

(No Model.)

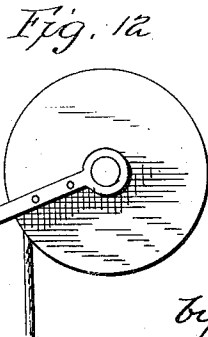
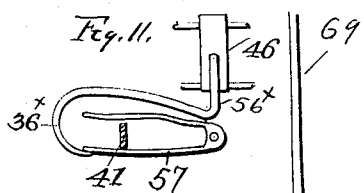
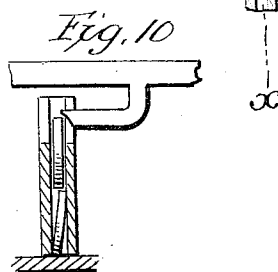
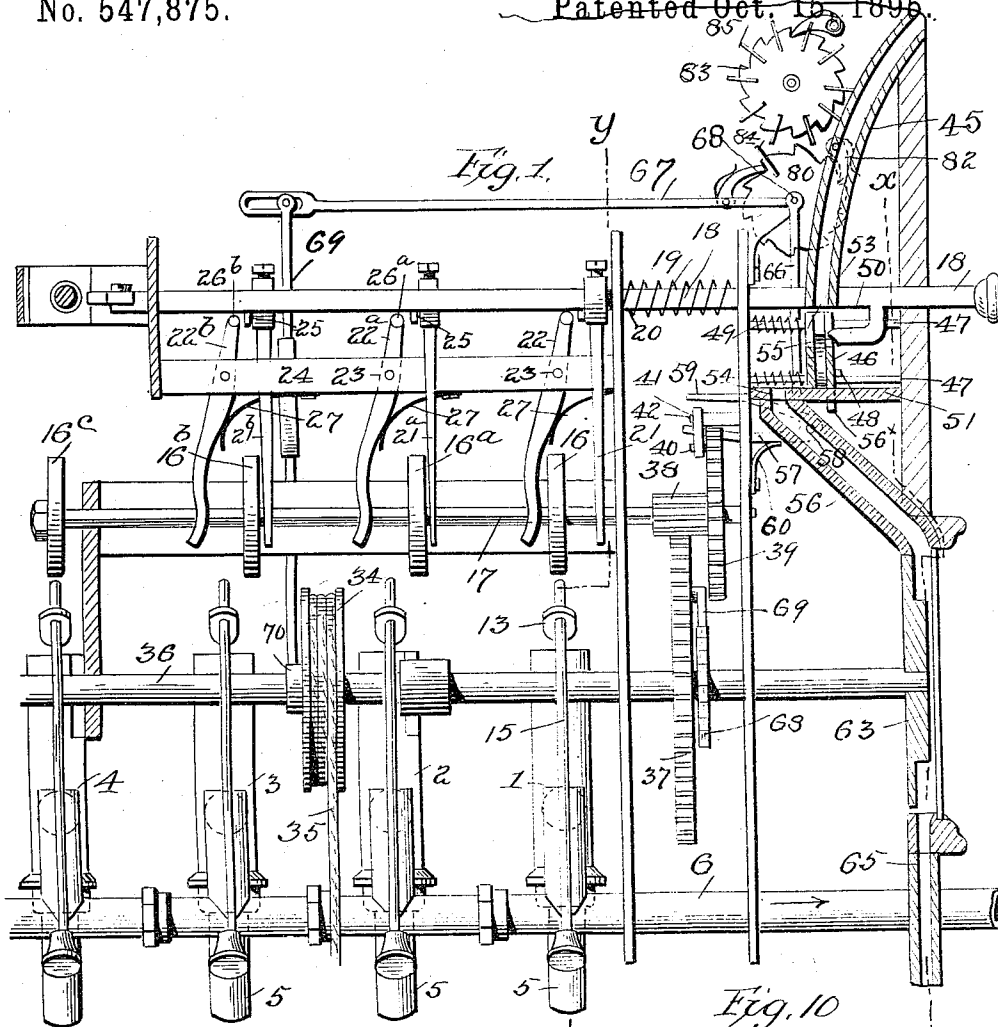
3 Sheets—Sheet 1.

