

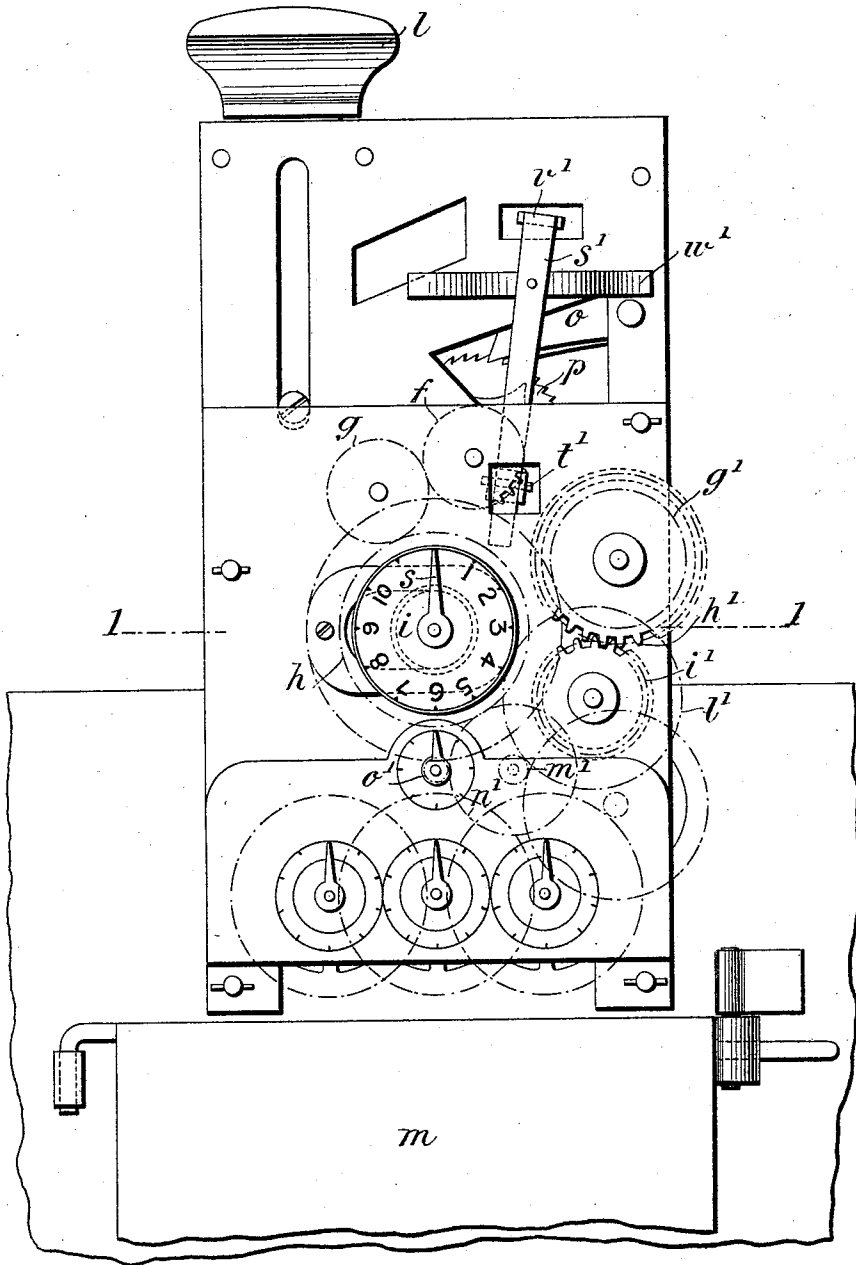
J. GOW.

COIN FREED APPARATUS FOR THE AUTOMATIC SALE AND DELIVERY OF GAS.

No. 524,061.

Patented Aug. 7, 1894.

Fig. 1.



WITNESSES  
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*Geo. F. Worwidge*

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 By his Attorney  
*Herbert H. Jenner*

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Fig. 2.

