

(No Model.)

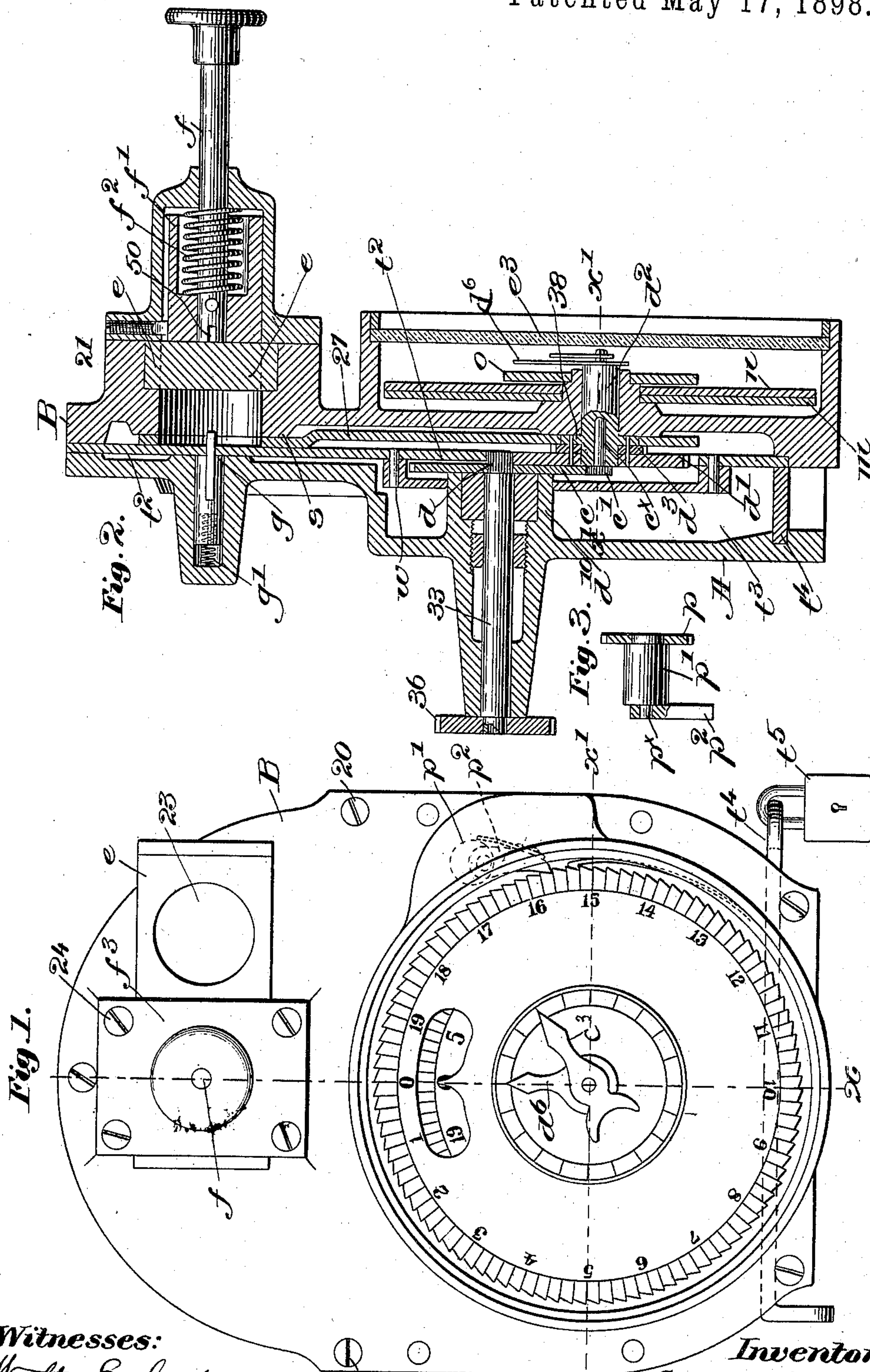
3 Sheets—Sheet 1.

S. E. MOWER.

COIN CONTROLLING AND RECORDING MECHANISM FOR METERS.

No. 604,175.

Patented May 17, 1898.



