

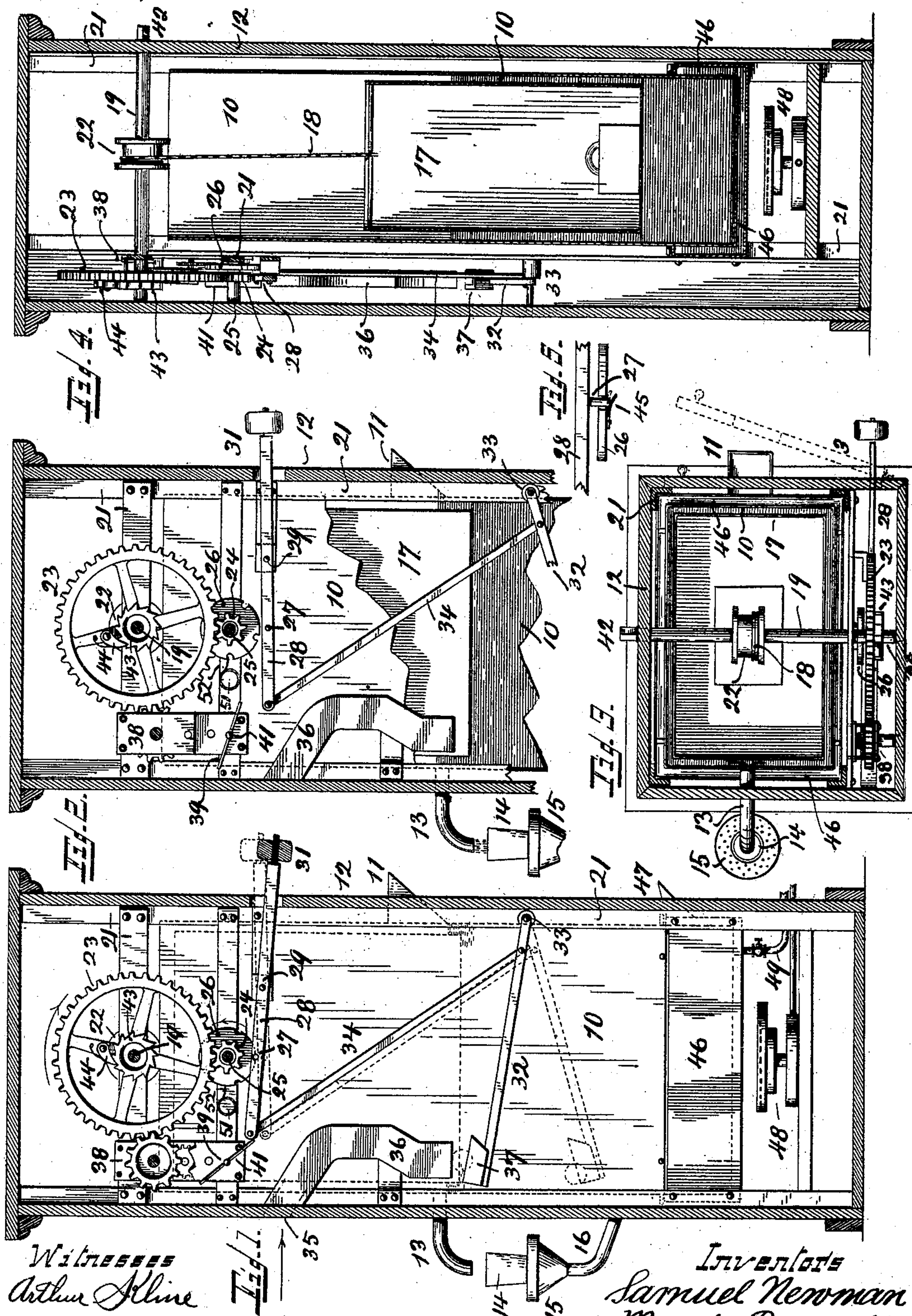
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S. NEWMAN & M. BORSODI.
AUTOMATIC LIQUID VENDING APPARATUS.

(Application filed Mar. 6, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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AUTOMATIC LIQUID-VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 689,562, dated December 24, 1901.

Application filed March 6, 1901. Serial No. 50,034. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL NEWMAN and MORRIS BORSODI, citizens of the United States, residing at Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Automatic Liquid-Vending Apparatus; and we do declare that the following is a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form also a part of this specification.

This invention relates to improvements in coin-controlled vending apparatus of the kind where against the payment of a certain coin deposited in a designated place a certain commodity is obtained. In this particular case this commodity is in liquid form to be used as a drink for food or refreshment purposes or otherwise.

