and independently operable selecting mechanisms to cause the operation of any required number of the change coin releasing means and any one of the goods ejecting means.

10. Apparatus as claimed in claim 3, including electrically actuated means controlled by the purchasing coin when deposited to actuate the change coin depositing means, the change coin releasing means, the purchasing coin releasing means, and selecting means to operate the goods ejecting means and predetermine the operation of the electrically actuated means to actuate the change coin depositing means and the purchasing coin releasing means.

FEDERICO VELAZQUEZ.