Witnesses:
Walter E. Lombard
Thomas Drummond

Inventor:
Samuel E. Mower,
by Crosby & Son, Attys.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 5.

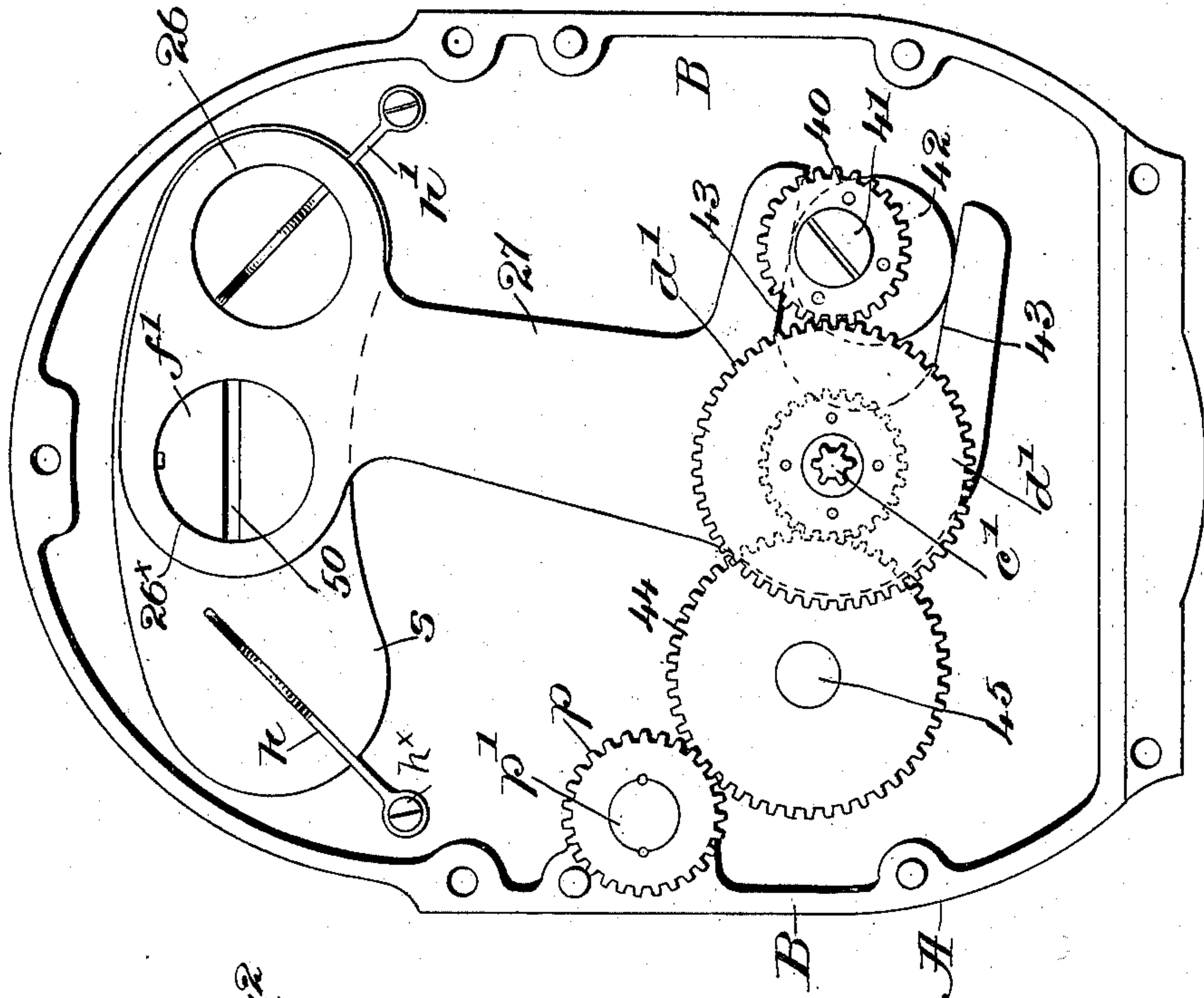
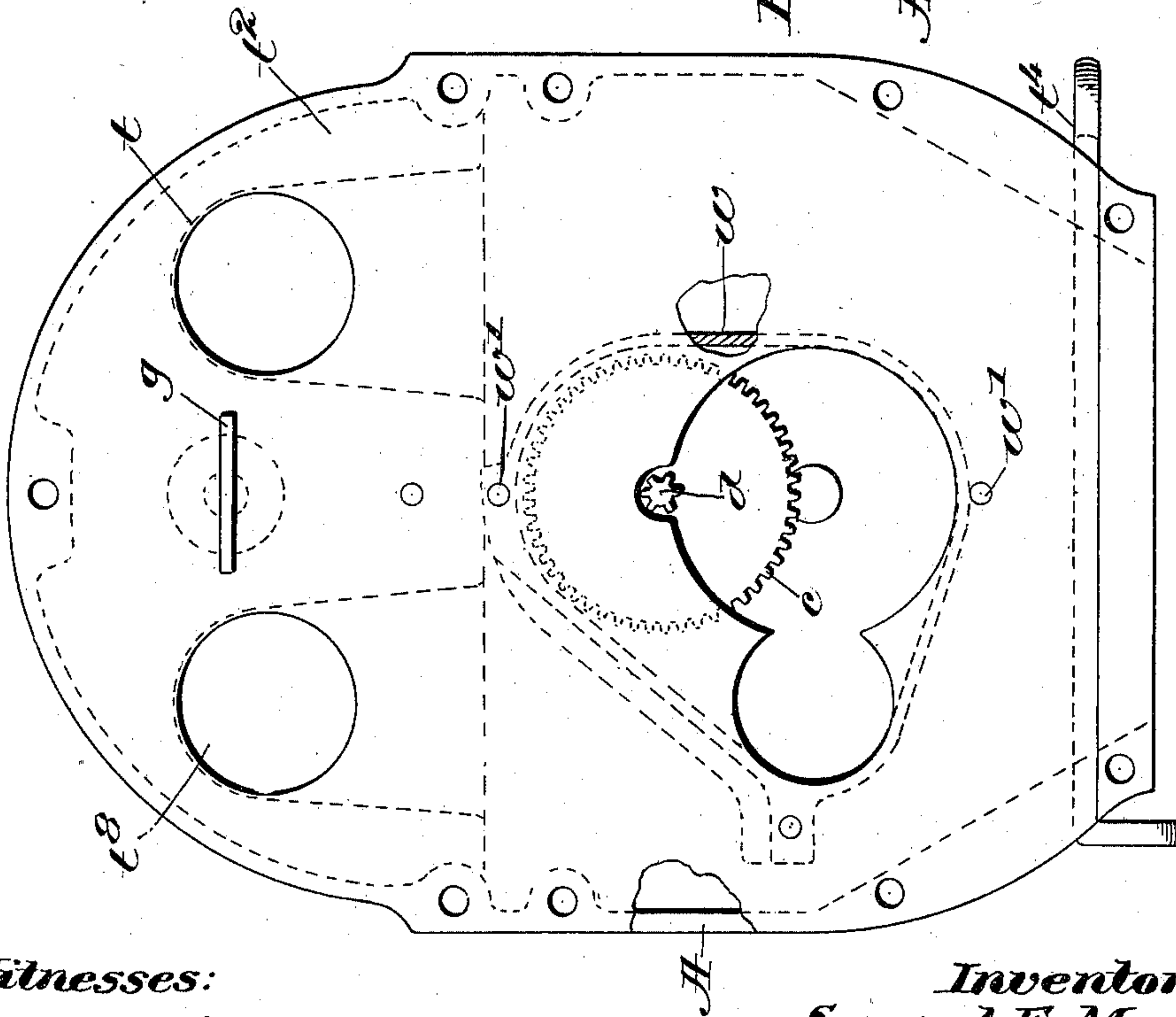