The invention consists of a certain construction and arrangement of parts where by depositing a coin certain mechanism operates in a manner to automatically deliver so as to be accessible a fixed quantity of the liquid. Provision is also made whereby this liquid, which may be coffee, tea, milk, ice-water, lemonade, &c., may be obtained hot or cold.

In the following specification and particularly pointed out in the claims following is found a full description of the invention, together with its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the device with the outer case in section. Fig. 2 is a similar view of the upper part of the preceding figure, parts of the apparatus being also broken away. Fig. 3 is a top view of the device with the case in horizontal section. Fig. 4 is a vertical cross-section of the apparatus. Fig. 5 is an enlarged detail view showing under side of locking-disk and pin engaging it.

The liquid to be sold is contained within a tank 10, which is open at the top and may be supplied thereat or through an inlet 11, extending to the outside of outer case 12. The liquid discharges through an open spout 13 into a suitable vessel 14, placed thereunder

and resting upon a support 15, connected with a drain-pipe 16 to catch any overflow and drippings. The liquid is caused to discharge through the spout by a rise of its level above the inner opening of this latter, which rise is effected by immersion of what might be termed a "plunger" and indicated by 17. This plunger is fitted loosely into tank 10 and by descending displaces the liquid, which, rising above the inner opening of spout 13, issues through this latter. The descent of the plunger might be effected mechanically by means operating directly and pushing it down, or it may be as shown, where said plunger is intended to descend by its own weight. For such purpose the plunger consists of a hollow shell suspended by means of a cord 18 and is sufficiently weighted to cause it to sink. It is clear that the liquid discharged is equivalent to the quantity of it displaced by the plunger, and this displacement depends again on the amount of drop of this latter. Thus by limiting and regulating the drop a certain and fixed quantity may be caused to discharge at the time, which quantity is so regulated as to be readily received by vessel 14. For such purpose the drop is controlled by mechanism operating so as to permit the plunger to descend only a limited distance at a time, after which its further progress is arrested. This mechanism consists of a shaft 19, mounted in parts of the general frame 21 and mounting a pulley 22, to which the free end of cord 18 is secured. On this shaft there is also a cog-wheel 23, which meshes into a pinion 24, mounted on shaft 25. It is clear now that if rotation of shaft 19 is prevented the plunger cannot descend, while, on the other hand, this plunger descends as long as shaft 19 is free to rotate. To prevent such rotation, we provide a locking-disk 26, having one or more notches and so secured and connected as to rotate when shaft 19 rotates. In this case it is mounted so as to rotate with pinion 24, the object of this latter being simply to reduce the action and effect of the weight of the plunger on the mechanism. For all other purposes this locking-disk might also be mounted upon shaft 19 directly instead of being mounted on shaft 24. Normally rota-

tion of this locking-disk is prevented by a pin 27, projecting laterally from a lever 28, pivotally supported at 29 and so loaded by a weight 31 as to cause said pin to seek normally contact with the periphery of disk 26. Disengagement of the two permits rotation of the locking-disk and with it the intervenient gear-wheels and shaft 19. Such disengagement is caused by the depression of another lever 32, pivotally supported at 33 and connected to the free end of lever 28 by means of a link 34. The depressing of lever 32 may be by means of a coin inserted through a coin-slot 35 and guided by means of a coin-chute 36 into a basket 37 at the free end of lever 32. The two levers are so balanced by means of the adjustably-mounted weight 31 that the weight of the coin will depress lever 32 and by tilting lever 28 cause pin 27 to set the locking-pin free for rotation. The coin will presently roll out of basket 37, permitting the levers to return to their normal positions. Meanwhile locking-disk and shaft 19 have rotated, and another notch will receive pin 27 as soon as the latter arrives with the return of lever 28 against the periphery of the locking-disk. In order to prevent the drop of the plunger from being too abrupt, we provide a speed retarding and controlling device consisting, substantially, of a gear-train formed of a number of sets of engaging cog-wheels and pinions, all mounted within a housing 38 and taking their initial start of motion from cog-wheel 23 and ending in a shaft 39, mounting and driving a fan 41. The parts are so located that the end of lever 28 when in its normal position reaches into the path of rotation of this fan, and by preventing such rotation these parts act as an additional means to stop the operation of the device. When tank 10 is empty and plunger 17 fully run down, the latter is raised by simply applying a crank to the square end 42 of shaft 19 and rotating the same in the other direction, so as to wind cord 18 again upon pulley 22.