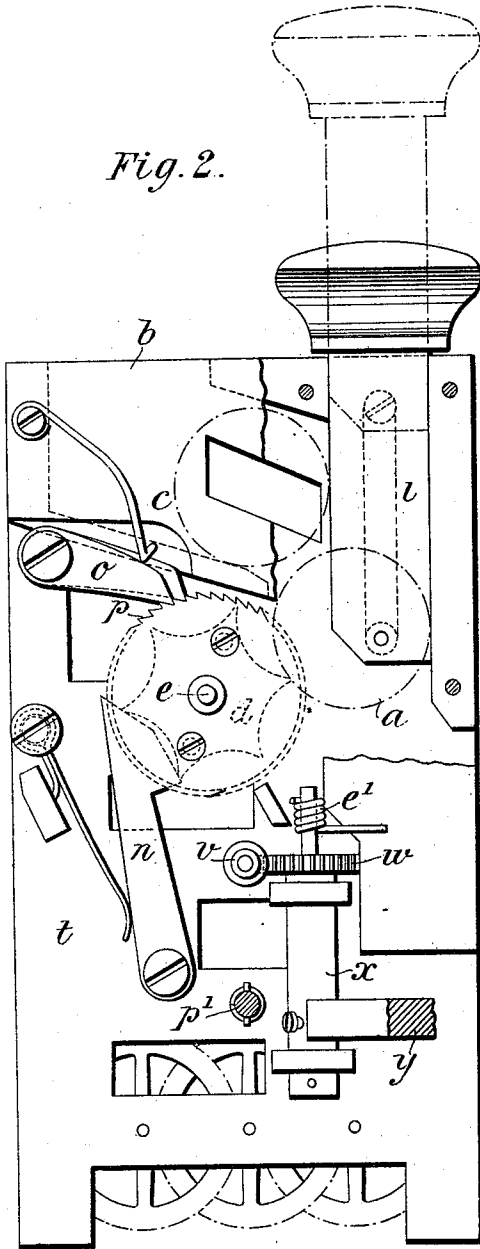
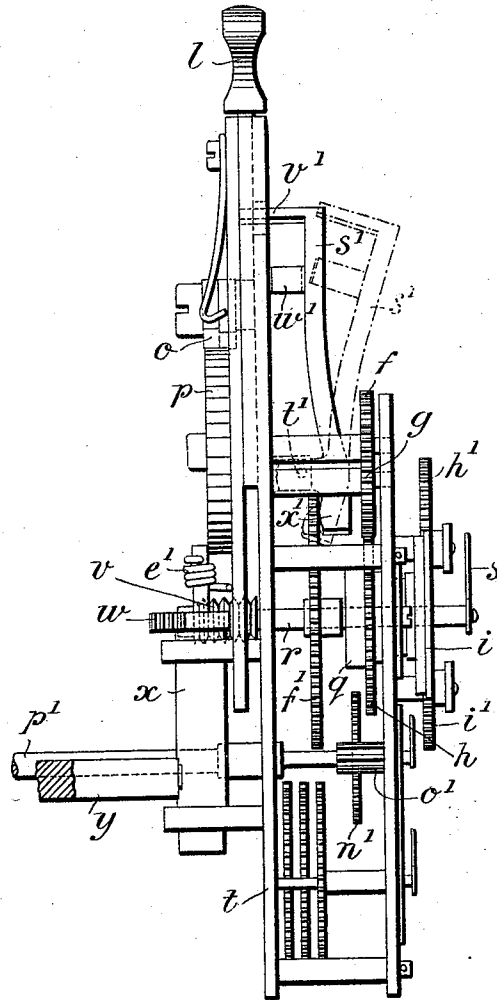


Fig. 3.