L. CECCHI.

COIN FREED DELIVERY APPARATUS.

No. 547,875.

Patented Oct. 15 1895.



Attest
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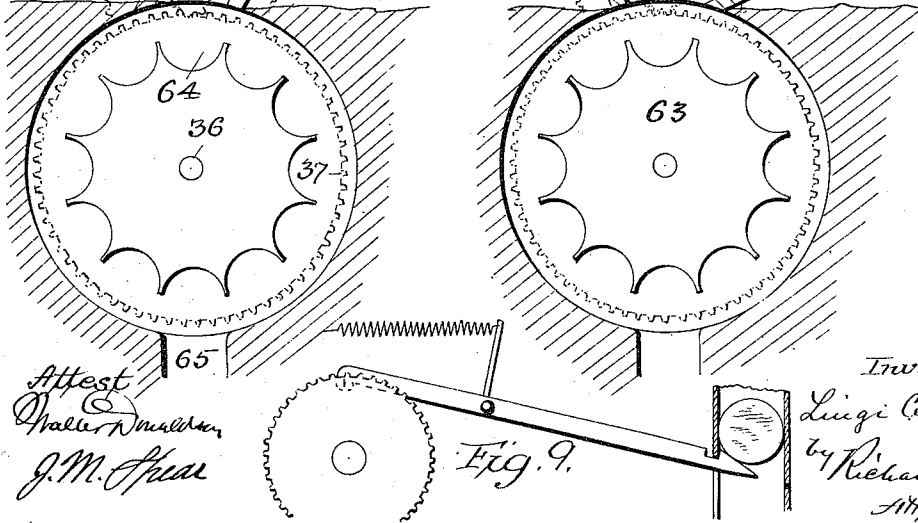
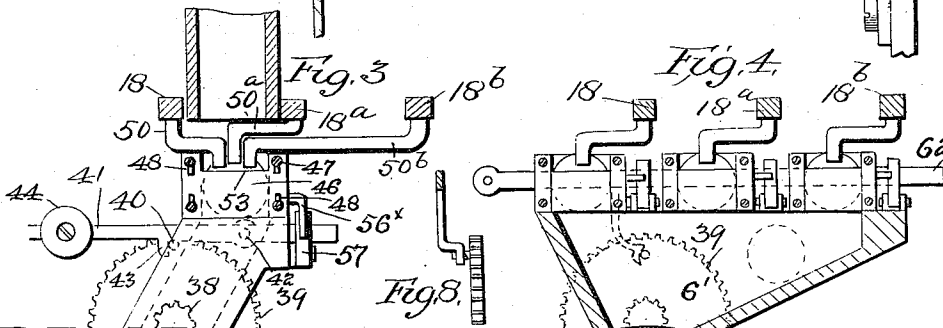
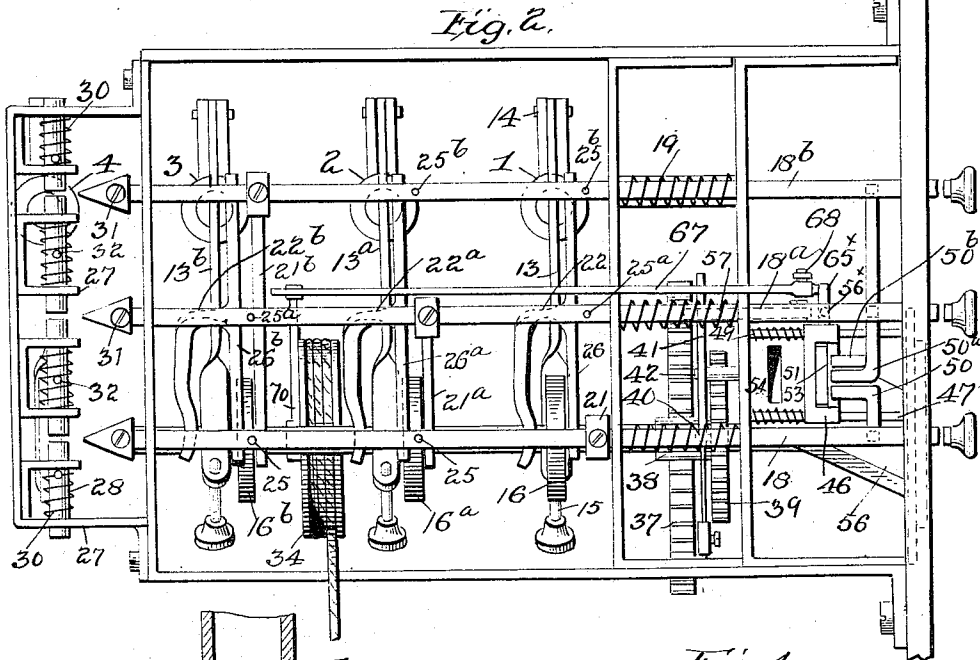
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3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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Fig. 5.

