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PATENTED APR. 14, 1908.

J. A. WESER.

COIN CONTROLLED APPARATUS.

APPLICATION FILED JUNE 23, 1906.

3 SHEETS—SHEET 1.

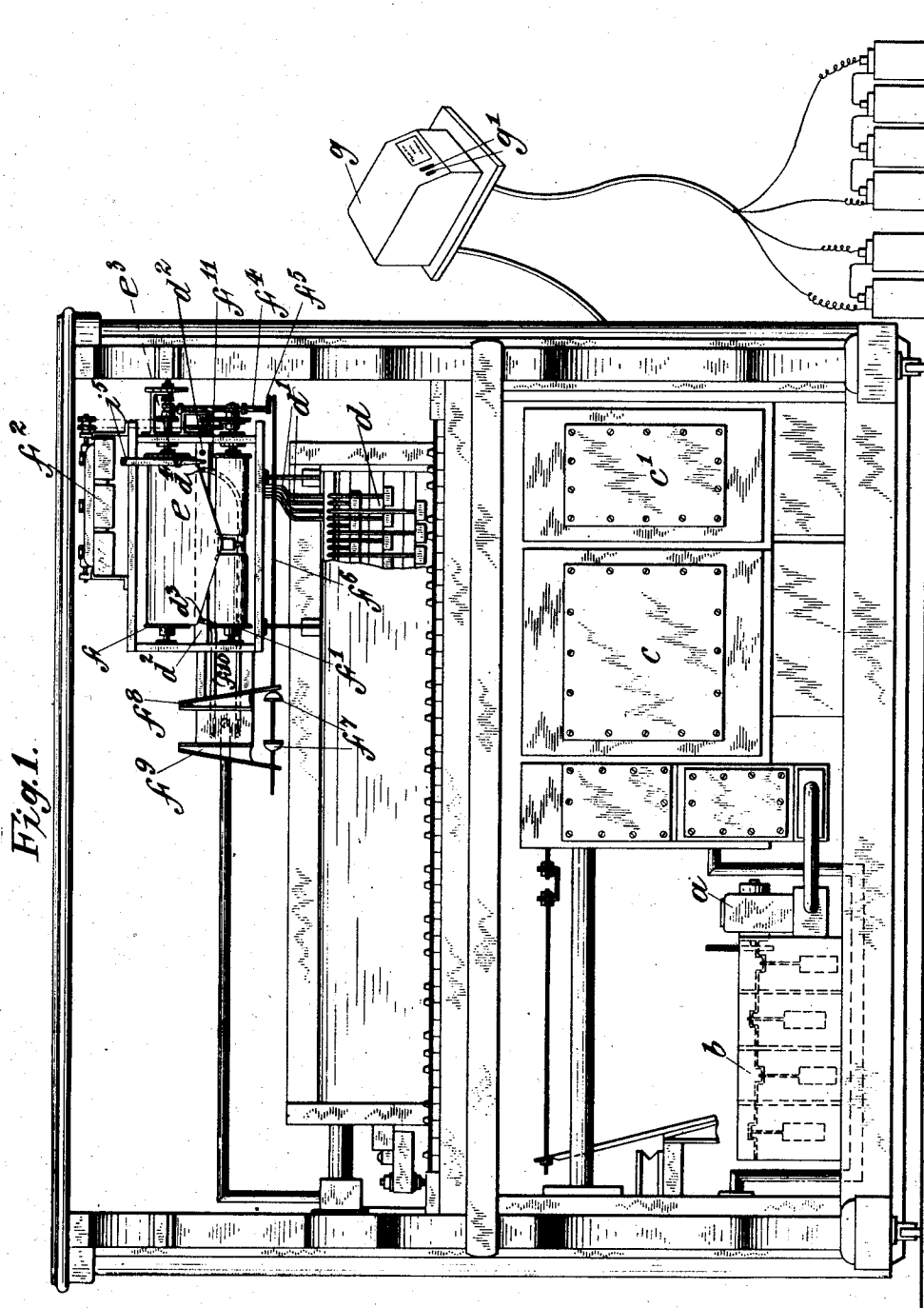


Fig. 1.