Fig. 4.



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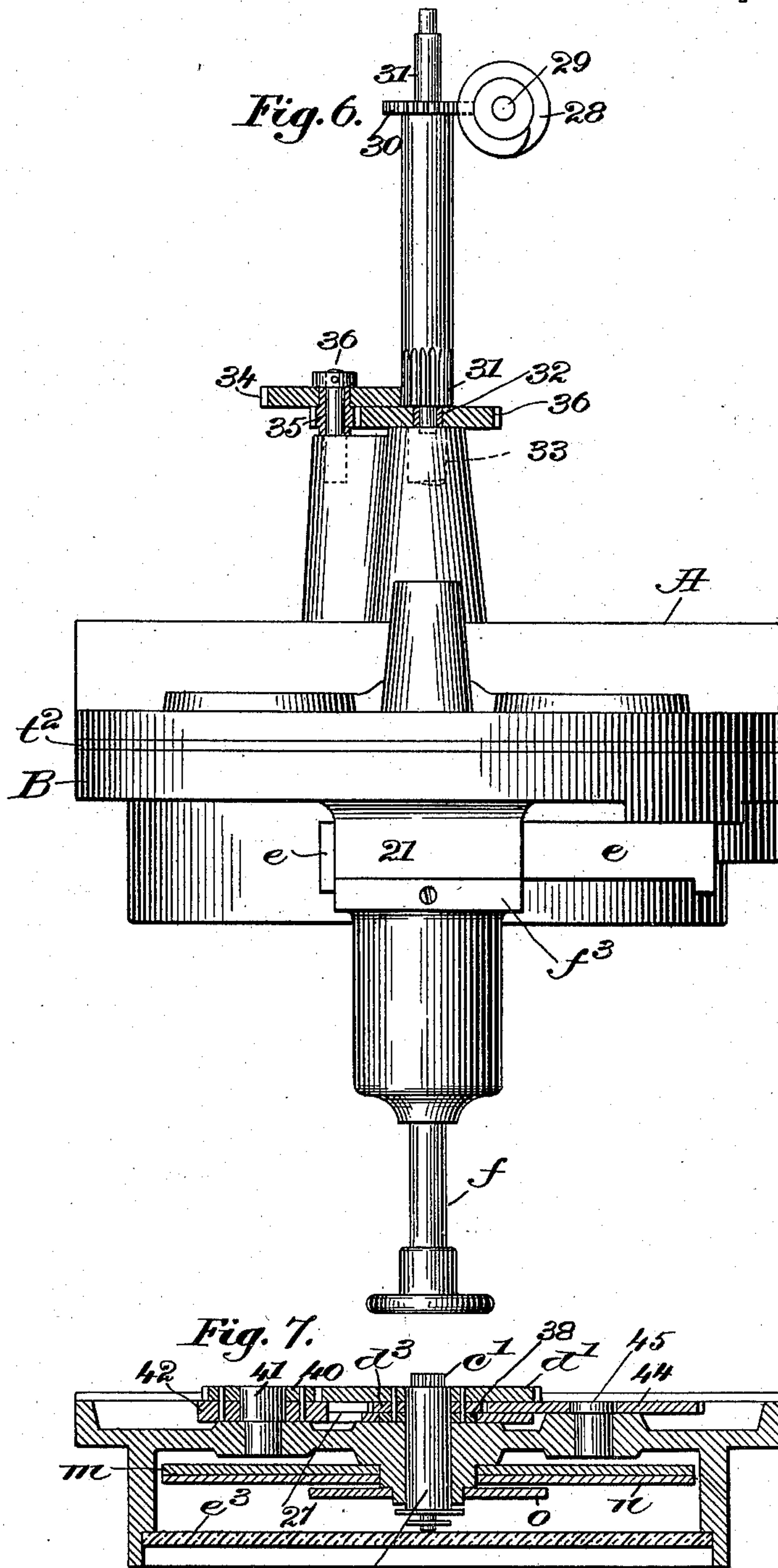
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COIN CONTROLLING AND RECORDING MECHANISM FOR METERS.

No. 604,175.

Patented May 17, 1898.



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UNITED STATES PATENT OFFICE.

SAMUEL E. MOWER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HENRY G. THOMPSON & SON, OF SAME PLACE.

COIN-CONTROLLING AND RECORDING MECHANISM FOR METERS.

SPECIFICATION forming part of Letters Patent No. 604,175, dated May 17, 1898.

Application filed March 13, 1897. Renewed March 21, 1898. Serial No. 674,691. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. MOWER, of New Haven, county of New Haven, and State of Connecticut, have invented an Improvement in Coin-Controlling and Recording Mechanism for Meters, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In another application, Serial No. 661,885, filed by me July 15, 1896, and renewed December 14, 1897, I have shown and described an apparatus for this purpose, it employing a coin-carrier which has a rotary movement by or through the actuated shaft of a meter.