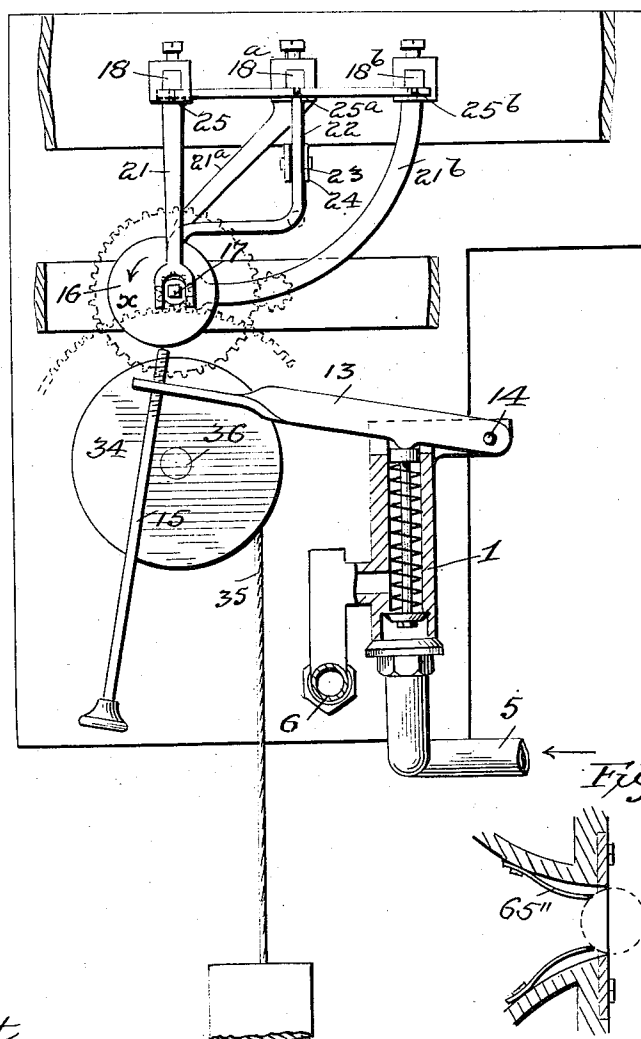


Fig. 6.

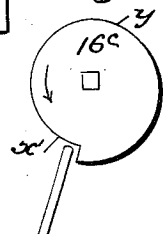
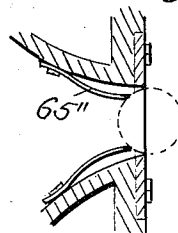


Fig. 7.



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UNITED STATES PATENT OFFICE.

LUIGI CECCHI, OF GENOA, ITALY.

COIN-FREED DELIVERY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 547,875, dated October 15, 1895.

Application filed December 11, 1894. Serial No. 531,479. (No model.)

