

C. E. HIBBERD.
 ACTUATING MECHANISM FOR COIN FREED METERS.
 APPLICATION FILED APR. 6, 1909.

1,035,189.

Patented Aug. 13, 1912

3 SHEETS—SHEET 1.

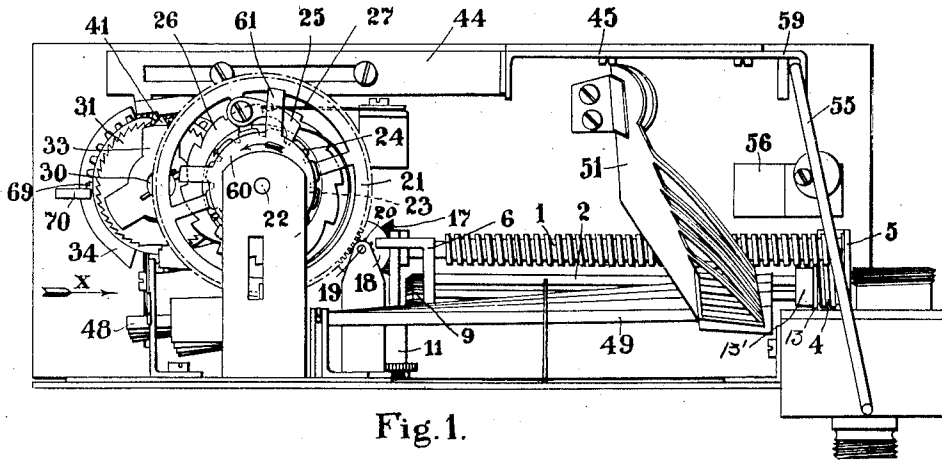


Fig. 1.

