

No. 755,206.

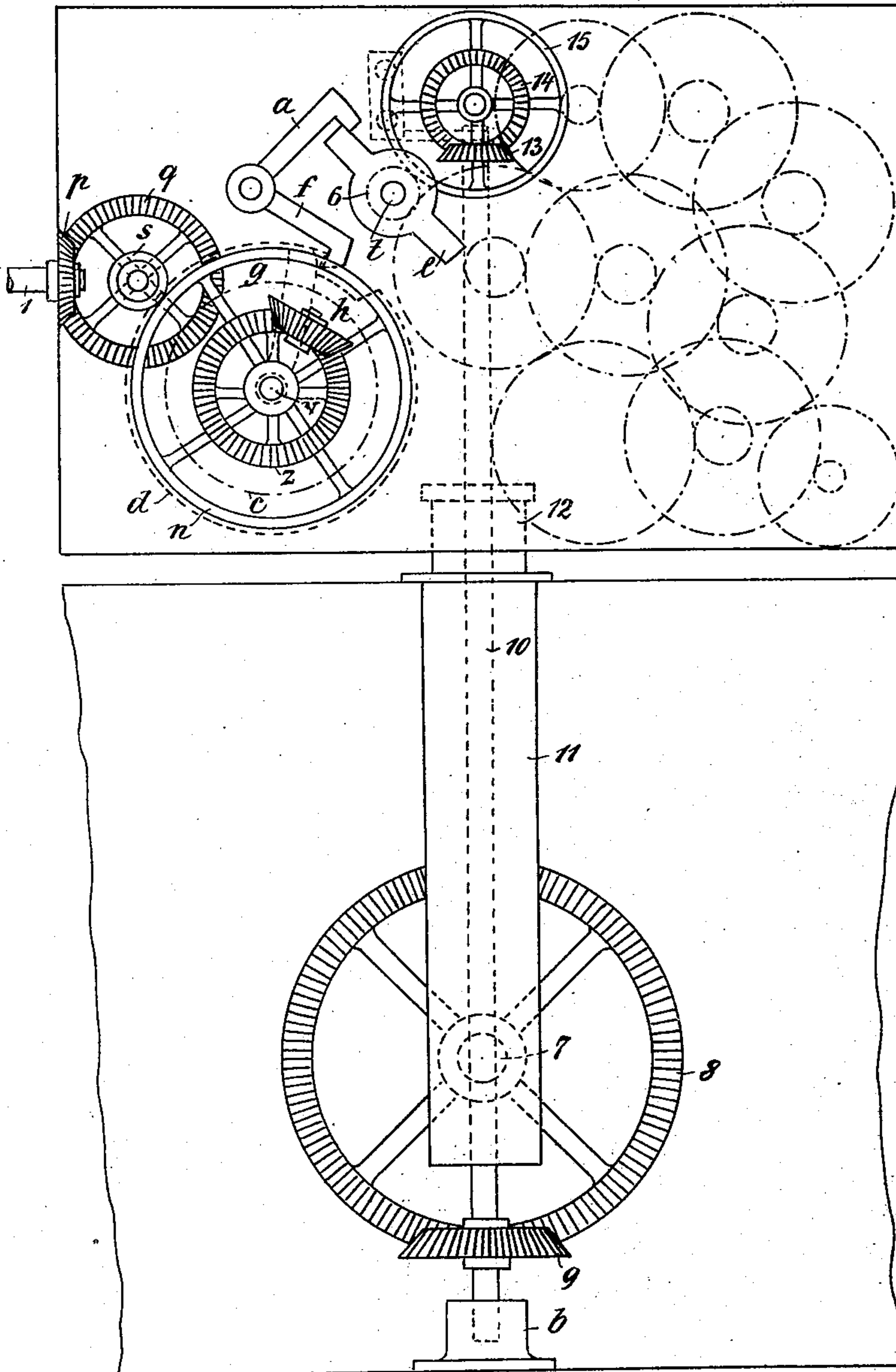
PATENTED MAR. 22, 1904.

H. ARON.  
COIN FREED GAS METER.  
APPLICATION FILED FEB. 24, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Anton Glochner  
Susan McLaughlin

Inventor:

Hermann Aron  
by Max Georgii  
his attorney.

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2 SHEETS—SHEET 2.

Fig. 2.