To all whom it may concern:

Be it known that I, LUIGI CECCHI, a subject of the King of Italy, residing at Genoa, Italy, have invented certain new and useful Improvements in Coin-Freed Delivery Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of my invention to provide a coin-freed apparatus for dispensing a variety of liquids, the purchaser being enabled to obtain any one of the liquids he may desire; or by setting the machine in a special way he may obtain from the same two or more varieties of liquids at his choice, either simultaneously or in succession.

My invention includes a plurality of reservoirs, valves controlling the supply therefrom, and a series of pushers or buttons controlling the valve mechanism, whereby any valve mechanism may be set into operative position while the other valves are rendered inoperative. It includes, further, a coin-freed mechanism whereby the introduction of a coin is necessary before the valve mechanism will operate, and it also includes a series of pushers arranged to set the valve mechanisms, said pushers being arranged to operate the coin-freed mechanism when the coin is in place.

In the drawings, Figure 1 is a side elevation of the mechanism with parts in section. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a vertical sectional view on line *xx* of Fig. 1. Fig. 4 is a similar view to Fig. 3 of a modification. Fig. 5 is a vertical sectional view of Fig. 1 on line *yy*, some of the parts being shown in side elevation and some of the driving mechanism forward of the sectional line being shown in dotted lines. Fig. 6 is a detail view of the cam of one delivery mechanism. Fig. 7 is a detail view of the means for preventing the introduction of spurious coins. Fig. 8 is a detail view of a modification of stop-lever and pin arrangement. Fig. 9 is a view of a directly-operated coin-lever. Fig. 10 is a view of a coin-carriage for holding two coins. Fig. 11 is a detail view of a lock for the motor mechanism. Fig. 12 is a detail of the winding-drum of the motor mechanism.

The reservoirs (not shown) containing the separate liquids are connected with the valve-boxes 1, 2, and 3 by the pipes 5. These valve-

boxes, we will suppose, control the supply of different flavors or sirups—such, for instance, as used at soda-fountains. The fourth valve-box 4 controls the supply of soda or other liquid, as ordinary drinking-water, from a separate reservoir, (not shown,) and all of these valve-boxes connect with a common discharge-pipe 6, to which a suitable faucet is attached, the purpose being to draw soda or any other kind of liquid with any sirup at the choice of the purchaser. The valve is operated by the lever 13, pivoted at 14 to a projection of the valve-box, and having an adjustable rod 15 at its front end bearing on a cam 16 on the shaft 17. Each valve is combined with an independent lever 13 13^a 13^b, operated on by a cam, as 16, 16^a, and 16^b, and all of the cams are adapted to be shifted laterally into and out of line with their respective levers, for which purpose the shaft is square or of any other angular shape, and the cam may slide thereon, while at all times it will rotate with the shaft. The cam-shaft is rotated through motor mechanisms hereinafter described when a coin is introduced, and when so operated any cam in line with its lever will operate its valve, while the others will rotate without effect. The cam 16^c, for the purposes of this description, is fixed on the shaft, and at each movement it operates its valve to supply the soda or any other liquid to mix with the sirup supplied through one of the other valves. The cams 16, 16^a, and 16^b are shifted to and from work by means of push-rods 18, 18^a, and 18^b, extending to the outside of the case and having knobs or buttons or pulling-levers thereon, the rods being pressed normally out by the springs 19, secured to the rods at one end and bearing upon the frame at 20, Fig. 1. When the push-rod 18 is forced inwardly, the arm 21, depending therefrom and forked to embrace the cam-shaft, will move the cam 16 into line with its lever, and then when the coin-freed motor mechanism is released by introducing the coin the cam-shaft and cam will be turned to operate the valve 1 to supply the sirup. At the same time that the cam 16 is moved into working position, as shown in Fig. 1, by the arm 21 the other cams 16^a 16^b are moved out of working position by the levers 22^a 22^b, pivoted at 23 to the cross-bar 24 of the frame and operated by the push-

