

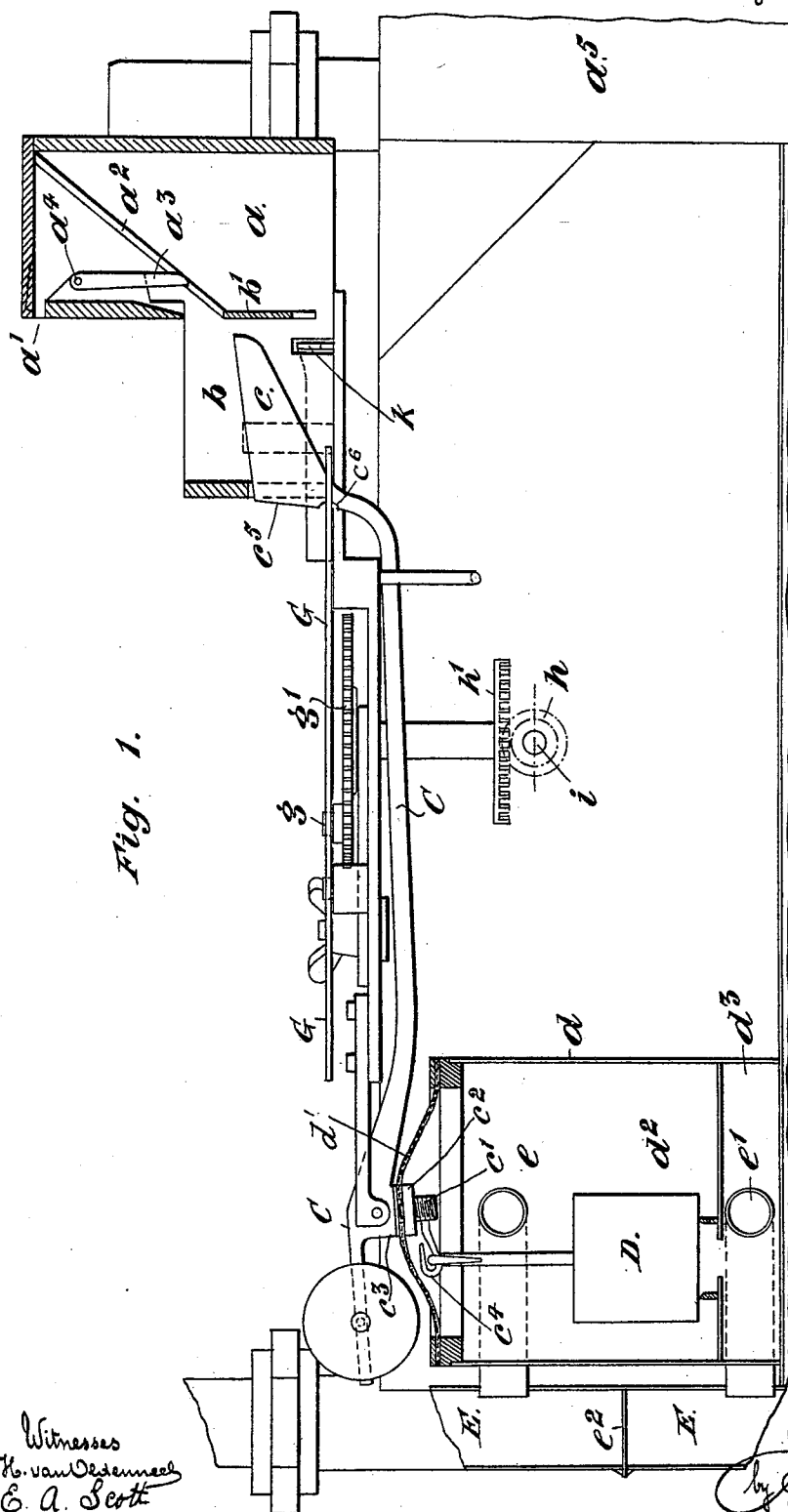
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H. & C. GAMWELL.
COIN FREED GAS METER.

No. 582,781.

Patented May 18, 1897.



(No Model.)