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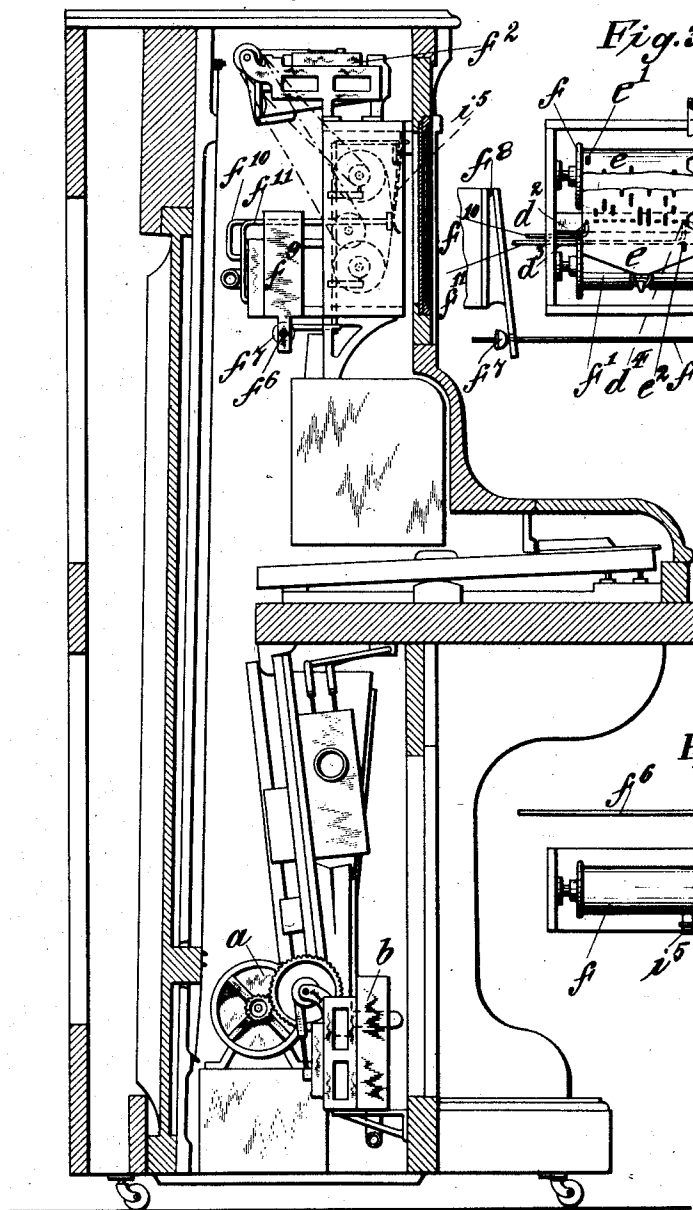
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3 SHEETS—SHEET 2.

Fig. 2.



