

(No Model.)

2 Sheets—Sheet 1.

K. F. PETERSON.
AUTOMATIC LIQUID RELEASER.

No. 427,608.

Patented May 13, 1890.

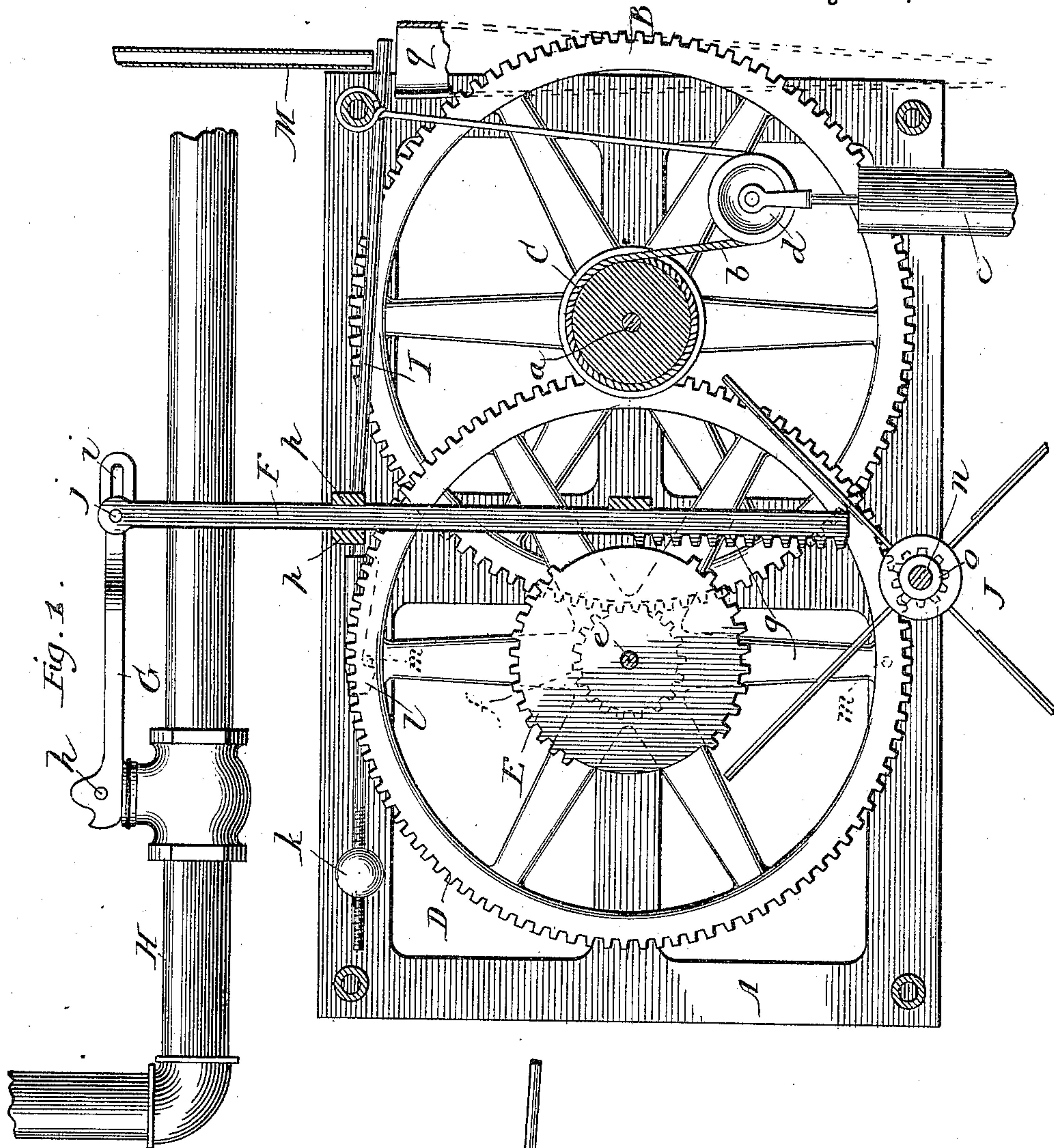


Fig. 1.