rod 18, which has pins 25 to engage the cross-bars 26^a 26^b of the levers 22^a 22^b, this action, as before stated, taking place at the same time that the push-rod is thrust in to move the cam 16 into line with its lever. The levers 22 22^a 22^b are returned to normal position by the springs 27 or by suitable counterweight, the said levers and push-rods being shown in normal position in Fig. 1. When the second push-rod 18^a is thrust in, its depending or inclined arm 21^a moves the second cam 16^a into working position, and at the same time the pins 25^a on the bar 18^a contact with the cross-arms 26 and 26^b of the shifting-levers 22 22^b, and thus move the cams 16 and 16^b out of operation. When the third pusher 18^b is operated, its depending and laterally-extending arm 21^b, Figs. 1, 2, and 5, moves the cam 16^b into working position and the cams 16 and 16^a out of working position through the pins 25^b and the levers 22 22^a. Thus each push-rod will throw its cam into work and all the others out of work. Any number of reservoirs, valves, and push-rods may be used.

The cam 16^c for the soda-water is designed to operate with each of the other cams and to follow the action thereof—that is, in the first half of the cam-shaft's movement the high part of the cam 16 or 16^a or 16^b operates to open the proper sirup-valve, and when this has completed its action the high part of the cam 16^c begins to act and continues during the remainder of the revolution or movement of the cam-shaft. This relative arrangement of the cams 16 and 16^c is shown in Figs. 5 and 6, the cam 16 being about to act with its high part α , while the lower part α' of the cam 16^c prevents the valve 4 from being operated until the high part γ is brought into action. By changing the relative position of the cams they may be made to operate simultaneously.

I do not limit myself to the number of reservoirs and valves, as the valve 4 for supplying liquid at each action, it being desirable in many cases to produce a drink by the mixture of several liquids.

In order to prevent more than one push-rod being operated for one insertion of coin or coins, stop-pins 28 are arranged end to end to slide through bearings 27, Figs. 1 and 2, and under tension of springs 30. The push-rods have arrow-heads 31 attached to them, and when either one is operated its arrow-head passes between the abutting ends of the sliding stops, pushing them aside and thus preventing any other pusher being forced back, as it would then strike the solid part of the pin. The stop-pins are limited in their movements by the studs 32 projecting therefrom to contact with the bearings 27. Should two pushers be operated at the same time, the stop pin or pins intermediate of their arrow-headed ends would lock them. The coin-freed motor mechanism comprises a drum 34, to which the motor-weight is attached by a cord 35 or a spring coiled on said drum being on the main shaft 36, which carries the drive-gear 37, en-

gaging a pinion 38 on the cam-shaft through which the cam-shaft is operated. On the cam-shaft the stop-wheel 39 is fixed, having the pin or pins 40 to engage the coin-freed lever 41, pivoted at 42, and having a catch 43 to engage the stop-pin, Figs. 1, 2, and 3, and held in normal position by the counterweight 44, Fig. 3, or a suitable spring. The coin is introduced through the chute 45, Figs. 1 and 3, and it falls into the coin block or carriage 46, movable on and guided by the four rods 47, the coin resting upon the shelf or platform 51. The carriage is held normally against the stop-spurs 48 on the guide-rods 47 by the springs 49 and in line with the chute. The push-rods have fingers 50 50^a 50^b, all extending to the coin to contact therewith. The carriage is partially open at 53, so that the fingers can pass freely through it when there is no coin in place, but when the coin has been introduced into the carriage the movement of either pusher will engage the coin and move it with the carriage over the surface of the platform or shelf to the opening 54 therein, through which the coin falls, it being forced down through the opening by the inclined end 55 of the finger. The coin then passes through the supplemental chute 56 to a suitable receptacle or the coin-exhibitor herein-after described. The movement of the carriage, when the coin is in place, effects the release of the stop or coin-freed lever by the spur 56^a on the carriage engaging the fork 57, pivoted at 58 to the supplemental coin-chute and having its upper arm 59 extending over the stop-lever, so that when the fork is depressed the stop-lever will be depressed also to release the stop-wheel, and this takes place, as before mentioned, when the coin-carriage is moved and reaches the opening 54. The cam-shaft is then turned by the motor mechanism, it being understood that the forcing in of the pusher not only releases the coin-freed mechanism, but sets the valve-controlling mechanism to operate the proper valve at the choice of the purchaser. The forked lever is returned to normal position by its spring 60, Fig. 1, or suitable counterweight. It will be understood that the stop-wheel may have a plurality of stops and the motor mechanism make only a partial revolution for each action and the cams would have a corresponding number of high and low parts. Further, while I have described the coin-carriage and the use of the pushers as operating means therefor, the coin-freed lever may be operated by the weight of the coin directly, as shown in Fig. 9, to release the motor mechanism, in which case the purchaser would first operate the proper knob to set the valve mechanism and then introduce the coin to act directly on the coin-freed lever or other device. It will be understood, also, that cams, like 16^c, and their valves may be omitted, so that only one liquid will be delivered at each action, or the valves, like 4, may control the supply of any liquid other than soda, and