In this my present invention I have dispensed with the rotating coin-carrier wheel and in its place I have substituted a sliding or to-and-fro-moving coin-carrier which, as I have herein shown to illustrate my invention, has imparted to it a sliding or to-and-fro motion by a suitable cam so long as one of the pockets of the coin-carrier has a coin.

As soon as the coin-carrier is provided with a coin the coin-carrier starts, the coin effecting the removal of a detent which, when the coin is absent, restrains the coin-carrier from movement, and thereafter the coin-carrier continues to move so long as it is provided with a coin.

Figure 1, in front elevation, shows a vending-machine with my improved coin-carrier, the coin-feeder being shown as in the position to receive coins. Fig. 2 is a substantially vertical section of Fig. 1 on the line x . Fig. 3 is a detail to be referred to. Fig. 4 is an inner side view of the rear part or portion of the vending apparatus. Fig. 5 is a view of the inner side of the front part of the vending apparatus removed from the rear part. Fig. 6 is a top or plan view; and Fig. 7 is a cross-section in about the line x' , Fig. 1.

The frame of my vending apparatus consists, essentially, of back portion A and a removable or detachable front portion B, the same being connected by suitable screws 20. The front portion has a projection 21, which is grooved to receive a coin-feeder e , it being shown as a slide having a pocket 23, in which when drawn out, as in Fig. 1, the coin of suit-

able denomination to work with this particular vending apparatus may be placed. This coin-feeder is kept in position by means of a cap-plate f^3 , attached by screws 24 to the projection 21. The cap-plate has a cylindrical hub which receives within it a plunger f' , attached to a rod f , surrounded by a suitable spring f^2 , said spring normally acting to push the plunger in, and whenever coins have been put into the coin-feeder and the coin-feeder has been moved to the left, Fig. 1, far enough to put the coin directly opposite the plunger the plunger then acts on the coins and transfers them bodily laterally, causing the end-most coin of the pile to act against the locking device or holder g , which when the coin is absent from the apparatus enters one of the coin-receiving openings or holes 26 or 26^x in the coin-carrier 27, the said locking device when removed permitting the coin-carrier to be started by its actuating device, to be described.

The parts so far described, with the exception of the coin-carrier, are and may be all substantially as shown in my said application.

Referring to Fig. 6, let 28 indicate a worm on a suitable shaft 29, common to any meter or other power-actuated motor, the said worm engaging a worm-gear 30 on a shaft 31, suitably mounted in said meter or other device, the forward end of said shaft having cut into it suitable teeth 31, and the said forward end preferably has a small stud 32 to enter a suitable hole in a shaft 33, (see Fig. 2,) the teeth 31 engaging the teeth of an intermediate gear 34, having an attached pinion 35, the said gear and pinion being loose on a suitable stud 36, secured in the back plate or portion A. The pinion 35 meshes with the gear 36 on the shaft 33 and rotates it, the forward end of the shaft also carrying a suitable set of teeth, as d , which engage a toothed gear d' , fixed to a hollow shaft d^2 , said gear d' having attached to it at its rear side a pinion d^3 , the gear d' and the pinion d^3 having fixed with relation to them on the said shaft a collar 38, (see Fig. 2,) which constitutes a pivot for the coin-carrier 27. The toothed gear d' , when rotated, engages and rotates a toothed gear 40, mounted loosely on a stud 41, the said gear