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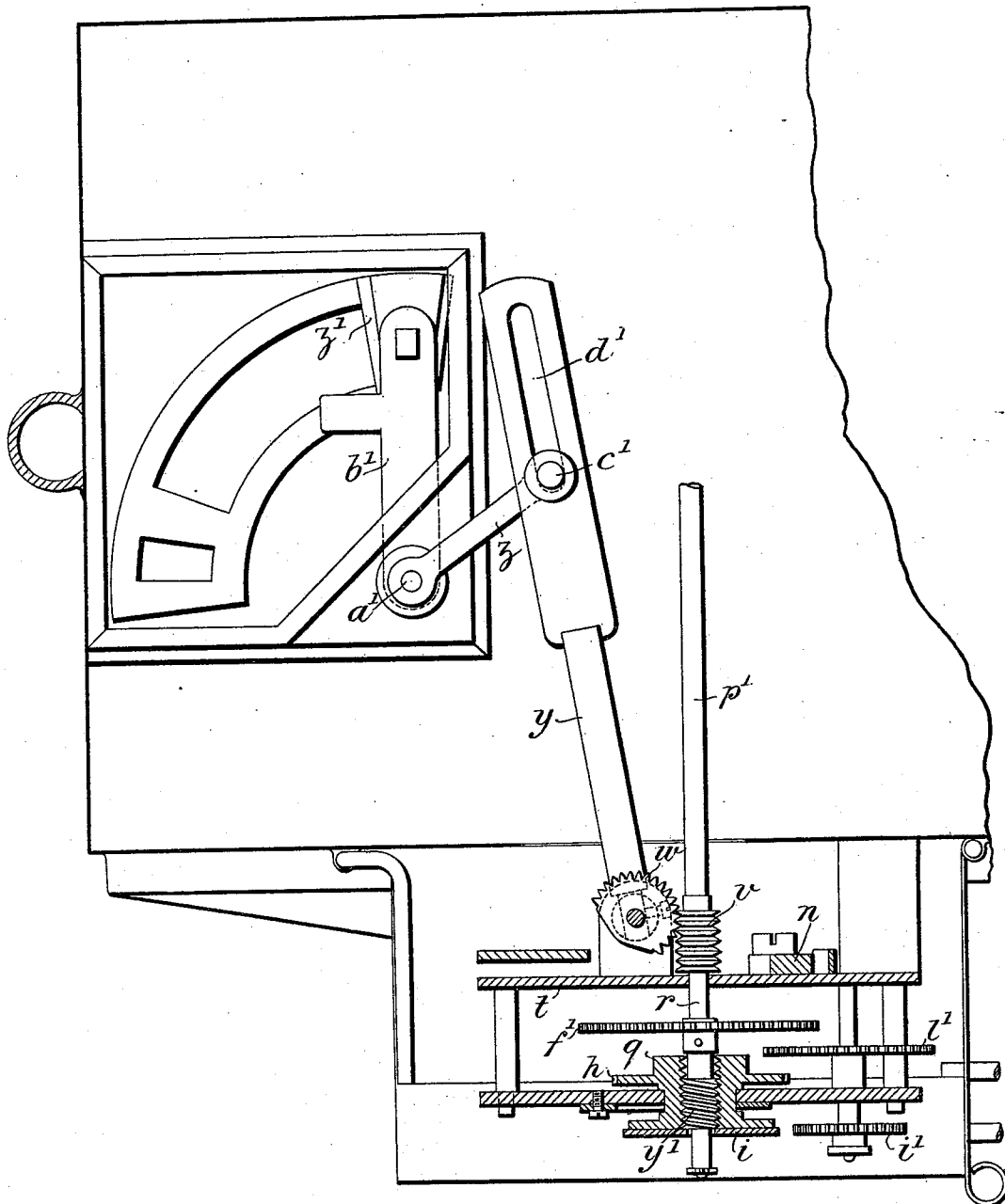
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Fig. 4.



WITNESSES.

*Geo. Stephens*  
*Geo. F. Coran*

INVENTOR.

