V. P. WILKINS.

SETTING MECHANISM FOR GAS METERS.

APPLICATION FILED OCT. 14, 1907.

915,521.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.

Fig. 1

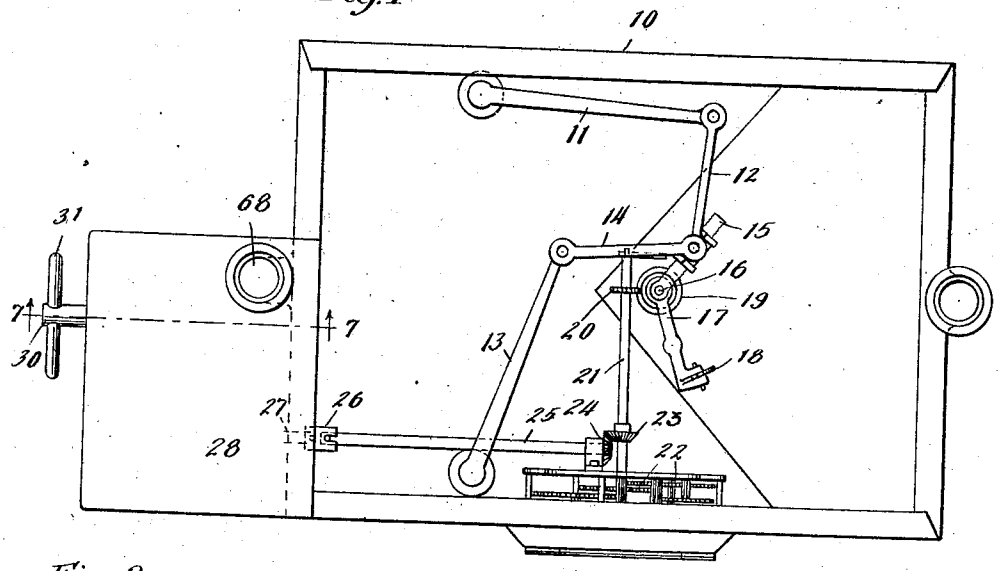


Fig. 2

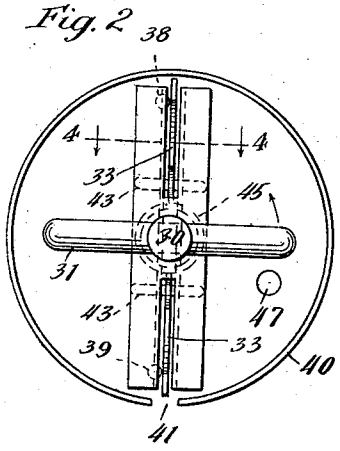


Fig. 3

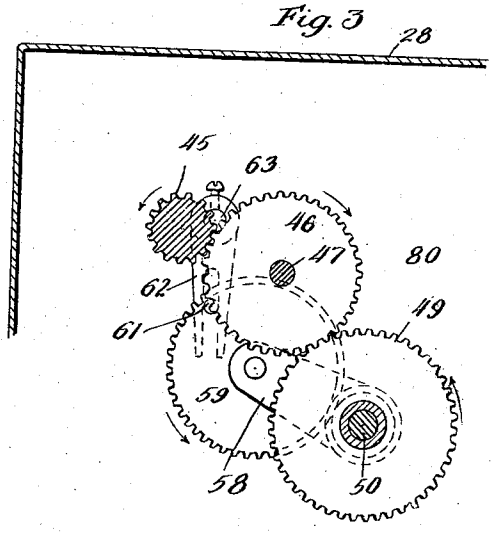
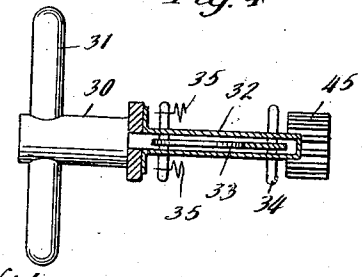