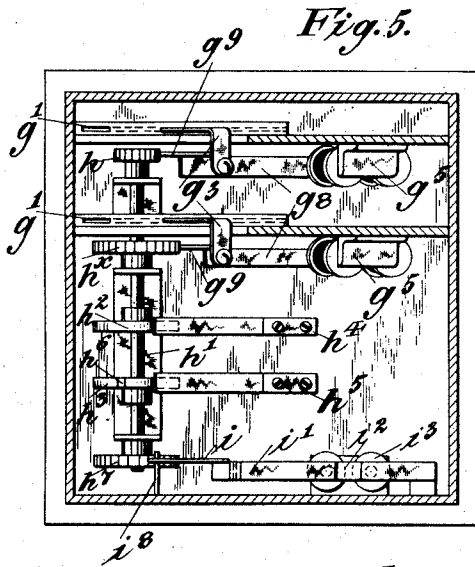
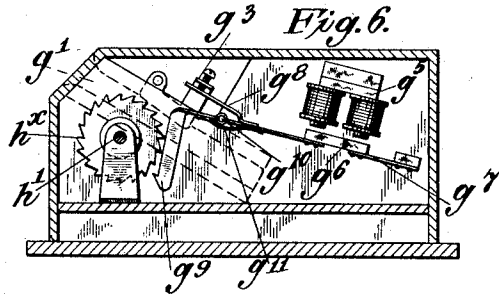
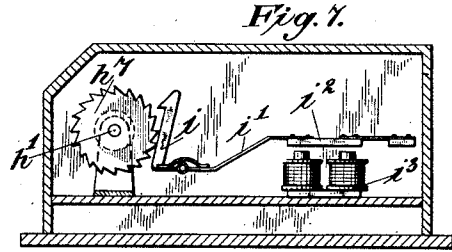
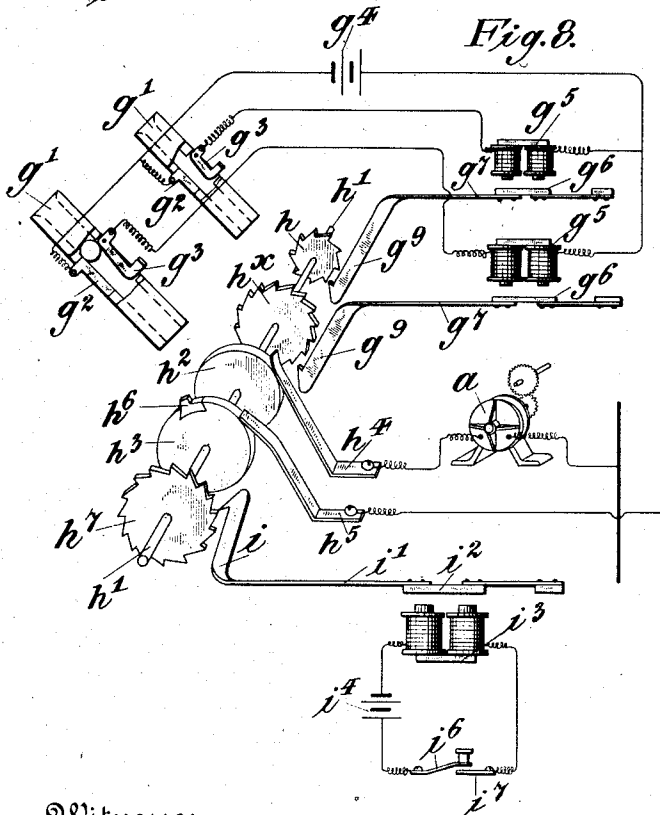
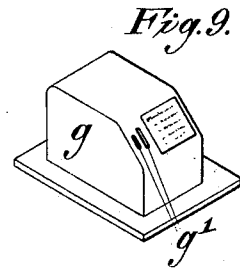
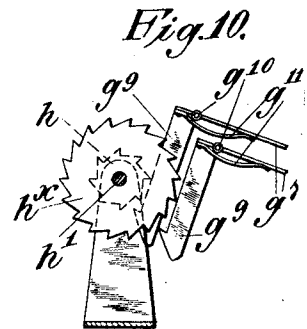
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3 SHEETS—SHEET 3.



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COIN-CONTROLLED APPARATUS.

No. 884,441.

Specification of Letters Patent.

Patented April 14, 1908.

Application filed June 23, 1906. Serial No. 322,998.

To all whom it may concern:

Be it known that I, JOHN A. WESER, a citizen of the United States, residing in the borough of Manhattan, of the city of New York, State of New York, have invented certain new and useful Improvements in Coin-Controlled Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to vending, displaying, and other apparatus adapted to be operated or to be released for operation by the insertion of a coin. Ordinarily the introduction of a single coin in coin controlled apparatus permits but one operation of such apparatus. It is not possible in such apparatuses, as usually constructed, to provide, for example, for the delivery of six packages for five cents where one is delivered for one cent, nor to provide for the display of several series of pictures by the introduction of a single coin of suitable denomination, nor for the performance of a series of musical selections upon an automatic musical instrument upon the introduction of a single coin of suitable denomination.

