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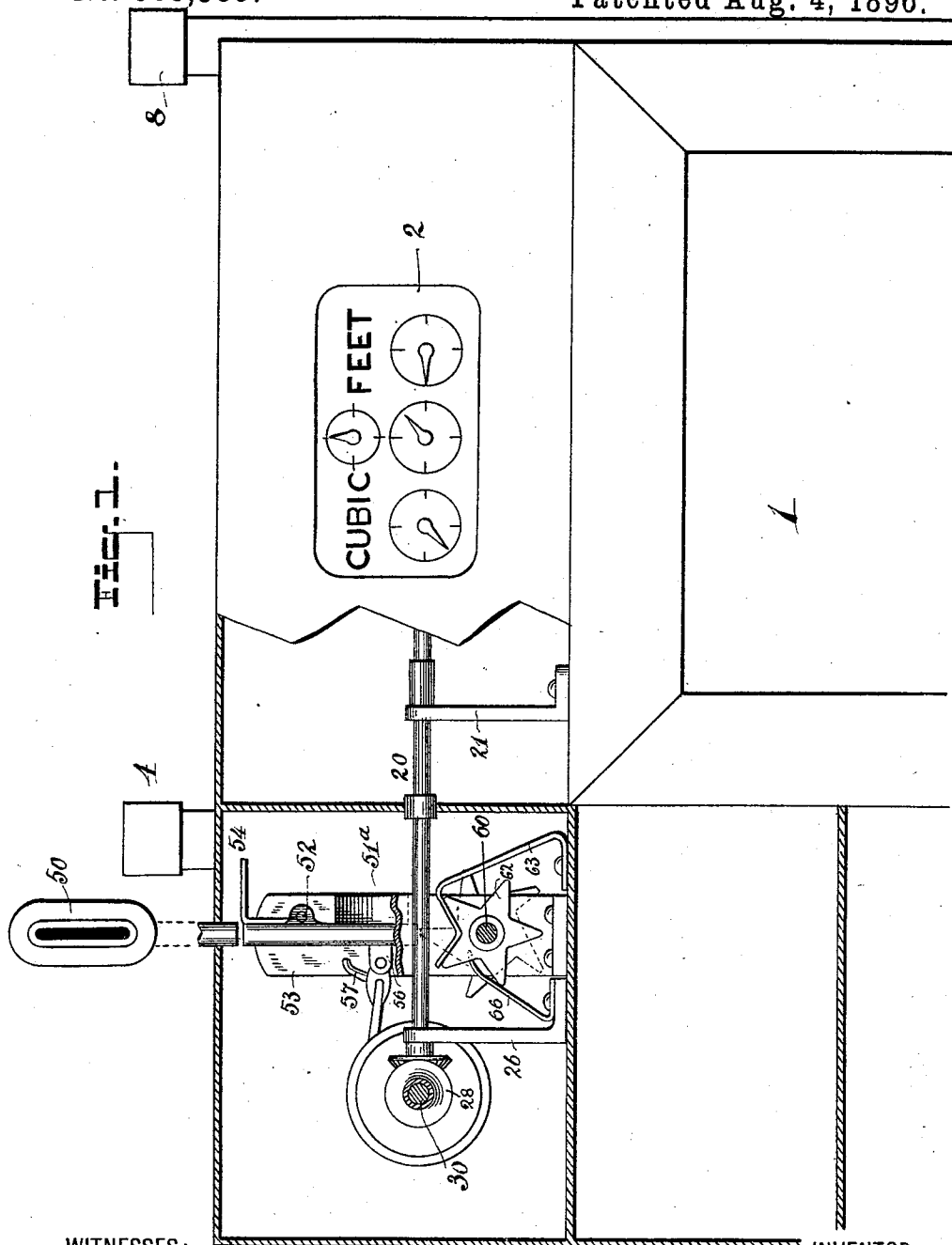
4 Sheets—Sheet 1.

J. FOX.

AUTOMATIC GAS VENDING APPARATUS.

No. 565,383.