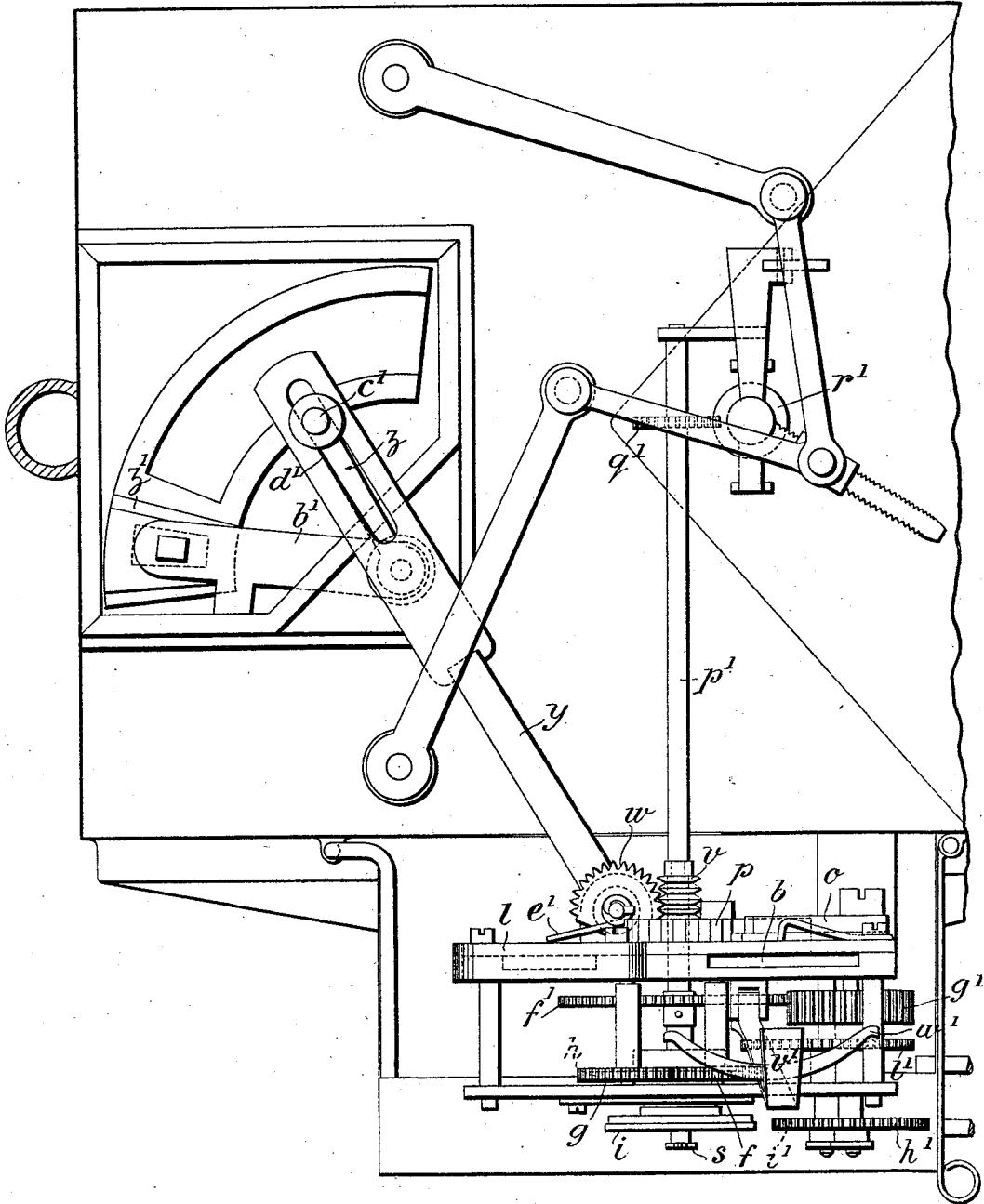
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COIN FREED APPARATUS FOR THE AUTOMATIC SALE AND  
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Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOHN GOW, OF LONDON, ENGLAND, ASSIGNOR TO THE GAS METER COMPANY, LIMITED, OF SAME PLACE.

COIN-FREED APPARATUS FOR THE AUTOMATIC SALE AND DELIVERY OF GAS.

SPECIFICATION forming part of Letters Patent No. 524,061, dated August 7, 1894.

Application filed April 27, 1894. Serial No. 509,173. (No model.) Patented in England July 15, 1892, No. 13,037.