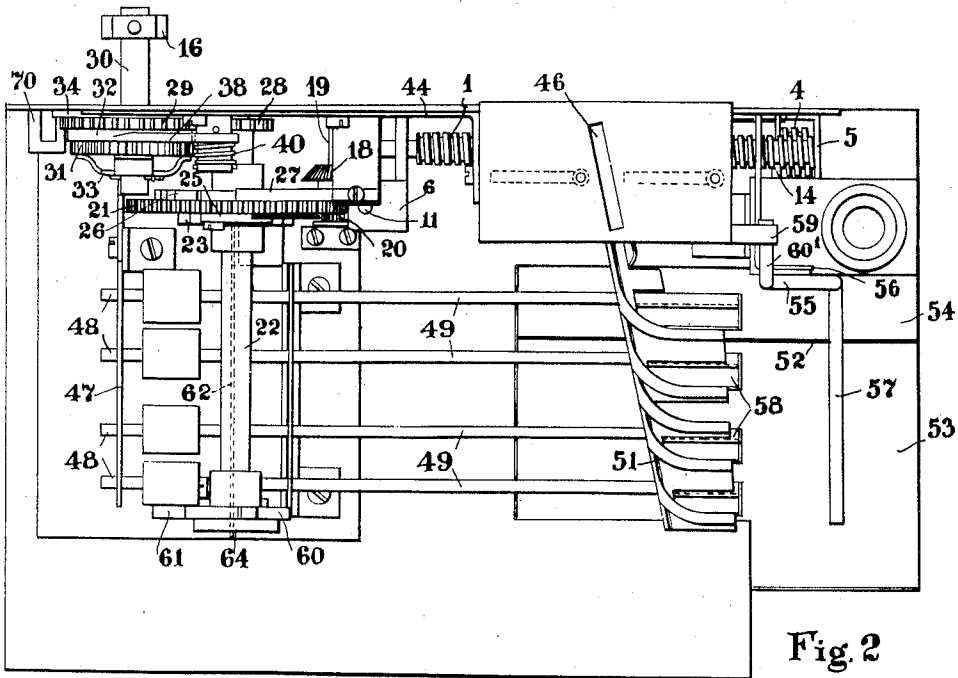


Fig. 2

Witnesses:
 E. M. Sullivan
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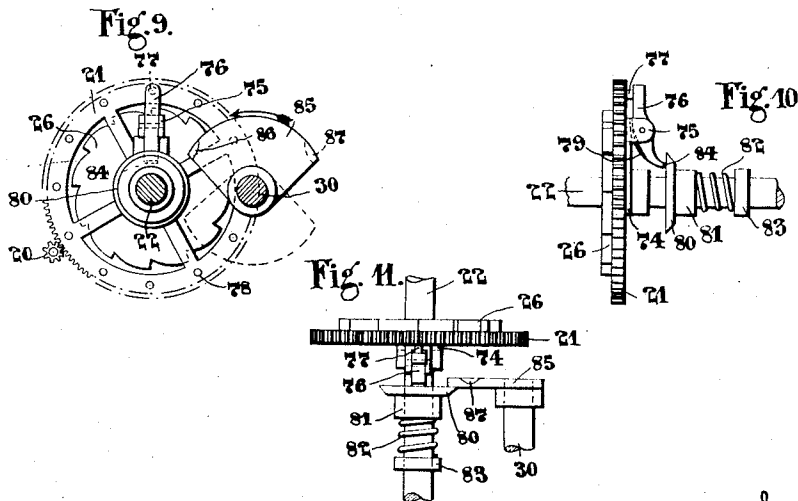
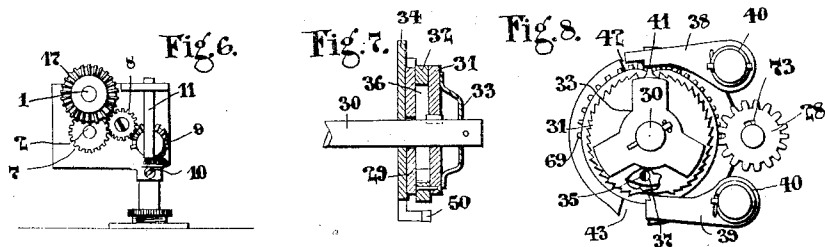
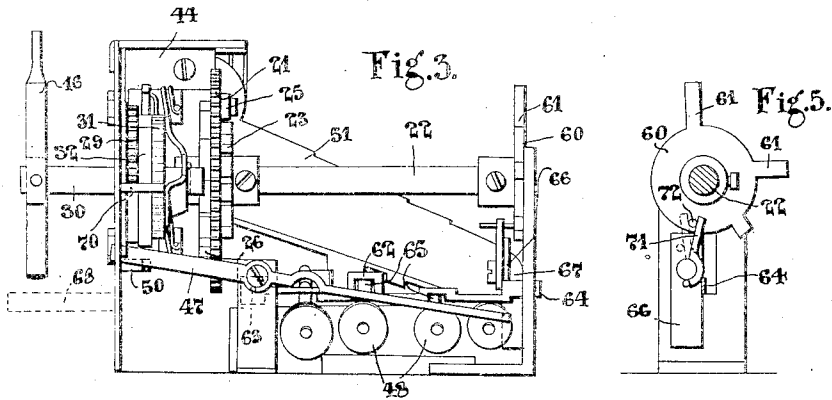
Inventor
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 his Attorney

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Witnesses:
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 L. Louis Frank.

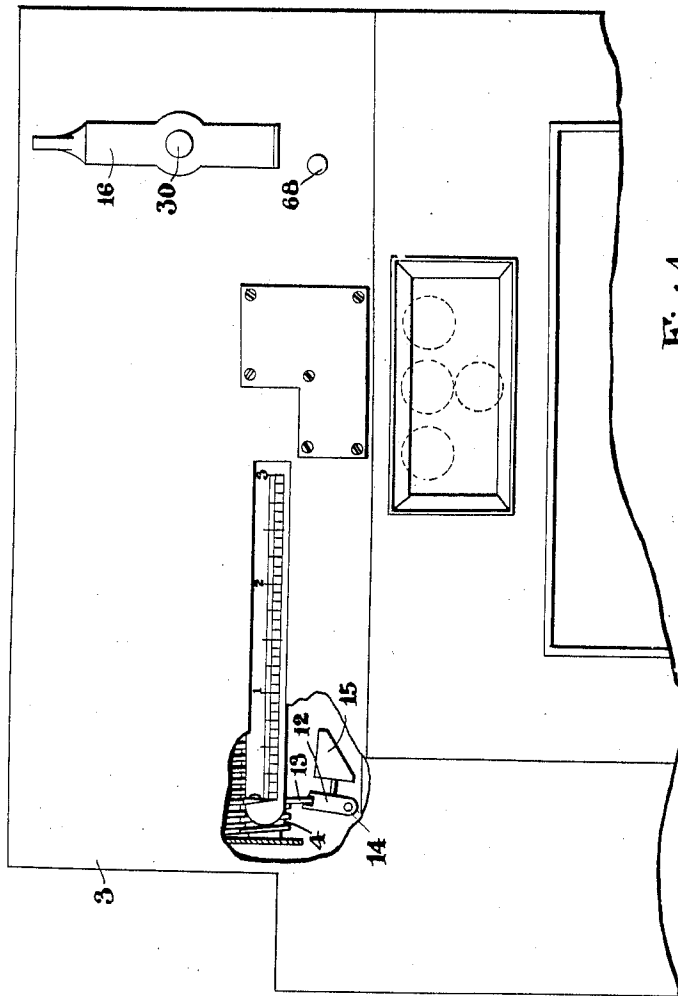
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3 SHEETS-SHEET 3.