Patented Aug. 4, 1896.



WITNESSES:

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(No Model.)

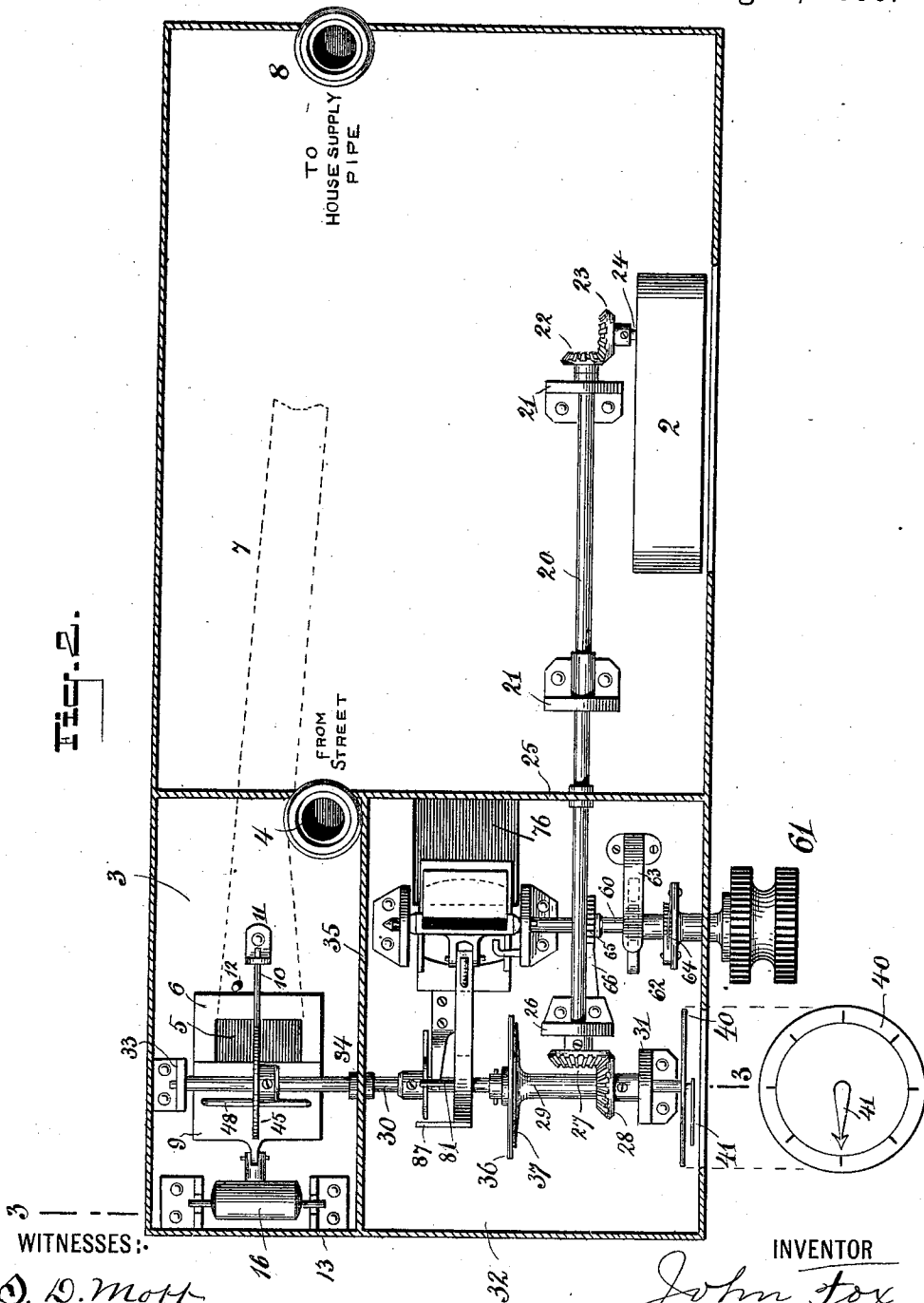
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Fig. 3.