It is therefore the object of this invention to provide means whereby a coin controlled apparatus, whether of one kind or another, may be operated or released for operation several times in succession upon the introduction of a coin of a predetermined value. The delivery of each package, or the display of each series of pictures, or the performance of each musical selection, or whatever other operation is provided for, moves the controlling devices one step toward the initial or stopping position, so that when the value of the inserted coin has been delivered, whether in one form or another, no further operation of the mechanism shall be possible until another coin is introduced.

The invention is shown and described herein as applied to an automatic musical instrument, somewhat as shown in Letters Patent of the United States No. 681,765 dated September 3, 1901, although the construction of the musical instrument shown herein differs considerably from what is shown in said patent, while the coin controlled devices, or those immediately affected by the insertion of a coin are altogether novel in the respects hereinafter described. In said drawings Figure 1 is a view in front elevation of portions of a piano to

which the present improvements are applied, the front casing being removed and the coin operated devices being represented as separated from the piano. Fig. 2 is a view thereof in vertical transverse section. Fig. 3 is a detail view in front elevation and partly broken out of a portion of the music sheet winding devices and reversing mechanism. Fig. 4 is a top view of some of the parts shown in Fig. 3. Fig. 5 is a top view of the coin operated devices, the casing being shown in section. Figs. 6 and 7 are detail views of the coin operated mechanism. Fig. 8 is a detail view, partly in front elevation, partly in isometric perspective and partly diagrammatic, illustrating the electrical connections. Fig. 9 is a view in perspective of the casing containing the coin operated mechanism shown in Figs. 5-8. Fig. 10 is a detail view in side elevation of a portion of the mechanism shown in Figs. 5-8.

In the embodiment of the invention represented in Figs. 1 to 10 of the drawings the coin operated mechanism is arranged to control a motor *a* which operates pumps *b* by which air is supplied to the equalizing bellows *c*, *c'* of an automatic piano. The piano hammers, not shown, are actuated by pneumatics *d*, which are connected with the bellows *c*, *c'*, the pneumatics *d* being connected as usual, by tubes *d'*, with a tracker board *d*². The perforated music sheet *e* is wound from one to another of a pair of rollers *f*, *f'*, which are driven through driving and reversing mechanism of usual character, sufficiently shown, by an air motor *f*² which is connected as usual with the main bellows.

The driving and reversing mechanism for the music sheet rolls is usually operated by hand through suitable intermediate devices, but in the present instance its main operating shaft *f*⁴, shown in Figs. 1, 3 and 4, is operated through the medium of a crank arm *f*⁵ and rod *f*⁶, having thereon two buttons *f*⁷ and *f*⁸. The pneumatic *f*⁸ acts through the right hand button *f*⁷ to reverse the mechanism for unwinding the music sheet from the take up roll *f*⁷ and the pneumatic *f*⁹ acts through the left hand button *f*⁷ to shift the reversing mechanism again for the purpose of driving the take up roll *f*⁷ ahead. The pneumatics are connected by air pipes *f*¹⁰ and *f*¹¹ respectively with vents *d*³ and *d*⁴ in opposite ends of the tracker board, so that when the music sheet *e* has been fully wound upon the take

up roll f' , the perforation e' therein coöperates with the vent d^3 in the tracker board to permit the corresponding pneumatic to collapse and shift the reversing mechanism so that the music sheet shall be rewound upon the supply roll, and when the music sheet has been thus wholly rewound upon the supply roll, the perforation e^2 therein coöperates with the vent d^4 to permit the other pneumatic to collapse and shift the reversing mechanism to rewind the music sheet upon the take up roll. Thus, so long as the motor a continues to operate, the music sheet e will be rewound from one roll to the other automatically.

In the construction shown in the drawings the introduction of a coin causes the motor to start and the movement of the music sheet causes the motor to stop. Various devices might be employed to effect these operations, and in the drawings are illustrated certain electrically operated devices which will now be described.