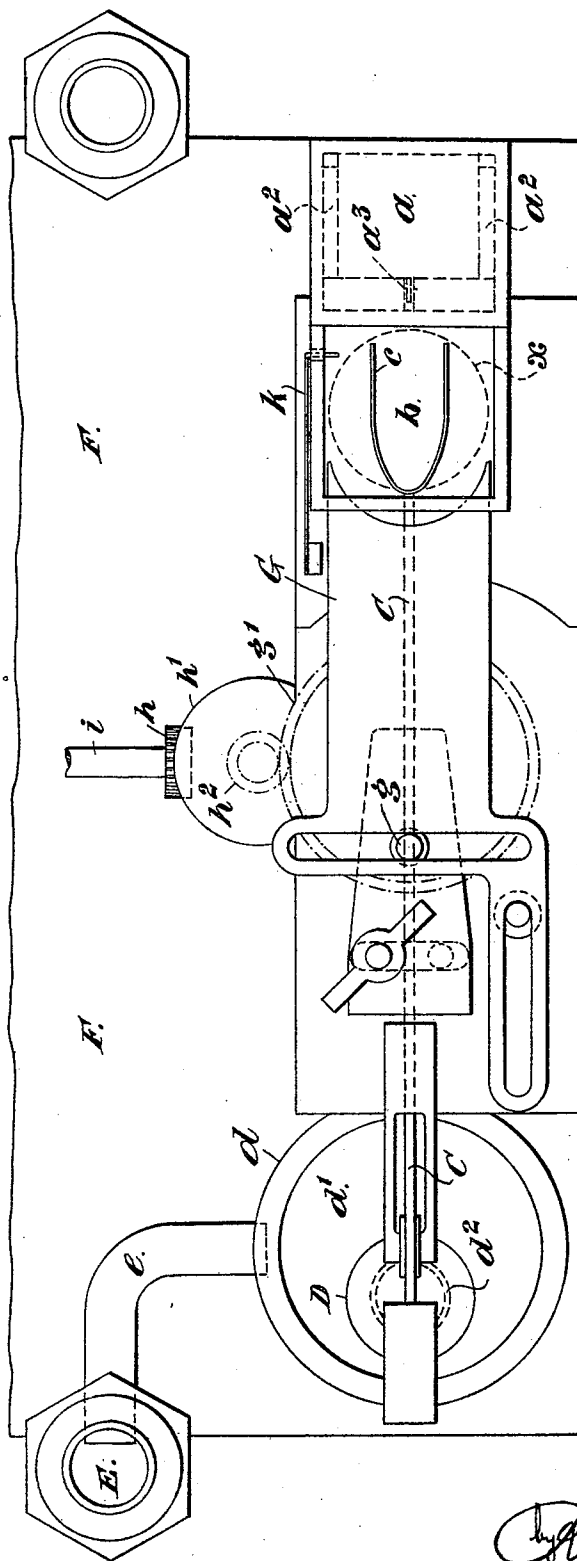
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Fig. 2.