To all whom it may concern:

Be it known that I, JOHN GOW, a subject of the Queen of Great Britain and Ireland, residing at 60 Dumont Road, Stoke Newington, London, in the county of Middlesex, England, have invented certain new and useful Improvements in Coin-Freed Apparatus for the Automatic Sale and Delivery of Gas, (for which I have obtained a patent in Great Britain, No. 13,037, dated July 15, 1892;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention for improvements in coin freed apparatus for the automatic sale and delivery of gas, has for its object to provide a device or apparatus which may be applied to any ordinary wet or dry gas meter, and is so arranged and constructed that on the insertion of one or more coins of predetermined value a definite amount of gas of equivalent value can be passed through the meter and delivered to the consumer; and consists essentially in so constructing the gas inlet valve and connecting it and the drum or other measuring part of the meter to the coin freed mechanism so that the passage of a proper coin or coins opens the said valve and releases the drum or its equivalent, in which conditions they are retained until a quantity of gas of equivalent value to the coin or coins inserted has been delivered.

In the accompanying sheets of illustrative drawings:—Figure 1 represents a front elevation of one arrangement of coin controlling and indicating mechanism constructed according to this invention as applied to an ordinary dry gas meter, the outer casing being removed. Fig. 2 is a back elevation of the same the back plate of the coin chute being removed in order to show the passage of the coin through the apparatus. Fig. 3 is a side elevation some of the parts being removed. Fig. 4 is a horizontal section through the main arbor on line 1—1, Fig. 1; and Fig. 5 is a general plan of the same.

In the arrangement shown as applied to a dry meter a coin *a* (Fig. 2) is inserted in a slot *b* and passing down a chute *c* engages

with a star or lobe wheel *d* mounted on an arbor *e* on which is also mounted a pinion *f* (Fig. 1) gearing through the pinion *g* with a spur wheel *h* secured to or forming part of an indicating dial *i* on which the value of the gas to the credit of the consumer is indicated.

In the beforementioned chute *c* is a plunger *l* which on being raised allows the coin to pass it and fall between two adjacent teeth or lobes of the star wheel *d* so that on again depressing the said plunger the coin is forced through the chute and falls into a receptacle *m* and in its passage rotates the star wheel *d* through one division causing the before mentioned indicating dial *i*, by means of the toothed gearing wheels *f*, *g*, *h*, to also rotate through a corresponding unit division. A spring pawl or cam *n* engaging with the star wheel *d* causes it to always occupy a determinate position after the passage of a coin ready for a succeeding operation, and any backward motion of the said wheel is prevented by a pawl or pawls *o* which engage with a ratchet wheel *p* mounted on the star wheel arbor.

A sleeve *q* (Figs. 3, 4, and 5) secured to or forming part of the indicating dial *i* and its spur wheel *h* is screw threaded internally and mounted on a corresponding screw threaded arbor *r* having a limited longitudinal movement and carrying on one end a pointer *s*, working over the face of the indicating dial *i*, while its remote end projects through its bearing in the plate *t* and operates by means of a rack *v* and toothed segment *w* mounted on the shaft *x*, a lever *y* connected to the gas valve by the crank *z*, spindle *a'* and lever *b'*, the crank pin *c'* sliding freely in the slot *d'* in the said lever *y*, so that on sliding the said arbor longitudinally forward or backward the gas inlet valve *z'* is opened or closed as will be readily understood, a spring *e'* on the spindle *x* always pressing the segment teeth against the rack in one direction so as to prevent backlash, and thereby causing the action of the valve to immediately respond to any axial motion of the main arbor.

On the before mentioned sliding arbor *r*, which constitutes the main or central arbor of the controlling mechanism, is rigidly mounted a spur wheel *f'* connected through the pinions *g'*, *h'*, *i'*, *l'*, *m'*, *n'*, *o'*, spindle *p'*, pinion *q'*,

worm  $r'$  and the ordinary mechanism with the measuring device of the meter, so that on the passage of gas through the meter the said sliding arbor is rotated by it, the relative velocities of the said measuring device and main arbor determining the quantity of gas supplied per unit coin inserted. In the event of the maximum prepaid amount of coin for which the apparatus is arranged (ten pennies in the apparatus shown) being passed through the coin chute before any of the equivalent gas is consumed, the passage of further coin is prevented until the unit quantity of gas has been delivered, by means of a stop lever  $s'$  pivoted at  $h'$  and whose end  $v'$  projects into the chute  $c$ . So long as any number of coins less than ten pennies have been passed through and stand to the credit of the purchaser the stop is held out of the path of the coin by the spring  $w'$  but on the passage of the tenth coin the wheel  $f'$  on the sliding main arbor  $r$ , engaging with the heel  $x'$  of the stop lever  $s'$ , forces the end  $v'$  across the coin chute and thus prevents the passage of a further coin until by the consumption of a sufficient quantity of gas the rotation and consequent axial displacement of the arbor  $r$  and wheel  $f'$  permits the lever  $s'$  to resume its normal position.