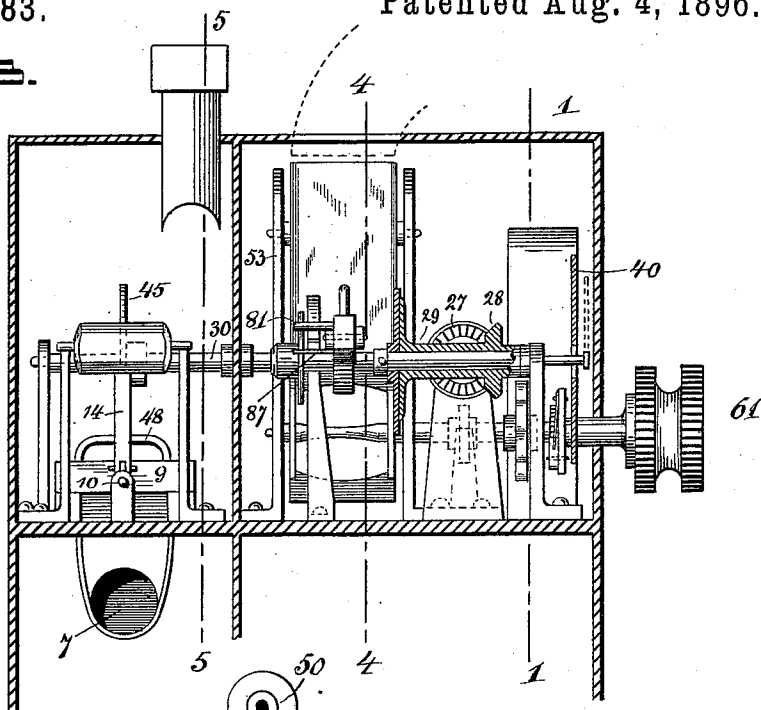
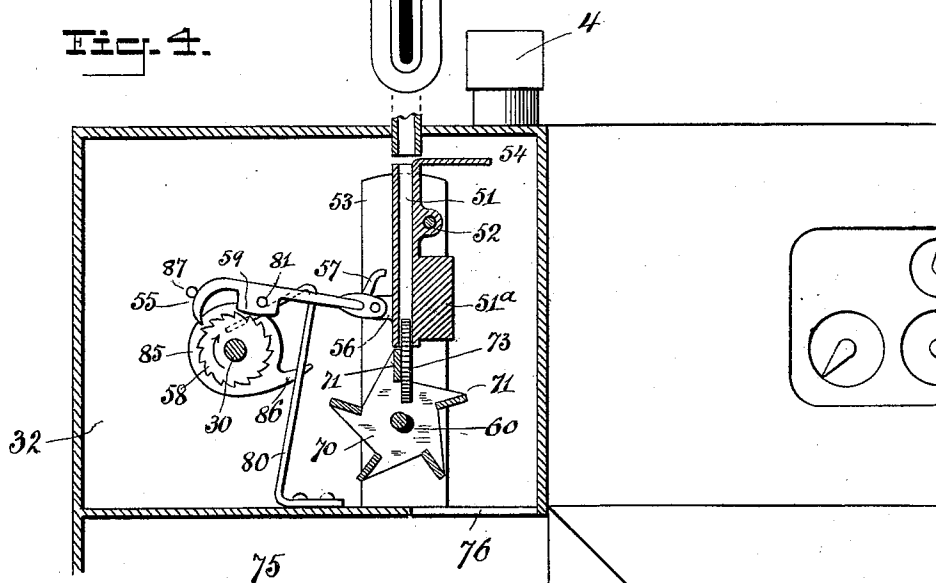


Fig. 4.



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Fig. 5.