Witnesses:-
 E. M. Sullivan
 Corissa Frank

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UNITED STATES PATENT OFFICE.

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ACTUATING MECHANISM FOR COIN-FREED METERS.

1,035,189.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed April 6, 1909. Serial No. 488,321.

To all whom it may concern:

Be it known that I, CHARLES EDWIN HIBBERD, a subject of the King of Great Britain and Ireland, and residing at 47 Victoria street, Westminster, London, S. W., England, have invented certain new and useful Improvements in or Relating to Actuating Mechanism for Coin-Freed Meters, of which the following is a specification.

10 This invention relates to coin-freed meters wherein a predetermined quantity of a commodity may be obtained by the employment of a coin operating to allow of the actuation of the mechanism.

15 The main object of the invention is to provide a simple and efficient machine which shall be proof against fraud, of the type wherein different quantities of a commodity may be obtained by the insertion of coins of varying values in a common slot.

The accompanying drawings illustrate a convenient mode of carrying the present invention into effect as applied to a gas meter.

Figure 1 is a rear elevation of the apparatus with the cover removed, Fig. 2 is a plan view of the same, Fig. 3 is an end elevation viewed in the direction of the arrow X Fig. 1, Fig. 4 is a front elevation with a part of the casing removed to show the gas valve operating mechanism, and Figs. 5 to 8 are views of various details hereinafter particularly referred to. Fig. 9 is an elevation of a modified form of device for preventing overrunning of the operating mechanism, as seen from the front of the apparatus. Fig. 10 is a side elevation of the device in Fig. 9, and Fig. 11 is a plan of the same.

Referring now to Figs. 1 to 8, a screwed spindle 1, which is rotated by the hand controlled mechanism, and a worm carrying spindle 2, which is rotated by the flow of the gas, are arranged horizontally within the casing 3 fitted to the top of the meter. The worm 4 is adapted to slide along the spindle 2 and this worm engages with the screwed spindle 1, which is adapted to be revolved by an operator through a certain number of revolutions according to the value of the coin placed in the machine. The quantity of gas obtained by means of the machine is determined by the distance through which the worm 4 is moved along

the spindle 2, the flow of the gas being utilized to rotate the spindle 2 and cause the return of the worm which then operates mechanism to cut off the supply of gas.

The spindles 1 and 2 are supported at one end in a bracket 5 secured to the end plate of the casing and at the other end in a suitable bracket 6 secured to the front plate of the casing near the center thereof. The latter end of the worm-carrying spindle 2 carries a toothed wheel 7 which gears through an adjustable idler 8 with a third wheel 9 which is driven directly by a worm or bevel gear 10 on a vertical shaft 11 operated from the usual gas-driven mechanism. The toothed wheel 7 may be replaced by one of any size so as to vary the rapidity with which the gas valve is closed and thus simple and convenient means are provided for changing the mechanism to suit the varying price of gas. The horizontal arrangement of the screwed and worm spindles is of advantage in that it saves considerable space vertically. Adjacent to the end of the worm carrying spindle 2, is a lever 12 adapted to be operated by a tongue 13 on the worm 4 as it approaches the end of its spindle 2 and thus operate a spindle 14 passing through the inlet valve casing 14' and serving to operate a valve therein in any suitable manner. A spring or weight 15 is also provided, tending to open the valve so as to admit gas when the worm is moved along its spindle again by the hand operated mechanism. The valve is however positively opened by the action of the tongue 13 on the lever 12. The spindle 14 passing through the valve casing 14', is preferably arranged as follows to prevent leakage through the casing. A leather or like washer engaged by a shoulder on the spindle is pressed against the casing by a tight fitting screw which passes through the casing at the opposite end of the spindle and engages said spindle so as to form a pivot therefor. This screw may be replaced by a pin mounted on a flat spring inside the casing so as to take up the wear on the washer automatically.