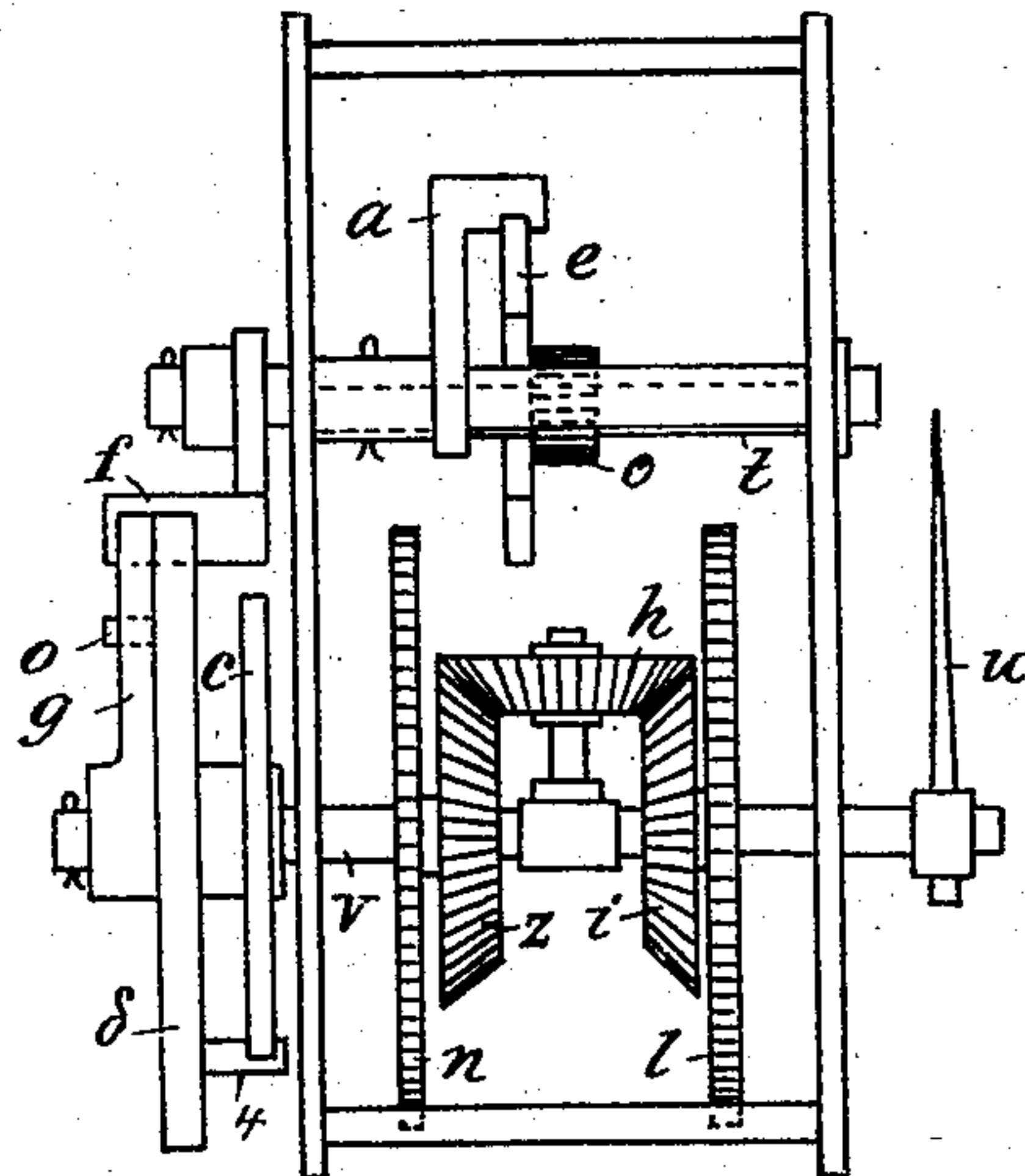
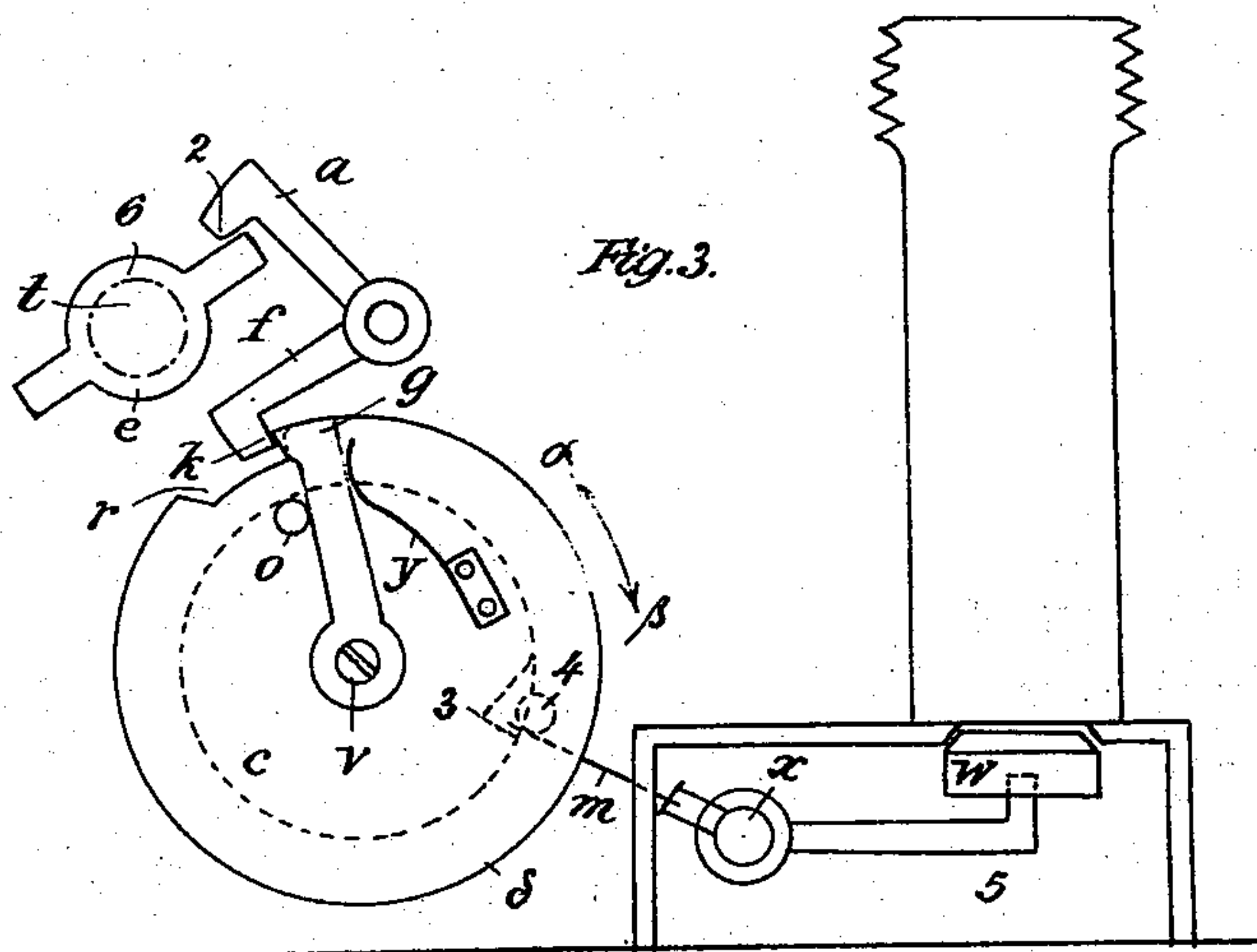