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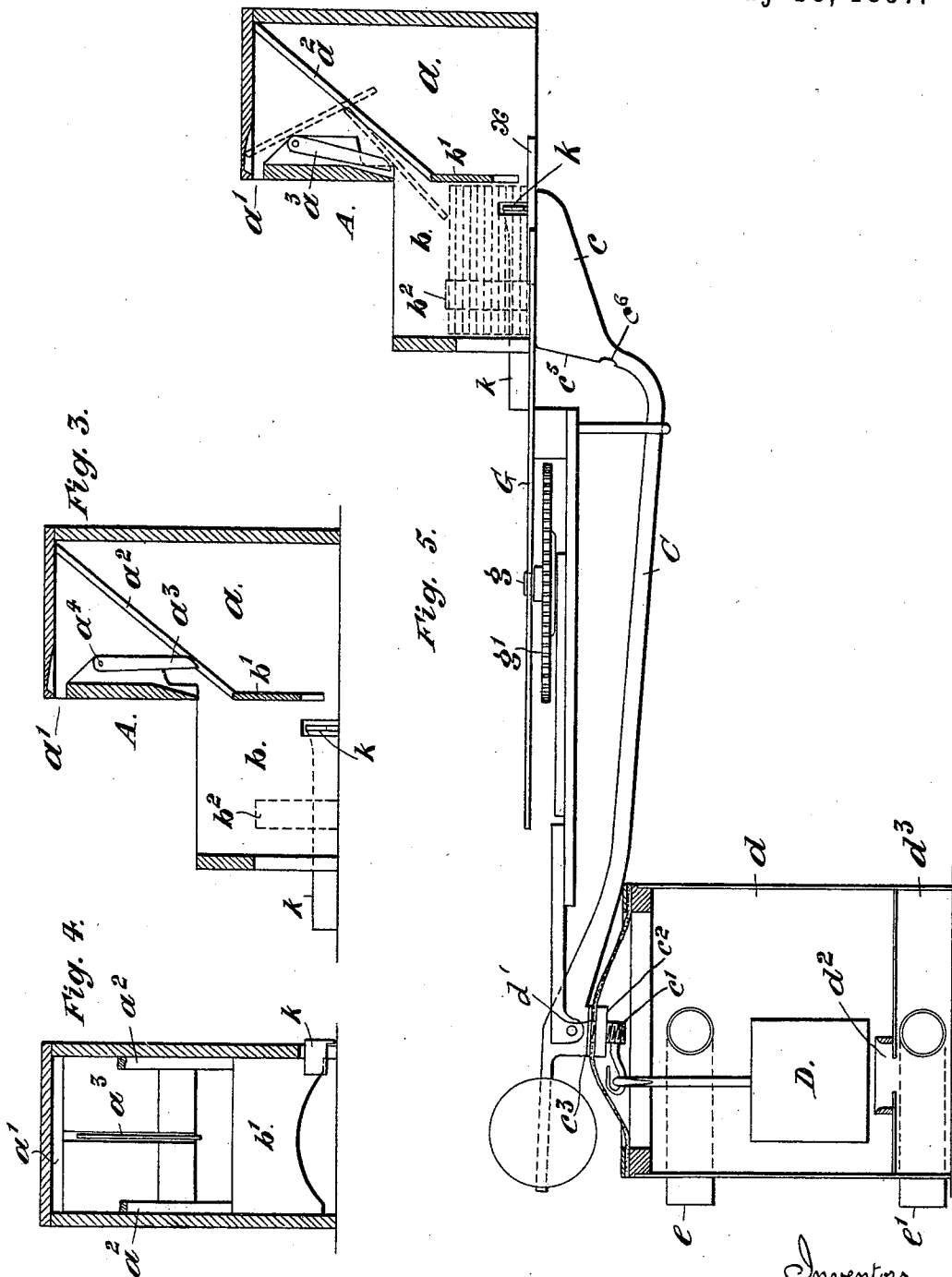
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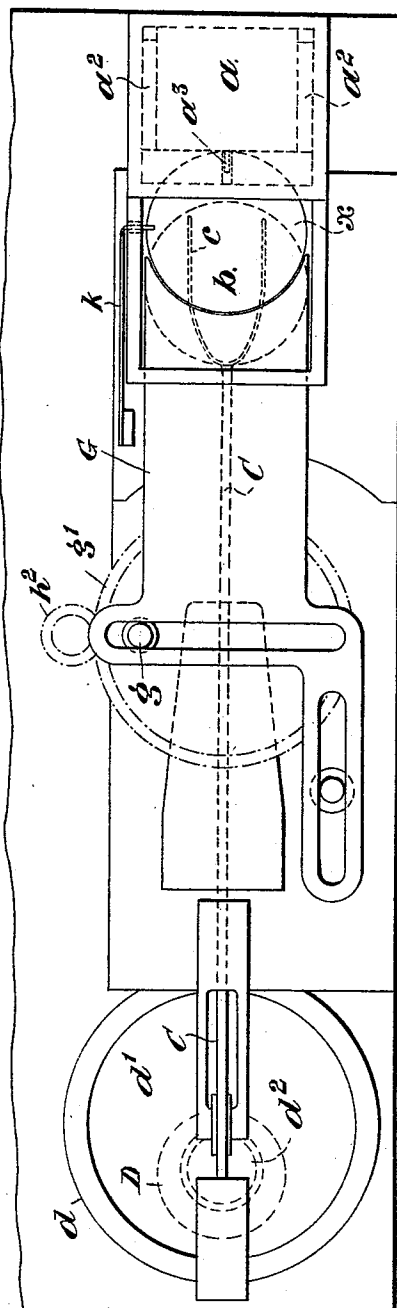
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Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY GAMWELL AND CHARLES GAMWELL, OF LIVERPOOL, ENGLAND,
ASSIGNORS OF ONE-HALF TO JAMES LIND AND JOHN LIND, OF SAME
PLACE.

COIN-FREED GAS-METER.

SPECIFICATION forming part of Letters Patent No. 582,781, dated May 18, 1897.

Application filed September 26, 1896. Serial No. 607,043. (No model.)

To all whom it may concern:

Be it known that we, HARRY GAMWELL and CHARLES GAMWELL, subjects of the Queen of Great Britain and Ireland, and residents of Liverpool, England, have invented certain new and useful Improvements in Coin-Freed Gas-Meters, of which the following is a description.

This invention relates to coin-freed mechanism for gas-meters; and it consists of a coin-reception device, a valve for controlling the passage of gas into the meter, a lever for opening the valve actuated by the prescribed coin, a flexible and gas-tight connection between the valve-chamber and the lever, and a push-piece operated by a moving part of the meter, such as the index-spindle, for removing the coin and releasing the lever when the prescribed volume of gas has been passed.