I will now describe the mechanism by which the external handle 16 controls the screwed worm-actuating spindle 1:—That end of said screwed spindle 1 which is car-

ried by the bracket 6 at the center of the front plate, is provided with a bevel wheel 17 (see Fig. 6) which engages another bevel wheel 18 mounted on a spindle 19 carrying a toothed wheel 20. The latter wheel gears with a comparatively large main drive wheel 21 loosely mounted on a main drive shaft 22 supported in the front and rear plates of the casing by a suitable bracket or brackets. This drive wheel 21 is rotated by a ratchet wheel 23, fixed to said main drive shaft, the teeth 24 of which engage a spring pressed pawl 25 pivoted on the drive wheel 21 and thereby drive the same when rotated in the forward direction, *i. e.* the direction shown by the arrow in Fig. 1. These teeth 24 are formed so as to prevent the drive wheel from overrunning the main drive shaft 22, should the latter be rotated very rapidly. This is effected in the form of the device shown in Figs. 1, 2 and 3 by making the recesses deeper than usual, so that the pawl 25 is prevented from jumping a tooth unless positively actuated. On the other side of the said drive wheel is fixed a toothed wheel 26 having such a number of teeth as can be divided up to correspond with the values of the different coins to be used, engaged by a pawl or spring 27 carried on the casing and preventing backward movement of the drive wheel.

The main drive shaft 22 is provided preferably at its extreme front end, with a gear wheel 28 engaging a toothed disk 29 having teeth extending around substantially one half of its circumference and loosely mounted on an auxiliary drive shaft 30 supported in the front plate of the casing. This shaft extends through the casing and has rigidly secured to its front end the external operating handle 16. A disk 31 having ratchet teeth is also mounted on the rear end of the auxiliary drive shaft 30 and is adapted by means of a feather or like device, to always rotate therewith but be capable of slight axial movement. A washer 32 having a smooth periphery of slightly greater diameter than the tops of the teeth on the ratchet disk 31 is interposed between said disk 31 and the other toothed disk 29. This washer and the disks may be arranged in either of the following ways:—As illustrated the washer is rigidly secured to the disk 31 (see Fig. 7) both being forced toward the front by a spring 33. By this means the disk 29 is rotated frictionally by being gripped between the washer 32 and the disk 34, which is rigidly fixed to the auxiliary shaft 30. A projection 35, preferably semicircular in cross section, projects into the recess 36 from the disk 31 and is adapted to engage, upon the backward movement of the handle 16, with a similar projection 37 on the disk 29 for a purpose hereinafter set forth. According to another equivalent arrangement

the washer is made in one with the disks 29, and a pin or the like mounted on the combined washer and toothed disk, or on the disk and passing through the washer, is adapted to engage a recess in the front face of the ratchet disk 31 and thereby normally rotate said toothed disk and washer. In the latter form the head of the pin or recess is so shaped that upon positive stoppage of the toothed disk 29 and washer by means hereinafter described the ratchet disk 31 is forced axially, against the action of the spring 33 and the pin and recess disengage to allow of further rotation of the ratchet disk. With either arrangement the ratchet disk 31 is formed with the teeth on one half pointing in one direction and on the other half in the opposite direction, as shown clearly in Fig. 8, such teeth being engaged by diametrically opposite pawls 38 and 39 mounted on the front plate. These pawls are spring pressed radially toward the ratchet disk 31 and also laterally, by springs 40, toward the front of the casing, for a reason which will hereinafter appear. At one meeting point of the oppositely disposed teeth on the ratchet disk 31 is a raised portion 41, which projects slightly above the surface of the adjacent washer 32 so that when said raised portion comes opposite the point of either pawl, 38 or 39, the pawl is forced laterally by its spring 40 and its point rests on the smooth periphery of the washer.

The disk 34 rotating with the auxiliary drive shaft 30 and arranged close to the front casing is provided with two slots 42 and 43 the former of which engages a bar 44 or the like slidably mounted on the front casing and adapted to operate a closing plate 45 to cover the coin slot 46 directly the handle 16 is turned. The other slot 43 is normally engaged by one end of a pivoted bar 47 to prevent rotation of the handle, the other end of said bar 47 being kept down by gravity or other suitable means and lying over the weighted ends 48 of coin levers 49 which are pivoted on a bracket 49' and are provided with coin holders 58. A projection 50, preferably V-shaped, on the periphery of this slotted disk 34 is adapted to force either of the pawls 38 or 39 back into engagement with the ratchet disk 31 when it comes opposite the same and such projection 50 is arranged substantially diametrically opposite the raised portion 41 on the ratchet disk 31.