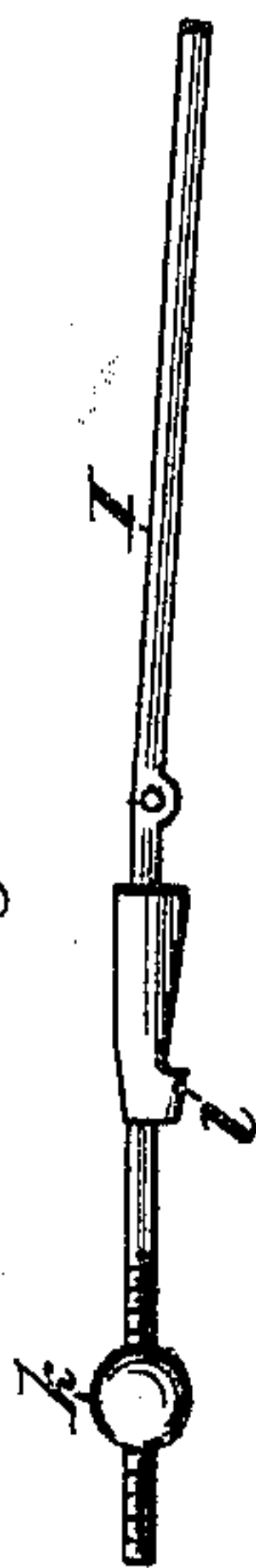


Fig. 2.

Witnesses:
 Albert H. Adams.
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UNITED STATES PATENT OFFICE.

KNUTE F. PETERSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF, AND
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AUTOMATIC LIQUID-RELEASER.

SPECIFICATION forming part of Letters Patent No. 427,608, dated May 13, 1890.

Application filed August 6, 1889. Serial No. 319,959. (No model.)

To all whom it may concern:

Be it known that I, KNUTE F. PETERSON, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Automatic Liquid-Releasers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the operating devices that are located below the water-tank, some of the parts being in section and one side of the supporting-frame being removed. Fig. 2 is a front view of the coin-box. Fig. 3 is a section taken at line 3 3 of Fig. 2, looking to the left. Fig. 4 is a front view of another form of coin-box. Fig. 5 is a section taken at line 5 5 of Fig. 4, looking to the left. Fig. 6 is a section at line 6 6 of Fig. 4, and Fig. 7 is a detail side elevation of the pivoted weighted lever.

This invention relates to improvements on the automatic liquid-releaser shown and described in an application filed by me June 27, 1889, Serial No. 315,785, and has for its objects to improve the construction of the operating devices that are set in motion by the weight of a coin, and to improve the construction of the coin-receiving box, all as illustrated in the drawings and hereinafter fully described.

That which I claim as new will be pointed out in the claims.

The water-tank and inclosing-case are not shown; but they are to be constructed and arranged as usual, and substantially as shown and described in my said former application.

In the drawings, A represents a metal frame for supporting the operating devices.

B is a gear-wheel mounted on a shaft *a*, supported in the frame A.

C is a drum on the shaft *a*.

b is a rope, one end of which is secured to an upper rail of the frame A, and the other end is secured to the drum C, around which the rope is wound.

c is a weight suspended from a pulley *d*, which is placed on the rope *b*, as shown.

D is another gear-wheel on a shaft *e*, which shaft is also supported in the frame A.

f is a pinion on the shaft *e*, with which the gear-wheel B engages.

E is a mutilated gear-wheel on the shaft *e*.

F is a vertical bar having on its lower end a rack *g*, with which the mutilated pinion E engages. It is held in its vertical position by guides *p*.

G is an arm pivoted at *h* and near one end to the stem of a valve located in a pipe H, through which the water flows from a tank. The end of this arm just beyond the pivotal point *h* is rounded or cam-shaped to allow the other end of the arm to be elevated to raise the valve-stem and permit the water from the tank to flow through the pipe H. The other end of the arm G has a slot *i*, into which projects a pin *j*, secured in the side of the bar F at its upper end.

I is a rod pivoted to one of the upper side pieces of the frame A, and extending at its forward end under the coin tube or chute. Its rear end is screw-threaded and is provided with a screw-threaded weight *k*, which can be adjusted as required. A hook *l* is formed with or secured to the rod I, which hook engages alternately with pins or projections *m* on the side of the wheel D and holds the parts from being operated until the rod I is tilted.

J is a fan-wheel which acts as a governor. It is mounted on a shaft *n*, suitably secured in the frame A. A pinion *o* on the same shaft meshes with the wheel D.

The frame A and the devices supported thereby are to be located beneath the water-tank of a coin-operated liquid-releaser, as shown in my said former application.

