No. 857,545. PATENTED JUNE 18, 1907.

L. O. T. THOMPSON.

AUTOMATIC SELLING AND DELIVERING APPARATUS FOR LIQUIDS.

APPLICATION FILED JULY 12, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

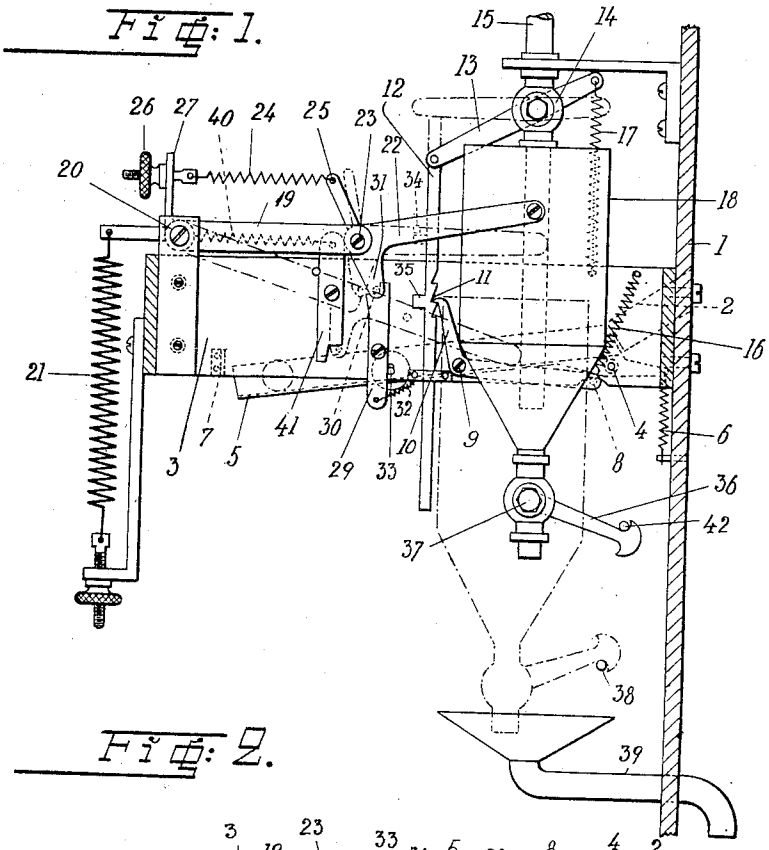
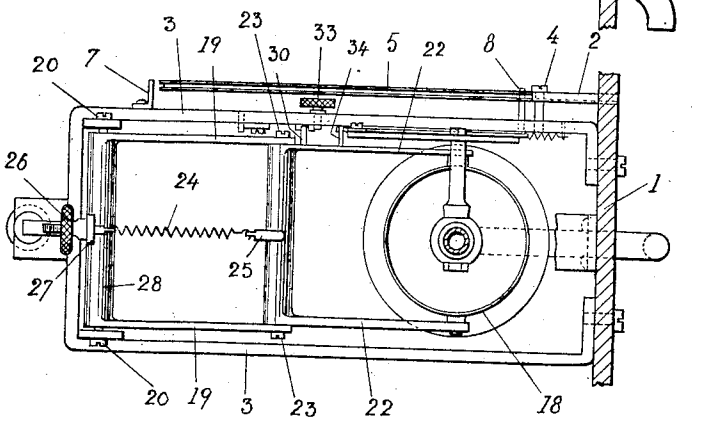


Fig. 2.



WITNESSES:

E. F. Stewart

Jno. E. Parker

Lars Olof Thyr Thompson,
INVENTOR.

By C. A. Snow & Co. ATTORNEYS.

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2 SHEETS—SHEET 2.

Fig. 3.