Fig. 4



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 5

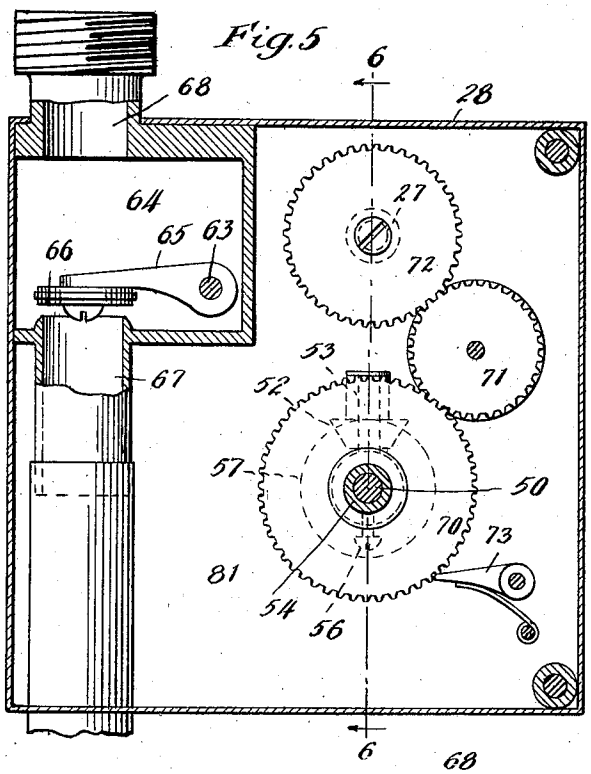


Fig. 6

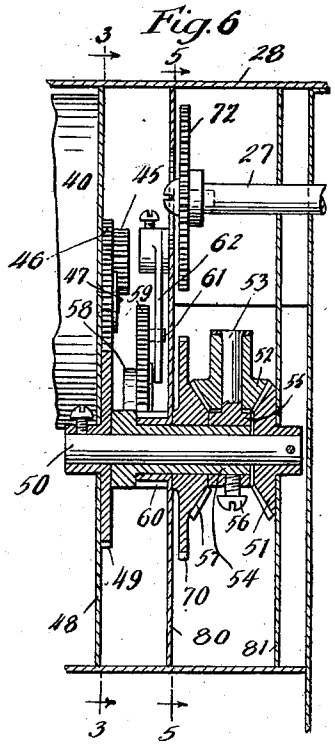
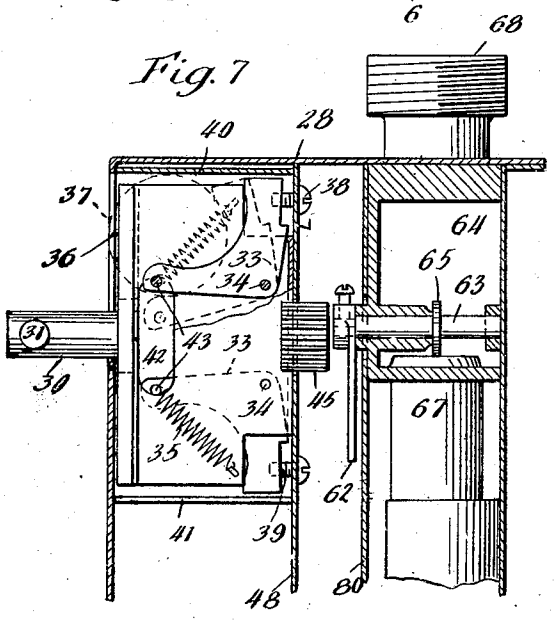


Fig. 7



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UNITED STATES PATENT OFFICE.

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SETTING MECHANISM FOR GAS-METERS.

No. 915,521. Specification of Letters Patent. Patented March 16, 1909.

Application filed October 14, 1907. Serial No. 397,336.

To all whom it may concern:

Be it known that I, VANCE P. WILKINS, a citizen of the United States, residing in Laporte, in the county of Laporte and State of Indiana, have invented a new and useful Improvement in Setting Mechanism for Gas-Meters, of which the following is a specification.