the active valve mechanism arranged to operate only after the proper valve mechanism has been rendered inactive; substantially as described.

2. In a coin freed delivery apparatus, the plurality of reservoirs, the valves therefor, the connections for operating the valves, the pushers for positively adjusting either valve mechanism to render the same inactive, the coin freed motor mechanism common to all the valve mechanisms, said motor mechanism being arranged to operate only after the proper valve mechanism has been rendered inactive, substantially as described.

3. In a coin freed delivery apparatus, the plurality of delivery mechanisms, the coin freed motor mechanism common thereto and means for throwing one set of delivery mechanisms into operation and the other set or sets out of operation by the same action substantially as described.

4. In a coin freed delivery apparatus, the delivery mechanism arranged to be thrown into and out of operation, the coin freed motor mechanism, a second delivery mechanism operating at each action of the motor and means for throwing the first set of mechanism into and out of operation substantially as described.

5. In a coin freed delivery apparatus, the delivery valves, the cams for operating the same arranged to be shifted, the coin freed motor mechanism connected with the cam shaft and means for shifting the cams into and out of operative position, said means extending to the outside of the casing or to be accessible to the purchaser.

6. In combination in a coin freed delivery apparatus for liquid, the plurality of valves, the cams for operating the same arranged to be shifted to and from working position and means for shifting one cam into position and the other out of position simultaneously, substantially as described.

7. In combination in a coin freed delivery apparatus for liquids, the delivery valve, the cam therefor arranged to be shifted to and from operative position, the non shifting cam arranged on the same shaft therewith to operate at each movement of the motor mechanism, the valve controlled thereby and means for moving the shifting cam to and from operative position, substantially as described.

8. In combination in a coin freed delivery apparatus, the plurality of delivery mechanisms one of which is arranged to be thrown into and out of operation, the shifting device and the coin freed motor mechanism, the said shifting device being arranged to contact with the coin and through it release the motor mechanism, substantially as described.

9. In combination in a coin freed delivery apparatus, the plurality of delivery mechanisms one of which is arranged to be thrown into and out of operation, the shifting device for throwing the said mechanism into and out of operation, the coin freed motor mechanism,

the coin carriage arranged to receive the coin in position to contact with the said shifting device and means operated by the movement of the carriage for releasing the motor mechanism, substantially as described.

10. In combination, the delivery mechanism, the coin freed motor mechanism, the releasing device therefor the movable coin carriage arranged to receive the coin from the coin slot, and the pusher arranged to contact with the coin when in the carriage to move the same with the carriage, said carriage being arranged to operate the releasing device substantially as described.

11. In combination, the plurality of delivery mechanisms, the plurality of operating devices corresponding thereto each arranged to operate one delivery mechanism and throw the other mechanism out of operation, and the said devices being rendered effective in operation by the presence of a coin in the proper position, substantially as described.

12. In combination, the delivery mechanism, the coin carriage arranged to receive the coin, the pusher for moving the carriage, the coin freed motor mechanism including the stop wheel and lever and the pivoted lever engaging with the stop lever and arranged to be operated by the movement of the carriage, substantially as described.