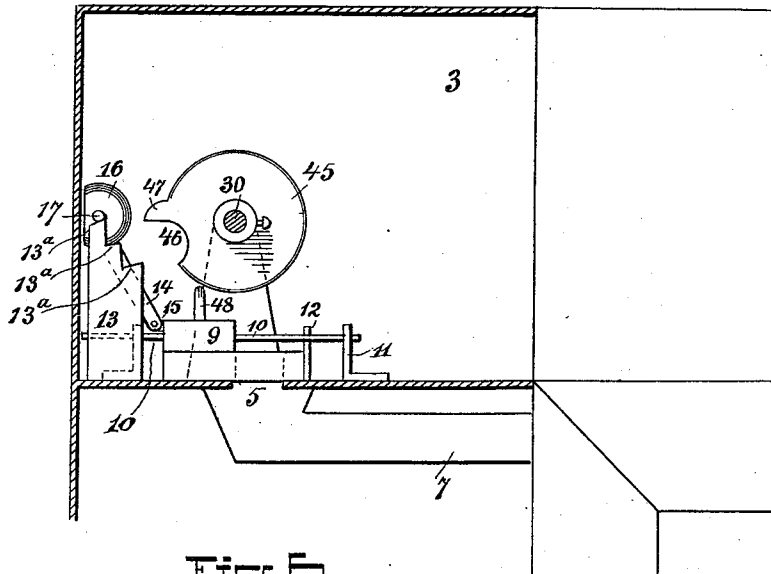
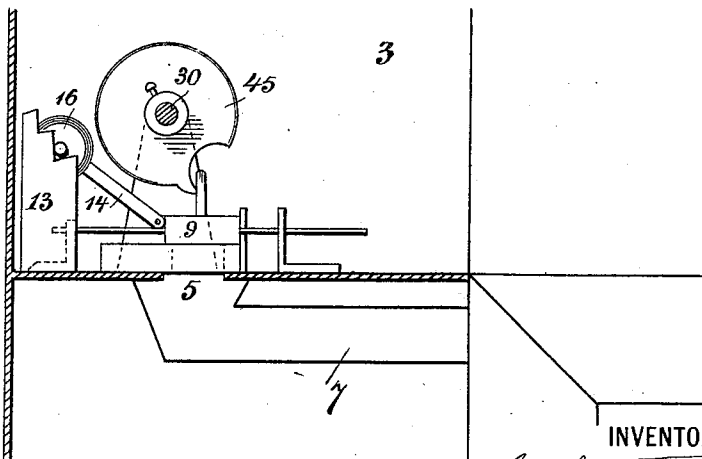


Fig. 6.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC GAS-VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 565,383, dated August 4, 1896.

Application filed July 24, 1895. Serial No. 556,996. (No model.)

To all whom it may concern:

Be it known that I, JOHN FOX, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Automatic Gas-Vending Apparatus, of which the following is a specification.

My invention relates to what is commonly known as a "prepayment" gas-meter or automatic gas-vending apparatus; and it consists, essentially, of a gas-meter, a valve controlling the flow of gas through the meter, a coin-controlled device for opening the valve, and means operated by the meter for closing the valve after the proper amount of gas has passed.

More particularly, my invention consists of a sliding valve controlling the flow of gas through a meter, a rotary shaft carrying a notched disk which is adapted to open the valve when rotated in one direction and close it when rotated in the opposite direction, a coin-controlled device for rotating the shaft in one direction, and means geared to the gas-meter for rotating it in the opposite direction. An index is applied to the shaft for designating the position of the valve and the quantity of gas which will be allowed to pass. I provide a novel arrangement for partially closing off the flow of gas just before the proper quantity has passed to indicate to the consumer that the gas is about to be extinguished.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings, and afterward point out more particularly the novel features in the annexed claims.

In said drawings, Figure 1 is a side elevation, partly in section, of my improved automatic gas-vending apparatus. Fig. 2 is a plan view of the same, the meter-box being shown in section. Fig. 3 is a sectional elevation taken on the line 3 3 of Fig. 2. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 3. Fig. 5 is a sectional view taken on the line 5 5 of Fig. 3, showing the valve in open position. Fig. 6 is a similar view showing the valve in closed position.

1 is an ordinary gas-meter having the registering device 2, which is suitably connected with the working parts of the gas-meter in any suitable manner.