If desired, the washer 32 may be notched on either side of the raised portion 41, as shown in Fig. 8, in order that the pawls 38 and 39 may pass more readily into engagement with the smooth periphery of the washer 32.

51 shows a separator which communicates with the coin slot 46 and is provided

with directors 51' of varying heights, whereby the different sized coins are respectively caught and deflected into one or other of the coin holders on the coin levers 49. The separator is preferably arranged so that as the coins run on to the ends of the coin levers, they are moving toward said ends. The coin levers 49 are preferably arranged parallel to the front plate and may be pivoted on inclined brackets in such a manner that as their ends move downward under the weight of the coins they move out of the vertical plane normally containing them and thereby allow any coin which may be subsequently inserted before operation of the handle to fall straight through into the coin receptacle or receptacles. This mode of pivoting the coin levers is, however, not illustrated. A guide 52 is preferably arranged below the coin levers 49 so that when the coins are ejected from the lever ends, the silver coins pass to one receptacle 53 and the coppers to another receptacle 54.

The means for ejecting the coins from the levers 49 will now be described. A bent lever arm 55 is pivoted on a bracket 56 in such a manner that a horizontal arm 57 thereof which is normally retained close to the end plate will, upon oscillating said lever arm 55, engage any coin that lies upon a lever end and has depressed said lever end. The horizontal arm 57 passes freely under all lever ends not depressed but ejects the last inserted coin so that it falls into its receptacle and holds the corresponding lever in its tilted position. The extreme ends of the coin holders 58 on the levers may be closed to prevent the coins rolling off and the other ends of said holders open so that the coin can be pushed off as described. The bent lever arm 55 is preferably operated by the same mechanism as operates the closing plate 45 of the coin slot. This may consist of a fork 59 on said plate engaging a short horizontal portion 60' of the arm 55.

A disk 60 is rigidly secured to the main drive shaft 22 and is provided with a series of radial projections 61 of different lengths whereby the shaft may be stopped at varying points in its rotation by means which will now be described. These means may consist of rigid projections on the weighted ends of the coin levers 49, such projections, upon depression of the opposite ends, rising to various heights into the paths of the projections 61. Preferably however the means employed are as illustrated and comprise a grooved or stamped bar 62 pivoted at 63. The outer end 64 of this bar is adapted to rise to various heights determined by which coin lever is operated and the vertical length of the slots 65, whereby the disk 60 and main drive shaft 22 are stopped at a point depending upon the value of coin inserted. Further rotation of the

main drive shaft 22 is then prevented, the pressure between the projection on the coin lever, or the outer end of the bar 62, and the radial projection 61 preferably taken by a frame 66 fixed near to the rear plate of the casing and slotted at 67 to allow the drive shaft projections to pass through. The projections on the weighted ends of the coin levers or the outer end 64 of the bar 62 when in the raised position lie or lies close to said frame and across the slot. It will also be understood that upon depression of a coin lever by a coin the opposite end will rise and engage the pivoted bar 47 which releases the handle locking disk 34.

The operation of the whole mechanism will now be briefly described:—Assuming all parts to be in their normal position and a coin inserted, the coin is guided to its corresponding coin lever 49 and tilts the same so as to set the corresponding projection or the end of the bar 62 in the path of the corresponding projection 61 on the main drive shaft 22 and simultaneously tilts the pivoted bar 47, which normally prevents rotation of the handle 16, and releases same. The handle 16 is now operated to give the auxiliary drive shaft 30 a half turn in the forward direction, the ratchet disk 31 thereon moving with it and being prevented from backward rotation by the pawl 39, the other pawl 38 riding on the smooth periphery of the washer 32. During the initial part of this movement of the handle 16 the coin slot 46 is closed and the horizontal part 57 of the bent lever arm 55 dislodges the coin from the coin holder as described. If the coin of greatest value had been inserted the main drive shaft 22 would have been allowed to make a complete revolution for the half turn of the auxiliary drive shaft 30. If however the main drive shaft 22 is stopped at any intermediate point, depending of course on the value of the coin inserted, the toothed disk 29 on the auxiliary drive shaft 30 is stopped but the ratchet disk 31 is allowed to complete its half turn by the means above described. Reversal of the handle is, during this forward movement, prevented by the pawl 39. Upon completion of the half revolution of the handle 16 the pillar 68 is engaged by the handle preventing further forward movement thereof and the V-shaped projection 50 on the slotted disk 34 engages the pawl 38 riding on the periphery of the washer and forces the same on to the teeth of the ratchet disk 31, and simultaneously the raised portion 41 on the ratchet disk 31 engages the point of the opposite pawl 39 and allows it to be forced on to the periphery of the washer. The handle 16 is then turned backward to its original position, reversal of its movement being now prevented by the pawl 38 engaging the ratchet disk 31 on the auxiliary drive shaft