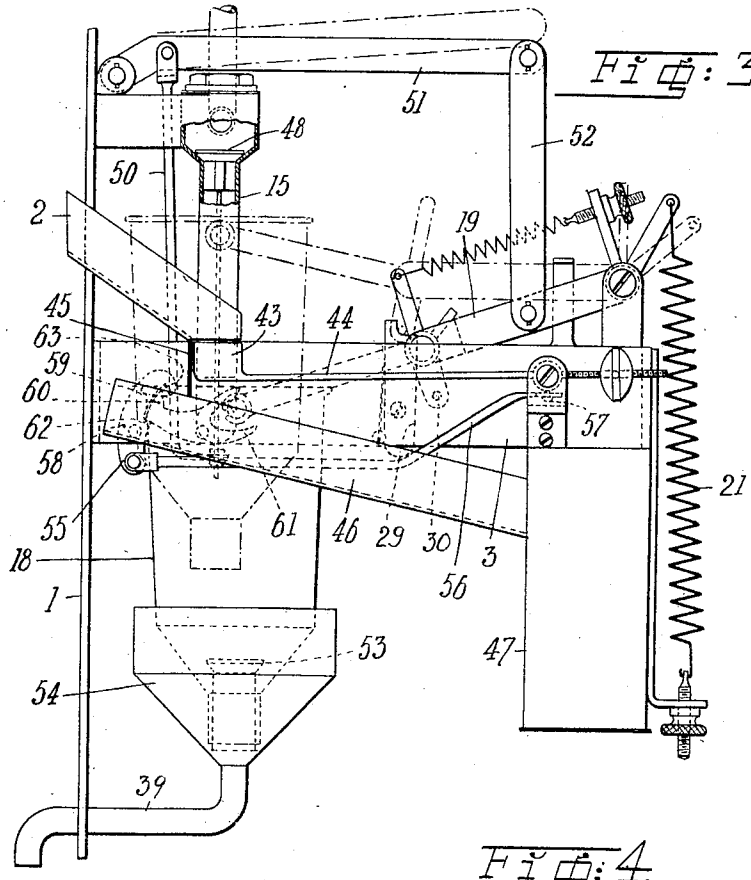
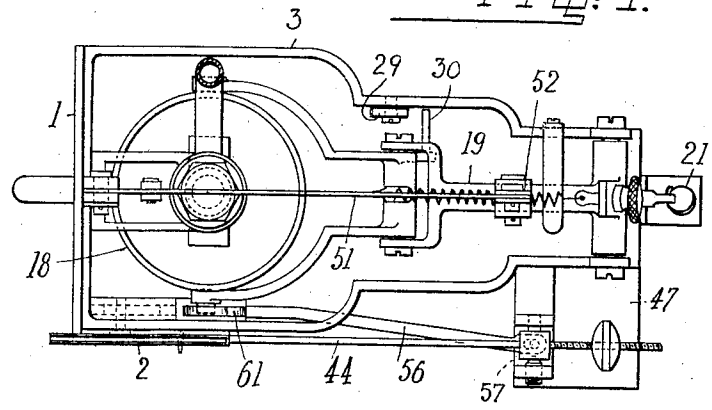


Fig. 4.



WITNESSES:

E. G. Holcomb

Jno. E. Parker

Lars Olof Thyr Thompson,
INVENTOR.

By C. A. Snow & Co ATTORNEYS

UNITED STATES PATENT OFFICE.

LARS OLOF THYR THOMPSON, OF STOCKHOLM, SWEDEN, ASSIGNOR TO CARL PEHR JOSEF JONSSON, OF STOCKHOLM, SWEDEN.

AUTOMATIC SELLING AND DELIVERING APPARATUS FOR LIQUIDS.

No. 857,545. Specification of Letters Patent. Patented June 18, 1907.

Application filed July 12, 1906. Serial No. 325,893.

To all whom it may concern:

Be it known that I, LARS OLOF THYR THOMPSON, a citizen of the Kingdom of Sweden, residing at Stockholm, Sweden, have invented new and useful Improvements in Automatic Selling and Delivering Apparatus for Liquids, of which the following is a specification.

The present invention relates to such automatic selling and delivering apparatus for liquids with which there is used a measuring-vessel, supported by a suitably balanced lever, and the filling of which takes place by the action of a coin of the right value put into the apparatus, and which vessel after being filled, makes the lever sink whereby a bottom valve in the vessel is opened when the vessel is in its lowest position, so that the liquid is allowed to run out.

The object of the invention is to improve the method of working of such apparatus, so that the opening and closing of the filling and tapping-off valves will take place quicker and more reliably than with the apparatus of this kind hitherto constructed, and the invention is chiefly characterized by the front part of the lever, which carries the measuring-vessel, being movably connected with the other part, which is normally locked both in the upper and lower positions and is released by the action of the front part of the lever by this means, that this front part is moved relatively to the other part when the liquid is filled into or tapped off from the measuring-vessel. By balancing, in this connection, in some suitable way, the whole of the lever which carries the measuring-vessel, such great power can be obtained on the sinking or the rising of the lever, that the valves can quickly and reliably be opened and closed.