This invention is an improvement in the coin controlling mechanism of gas meters, and my object therein has been to so construct the mechanism that it will be capable of receiving either a single coin or a plurality of the coins and be set in accordance with the number of coins inserted, whether one or more, and control the meter correspondingly, so that the patron will receive full value for the amount inserted.

The invention also embodies some details of construction whereby improved results are obtained, and I have fully described the same, as well as the main features of the invention in the description given below, and illustrated them in the accompanying drawings forming a part of this specification.

In said drawing, Figure 1 is a plan of a meter to which my invention has been applied. Fig. 2 is an elevation of the coin controlling part of the meter. Fig. 3 is an enlarged vertical section on the line 3—3 of Fig. 6. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a vertical section on the line 6—6 of Fig. 6. Fig. 6 is a section on the line 6—6 of Fig. 5 and Fig. 7 is a vertical section on the line 7—7 of Fig. 1.

Referring to the drawing, 10 represents the body of the meter, in which are located the bellows or other measuring devices, and which are connected by levers, 11, 12, 13 and 14 to the arm 15 mounted on the vertical shaft 16, in such manner as to cause the operation of the coin controlling mechanism by power from the bellows. A stationary arm 17 affords a bearing for shaft 16, and also supports the usual swinging stop 18. On shaft 16 is a worm 19 meshing with and actuating a pinion 20 on the horizontal shaft 21. This shaft actuates the group of register gears 22 but it also carries a bevel pinion 23 meshing with a second like pinion 24 on a horizontal shaft 25 arranged at right angles to shaft 21. This shaft is connected by a flexible joint 26 to a shaft 27 extending into a supplemental casing 28 attached to the main casing 10 and containing the coin controlling mechanism of the meter, and which mechanism is now to be described. Through the shafts 25 and 27, the measuring devices of the meter give motion to devices by which the revolutions of the bellows shaft are counted or registered, and by which the supply of gas is cut off when the amount of gas for which the patron has paid has been consumed.

In the coin controlling mechanism, I provide a shaft 30 having a cross bar 31 at its outer end whereby to operate it. To this shaft and within said casing 28 is attached a U shaped frame 32 (hereinafter called the coin receiver) open at the front, and containing in each end an L shaped latch 33, pivoted at 34 and having a pair of springs 35 tending to maintain it in its normal position. The coin slot 36 in the casing admits the coin in such position to the end of the receiver which may be uppermost, that the coin 37 shown in dotted lines necessarily encounters and depresses the foot or horizontal member of the latch as will be understood from Fig. 7, the crown of the coin being in contact with the surrounding rim 40 mentioned below. In so doing, the vertical member of the latch is brought forward sufficiently to enable it to clear the locking stop 38, by which the receiver is normally locked against rotation. When the receiver is thus freed from the stop, the patron inserting the coin is permitted to turn shaft 30 in the direction of the arrow, Fig. 2, until the latch in the other end of the receiver encounters stop 38, the half revolution thus given permitting the setting of the registering mechanism so that the patron can use the amount of gas for which his coin has paid. In thus turning the receiver, the patron also brings up the other latch 33 into position opposite the coin slot in readiness to receive the next coin. A second stop 39 is also located so it will prevent any backward movement of the coin receiver. The latches are enabled to pass this stop 39 by the coins as at the time of passing it they are still held in the releasing position by the coin which cannot escape from the circular rim 40 until it reaches the opening 41 at the bottom of the rim. A slot 42 is provided in the side walls of the receiver to give room to the pins 43 to which the latch springs are attached.