30. During this return of the handle the end tooth 69 of the toothed disk 29 engages a fixed stop 70, the pin 37 then preventing movement of the handle beyond its original position by engagement with this pin of the pin 35. During the latter part of the movement of the handle the coin slot closer 45 is removed from the slot 46 and the horizontal coin ejecting arm 57 returned to its normal position and further the oppositely disposed ratchet pawls 38 and 39 are again reversed 38 being thrown onto the periphery of the washer and 39 on to the ratchet disk. The parts are now ready for a repetition of the operation.

A positive stop 71 may be provided on the casing or the frame 66, if desired, to engage with a pin or the like 72, preferably on the disk 60, to prevent overrunning of the shaft 22 when a coin of maximum value is used. If a complete rotation of the main drive shaft 22 is required, for this coin, the positive stop may be arranged to allow for the diameter of the pin 72 and width of stop 71 and insure an exact complete rotation. To effect this the stop 71 is pivoted to the frame 66 in such a manner that it can oscillate through a distance equal to its width plus the diameter of the pin 72 at the point of contact with said pin.

In order to prevent any possibility of slight oscillations of the handle 16 being employed to obtain gas unlawfully, the pinion 28 is adapted to have slight rotary play on its shaft 22 as shown by the enlarged key way 73 in Fig. 8.

If desired the mechanism on the auxiliary drive shaft may be mounted on the main drive shaft and the auxiliary shaft done away with, a sleeve for example being provided on said main shaft to carry the handle and other mechanism.

Reference will now be made to Figs. 9, 10 and 11 which show a device which may be employed instead of the deep-toothed ratchet wheel 23, for preventing overrunning of the mechanism and the consequent receipt of an unlawful quantity of gas, should the operating handle be rotated quickly. In place of the ratchet wheel 23 a pawl carrier 74 is provided on the main drive shaft 22 and is rigidly secured thereto. This pawl carrier is provided with lugs 75 between which is pivoted the pawl 76. The pawl 76 is provided with a reduced portion 77 which is adapted to engage any one of a set of holes 78 arranged around the face of the wheel 21 as shown. The pawl is normally kept pressed against the face of the wheel 21 with its reduced portion engaging one of the holes therein, by means of a spring 79 pressing on its lower end. Loosely mounted on the shaft 22 is a disk 80 provided with a boss 81. This disk is normally kept just in engagement with the extremity

84 of the lower end of the pawl 76 by means of a spiral spring 82 bearing at one end against the boss 81 and at the other end against a collar 83 rigidly secured upon the shaft 22. It will be seen from Figs. 9, 10, 11 of the drawings that the toothed wheel 26 in the present instance is provided on the rear side of the wheel 21, in order that the pawl 76 and disk 80 may be provided on the front side thereof, so as to be in a position for convenient operation by the auxiliary drive shaft 30 as will now be described. Rigidly secured to the extremity of the shaft 30 is a sector plate 85 which when the operating handle is in its normal position, takes up the position shown in full lines in Fig. 9. If now the operating handle is rotated in the manner hereinbefore described in the direction of the arrow in Fig. 9 the shaft 30 will be rotated and the sector plate will move around into engagement with the disk 80, and in consequence of the beveled portion 86, will engage this disk on its rear side as shown in Fig. 11. The disk will thus be caused to slide slightly along the shaft 22 in a direction away from the extremity 84 of the pawl 76, and in consequence the pawl will remain in engagement with one of the holes 78 in the wheel 21. It will thus be seen that during the forward movement of the operating handle the wheel 21 will be positively driven by the pawl 76, overrunning being impossible. At the limit of the partial rotation of the operating handle the sector plate will be in the position shown in dotted lines in Fig. 9, the disk having moved back into engagement with the extremity 84 of the pawl, under the action of its spring 82. Upon return of the operating handle to its original position and consequent backward rotation of the shaft 30, the sector plate 85 will engage the front face of the disk 80. This is due to the beveled face 87 on the sector plate which is provided on the opposite side thereof to the beveled face 86 previously mentioned. Owing to this engagement of the sector plate with the front face of the disk 80, the latter is forcibly moved forward against the extremity 84 of the pawl 76, thus throwing the pawl out of engagement with its hole on the wheel 21, and allowing a perfectly free return of the operating handle. To insure correct engagement of the sector plate 85 with the disk 80 the periphery of the latter is preferably brought to a sharp edge by being beveled as shown in the drawings.