The invention also comprises other details more fully described hereinafter.

The invention is illustrated by the accompanying drawings which show two forms of construction of the same.

Figure 1 shows a side-view, partly in section, of the apparatus constructed in accordance with one of the forms of construction, and Fig. 2 shows a view of the same as seen from above. Figs. 3 and 4 show, in the same way, the other form of construction of the apparatus.

The apparatus is intended to be fastened on the inner side of a wall or the like 1 in the usual way, with a slot or opening for coins, which slot on the inside is continued by a stationary coin-channel 2. The movable parts of the apparatus are journaled in a frame 3 fixed to the wall 1, with which frame 3 there is pivotally connected at 4 a coin-lever 5, balanced by a spring 6, weight, or the like, in such a way that the turning of the lever occurs when a coin of the right value has been put in, and has glided or rolled down the lever, which is formed like a canal, to the free end of said lever. A coin which is too light is checked, on the contrary, by a shoulder or the like 7, at the end of the coin-lever, as the coin-lever is not turned when weighted with a light coin. The lever 5 is so arranged that when it is turned it acts on a pin 8 at the one end of a pawl-lever 10 pivotally journaled at 9, the other end of said pawl-lever forming a hook which engages in a notch 11 in a link 12 which is attached to a lever 13 fastened to the stem of a cock 14 in the supply-pipe 15 for the liquid which is to be retailed. The pawl-lever 10 is acted on by a spring 16 which tends to keep said pawl-lever in engagement with the notch in the link 12, and the lever 13 is also acted on by a spring 17 which tends to turn the cock 14 into its open position. When the above-named action on the pin 8 by means of the coin-lever takes place, the link 12 is released, whereupon the spring 17 immediately opens the cock in the feeding-pipe and allows the liquid to flow into the measuring-vessel 18.

The measuring-vessel 18 is suspended in a fork-shaped lever 19 which is pivotally journaled at 20 and, together with the parts which said lever supports, is balanced in any suitable manner as by an adjustable spring, 21. The front part 22 of the lever 19 to which part the measuring-vessel 18 is suspended is attached at 23 by means of a joint with the other part of the lever, in which connection, in order to prevent the falling down of the said part, said part is balanced by a spring 24 which is fastened between an arm 25 from said front part, and a set-screw 26, which is screwed into a projection 27 from the axle-part 28 of the lever 19. The tension of the spring 21 is so adjusted that it is almost sufficient to keep the lever 19 with

the empty measuring-vessel, in its highest position, and is sufficient to counterbalance it when it has sunk, together with the measuring-vessel, somewhat under the highest position. In the said highest position the lever 19 is held by a lever 29 pivoted to the side of the frame 3, on which lever 29 rests a pin or projection 30, which projects from a downward-projecting arm 31 of the part 22. The upper part of the lever 29 is hook-shaped in order to form a suitable support for the projection 30, and the lever is prevented from turning itself away in relation to the said projection, by a spring 32 which keeps the lower end of the lever against a shoulder 33. This shoulder can be formed of an eccentric-pin, a set-screw or the like, with which the position of the lever 29 can be regulated within certain limits. The tension of the spring 24 is so regulated that it is able to balance the measuring-vessel when this is empty and only yields in that degree that the measuring-vessel is filled to the desired amount. During the filling of the measuring-vessel there then takes place a slow turning around the bearing-pins 23, which turning has, as its consequence, that the projection 30 more and more approaches the edge of the lever 29 and releases the same when the desired amount of liquid has been received in the measuring-vessel. When this is done, then the loading on the lever 19 is, in consequence of the liquid being in the measuring-vessel, considerably greater than can be counterbalanced by the spring 21, for which reason the whole of the lever 19 with the measuring-vessel 18 hastily sinks downward. When this sinking takes place, a pin 34 on the part 22 of the lever 19, catches a projection 35 on the link 12, so that this link is also drawn downward and hastily closes the feeding-cock 14. During the sinking, an arm 36, projecting from the stem of a tapping-off cock 37 arranged in the bottom of the vessel 18, strikes against a stationary projection 38, so that the arm 36 is turned and the said cock is opened, whereby the liquid runs out through the serving-pipe 39. When the lever 19 reaches its lowest position (marked in the drawings by dotted lines) the projection 30 snaps in under the hook-shaped end of a lever 41 which can be turned and is acted on by a spring 40, so that the lever is held in the said lowest position. In the same degree that the liquid runs out of the measuring-vessel, the part 22 with the measuring-vessel is, however, turned upward by the action of the spring 24, and simultaneously the turning action of the spring 21 on the lever 19 becomes greater and greater in proportion to the loading on the said lever. The pawl-bolt 41 and the tension of the spring 24 are by suitable means so adjusted that said bolt releases the projection 30 at the same moment that the measuring-vessel becomes empty, and, under the action of the spring 21, the entire lever 19 with the measuring-vessel 18 are moved quickly upward so that the projection 30 again snaps in behind the upper edge of the pawl-lever 29 and this latter holds the lever in the highest position. During the upward movement the arm 36 strikes against a stationary projection 42, so that said arm together with the body of the cock 37 are again turned back to the closed position. The apparatus is then ready to once more be set in motion by a fresh coin.