Attached to the rear of the U shaped coin receiver 32 opposite the axis 30 upon which the frame turns, is a pinion 45. This pinion

meshes with a gear 46 mounted upon a stud 47 secured in the vertical plate 48. Gear 46 meshes with a gear 49 mounted fast on the shaft 50. This shaft at its inner end carries a bevel gear 51 meshing with a bevel gear 52 mounted upon a traveling journal 53 extending at right angles to shaft 50 and supported upon a revolving sleeve 54 by the ring 55 made fast to the sleeve by the set screw 56. Gear 52 meshes with an opposing bevel gear 57 loose upon said sleeve. Gear 57 is integral with a spur gear 70 which meshes with a gear 71 and gear 71 is connected with the shaft 27 by the gear 72 mounted on the shaft. The sleeve 54 carries an arm 58 in which is journaled a planet gear 59 meshing with a stationary gear 60 loosely surrounding the sleeve 54. The arm 59 which moves with the sleeve carries the planet gear around this stationary gear, and of course the planet gear will be turned by reason of its engagement with the stationary gear. Said planet gear carries a pin 61, which is normally entered between the forked arms of a valve operating arm 62 mounted on the shaft 63, and which if it is carried out of the fork by the movement of the gear, will reënter the same when the gear returns to its normal position. Said shaft 63 extends through the wall of a valve chamber 64 and is there provided with an arm 65 upon the end of which is a valve 66 adapted to close the gas inlet pipe 67.

Through the mechanism described, it will be seen that when a patron desiring to use the gas, inserts a coin of the proper size and rotates the coin receiver through a half revolution, he thereby causes enough movement of the epicycloidal pin to open the gas valve 66, and thereby to admit the gas to the chamber 64 from which it passes to the burner or burners through the outlet 68. At the same time he causes the pin 61 to move far enough away from its normal position to permit such necessary number of pulsations of the bellows as will pass the amount of gas paid for before the pin returns and causes the closing of the valve.

The pin 61 of the gas valve after it opens the gas valve, travels through a prolonged epicycloidal path which may include several complete revolutions of the planet wheel so that the gas measuring mechanism of the meter is permitted to be set for a plurality of the coins instead of a single one as in the prevailing constructions. And inasmuch as the pin must retrace its entire movement before it can reënter the slot of the valve operating arm and close the valve, the cutting off of the gas supply will be delayed correspondingly. By this feature of the invention the coin capacity of the machine is greatly enlarged.

While the gas is being used, the mechanism described through which the patron is enabled to open the gas valve receives backward movement through shaft 29 from the bellows of the meter as the bellows are actuated by the gas which is used, and this results in the closing of the gas valve when the planet gear reaches its normal position. When the gas paid for by the first coin is exhausted, and the patron desires to use more, he inserts a second coin which the mechanism permits and by again turning the coin receiver through another half revolution, he causes a similar movement of the planet gear and a reopening of the gas valve if it is then closed. Or instead of depositing only a single coin at a time, the patron may insert successively any number of coins permitted by the limit of travel of the planet gear and operate the coin receiver with each one, and at each operation move the pin 61 farther away from its normal position, thus setting the mechanism so that the gas valve will not close until the amount of gas called for by the number of coins deposited has been used.

In the manufacture of the invention, I find it desirable to employ partitions or vertical plates 80 and 81 to give support to the various shafts and other parts.

The gear 70 is provided with a spring pressed detent 72 whereby it is locked against movement when the mechanism is turned from the coin receiver. This prevents any movement being communicated to the bellows from the coin setting operations, and simply causes the traveling gear 52 to move idly around upon gear 57. The detent however permits movement by said gear 70 when the motion comes from the bellows in the opposite direction from that in which the coin setting mechanism would operate it.

I claim:—

1. The combination with a meter valve of means for setting the same, such means embodying a planet gear, moving through an epicycloidal path, and means by which the gear may close the valve when it returns to its normal position.

2. The combination with a meter valve, of means for setting the same, such means embodying a planet gear, means for moving the gear through an epicycloidal path and means whereby the gear may, when it returns to its normal position, close the valve.

3. The combination with a meter valve, of means for setting the same, such means embodying a planet gear, means for moving same through an epicycloidal path, a revolving arm upon which the gear is journaled, and means whereby the gear may, when it returns to its normal position, close the valve.

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Witnesses:
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