The above device has an advantage over the deep toothed wheel 23 in that it is practically noiseless in action and there is less wear and tear of the operating parts.

It will be understood that the details herein described may be slightly modified without departing from the spirit of the invention.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a coin freed meter, a hand operated shaft adapted to be rotated by hand a definite amount in either direction, means carried by said shaft for preventing reverse motion thereof during its movement in either direction, a separate main drive shaft adapted to be stopped at various points according to the quantity of the commodity required, a gear wheel fast upon said main drive shaft, a toothed disk loosely mounted upon the hand operated shaft, said disk meshing with the aforesaid gear wheel, and means carried by the hand operated shaft for frictionally engaging the toothed disk.

2. In a coin freed meter, a hand operated shaft adapted to be rotated by hand a definite amount in either direction, means carried by said shaft for preventing reverse motion thereof during its movement in either direction, a separate main drive shaft adapted to be stopped at various points according to the quantity of the commodity required, a gear wheel fast upon said main drive shaft, a toothed disk loosely mounted upon the hand operated shaft, said disk meshing with the aforesaid gear wheel, means carried by the hand operated shaft for frictionally engaging the toothed disk, and a main drive wheel on the main drive shaft having geared connection with a screwed spindle, a further spindle being provided adjacent to said screwed spindle and carrying a worm gearing therewith.

3. In a coin freed meter, a hand operated shaft adapted to be rotated by hand a definite amount in either direction, means carried by said shaft for preventing reverse motion thereof during its movement in either direction, a separate main drive shaft adapted to be stopped at various points according to the quantity of the commodity required, a gear wheel fast upon said main drive, a toothed disk loosely mounted upon the hand operated shaft said disk meshing with the aforesaid gear wheel, means carried by the hand operated shaft for frictionally engaging the toothed disk, a main drive wheel loosely mounted upon the main drive shaft, means for connecting said main drive wheel to said main drive shaft when the latter is turned in one direction, a screwed spindle having geared connection with said main drive wheel, and a further spindle adjacent to said screwed spindle and carrying a worm gearing therewith.

4. In a coin freed meter, a hand operated shaft adapted to be rotated a definite amount, and means for preventing reverse motion of the hand operated shaft during its movement in either direction comprising a disk fixed upon the hand operated shaft and having two sets of oppositely disposed

teeth arranged on either side of its diameter, a toothed wheel loose on said hand operated shaft, a washer of smooth periphery between said wheel and the aforesaid disk, and a pair of pawls movable laterally with respect to the plane of the disk to alternately engage the said washer and one set of the teeth on the disk.

5. In a coin freed meter, a screwed spindle a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft adapted to be rotated a definite amount, and means for preventing reverse motion of the hand operated shaft during its movement in either direction comprising a disk fixed upon the hand operated shaft and having two sets of oppositely disposed teeth arranged on either side of its diameter, a toothed wheel loose on said hand operated shaft, a washer of smooth periphery between said wheel and the aforesaid disk, and a pair of pawls movable laterally with respect to the plane of the disk to alternately engage the said washer and one set of the teeth on the disk.

6. In a coin freed meter, a screwed spindle, a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft, means for rotating the other spindle by the flow of the commodity, a main drive shaft adapted to be stopped at various points according to the quantity of the commodity required, and means for preventing reverse motion of the hand operated shaft during its movement in either direction.

7. In a coin freed meter, a hand operated shaft adapted to be rotated by hand a definite amount in either direction, a separate main drive shaft adapted to be stopped at various points according to the quantity of the commodity required and means for operating the main drive shaft from the other shaft comprising a toothed wheel loose on the hand operated shaft a disk fixed on the hand operated shaft, a connection between the disk and the toothed wheel adapted to allow relative rotation between the same but normally locking them together, and means for preventing reverse motion of the hand operated shaft during its movement in either direction.

8. In a coin freed meter, a hand operated shaft adapted to be rotated a definite amount, a main drive shaft adapted to be stopped at various points according to the quantity of the commodity required and means for operating the main drive shaft from the other shaft comprising a toothed wheel loose on the hand operated shaft a disk fixed on the hand operated shaft, a connection between the disk and the toothed wheel adapted to allow relative rotation between

the same but normally locking them together, and means for preventing reverse motion of the hand operated shaft during its movement in either direction, comprising two sets of oppositely disposed teeth on the disk, a washer of smooth periphery arranged between the disk and the toothed wheel, and a pair of pawls each adapted to alternately engage the periphery of the washer and one set of the teeth on the disk.