having suitably pinned or fastened to it an eccentric 42 or cam which enters a slot 43 in an arm of the coin-carrier, the said eccentric, when it is permitted to rotate, moving the carrier back and forth, so that one hole 26 and the other 26^x in the carrier may be in line with the coin held in the coin-carrier and acted upon by the plunger. The hollow shaft d^2 receives through it a shaft c^x , having at its inner end a pinion c' , which is engaged and rotated by a toothed gear c , fast on the shaft 33 at the rear of the teeth d , the said shaft c^x having a suitable pointer, as c^3 . The gear d^3 , attached to the hollow shaft, also engages and actuates a toothed intermediate gear 44, mounted to turn on a stud 45, the said gear engaging a pinion p , also found in my said application, said pinion being fast on a shaft p , having an eccentric pin or projection p^x , which enters a hole in a spring-pressed pawl p^3 , also found in my said application, said pawl, as in said application, engaging the toothed edges of the two dials m and n . These two dials are mounted to turn loosely about a hub of the face-plate surrounding the hollow shaft d^2 , and this hub also has mounted on it a dial o . The dial o is stationary and has any desired number of spaces, according to the coin to be used. The dial n is shown as divided into twenty spaces, and it has five teeth for each space; but the inner dial m is supposed to contain one hundred and one teeth, and it is suitably numbered from zero to and including nineteen.

This particular vending apparatus is adapted to vend gas paid by five-cent pieces, and the spaces on the different dials are arranged to correspond with that coin to indicate the number of cents' worth of gas which is being burned; but it will be understood that these figures on the dial may be and must be changed to correspond with the particular coin which the vending apparatus is built to receive. The inner hand d^6 is fast on the hollow shaft d^2 .

The counting mechanism thus far referred to is substantially such as shown and fully described and claimed in my said application.

When the locking or holding device g stands in one of the holes 26 or 26^x, the carrier 27 is restrained from motion for the reason that the power which is applied through the shaft 33 to rotate the gear d' is insufficient to rotate the eccentric 42 when the carrier is locked. As soon as the locking device or holder is pushed back by the action of a coin against the spring g' at its inner end, said spring normally acting to thrust the locking device or holder forward to enter one of the said spaces when the coin is absent, the said coin-carrier is again released, ready to be started.

Referring to Fig. 2, the locking device g is represented in position in the hole 26^x. Now let the coin-carrier be pushed in, putting its coin in line with said hole. Then the plunger will immediately act and force a coin into the

hole 26^x, pushing back the locking device g , and immediately the power-actuated shaft 31 33 will start the carrier 27 and it will be moved to the left, viewing Fig. 5, until the hole 26 comes opposite the second coin of the series, when said second coin will enter the hole 26, and the coin held in the hole 26^x will at that time come against the discharging device h (shown as a bent spring held in place at one end by a screw h^x) and will be thrown out, it falling between the back portion A through the hole t , and it will drop into the spaces between the front plate and the dividing-wall t^2 , said dividing-wall being fixed to the inner side of the front portion B, and the coin will fall into the space t^3 on a slide t^4 , which will be locked in place by suitable padlock t^5 , the removal of said plate allowing the coins in the receptacle t^3 to drop out. When the carrier has moved to the left far enough to receive another coin in the hole 26 and the coin previously held in the hole 26^x has been ejected, the carrier will immediately reverse its position and move back into the full-line position, Fig. 5, ejecting the coin just taken into the hole 26 through the hole t^8 of the said plate, a suitable ejector h' being used at that side of the apparatus. The carrier will continue to move as long as a coin is offered to the holes in the moving carrier; but as soon as the coins are all exhausted from the coin-holder then immediately on the arrival of one of the holes 26 or 26^x in line with the coin-holder and locking device the latter will enter the hole 26^x or 26 and also enter the notch 50 in the end of the plunger or the rod carrying it.

By the term "eccentric" in the claims I intend to include any equivalent as a cam.

My invention is not limited in all instances to the use of the particular recording mechanism, and instead I may employ any other usual recording devices, so long as they are moved by the driven shaft of the meter.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a coin-controlled meter, a front and a back plate, a separator-plate located between them and provided with two coin-discharging openings separated by a smooth or plain surface of the said plate, the said smooth surface acting to receive against it one side of a coin while being transferred from the coin-feeder into discharging position, a to-and-fro-movable coin-carrier made as a lever and located between said front plate and separator-plate, the thickness of the said lever being substantially equal to the thickness of the coin used or controlled by it, said coin-carrier having two coin-receiving openings; a coin-feeder to receive a series of coins, means acting on said coins to transfer them one at a time from said feeder into one and then into the other of the holes of the coin-carrier, means to positively move the said coin-carrier to and fro across the coin held in the coin-feeder, whereby said

coin-carrier is enabled to take and have discharged from it a coin in each direction of its movement, the sides of the coin while being taken from a position opposite the coin-feeder into a position opposite the discharge-openings of the separator-plate being engaged both by the said separator-plate and the front plate, substantially as described.