The internal construction of the ordinary

gas-meter is not shown, as this is well understood.

Secured to the upper left-hand side of the ordinary gas-meter box is my improved automatic coin-controlled gas-vending device, which operates in combination with the automatic gas-meter.

3 is a gas-tight box having connection with the gas-supply main in the street through the inlet-pipe 4. In the bottom of the box or chamber 3 is a valve-opening 5, surrounding which is a valve-seat 6. Leading from the valve-opening 5 is a pipe 7, (indicated in dotted lines,) which extends to the inlet-pipe of the ordinary gas-meter, which is not shown.

8 is the house-supply pipe leading from the ordinary gas-meter to the pipes extending through the house.

9 is a sliding valve resting on the valve-seat 6 and provided with the oppositely-extending guide-rods 10, which operate in suitable openings formed in brackets 11, secured to the bottom of the chamber 3, and guide the valve 9 in its movement.

12 is a pin for limiting the forward movement of the valve when moved into closed position, the movements into open position being limited by the guide projecting on one side of the valve.

13 are upright plates or standards formed with inclined steps 13^a.

14 is a rod pivoted at its lower end to a lug 15, formed on the valve 9, and provided at its upper end with a weight 16, from which projects the guide-pins 17, which are adapted to rest upon the inclined steps 13^a of the standards 13. When the valve 9 is in open position, as shown in Fig. 5 of the drawings, the weight 16 is in its raised position, the guide lugs or pins 17 resting on the inclined upper ends of the standards 13. When the valve is in closed position, as indicated in Fig. 6, the weight 16 is in its lowest position, the guide-pins 17 resting in the lower inclined notch 13^a. In closing the valve it will be observed that the pins 17 first fall into the middle notches in the standards 13, which will partially close the valve and shut off a part of the supply of gas, resulting in the dimming of the lights, the guide-lugs passing into the lowest notches when the valve is completely closed.

20 is a rotatable shaft journaled in brackets 21 in the top of the main gas-meter 1, and

having on its right-hand end a bevel cog-gear 22, which meshes with a similar gear 23, keyed to the outer end of one of the shafts 24, extending from the registering device 2. The shaft 20 extends through the wall 25, dividing the main meter from the automatic device and is supported at its outer end in bracket 26 and provided with a bevel-gear 27, which meshes with a smaller gear 28, formed integral with or keyed to a sleeve 29.

30 is a rotatable shaft extending at right angles to the shaft 20 in the same horizontal plane therewith and journaled at its forward end in the bracket 31 in the chamber 32, inclosing the automatic device, and at its rear end in the bracket 33 in the gas-chamber 3, a suitable packing box or gland 34 being provided at the opening where the shaft passes through the wall 35, dividing the chambers 3 and 32.

36 is a friction-disk keyed to shaft 30, and 37 is a smaller disk formed integral with the sleeve 29 and resting in close contact with the sleeve 36, so that the rotation of the sleeve 29 through shaft 20 and registering device 2 will rotate the shaft 30 unless the rotation is prevented by unusual friction.

40 is a dial surrounding the outer end of shaft 30, and 41 is an index keyed to the shaft 30 and registering with the dial 40 for indicating the position of the shaft 30 and the quantity of gas which will be passed for a given coin.

Keyed to the shaft 30 inside of the gas-chamber 3 is a disk 45, formed with a notch 46 and a projecting lug 47. 48 is a bail or loop projecting up from the top of the sliding valve 9 directly beneath the rotatable disk 45 and adapted to be engaged by the notch 46 and projection 47 for sliding the valve 9 open and closed.

I will now describe the automatic coin-controlled device for opening the valve 9 and allowing a certain quantity of gas to pass in exchange for a coin or token.

50 is a coin-slot located in any suitable position on the case of the meter and extending forwardly and downwardly through the top of the chamber 32 to a position directly above the pivoted coin-pocket 51, which is pivotally mounted upon a pin 52 between the standards 53, and is formed with a weight 51^a for holding it in vertical position. The coin-pocket 51 has a right-angled projecting plate 54 for closing the lower end of slot 50 for the moment that the device is operating, in order to prevent anything falling through the slot.