The operation of the releasing mechanism is as follows: Suppose the parts to be in the position in Fig. 1. Now when the weight of a coin has depressed the front end of the rod I, and the hook *l* has thereby been released from engagement with the pin *m*, the weight *c* on the rope *b* will cause the gear-wheel B to revolve, which wheel B, meshing with the pinion *f*, will revolve such pinion, and also the gear-wheel D and mutilated gear-wheel E, which are both fast on the shaft *e*, the direction of revolution being indicated by an arrow. As the mutilated gear-wheel E re-

volves it will engage the rack *g* on the lower
 end of the bar *F* and force such bar upward,
 which movement of the bar *F* will raise the
 arm *G* sufficiently to open the valve in the
 5 pipe *H* and allow a predetermined quantity
 of water to be discharged at the mouth of
 the pipe. As the inner end of the arm *G*
 beyond the pivotal point *h* is cam-shaped, it
 will be seen that as the outer end of the arm
 10 is raised the cam-shaped end will come in
 contact with the upper surface of the valve-
 case and lift the valve-stem, permitting the
 water to flow. After the mutilated gear-wheel
 has revolved sufficiently to disengage the teeth
 15 from the rack the bar *F* will fall by its own
 weight to the position shown in Fig. 1, carry-
 ing down the slotted end of the arm *G*, which
 will close the valve in the pipe *H* and shut
 off the supply of water. After the coin has
 20 fallen upon the end of the rod *I* such rod will
 turn sufficiently upon its pivot to cause the
 coin to fall off, when the weight *k* on the
 other end of the rod will bring the rod back
 to its normal position in time for the hook *l*
 25 to engage with the pin *m* on the opposite
 side of the wheel *D*, such engagement of the
 hook and pin necessarily stopping the mech-
 anism until the rod *I* has been tilted by the
 weight of another coin. It will thus be seen
 30 that the gear-wheel *D* and mutilated gear-
 wheel *E* each make one-half of a revolution
 every time that the rod *I* is tilted. By mak-
 ing the mutilated gear-wheel *E* with few or
 many teeth the flow of water can be regu-
 35 lated so as to fill a cup or other vessel with
 the predetermined quantity of liquid. After
 the coin has fallen from the end of the rod *J*
 it drops into a receptacle, the upper end of
 which is shown in Fig. 1, and is indicated by *q*.
 40 Another feature of my invention consists
 in providing a coin-box which possesses the
 advantages described for the coin-box shown
 in my said former application, and also a
 further advantage in the fact that every coin
 45 deposited in the box remains on one shelf of
 the box, where it can be observed through the
 glass door of the box, until it is caused to fall
 into the coin tube or chute by the action of
 the next succeeding coin deposited in the box.
 50 I attain this result by the devices illustrated
 in Figs. 2 and 6, inclusive, of the drawings,
 and as hereinafter described.

In the drawings I have shown two forms of
 boxes for accomplishing the result stated, one
 55 form being shown in Figs. 2 and 3, in which *K*
 represents the coin-box provided with a glass
 door *L*, through which a coin or any foreign
 matter that may have been deposited in the
 box can be seen. *r* is the coin-slot. *s* is an
 60 inclined shelf located in the box *K* beneath
 the coin-slot *r*. *t* is another shelf located
 some distance below the shelf *s* and pivoted
 at *u* on a stud or pin projecting from the rear
 wall of the box. On the under side and at
 65 the lower end of the shelf *t* is attached a
 weight *v*, which keeps the shelf, when in its

normal position, inclined in an opposite di-
 rection to the shelf *s*. *w* is another and
 shorter shelf pivoted at two points a little to
 one side of its longitudinal center to a stud 70
 or pin *x*, projecting from one of the side walls
 of the box *K*. One end of this short shelf *w*
 is very close to the weighted end of the shelf
t, and, as shown, such weighted end of the
 shelf *t* is provided on its under side with a pro- 75
 jecting pin *y*, which enters an eye *z*, secured
 to the under side of the shelf *w* near one cor-
 ner. *t'* is a stop to limit the downward move-
 ment of the shelf *t*. *M* represents the tube
 or chute leading to the final coin-receptacle. 80