The adjusting of the apparatus for different amounts of liquid takes place suitably by adjusting the lever 29 by means of the adjustable shoulder 33, so that the movement of the projection 30 from the hook of the lever is made to occur after a greater or lesser turning of that part 22 of the lever 19 that supports the measuring-vessel, or after a greater or lesser amount of liquid has flowed into the measuring-vessel.

The feeding- and tapping-off cocks of the measuring-vessel can of course be replaced by valves or other suitable closing devices, if desired.

As in the form of construction already described, the apparatus constructed according to Figs. 3 and 4 is intended to be fastened to the wall 1 and has its movable parts journaled in a frame 3 fastened to the wall 1. The measuring-vessel 18 is, in this case too, suspended in a fork-shaped lever 19 of the same construction as in Figs. 1 and 2. Under the lower opening of the coin-canal 2 which goes from the wall 1 there is the scale 43 on the balance 44. The scale 43 is open at the end and in front of this opening there is a guard 45 which prevents the coin which has come into the scale from falling down into the coin-canal 46, lying below, before the balance 44 has sunk. The canal 46 leads to a cash-box 47, fastened to the frame 3. The feeding-pipe 15 of the liquid has, in this form of construction, an ordinary valve 48 whose stem extends below the lower opening of the pipe 15. Here the stem is connected by means of a link 50 with a lever 51 which is connected by a link 52 to the rear portion of the lever 19, which in this form of construction, consists of one simple arm. The measuring-vessel 18 has a bottom-valve 53 which opens when said valve strikes against the bottom of the funnel 54 of the serving-pipe 39, but which said valve closes of its own weight when the measuring-vessel 18 rises. In order to hold the measuring-vessel in the lowest position there is a pawl-device which consists of the following parts. On the frame 3 there is journaled a two-armed lever 55, 58, the one arm 55 of which is attached pivotally to the one end of a bar 56, through the other end of which extends a pin 57 which is secured on the pivot of the balance 44. The

other arm 58 of the lever 55, 58 forms a notch 59. In this notch there lies the one arm—shaped into a hook 60—of another two-armed lever whose other arm 61 is forked-shaped. The fork-shaped arm 61 embraces one of the supporting-pins of the measuring-vessel 18 when this said vessel is in its lowest position, in which case, the parts take up the position shown in Fig. 3. In this position, the balance 44, which lies in a horizontal position, keeps, by means of the bar 56, that end of the lever 55, 58 which is provided with the notch 59, against the hooked arm 60, which is prevented by the shoulder 62, from moving downward. When a coin of the right value falls upon the scale of the balance 44, the balance turns in such a way that the bar 56 exerts a drawing-force on the arm 55, whereby the shoulder 62 is drawn out of the way of the hook 60, so that the measuring-vessel can rise in consequence of the action of the spring 21. When this happens, the lever 60, 61 takes up a position with the fork-shaped opening turned upward and ready to receive the measuring-vessel when the latter again sinks in consequence of the weight of the liquid which has run in. When the measuring-vessel sinks, one of its supporting-pins enters again into the fork of the arm 61 and, during the continued downward movement of the measuring-vessel, the lever 60, 61 turns and strikes with the hook against the arm 58 at the surface 63 limiting the notch 59, so that the lever 55, 58 is sure to take up the locking-position shown in Fig. 3. In order to make this possible there is left room for play between the hook on the arm 60 and the surface 63 in the locked position. The measuring-vessel 18 is held in its highest position in the same way as in the form of construction first described, by means of a lever 29 and the projection 30.