Fig. 3.



Witnesses:

Anton Chetner  
Susan McLaughlin

Inventor:

Hermann Aron  
by Max Georgie  
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# UNITED STATES PATENT OFFICE.

HERMANN ARON, OF CHARLOTTENBURG, GERMANY.

## COIN-FREED GAS-METER.

SPECIFICATION forming part of Letters Patent No. 755,206, dated March 22, 1904.

Application filed February 24, 1902. Serial No. 95,327. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN ARON, a subject of the King of Prussia, Emperor of Germany, residing at No. 39 Wilmersdorferstrasse, Charlottenburg, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Coin-Freed Gas-Meters, of which the following is a specification.

Among the gas-meters constructed for automatic coin-freed delivery two principal types are known. In the one type which is generally preferred the supply of gas is turned on and shut off by the direct action of a valve, such as a slide-valve or a valve-cock. In the other type the supply is opened and shut off by indirect action—*i. e.*, by setting free and by stopping a moving part, such as a drum, bellows, or the like. The first is open to the objection that if there be any deficiency of tightness in the valve the small leakage of gas will cause a continued movement of the parts in the meter, and by reason of the multiplication of power applied through the gearing considerable damage to the mechanism will result. The second type has the objectionable feature that the supply of gas is so suddenly cut off and without preliminary warning as to often greatly discommode the consumer, it being recognized, however, that each of these two systems already mentioned has its advantages as well as disadvantages. The improvements which form the gist of this invention are based upon a combination of the two. I have recognized it to be of prime importance in combining the two that particular attention must be given to the respective powers and speeds of the parts, else no beneficial result would be obtained, and herein has existed the cause of failure in previous attempts to accomplish the same result. It will be obvious that in order to warn the consumer and accomplish the shutting off of the gas-supply most efficiently the valve must slowly and steadily close and the moving parts of the meter must be stopped by a device acting positively and with a much greater speed than the valve.