55 is a pawl pivoted at its rear end to the lugs 56, formed on the forward face of the coin-pocket 51, and carrying a bent pin 57 for engaging the face of the pocket and limiting the movement of the parts.

58 is a ratchet-wheel keyed to shaft 30, and with which the pawl 55 engages for rotating said shaft in the direction of the arrow for opening the valve 9. The pawl 55 is also formed with a shoe 59, which normally rests

on the ratchet-wheel 58 for holding the pawl 55 out of engagement therewith and allowing the rotation of the shaft in an opposite direction under the control of the registering device 2 for closing valve 9 after the proper amount of gas is consumed.

60 is a rotatable shaft journaled in one of the standards 53 and projecting out through the chamber 32, where it is provided with a handle 61.

62 is a star-wheel keyed to shaft 60 in the chamber 32, and 63 is a stout spring bent to properly engage the star-wheel 62 for holding the shaft 60 in proper position and limiting its movement. Star-wheel 62 has five prongs or points.

64 is a clutch which is preferably inserted between the shaft 60 and handle 61 to allow the handle to rotate in one direction without carrying shaft 60 with it.

65 is a smaller ratchet-wheel, also keyed to shaft 60 and engaged by spring-pawl 66 to prevent the backward rotation of shaft 60.

70 is a paddle-wheel formed with five buckets or paddles 71. The paddle-wheel 70 is keyed to the shaft 60 between the standards 53, directly below the coin-pocket 51. The paddle-wheel 70 is narrower than the slot through the pocket 51, so as to engage the coin or token 73 and support it in engagement with the lower end of the coin-pocket and with one of the paddles or buckets 71. Below the chamber 33 is a coin-box 75 into which the coins fall from paddle-wheel 70 through the opening 76. The coin-box is provided with any suitable door or opening controlled by a key.

80 is an inclined guide supported adjacent to the ratchet-wheel 58, and 81 is a pin projecting from the pawl 55 and adapted to engage the guide 80 when the coin-pocket 51 is moved on its pivot for delivering the pawl 55 forward and rotating shaft 30. The guide 80, working on pin 81, will raise the pawl 55 out of engagement with ratchet 58 at the end of the stroke of the pivoted coin-pocket to allow the weight 51^a to cause the pocket and pawl 55 to fall back into normal position. (Shown in full lines in the drawings.) I also provide a collar 85, having a horn 86, which is adapted to engage the pin 87, projecting from pawl 55, and prevent the operation of the device after the disk 45 has made a complete revolution forward and the rear face of projection 47 engages bail 48.

The operation of my improved prepayment gas-meter may be briefly described as follows: The valve 9 being closed, as shown in Fig. 6, and the other parts in substantially the position shown in all the figures of the drawings, (except Fig. 5,) a coin or token 73 is dropped into slot 50 and falls into pocket 51 and paddle-wheel 70 in the position shown in Fig. 4. The handle 61 is then rotated to the right, which will cause the pivoted pocket 51 to move on its pivot (the coin 73 forming means of engagement between the bucket and the

pocket) and draw the pivoted pawl 55 with it for rotating the shaft 30 and opening the valve 9. As the valve 9 opens, the weighted rod 15 is moved into the position shown in Fig. 5 of the drawings, the guide-pins 17 working on the standards 13. The shaft 30 will rotate a sufficient distance to allow the proper quantity of gas to pass through the meter in exchange for the coin or token, the gearing between the registering device 2 and the shaft 30 being so proportioned that the latter will be rotated in the opposite direction sufficiently for closing the valve only after the requisite quantity of gas has passed. As the shaft 30 is rotated for opening the valve 9 under the influence of the coin-controlled device, the index 41 indicates its position and the quantity of gas which will be passed by registering on the scale 40. The device can be operated a number of times before using the gas, if desired, the only limit being a complete revolution of disk 45, which brings projection 47 into engagement with bail 48. The horn 86 will then engage pin 87, and, together with incline 80, will hold the pawl out of engagement with the ratchet and prevent its working.