13. In combination, the plurality of delivery mechanisms, the coin freed motor mechanism, including the shifting cams, the push rods, the connection from each rod to its proper cam for moving the same into operative position, and the shifting device for the other cam or cams arranged to be operated by the said rod, substantially as described.

14. In combination, the delivery mechanism, the plurality of pushers, each having a beveled or arrow headed end, and the laterally movable stop pins arranged to allow either pusher to operate but prevent the operation of two substantially as described.

15. In combination, a plurality of delivery mechanisms, the motor mechanism common thereto, the pushers to be operated by the purchaser, the connection therefrom to the delivery mechanisms to set one mechanism into operative position and the others out, the connection between the pushers and the motor mechanism for winding the same when either delivery mechanism is set, and the releasing device for the motor mechanism arranged to be operated by the movement of any pusher, substantially as described.

16. In combination, a delivery mechanism, a motor mechanism, the releasing device therefor the pusher and the connection leading therefrom to the motor mechanism to wind the same, the said pusher being arranged to operate the said connection and said releasing device through the interposition of the coin and on the movement of the pusher in one direction substantially as described.

17. In combination, the delivery mechanism, the coin freed motor mechanism, the

may control also a supply of ordinary drinking-water from the street main or other source, and the other valves, like 1 2 3, may control the supply of any liquid other than those mentioned. Instead of using a single coin-carriage, as in Fig. 3, I may, as in Fig. 4, use a separate carriage and forked lever for each pusher-rod, in which case a chute 6' would be provided common to all the coin-carriages and a stop-lever 62 common to all the forked levers, each carriage having a separate forked lever. The supplemental chutes for the coin extend to a rotary coin-exhibitor 63, arranged on the main shaft to revolve therewith, said exhibitor having a series of pockets 64 to receive the coin and to discharge the same into the discharge-chute 65. In order to make the machine self-winding, I utilize the movement of the pushers to wind the weight or spring-drum sufficiently for each action, and for this purpose the pin 65^x, projecting from the coin-carriage, strikes against the arm 66 of the bell-crank lever 67, pivoted at 68, the longer arm of which connects through the link 69 with the arm 70, extending radially from the drum and secured thereto. This mechanism turns the drum and winds up the weight cord or spring whenever the coin-carriage is moved, and, as already pointed out, this takes place only when a coin is in place within the carriage, so there is no danger of straining or operating these connections by mischievous persons. The drum-shaft operates the drive-gear, which is loose thereon, through the ratchet 68, rigid on the shaft, and the pawl 69, pivoted to the drive-wheel. Instead of using pushers and buttons, as described, I may employ pulling knobs or levers for the same purpose.

When the mechanism is intended to be operated with two or more coins, the coin-carriage is made of sufficient depth to receive the coins, as shown in Fig. 10. In this case the pusher-finger would be arranged to engage with the upper coin, so that the machine would not operate unless all the coins are introduced. The coins may be of any denomination—two pennies, two nickels, or a dime and a nickel—the width of the carriage-receptacle being equal to the thickness of the largest coin. The term "coin" used in this description is intended to mean, besides any kind of proper coin, any disk or equivalent suitable to operate the motor mechanism.

Fig. 7 shows a coin-slot combined with spring-dogs 65'', fixed to the walls of the chute, with their front pointed ends adapted to engage the edge of the coin. If the coin is of counterfeit or soft metal, the dogs will bite into the same and prevent its introduction; but if a good coin is used the hardness of the metal will prevent the sharp ends of the springs from biting into the same and they will be forced back. It is understood that the rods 18 18^a 18^b, instead of being pushed in, might be pulled out only, changing the position of the arms 21 21^a 21^b of the levers 22

22^a 22^b and of the pins that operate on the cross-bars 26 26^a 26^b, in which case the arrangement of the stop-pins shown in Fig. 2 would be changed also. It will be noticed that the fork 57 not only serves to bear the stop or coin lever down when operated by the carriage, but when the parts return to normal position it serves to hold the coin-lever in engagement with the stop-wheel by bearing on the under side of the said stop-lever under the action of the spring 60. This locking of the coin-lever against movement when all the parts are in normal position is especially desirable when the machine is to be set up on boats or cars, where the jar and vibration might act upon the weighted lever and release it.