To give ample warning of the depletion of the prepaid gas-supply, I provide that a slowly-closing valve shall cause a gradual waning

of the lights fed thereby, and thus give such notice. To prevent any injury to the moving parts of the meter by reason of any failure of the valve to close tightly and at the same time avoid a sudden cessation of supply, I provide a spring which will yield during the gradual closing of the valve and allow the continued movement of the meter mechanism until the valve is entirely closed, when a stopping mechanism will be brought quickly into operation to positively intercept and block the movement of the said parts.

In the accompanying drawings I have illustrated the improvements of my invention applied to a wet meter. The control of the supply of gas, as an example, is obtained by a planet-wheel gearing.

Figure 1 is a front elevation of the gas-meter, the front plate being removed. Fig. 2 is a cross-section of the same. The greater part of the gear-wheels are omitted, as they form no part of this invention. Fig. 3 is a detail view of the mechanism comprising the controlling-disks in connection with the valve and with the lever actuating the admission and exclusion of the gas.

In the drawings Figs. 1, 2, and 3, *v* is the shaft of a planet-wheel gearing, more distinctly shown in Fig. 2, which said gearing comprises three bevel-wheels *h*, *i*, and *z*. The said shaft *v* carries the two controlling-disks *c* and *d*, the index *u*, and the axis of the planet-wheel *h*, said axis being rigidly mounted on the shaft *v* by a suitable sleeve. The two crown-wheels *z* and *i*, the gear-wheels *n* and *l*, and the lever *g* are loosely mounted on the shaft *v*, the wheels *z* and *n* being connected. The finger *u* moves along a dial which indicates the number of coins introduced for prepaying the volume of gas to be supplied.

After introducing a coin the coin-controlled shaft *l* is turned and transmits motion through the bevel-gearing *p* and *q* and pinion *s*, the gear-wheel *n*, crown-wheel *z*, and planet-wheel *h* to the shaft *v* and to the parts rigidly mounted to the same. The return motion of the said shaft *v* is obtained by the recording train of wheels gearing with the wheel *l* and imparting motion to the crown-wheel *i*, rigidly connected to said wheel *l*. An elbow-lever



*f a*, Fig. 3, serves to stop and to release a double-armed lever or wheel *e*, fixed upon an axis *t* receiving motion from the recording wheel-train. The shaft *v* carries loosely mounted to it an arm *g*, the edge of which engages a pin *o* of the disk *d* under the pressure of a spring *y*. The said arm *g* serves to obtain a sudden descent of the lever *f* into the notch *r* along the edge *k* for stopping the motion.

The disk *d* being very slowly turned by the recording train of wheels the descent of lever *f* into the notch *r* should not be gradually accomplished by the rounded-off portion of said notch, else the edge 2 of the other lever-arm *a* would slowly approach the speedily-revolving lever or wheel *e* and would repeatedly be struck by the same before finally being stopped. In the release the disk *d* is turned by hand through the medium of the coin-controlled shaft 1, and the lever *f* is lifted upon the circumference of the said disk *d* by means of the sloping face of the notch *r*.

The mode of performing the release and stop motion may best be explained with reference to Fig. 3.

If coins are introduced and the coin-controlled shaft 1 is turned, as described, the disks *d* and *c*, with their notches *r* and 3 and pins *o* and 4, projecting from the disk *d*, are turned in the direction of the arrow *x*, Fig. 3. The pin 4 thereby is withdrawn from the spring *m*, connected to the double-armed lever carrying the valve *w*. The said valve accordingly is speedily opened, as the downward motion of said valve is accelerated by the valve's own weight. The lever carrying the valve *w* is mounted to a shaft *x*, traversing a stuffing-box of the casing 5. The short arm of said lever carrying the spring-blade *m* is mounted to the shaft *x* outside of the casing 5.

On opening the valve *w*, as described, the stop-motion is simultaneously released through the medium of the disk *d*. The notch *r* of said disk *d* is beveled off at the side engaged by the lever *f*. As long as the gas-meter is stopped the arm *g* under pressure of a spring *y* covers the notch *r*; but when the disk *d*, through the medium of shaft 1 and gearing, as described, is turned in the direction of the arrow *x*, the said arm *g* yields to the pressure of lever *f*, the notch *r* becomes free from said lever, and the lever *f* is raised by the rounded-off face of said notch riding upon the circumference of the disk *d* and causing the arm *a* to set free the lever *e*, thus allowing the driving mechanism of the gas-meter to start the motion of the wheel-train. The arm *g* then resumes its original position, bearing against pin *o* of disk *d*.