The coin operated devices with which the invention is particularly concerned and which are illustrated herein as applied to an automatic musical instrument are placed in a suitable case g which may be located at any convenient point, being connected, in the application illustrated, with the motor a through suitable connections. The coin operated devices comprise one or more coin chutes g' each of which, in the construction shown, is provided with two terminals g^2 and g^3 of an electric circuit including a battery g^4 and an electro magnet g^5 . The two terminals are so arranged as to be bridged by the coin, as clearly shown in Fig. 8, and one of the terminals, as g^3 , is made movable, as by being pivoted, as shown, so as to release the coin after the circuit has been completed and permit it to descend into the money box. As shown, the armature g^6 is mounted upon a spring arm g^7 which carries a secondary arm g^8 for coöperation with the movable terminal g^3 , so that when the circuit is completed by the coin and the magnet g^5 is energized, the movement of the armature g^6 shall lift the terminal g^3 to release the coin. The arm g^7 also carries a pawl g^9 for coöperation with a corresponding ratchet wheel mounted on a shaft h' . The pawl g^9 is so placed with respect to the ratchet wheel h or h^x that when the pawl is in normal or inoperative position it does not interfere with the free movement of the ratchet wheel in a direction opposite to that which is occasioned by the action of the pawl. The shaft h' also carries two metallic disks h^2 and h^3 upon which bear corresponding terminals h^4 and h^5 of the circuit which includes the motor a and the source of electrical energy not shown. One of the disks, as h^3 , carries a block h^6 of insulating material which not only breaks the motor circuit when it reaches the corresponding terminal

h^5 , but also acts as a mechanical stop to prevent the further rotation of the shaft in the backward direction, that is, in a direction opposite to that occasioned by the pawl g^9 . There is also mounted upon the shaft h' another ratchet wheel h^7 , the teeth of which are oppositely placed with respect to those of ratchet wheel h , and are engaged by an oppositely acting pawl i , which also, in its normal position stands out of engagement with the wheel so as to permit free rotation thereof. The pawl i is carried by a lever arm i' upon which is fixed the armature i^2 of an electric circuit which includes an electro magnet i^3 and a battery i^4 . The terminals i^5 and i^7 of the last named circuit are controlled by the delivering mechanism, whether operated by hand, as indicated in Fig. 8, or otherwise, as indicated, for example, in Fig. 3, wherein the terminals of the circuit are indicated as being under control of the music sheet. As shown, one side of the circuit is connected to the metallic surface of the tracker board d^2 , and the other to a contact spring i^5 . The music sheet is notched as at e^3 and e^4 , so that when one of such notches passes over the tracker board contact between the spring i^5 and the metallic surface of the tracker board d^2 is permitted and the magnet i^3 is thereupon energized, attracting its armature i^2 and, through the pawl i , rotating the wheel h^7 and the shaft h' one step backward, bringing the fiber block h^6 one step nearer the terminal h^5 . The motor continues to operate, however, and the music sheet to travel, until the notches in its edge have passed beneath the contact spring i^5 and the block h^6 is brought under and against the end of the terminal h^5 , thereby breaking the motor circuit and stopping the further operation of the instrument. It is necessary to prevent the action of pawl i through the completion of the circuit by the contact spring i^5 when the music sheet is being rewound upon the supply roll. To this end, provision is made whereby the contact spring i^5 is moved away from the music sheet and the tracker board when the music sheet motor is reversed. In the arrangement shown in the drawings an arm f^{12} is secured to the shaft f^4 of the reversing gear controlling devices and is arranged to coöperate with the extended arm k of a bell crank lever, the other arm k' of which underlies the contact spring i^5 . When, therefore, the gearing is shifted to rewind the music sheet the spring contact k' is slightly swung away from the contact strip d^2 and held away until the reversing gear is again shifted.

If the delivering devices, which in the illustration adopted herein comprise the music sheet and its actuating means, are not operated automatically but are operated by hand, as in ordinary vending machines, then each actuation of the delivering mechanism by hand is made to return the controlling de-

vices one step or stage nearer to the stopping point, represented in the illustration by impact of the block h^6 against the terminal h^5 , as each delivery is made, any suitable hand operated device being used for this purpose, a switch i^6 i^7 being shown in Fig. 8.