The coin-box is to be attached in any suit-
 able manner to the front of the case of a coin-
 operated machine, and before the device is to
 be used by purchasers a coin of the proper
 denomination for actuating the operating de- 85
 vices is to be placed on the short shelf *w*.
 The door *L* is then to be locked, when the de-
 vice is ready for use. Now if a coin be
 dropped into the box through the slot *r* it
 will fall upon the fixed inclined shelf *s*. From 90
 this shelf it will fall upon the end of the piv-
 oted shelf *t*, and the momentum acquired by
 its fall from the shelf *s* will be sufficient to
 raise the weighted end of the shelf, although
 the weight of the lever below the pivot *u*, to- 95
 gether with *v*, slightly exceeds the weight of
 the other end of the shelf with the coin there-
 on. As the weighted end of the shelf *t* is
 raised the small shelf *w* will be turned side-
 wise on the stud or pin *x* by reason of the 100
 pin *y*, which projects into the eye *z*. As the
 small shelf *w* turns, the coin thereon will
 fall off into the coin-chute *M*, the mouth of
 which is directly beneath the shelf *w*, and
 be conducted to the final cash-receptacle. 105
 Shortly after the shelf *t* has been tilted by
 the falling coin and the weight *v* elevated, as
 described, such weight will cause the shelf *t*
 to return to its normal position, as shown in
 Fig. 2, the engagement of the pin *y* with the 110
 eye *z* also returning the short shelf *w* to po-
 sition. As soon as the shelf *t* returns to its
 normal position the coin thereon will slide
 down and onto the short shelf *w*, where it
 will remain until turned into the coin-chute 115
 by the action of another coin falling on the
 shelf *t*. It will thus be seen that one coin is
 always on the small shelf *w*, where it can be
 seen through the glass door *L*, and in case
 any spurious coin or small foreign substance 120
 be inserted that would act to dump the coin
 on the small shelf *w*, and thereby set the op-
 erating devices in motion, such foreign sub-
 stance could be quickly detected.

As shown, the free end of the shelf *t* is 125
 turned up a little, so that in case a coin in
 falling from the shelf *s* strike such end the
 coin will not rest on such extreme end, but
 will slide or roll farther down on the shelf.
 The side wall of the box *K* opposite this 130
 turned-up end of the shelf *t* is provided with
 a curved face, as shown in dotted lines in

Fig. 2, so that no space will be left between the end of the shelf and the side wall of the box through which a coin could escape.

In Figs. 4, 5, and 6 I have shown a modification of the coin-box, by means of which the same result is accomplished as by the box represented in Figs. 2 and 3—to wit, the retention of one coin on the lowest shelf in front of the glass door, where it remains until caused to fall into the coin-chute by the action of the next succeeding coin that is placed in the box through the coin-slot. In said Figs. 4, 5, and 6 the same reference-letters are employed to indicate the box, the glass door, the coin-slot, and the coin-chute as are employed to designate the same parts in Figs. 2 and 3. The shelves are somewhat different in construction, however, from those shown in the box already described, and I have therefore designated them by different reference-letters, N being the upper shelf, O the middle shelf, and P the lower shelf. They are all secured in position by brackets Q, fastened to the rear of the box K, as shown, or in any other suitable manner. The middle shelf O is curved at both ends in such manner that its upper end extends above and at one side of the curved lower portion of the upper shelf N, and its lower portion is curved inward and downward, forming in effect a pathway for coins. As shown in Fig. 6, a portion of the lower end of the shelf P is cut away, leaving an opening over the mouth of the coin-chute M, and forming on the end of such shelf P a tongue R, which, as shown, is bent upward and is at one side of the mouth of the coin-chute M.

The operation of this modified form of box is as follows: A coin of the proper denomination is to be first placed on the shelf P, one edge of the coin resting on the tongue R, as shown. The door L is then to be closed and locked, and when a coin is inserted through the slot *r* it will fall upon the shelf N, from which it will slide down onto the shelf O, and from thence onto the shelf P, where it will strike the coin previously placed on such shelf with sufficient force to shove it onto the tongue R, which, being less than half of the

width of the coin, will cause it to turn and fall into the mouth of the coin-chute M. The coin inserted through the slot will not at once enter the coin-chute, but its movement will be arrested by its contact with the stationary coin, and it will pass to and occupy the place of the stationary coin. It will therefore occupy the same position as the first coin did and remain there until it has been forced into the coin-chute by the contact of another coin descending on the shelves. A coin will therefore be upon the lower shelf and visible through the glass door L, the same as in the other box.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a coin-operated machine, the combination of a rotating wheel D, mechanism for rotating said wheel, and a mutilated gear E, turned by the same, with a coin-operated rod which engages and locks the rotating wheel against rotation when such rod is in its normal position, and a rack-bar with which the mutilated gear engages, substantially as described.

2. In a coin-operated liquid-releaser, a mutilated gear-wheel adapted to determine the quantity of liquid to be released, in combination with a rack-bar with which the mutilated gear-wheel engages, a valve in a discharge-pipe, and an arm connected at one end to the stem of the valve and at the other end to the upper end of the rack-bar, whereby the valve is operated and the liquid automatically released by the action of an inserted coin, substantially as specified.

3. In a coin-operated machine, a coin-receiving box having a coin-slot *r*, the inclined shelf *s*, the pivoted shelf *t*, provided with a weight *v*, which keeps the shelf inclined in a direction opposite to the inclination of the other shelf, and a pivoted shelf *w* in juxtaposition to the pivoted inclined shelf and connected with and operated by the latter, substantially as described.

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Witnesses:

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