As shown in Fig. 11, I may provide a more positive lock by extending the spur 56^x of the carriage, as at 36^x, to engage the lower arm of the fork at its end, so that as soon as the coin-carriage begins to move the extension 36^x will withdraw from the end of the fork, and thus will be free to be forced down by the spur 56 acting on the upper arm of the fork. On the return of the parts to normal position the locking extension 36^x will again engage the fork-arm and lock the motor mechanism against all possibility of movement until the coin-carriage is moved again upon the introduction of another coin.

In order to register the number of coins received, I arrange a registering device at a suitable point in the casing, to be operated from one of the moving parts controlled by the coin-carriage.

On the pivot of the winding lever, Fig. 1, I journal a registering-wheel 80, having ten teeth and arranged to be operated one step for each movement of the coin-carriage, it being understood that the coin-carriage only moves when a coin is introduced, and also that the bell-crank lever is operated by the coin-carriage. The lever for this purpose carries a pawl to engage the teeth of the wheel, and a detent 82 is arranged to arrest the wheel after each action. This wheel registers the units, and when it makes a complete revolution it carries the ten to a tens-wheel 83, journaled in the frame, the tens-wheel having likewise ten teeth. The carrying means consists of a plate or spur 84 on the units-wheel arranged to strike one of the ten spurs 85 in the tens-wheel and move it one step for each complete revolution of the units-wheel. A hundreds-wheel may be operated from the tens-wheel in a similar manner, a carrying-spur being used on the tens-wheel to engage spurs on the hundreds, and from the hundreds a thousands-wheel may be operated.

I claim—

1. In a coin freed delivery apparatus, the plurality of reservoirs, the valves therefor, the connections for operating the valves, the pushers for positively adjusting either valve mechanism to render the same inactive, the coin freed motor mechanism for operating

pusher, the connection leading between the same and the motor mechanism to wind the same, the stop wheel and lever, the said pusher being arranged to wind the motor mechanism and then release the stop wheel from the lever through the interposition of the coin substantially as described.

18. In combination the delivery mechanism, the coin carriage adapted to receive the coin the edge thereof exposed, the supplemental discharge chute leading from the carriage support and the pusher having the inclined bearing to contact with the exposed edge of the coin to force the same through the discharge chute substantially as described.

19. In combination, a delivery mechanism, a motor mechanism including the releasing device, and the lock for the said device and motor mechanism arranged to be released when the coin is introduced.

20. In combination, a delivery mechanism, a motor mechanism including the coin freed stop lever and stop wheel and the lock for said lever arranged to hold the same in stopping position until the coin is introduced.

21. In combination, a delivery mechanism, a motor mechanism including the stop lever, the lock therefor, and the coin carriage arranged to operate the said lock when a coin is in place substantially as described.

22. In combination, a delivery mechanism,

a motor mechanism, a lock therefor and the coin carriage arranged to release the lock when a coin is in place and also to set the same when the carriage is returned to normal position.

23. In combination, a delivery mechanism, a motor mechanism, a lock therefor and a coin carriage arranged to move the same to unlock when a coin is in place and to positively hold the lock on the return of the parts.

24. In combination, a delivery mechanism, a motor mechanism including the stop lever and stop wheel, and the fork embracing the stop lever and arranged to lock the same, said fork being arranged to be forced down when the coin is introduced.

25. In combination the plurality of delivery mechanisms, the plurality of operating devices corresponding thereto, each arranged to set one delivery mechanism in operative position and throw the other mechanism out of operation, the coin freed motor mechanism for operating the active delivery mechanism and means for returning the said operating devices to normal position.

In testimony whereof I affix my signature in presence of two witnesses.

LUIGI CECCHI.

Witnesses:

HENRY E. COOPER,
WALTER DONALDSON.