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

1. In an automatic gas-vending machine, the combination of the sliding valve controlling the flow of gas, the notched disk adapted to operate the valve, the weighted rod pivoted to the valve, means for supporting the weighted rod to its work, and means for operating the disk, substantially as set forth.

2. In an automatic gas-vending machine, the combination of the sliding valve, the rotatable notched disk, means for operating the disk, the weighted rod pivoted to the valve and formed with guide-lugs, and the stepped supports for the weighted rod upon which the guide-lugs operate, substantially as set forth.

3. In an automatic gas-vending apparatus, the combination of the sliding valve controlling the flow of gas, the rotatable notched disk adapted to operate the valve, the weighted rod pivoted to the valve and provided with guide lugs or pins, the supporting-plates formed with inclined steps with which said lugs or pins engage, and means for rotating the notched disk, substantially as set forth.

4. In an automatic gas-vending apparatus, the combination of the sliding valve, a rotatable shaft adapted to open and close said valve, a pivoted coin-receiving pocket, a pawl carried by said pocket, a ratchet-wheel geared to the rotatable shaft and adapted to be engaged by said pawl, means for moving the pocket on its pivot after the insertion of a proper coin, means for disengaging the pawl from the ratchet at the end of its stroke, and a gas-meter suitably geared to said shaft for rotating it in the opposite direction, substantially as set forth.

5. In an automatic gas-vending apparatus,

the combination of a valve controlling the flow of gas, a rotatable shaft adapted to open and close said valve, a ratchet-wheel keyed to said shaft, a pivoted coin-receiving pocket carrying a pawl adapted to engage said ratchet-wheel, a rotatable bucket supported below said pivoted pocket and so formed that a proper coin dropped in the pocket will form an engagement between the bucket and pocket, means for rotating said bucket when operating the pawl, and a gas-meter suitably geared to the rotatable shaft for rotating it in the opposite direction, substantially as set forth.

6. In an automatic gas-vending apparatus, the combination of the valve controlling the flow of gas, a rotatable shaft controlling said valve, a ratchet-wheel keyed to said shaft, a pivoted gravitating pocket, a pawl pivoted to said pocket, and adapted to engage said ratchet-wheel, a shoe formed on said pawl for holding it normally out of engagement with the ratchet, means for engaging a coin dropped in the pocket for operating the pawl, and a gas-meter suitably geared to the shaft, substantially as set forth.

7. In an automatic gas-vending apparatus, the combination of a valve controlling the flow of gas, a rotatable shaft controlling said valve, a ratchet-wheel geared to said shaft, a pivoted coin-receiving pocket, a pawl pivoted to said pocket, a pin projecting from said pawl, an inclined guide adapted to engage said pin for raising the pawl out of engagement with the ratchet at the end of its stroke, means for engaging a coin dropped in the pocket for moving it on its pivot and a gas-meter suitably geared to the rotary shaft, substantially as set forth.

8. In an automatic gas-vending apparatus, the combination of the sliding valve controlling the flow of gas therethrough, the rotatable shaft controlling said valve, the ratchet-wheel geared to said shaft, the pawl engaging said ratchet-wheel, the pivoted coin-receiving pocket supporting said pawl, the rotatable coin-bucket or paddle-wheel supported beneath the coin-pocket, the star-wheel keyed to the bucket, the spring controlling the star-wheel, an operating-handle for rotating said bucket, and a gas-meter suitably geared to the rotatable shaft controlling the valve, substantially as set forth.

9. In an automatic gas-vending apparatus, the combination of a sliding valve controlling the flow of gas, a rotatable shaft controlling said valve, a sleeve mounted on said shaft and having frictional engagement therewith, the shaft extending at right angles to the rotary shaft, a gas-meter geared to the latter shaft, and a coin-controlled device for rotating the valve-controlling shaft, substantially as set forth.

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Witnesses:

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