9. In a coin freed meter, a hand operated shaft adapted to be rotated a definite amount, means for preventing reverse motion of the hand operated shaft during its movement in either direction comprising a disk fixed upon the hand operated shaft, and carrying two sets of oppositely disposed teeth, a toothed wheel loose on said hand operated shaft, a washer of smooth periphery between said wheel and the aforesaid disk, a pair of pawls each adapted to alternately engage the said washer and one set of teeth on the disk, and a projection rigidly rotating with the hand operated shaft, adapted to force the pawls into engagement with the toothed disk.

10. In a coin freed meter, a hand operated shaft adapted to be rotated a definite amount, means for preventing reverse motion of the hand operated shaft during its movement in either direction, comprising a disk fixed upon the hand operated shaft, and carrying two sets of oppositely disposed teeth, a toothed wheel loose on said hand operated shaft, a washer of smooth periphery between said wheel and the aforesaid disk, a pair of laterally spring pressed pawls each adapted to alternately engage the periphery of the washer and one set of the teeth on the disk, a projection rigidly rotating with the hand operated shaft, adapted to force the pawls into engagement with the toothed disk against the force of their springs and a raised portion on the disk between the two sets of teeth adapted to move the pawls radially outward so that they may be moved on to the washer by their springs.

11. In a coin freed meter, a screwed spindle, a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft and the other by the flow of the commodity, means for preventing reverse motion of the hand operated shaft during its movement in either direction, comprising a disk fixed upon the hand operated shaft, and carrying two sets of oppositely disposed teeth, a toothed wheel loose on said hand operated shaft, a washer of smooth periphery between said wheel and the aforesaid disk, a pair of laterally spring pressed pawls each adapted to alternately engage the periphery of the washer and one

set of the teeth on the disk, a projection rigidly rotating with the hand operated shaft, adapted to force the pawls into engagement with the toothed disk, against the force of their springs, and a raised portion on the disk between the two sets of teeth adapted to move the pawls radially outward so that they may be moved on to the washer by their springs.

12. In a coin freed meter a screwed spindle, a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft, a main drive shaft, a main drive wheel loosely mounted on the main drive shaft and having a series of holes arranged around it, and means for coupling said main drive wheel to said main drive shaft comprising a pawl carrier rigidly mounted on said main drive shaft, and a pawl pivotally mounted thereon and adapted to engage in any one of the series of holes in the main drive wheel.

13. In a coin freed meter, a screwed spindle, a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft, a main drive shaft, a main drive wheel loosely mounted on the main drive shaft and having a series of holes arranged around it, a pawl carrier rigidly mounted on the main drive shaft, and a pawl pivotally mounted in said pawl carrier and adapted to engage in any one of the series of holes in the main drive wheel.

14. In a coin freed meter, a screwed spindle, a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft, a main drive shaft, a main drive wheel loosely mounted on the main drive shaft and having a series of holes arranged around it, a pawl carrier rigidly mounted on the main drive shaft, a pawl pivotally mounted in said pawl carrier and adapted to engage in any one of the series of holes in the main drive wheel when the hand operated shaft is rotated forwardly and means carried by said hand operated shaft for positively removing said pawl from the holes in the main drive wheel, when said hand operated shaft is rotated backwardly.

15. In a coin freed meter, a screwed spindle, a spindle adjacent thereto carrying a worm gearing therewith, means for rotating one of said spindles by hand comprising a hand operated shaft, a main drive shaft, a main drive wheel loosely mounted on the main drive shaft and having a series of holes arranged around it, a pawl carrier rigidly mounted on the main drive shaft, a pawl pivotally mounted in said pawl carrier and adapted to engage in any one of

the series of holes in the main drive wheel
when the hand operated shaft is rotated forwardly and means carried by said hand
operated shaft, for positively removing said
5 pawl from the holes in the main drive wheel,
when said hand operated shaft is rotated
backwardly, comprising a disk loosely
mounted on said main drive shaft, and a

sector plate rigidly mounted on the hand
operated shaft.

In testimony whereof I have affixed my 10
signature in presence of two witnesses.

CHARLES EDWIN HIBBERD.

Witnesses:

ALBERT E. PARKER,

W. G. BISHOP DOWLING.