In order to remove the resistance of the speed-controlling gear-train, transmission of rotation to it is prevented at that time by having gear-wheel 23 loosely mounted on its shaft. When the latter is, however, rotated in the other direction by the weight of the descending plunger, such rotation is then transmitted by means of a ratchet-wheel 43, rigidly mounted on shaft 19 and engaging a pawl 44 on cog-wheel 23. To prevent pin 27 from relocking disk 26 when once out, we provide springs 45, closing the notches therein edgewise as soon as the pin leaves the particular notch which it occupies. One end of each of these springs is bent so as to stand off sufficiently to permit pin 27 to displace them when returning to its normal position and to enter the notch. (See Fig. 5).

To keep the liquid hot, if so desired, we provide a jacket 46 to contain water supplied through an inlet 47, heat being supplied underneath by means of a suitable burner 48.

49 is a drain-pipe for this jacket. For cooling purposes this jacket may contain a cooling medium, or ice may be placed in the hollow plunger 17, taking in such case at the same time the place of the weight required therein.

51 is a counter to register the operations of the device, being operated from disk 26 by a projecting arm 52.

Having described our invention, we claim as new—

1. In an automatic liquid-vending apparatus, the combination of a tank, an outlet-opening above the bottom thereof, a plunger adapted to descend by its weight, a pulley to which it is attached by a flexible connection, a shaft on which this pulley is mounted and which is rotated by the descending plunger by reason of the flexible connection holding it to the pulley, being wound upon this latter, locking means to prevent such descent by preventing normally rotation of the shaft and means operating to release the shaft from these locking means for a limited time, permitting it to rotate for a limited extent and causing a corresponding drop of the plunger.

2. In an automatic liquid-vending apparatus, the combination of a tank, an outlet-opening above the bottom thereof, a plunger adapted to descend by its weight, a pulley to which it is attached by a flexible connection, a shaft on which this pulley is mounted and which is rotated by the descending plunger, a notched locking-disk 26, operatively connected to the shaft mentioned, means normally preventing rotation of such locking-disk and of the shaft and means operating to set the same free to rotate for a limited extent, permitting then a corresponding drop of the plunger.

3. In an automatic liquid-vending apparatus, the combination of a tank, an outlet-opening above the bottom thereof, a plunger adapted to descend by its weight, a pulley to which it is attached by a flexible connection, a shaft on which this pulley is mounted and which is rotated by the descending plunger, a notched locking-disk 26, operatively connected to the shaft mentioned, a lever provided with a laterally-projecting pin 27, which normally occupies one of the notches in disk 26, thereby preventing rotation of this latter and means operating to set the locking-disk free by disengaging pin 27 therefrom to permit a limited rotation thereof.

4. In an automatic liquid-vending apparatus, the combination of a tank, an outlet-opening above the bottom thereof, a plunger adapted to descend by its weight, a pulley to which it is attached by a flexible connection, a shaft on which this pulley is mounted and which is rotated by the descending plunger, a notched disk 26, a lever provided with a laterally-projecting pin 27, which normally occupies one of the notches in disk 26, thereby preventing rotation of this latter, an additional lever and a link connecting it to the first lever, whereby this latter is caused to disengage pin 27 from

the locking-disk if the additional lever is depressed.

5 In an automatic liquid-vending apparatus, the combination of a tank, an outlet-opening above the bottom thereof, a plunger adapted to descend by its weight, a pulley to which it is attached by a flexible connection, a shaft on which this pulley is mounted and which is rotated by the descending plunger, a notched locking-disk 26, a shaft on which it is mounted, a gear connection between the two shafts, a lever provided with a laterally-projecting pin 27, which normally occupies one of the notches in disk 26, thereby preventing its rotation, means causing this lever to descend for the purpose of disengaging pin 27 from the locking-disk, a speed-controlling gear-train operatively connected to one of the rotating shafts and a fan carried and operated by this gear-train, the same so located with reference to the lever mentioned that this lat-

ter when in its normal position prevents rotation of said fan.

6. In an automatic liquid-vending apparatus, the combination of a tank, an outlet-opening in the side thereof and above the bottom of the same, a plunger being hollow to serve as a receiver and carrier of weight or cooling medium to cause it to descend and means whereby such descent is controlled in a manner to permit the plunger to move only a limited distance at a time, thereby displacing a fixed quantity of the liquid within the tank and causing the same to discharge therefrom.

In testimony whereof we hereunto set our hands in the presence of two witnesses.

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MORRIS BORSODI.

Witnesses:

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