It will be observed that by reason of the difference in size and in number of teeth of the two operating ratchets h and h^x , the shaft h' will be rotated to different degrees by the two actuating pawls g^0 , carrying the stop h^6 of the contact disk h^3 further away from the terminal h^5 in the one case than in the other, and that if one of the pawls g^0 advances the shaft through one space or step, through which it will be moved backward by a single operation of the resetting pawl i , it will be moved forward through a plurality of spaces or steps by the coöperation of the other pawl g^0 with the ratchet wheel h , which is here shown as having half the number of teeth of the ratchet h^x , and that a plurality of actions of the pawl i will be required to bring the block h^6 back to its position of rest against and beneath the terminal h^5 . If one pawl g^0 and one ratchet h be employed, it will be seen that by the insertion of a suitable coin in the corresponding chute g' , a plurality of deliveries may be made before the mechanism is returned to its position of rest, one for each actuation of the pawl i . Moreover, when two coin chutes g' of different sizes, adapted to receive coins of different denominations, such as a nickel and a dime, are employed, as represented in Fig. 8, the insertion of a nickel in the proper coin chute, acting through the pawl g^0 and ratchet wheel h^x , will produce a forward movement of the shaft h' through but one space or step, so that but one operation of the resetting pawl i is required to return the mechanism to a position of rest, while the insertion of a dime in the corresponding chute g' , acting through the operating pawl g^0 and the ratchet h , will advance the shaft h' through a plurality of spaces or steps, permitting the delivering mechanism to be actuated a plurality of times in succession before the mechanism is returned to the position of rest. It will be obvious that this arrangement might be extended to provide for a proportionate operation of the instrument by any one of a greater number of different coins.

As shown in Fig. 10, the shank of each pawl g^0 rests against the periphery of the corresponding ratchet wheel, holding the tooth of the pawl out of range of the teeth of the wheel when the pawl is in its normal position of rest. In the case of the resetting pawl i , as shown in Fig. 5, its head is suitably shaped to coöperate with a fixed pin i^6 , so that as the pawl returns to normal position its tooth is carried out of the range of the teeth of the wheel h^7 . In this manner the pawls g^0 and i are held out of range of the

respective wheels when in normal position, so that the shaft is free to be turned by either pawl in the proper direction. As also shown in Figs. 6, 7 and 10, the pawls g^0 are preferably pivoted, as at g^{10} to the respective carrying arms g^7 , and have secured thereto springs g^{11} which bear respectively upon the arms. The pawls are therefore free to yield as required in the movements of the arms.

It will be understood that various mechanisms might be provided for accomplishing the result at which this invention aims, that is, the delivery through successive operations of the delivering mechanism of a plurality of articles of merchandise, musical selections, etc. in return for a coin of fixed value, the insertion of which determines the number of such operations of the delivering mechanism, and that the invention, therefore, is not limited to the particular devices shown and described herein. It will also be understood that while provision may be made, if desired, for the operation of the delivering mechanism two or more times in succession upon the introduction of a coin of larger value, and once only upon the introduction of a coin of smaller value, the devices which provide for a plurality of operations upon the introduction of a single coin may be used without the devices which provide for the single operation upon the introduction of a single coin. Furthermore, while reference is made herein to delivery devices or delivery mechanism, it will be understood that such term is employed with a significance broader than that which it ordinarily has, including in its scope the intended operation of coin controlled apparatus whether the same be adapted to deliver articles of merchandise or to make to the depositor some other return for the coin deposited.

I claim as my invention—

1. In a coin controlled apparatus, a delivery mechanism adapted to make a single delivery at each operation and to remain inactive after each operation until operated again; means to set the same forward from its normal position and by a single operation of the setting means through a plurality of steps to permit of a plurality of operations in succession; and means to operate said delivery mechanism successively in a series of step by step operations until it is returned to its normal position.