2. In a coin-controlled meter, a power-driven shaft of a meter, a coin-carrier composed of a pivoted elbow-lever having coin-openings and a slot, and a locking device to enter either one of said coin-openings to lock the coin-carrier, combined with an eccentric located in the slot of the coin-carrier, and gearing between said eccentric and said power-driven shaft to actuate said carrier to and fro when not held locked by said locking device, substantially as described.

3. In a coin-controlled meter, a to-and-fro-moving coin-carrier having coin-openings, means to move said coin-carrier to and fro when a coin is present, combined with a plunger, and a coin-feeder to present a coin opposite a coin-opening in said carrier, and means to remove the coin from the feeder into the coin-carrier, the incoming of a coin into a coin-receiving opening of the coin-carrier removing the said locking device, thus releasing the coin-carrier in order that it may be moved, substantially as described.

4. In a coin-controlled meter, a to-and-fro-moving coin-carrier made as a lever having coin-receiving openings and provided with a forked arm, an eccentric or cam to move said coin-carrier to and fro, a coin-feeder to supply said coin-receiving openings in succession with coins, and a discharging device one for each of said coin-receiving openings, substantially as described.

5. In a coin-controlled meter, a to-and-fro-moving coin-carrier made as a lever having coin-receiving openings and a forked arm, an eccentric or cam to move said coin-carrier to and fro, and a locking device to enter either of the coin-receiving openings when a coin is absent and thus restrain the movement of said coin-carrier when a coin is absent, substantially as described.

6. In a coin-controlled meter, a power-driven shaft of a meter, a coin-feeder, a coin-carrier having coin-receiving openings to be supplied with coins, an eccentric or cam to move said carrier to and fro, a registering mechanism containing a plurality of dials, to indicate the quantity of gas consumed, and gearing intermediate said power-driven shaft and said cam and the said registering mechanism to simultaneously actuate said registering mechanism and rotate said eccentric or cam, substantially as described.

7. In a coin-controlled meter, a coin-carrier made as a lever provided with two coin-re-

ceiving openings, and with a slot, combined with an eccentric standing in said slot, and means to move said eccentric to actuate said lever to and fro, a coin-feeder to supply coins to said to-and-fro-moving carrier, and discharging devices to push the coins from said coin-carrier at a distance from the point where the coin-feeder in its movement took the said coin, substantially as described.

8. In a coin-controlled meter, a coin-carrier made as a lever provided with two coin-receiving openings, and with a slot, combined with an eccentric standing in said slot, and means to move said eccentric to actuate said lever to and fro, a coin-feeder to supply coins to said to-and-fro-moving carrier, and discharging devices located at that side of the feeder at which the coin was received to act on said coins and push them through the coin-feeder, substantially as described.

9. In a coin-controlled meter, the front and back plates B, A, and a separating-plate provided with openings as t , t^8 , to leave at one side said plate a coin-receiving chamber t^3 , a coin-carrier made as a lever and provided with a plurality of holes, said lever having a slot, an eccentric in said slot, means to actuate said eccentric to move said coin-carrier, and a coin-feeder to supply coins to said carrier, combined with means to detach the coins from said carrier and push them through the openings of said separating-plate and into said receiving-chamber, substantially as described.

10. In a coin-controlled meter, a front and back plate, a separator-plate located between them and provided with a coin-discharging opening and presenting a smooth face at the side of said opening against which may slide one side of the coin while being transferred from a pile into discharging position, a to-and-fro-movable coin-carrier made as a lever and located between said front plate and separator-plate, said coin-carrier having a coin-receiving opening, a plunger to act on a coin and press the same toward the coin-carrier to put said coin in the openings of said carrier when the said openings in the movement of the carrier come opposite the coin to be fed into the carrier, means to positively move the said coin-carrier to and fro in order that the coin may be taken singly from the pile of coins and transferred laterally into position to be discharged through the opening of the separator-plate, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL E. MOWER.

Witnesses:

CHAS. M. BURTON,
SAMUEL A. MOWER.