The mode of operation of the apparatus is as follows:—The gas valve being closed, and the meter drum or its equivalent being quiescent, a suitable coin is inserted in the slot and passes down the coin chute  $c$ , the rising of the coin plunger  $l$  allowing it to fall into an operative position between two adjacent teeth or lobes of the star wheel. The subsequent descent of the plunger forces the coin out of the chute into the coin receptacle and rotates the star wheel through one division the indicating dial being by this means also rotated through one division. This rotary movement causes the main arbor  $r$ , by means of the screw  $y'$ , to slide longitudinally on its axis and operates through the beforementioned lever and connections to open the gas inlet valve thereby admitting gas to the meter, while the gradual consumption of gas causes the screw threaded main arbor  $r$  to rotate in the sleeve  $q$  (which remains stationary) and thereby return to its initial position and again close the inlet valve. The gas inlet valve is preferably of the rotary disk type as shown, and is arranged to close its orifice gradually so that the near approach of the exhaustion of the supply paid for is indicated by the gradual diminution of the flame at the burners.

The indicating dial is divided into ten parts as shown each division representing the angle traversed by it on the passage of a coin and as several coins may be passed through the apparatus successively the position of the index pointer on the indicating dial indicates the value and quantity of gas to the credit of the purchasers.

The relative angular motion of the coin star-wheel and indicating dial being constant

the quantity of gas supplied per unit coin may be varied by suitably proportioning the gearing connecting the main arbor to the meter drum or its equivalent. For this purpose the two connecting pinions  $h' i'$  are made changeable so that they may be removed and replaced by others to give the requisite velocity-ratio.

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

1. The combination, with the revoluble coin-operated star wheel  $d$ , and its shaft  $e$ ; of a ratchet wheel secured on the said shaft, a pawl engaging the said ratchet and permitting the star wheel to revolve in one direction, the pivoted pawl  $n$  provided with a double cam-shaped end engaging the star wheel, and a spring pressing the said end against the star wheel and constraining it to occupy certain determinate positions, substantially as set forth.

2. The combination, with the coin chute, and the pivoted stop lever  $s'$  provided at one end with a projection  $v'$  passing through the side of the chute and adapted to close it, and having the projection  $x'$  at its other end; of the shaft  $r$  provided with a screwthreaded portion  $y'$ , the wheel secured on the said shaft and adapted to bear against the said end  $x'$ , the coin-operated star wheel, the screwthreaded sleeve, and driving devices operatively connecting the said star wheel with the sleeve, whereby the said shaft is moved longitudinally, substantially as set forth.

3. The combination, with the coin-operated star wheel, the screwthreaded sleeve, and driving devices operatively connecting the said parts; of the shaft  $r$  provided with a screwthreaded portion  $y'$  engaging the said sleeve, revoluble driving devices operatively connecting the said sleeve with the measuring mechanism of the meter, the toothed rack  $v$  on the shaft  $r$ , the toothed segment  $w$  gearing into the said rack, a gas admission valve, and intermediate lever mechanism operatively connecting the said segment and valve, substantially as set forth.

4. The combination of the screwed sleeve  $q$  having indicating dial  $i$ , rotated from the star wheel  $d$ , screwed arbor  $r$  having pointer  $s$  and rack  $v$  operated by the gas measuring device, and toothed segment  $w$  connected to the gas valve, all substantially as described and for the purpose set forth.

5. The means for operating the gas valve comprising the segment  $w$  gearing with the rack  $v$ ; lever  $y$  connected by the slot  $d'$ , pin  $c'$ , arm  $z$  and lever  $b'$  to the valve  $z'$  substantially as set forth.

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

JOHN GOW.

Witnesses:

GEORGE CAMPBELL,  
W. M. HARRIS.