When the volume of gas prepaid has been nearly consumed, the disk *d* will have been turned back in the direction of the arrow B, Fig. 3, so far as to bring the lever *f* up near to the edge *k* of arm *g*. The pin 4 of disk *d* now presses down the spring *m*, thereby gradu-

ally closing the valve *w* and simultaneously warning the consumer, by the waning of the lights fed by the valve, whereupon the lever *f* suddenly descends into the notch *r* if the valve *w* is not tight. The other arm *a* of said lever *f* stops the lever *e* in its revolving motion, and the supply of gas is entirely shut off.

To accomplish the stopping of the lever *e* with but a slight expense of power, motion is multiplied by the following means: Mounted to the shaft 7 of the drum, Fig. 1, is a large toothed wheel 8, meshing with a small wheel 9, mounted on a shaft 10, turning in a socket-bearing *b* and rising through a pipe 11. The said shaft 10 traverses a stuffing-box 12 and at its upper end carries a bevel-wheel 13, meshing with another wheel 14. The axis of said wheel 14 carries the wheel 15, meshing with the pinion 6, Figs. 1 and 2. The axis of said pinion 6 carries the lever *e*, and the large proportion of transmission of motion permits of a very trifling expense of power for the stopping of the lever *e*. The shaft 10 also serves to drive the recording train of wheels.

I claim as my invention—

1. In a coin-freed gas-meter, the combination, with a gradually-closing gas-valve, and means operated by the meter to close said valve, of means for stopping the motion of the moving parts of said meter, and means for imparting to the stopping device an accelerated motion with relation to the device for closing the valve.

2. In a coin-freed gas-meter, the combination, with mechanism for starting the supply of gas, of a disk controlling the amount of gas to be supplied, a disk controlling the gas-valve, a planet-wheel gearing the axis of which carries the said two disks, and stop-levers controlled by the disk *d*, to stop the motion when the gas-valve is shut off.

3. In a gas-meter, the combination, with a gas-valve, of means for gradually closing said valve, means for positively stopping the operation of the moving parts of said meter and means for imparting to said stopping means a speed relatively greater than the speed of the valve-closing means.

4. In a gas-meter, the combination, with a gas-valve and a closure therefor, of means operated by the recording mechanism for causing the gradual closing of said valve, stopping means connected in train with the moving parts of said meter and moving at a relatively higher rate of speed than the valve-closing mechanism, and means for releasing and engaging said stopping means simultaneously with the opening and closing of the valve.

5. In a gas-meter, the combination, with a supply-valve, a closure therefor, and movable parts such as a drum or bellows, of means mounted for rotation in one direction by positive impulse and in the opposite direction under the influence of the recording mechanism



and serving to open and to close said valve, stopping means connected in train with the recording mechanism and mounted for rotation at a relatively higher rate of speed than the valve opening and closing mechanism and adapted to engage and disengage the stop mechanism.

6. In a gas-meter, the combination, with a supply-valve and closure therefor, and movable parts such as a drum or bellows, of a disk mounted for rotation in one direction by positive impulse and in the opposite direction under the influence of the recording mechanism, a lug carried by the disk and so disposed as to engage in one position and effect a closure of the valve, a second disk cooperating with the first disk and having in its periphery a notch, a rotating stop mechanism connected in train with the movable supply parts of the meter and moving at a higher rate of speed than the valve-closure, and a lever mounted adjacent to the stop mechanism and disk and held normally out of engagement with the stop mechanism by the periphery of the disk but permitted to engage said stop mechanism when the revolution of the disk brings the notch into juxtaposition to said lever.

7. In a gas-meter, the combination with a

supply-valve, a closure therefor and movable supply parts such as a drum or bellows, of a disk mounted for rotation in one direction by positive impulse and in the opposite direction under the influence of the recording mechanism, a lug carried by the disk and so disposed as to engage and effect a closure of the valve when in one position, a second disk cooperating with the first disk, a notch with beveled approaches, a spring-controlled arm mounted upon the axis of the disk and serving to cover the approach to the notch, a stop mechanism connected in train with the moving parts of the meter and rotating at a higher rate of speed than the valve-closure, and a lever mounted adjacent to the stop mechanism and disk and held normally out of engagement with the stop mechanism by the periphery of the disk but permitted to suddenly engage said stop mechanism when the revolution of the disk brings the notch into juxtaposition to said lever.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HERMANN ARON.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.