In the form of construction according to Figs. 3 and 4 the measuring-vessel when it is not at work, is held in its lowest position. In the form of construction according to Figs. 3 and 4 the cock 14 is thus replaced by an ordinary valve 48 whereby the advantage is gained that the feeding-pipe for the liquid can be opened more easily, it being easier to operate the valve than the cock. Moreover there is avoided packing at the valve, by this means, that the mechanism acting on the valve is connected with the valve-stem which projects out of the lower end of the feeding-pipe. In addition to this, there is obtained great power for the opening of the valve, which makes this form of construction specially suitable for aerated liquors or other liquids possessing great pressure.

As already mentioned, the measuring-vessel, when it is not at work, is held in its lowest position. In opposition to what the case was with the first-described form of construction, the advantage is here gained that the apparatus becomes somewhat simpler, as the spring 21 is used not only for lifting the measuring-vessel but also for acting on the valve 48. The pawl-device 55, 58, 60, 61 can, by suitable adjustment of the length of the arms of the levers, be made very easy to release, as the pressure between the holding surfaces can be diminished to an almost unlimited degree.

I claim:—

1. In apparatus of the class described, a receiving vessel, a vessel supporting lever formed of a pair of pivotally connected sections, a vessel counter-balancing means connected to the lever, and an auxiliary device engaging the outer section of the lever and serving to sustain the vessel during the reception of a portion of the load.

2. In apparatus of the class described, a receiving vessel having a bottom discharge valve, a vessel supporting lever having a pair of pivotally connected sections, a counter-balancing means connected to said lever, and automatic locking devices for holding the vessel in both load receiving and load discharging positions.

3. In apparatus of the class described, a receiving vessel, a counter-balanced lever supporting the same, said lever being formed of a pair of pivotally connected sections, of which the outer section is pivoted to the vessel, and yieldable connecting means tending to prevent independent movement of the outer section of said lever, and locking levers for engaging such outer section and holding the same in both load receiving and load discharging positions.

4. In apparatus of the class described, a load receiver, a counter-balanced lever supporting the same, said lever being formed of a pair of pivotally connected sections, a spring connecting the sections and tending to prevent independent movement of the outer section of the lever, a pivotally mounted member tending to support the outer section of the lever during the load receiving operation, the lever being movable relatively to said member to release position, and means for adjusting said member to thereby time the point of release.

5. In apparatus of the class described, a load receiving vessel, a counter-balanced lever for supporting the same, said lever being formed of two pivotally connected sections, a spring connecting the sections to each other and tending to prevent independent movement of the outer section of the lever under the weight of the load, a pin projecting from the outer section of the lever, an adjustable lever engaging said pin and tending to support the same during the reception of the load, said outer section of the lever being movable relatively to the support to a re-

lease position, and means for adjusting the supporting lever to vary the amount of the load received.

6. In apparatus of the class described, a load receiver, a counter-balanced lever supporting the same, said lever being formed of a plurality of pivotally connected sections, arms projecting from both sections, a tension spring connecting the arms, a pin projecting from the outer section of the lever, and a pair of spring held locking levers with which said pin engages, and from which it is automatically disengaged at the limit of its upward and downward movements.

7. In apparatus of the class described, a load receiver having a discharge valve at the bottom, a valve supply pipe above the load receiver, a counter-balanced supporting means for the receiver, a notched link connected to the stem of the supply valve, mechanism under the control of the support for engaging said notched link and moving the same to close the supply valve during the downward movement of the receiver, means for automatically opening and closing the discharge valve, a pawl engaging the notched link, and means for moving said pawl to release position.

8. In apparatus of the class described, a load receiver having a bottom discharge valve, means for opening and closing the valve on the limit of downward and upward movements, a supply pipe, a valve therefor, a lever carried by the stem of said valve, a spring connected to the lever and tending to close the valve, a notched link connected to the lever, a pawl engaging said notched link, means for moving said pawl to release position, a pivotally mounted counter-balanced lever forming a support for the load receiver, and interengaging means between said lever and notched link, whereby the supply valve is moved to closed position during the descent of the load receiver.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LARS OLOF THYR THOMPSON.

Witnesses:

T. ANDERSSON,

J. F. A. RUTBACK.