2. In a coin controlled apparatus, a delivery mechanism adapted to make a single delivery at each operation and to remain inactive after each operation until operated again; means to set the same forward from its normal position and by a single operation of the setting means through a plurality of steps to permit of a plurality of operations in succession; controlling devices to determine the extent of such forward setting of the delivery mechanism; and independently actu-

ated means to operate said delivery mechanism successively in a series of step by step operations until it is turned to its normal position.

5 3. In a coin controlled apparatus, delivery devices adapted to make a single delivery at each operation and to remain inactive after each operation until operated again; controlling means therefor capable of being
10 moved in one direction and at a single operation to set the same to permit of a plurality of operations in succession, and in the opposite direction to permit successive operation of the delivery devices; devices to move
15 said controlling means forward in the first named direction and by a single operation of the moving means through a plurality of steps; and devices to move said controlling means successively in a series of step by step operations in the opposite direction until said controlling means are returned to normal position.
20

4. In a coin controlled apparatus, delivery devices adapted to make a single delivery at
25 each operation and to remain inactive after each operation until operated again; a motor therefor; controlling devices for said motor movable in one direction to set the motor in operation and in the opposite direction to
30 bring the motor to rest; actuating devices to advance said controlling means by a single operation through a plurality of steps; and independently operated devices to move said controlling means successively in the
35 opposite direction in a series of step by step operations until said controlling means are returned to normal position.

5. In a coin controlled apparatus, delivery devices adapted to make a single delivery at
40 each operation and to remain inactive after each operation until operated again; an electric motor therefor; traveling contacts included in the circuit of said motor; actuating means for moving said contacts in one
45 direction and by a single operation through a plurality of steps to start and continue the operation of the motor; and independently actuated means for moving said contacts successively in the opposite direction in a
50 series of step by step operations until the motor is brought to rest.

6. In a coin controlled apparatus, delivery devices; an electric motor therefor; a shaft having oppositely acting ratchets and traveling
55 contacts included in the circuit of the motor; actuating devices cooperating with one of said ratchets to move said contacts to start and continue the operation of the motor; and independently actuated devices co-
60 operating with the other of said ratchets to move said contacts step by step through a succession of operations of the delivery devices until the motor is brought to rest.

7. In a coin controlled apparatus, delivery
65 mechanism; means to set the same forward

from its normal position and by a single operation of the setting means through a plurality of steps to permit of a plurality of operations of the delivery mechanism in succession; a plurality of controlling devices to actuate said means in different degrees; and independently operated devices to actuate said delivery mechanism step by step through a succession of operations until it is returned to its normal position.

8. In a coin controlled apparatus, delivery devices; controlling means therefor movable in one direction to set the same to permit of a plurality of operations of said delivery devices in succession; and movable in the opposite direction to permit successive operation of the delivery devices; and a plurality of controlling devices to actuate said controlling means in different degrees.

9. In a coin controlled apparatus, a delivery mechanism adapted to make a single delivery at each operation and to remain inactive after each operation until operated again; means for setting said delivery mechanism at a single step in readiness for a succession of operations; and means for re-setting said delivery mechanism successively in a series of step by step operations.

10. In a coin controlled apparatus, delivery devices adapted to make a single delivery at each operation and to remain inactive after each operation until operated again; controlling means therefor movable in one direction to set the delivery devices in readiness for a succession of operations, and in the opposite direction to permit of a succession of operations of the delivery devices; a pawl mechanism to move said controlling means in the first named direction through a succession of steps; and an independently operated pawl mechanism to move said controlling means successively in the opposite direction in a series of step by step operations.

11. In a coin controlled apparatus, delivery mechanism; movable controlling means therefor; a plurality of actuating devices for moving said controlling means in one direction in different degrees; and means for returning said controlling means to its initial position.

12. In a coin controlled apparatus, delivery mechanism; movable controlling means therefor; a plurality of actuating devices for moving said controlling means in one direction, one of said devices being adapted to move said controlling means through a plurality of steps; and means for returning said controlling means to its original position by a series of step by step movements.

This specification signed and witnessed this twentieth day of June, A. D., 1906.

JOHN A. WESER.

Signed in the presence of—
WILLIAM H. WESER,
W. W. SMITH.