In the drawings, Figure 1 is a sectional elevation of the upper portion of a gas-meter fitted with coin-freed mechanism according to this invention, Fig. 2 being a plan thereof. Fig. 3 is a sectional elevation, and Fig. 4 is a vertical end section, of the coin-reception device. Fig. 5 is a sectional elevation showing the valve-lever weighed down by a coin, and Fig. 6 is a plan thereof.

The coin-reception device A comprises chambers *a* and *b*. Entering the slot *a'*, a coin of the prescribed size falls onto the inclined guides *a''*, down which it is conducted into the chamber *b*. The guides *a''* are merely strips secured to the walls of the coin-receptive device. In passing down the guides *a''* the coin lifts the catch *a'''*, which is pivoted at *a''''*, and passes under it. The function of this catch is to prevent withdrawal of a coin after it has once entered the chamber *b*. On entering the chamber *b* the coin falls onto and depresses the forked end *c* of a lever C, whose function is to raise the lift-valve D. If a coin of lesser diameter than that of the prescribed coin is inserted in the slot *a'*, it will fall between the guides *a''* directly into the coin-receptacle *a'''* without entering the second chamber *b*. Another object of the two chambers is to prevent tampering with the

valve-lever C, and to further increase this security three or more chambers, with coin-guides leading from one to the other, may be used.

The valve D is disposed within a chamber *d*, which is covered by a flexible diaphragm *d'*. Passing through an aperture in said diaphragm is a screw-threaded portion *c'* of the lever C, which portion *c'* is below the fulcrum of said lever, a gas-tight joint being formed by the nut *c''* and the shoulder *c'''*, between which the flexible material of the diaphragm is held. To this threaded portion *c'* is fixed a hook *c''''* below the flexible diaphragm *d'*, on which hook is hung the valve D. The flexibility of the diaphragm *d'*, which may be of leather or other suitable material, allows free play to the portion *c'*, as the lever C oscillates about its fulcrum. The valve D is seated on a passage *d''*, which communicates with the chamber *d'''*, below the valve-chamber. Into the chamber *d* a pipe *e* is led from the gas-main connection E, and from the chamber *d'''* a pipe *e'* is led back to such connection E, but below the division-plate *e''* therein. The valve D therefore controls the admission of gas from the main E into the meter F. In some cases the lower chamber *d'''* may be dispensed with and the valve D seated directly on the pipe *e'*, which in these cases may pass straight down into the gas-measuring portion of the meter.

G is a push-piece having reciprocating motion imparted to it by a pin *g*, eccentrically disposed on a spur-wheel *g'*, which is rotated by any convenient part of the meter, but preferably by a pinion-wheel *h*, mounted on the index-spindle *i* of the meter through the medium of the crown-wheel *h'* and pinion *h''*. The function of the push-piece G is to push the coin which weighs down the lever C off the forked end *c* thereof and into the coin-receptacle *a'''*, and also to hold down such lever until the spur-wheel *g'* has completed a revolution. The forward end of the push-piece G is rounded to correspond with the circumference of the coin used. The object of this is that contact between such rounded end

and two or more points on the edge of the coin is assured, while were the end straight it might insert itself under a bent coin.

In operation (the mechanism being in the position shown in Figs. 1 and 2) when a coin is placed in the coin-reception device A and falls onto the end of the lever C and depresses it the valve D is raised from the passage d^2 and allows gas to pass from the main E into the meter. The index-spindle i then rotates the spur-wheel g' by means of the wheels h h' h^2 . As the spur-wheel g' rotates its pin g moves forward the push-piece G, so that it pushes the coin x off the end c of the lever C and takes the position shown in Figs. 5 and 6. The coin having been displaced, the plate G prevents the lever from rising until the spur-wheel g' has made a complete revolution and withdrawn the plate G from contact with the lever C, which then rises and closes the valve D.

The part of the lever C which is last in contact with the plate G is inclined, as shown at c^5 , whereby the rise of the lever as the plate G passes from it is gradual, and the valve D is gradually closed, and in order to provide for a gradual lowering of the gas-light and a final extinguishment we form an inset at the foot of such inclined portion c^5 .

Upon reference to Figs. 3 and 4 it will be seen that the end of a spring k projects into the chamber b of the coin-reception device A. The lower part of such spring is recessed to allow the passage of one coin only, while its upper part and the partition-plate b' retain reserve coins stored above such coin. If the coin to be passed happens to be bent, the spring k gives way, either laterally or vertically, to accommodate it. A glazed aperture b^2 is provided in the side of the chamber b , admitting of a side view and computation of the reserve coins which may be stored therein.

Entering the slot a' a coin reverses in its fall through the chambers a and b . When the chamber b has received its complement of coins, the next coin inserted lies in the passage between the two chambers. The following coin rests upon the edge of this coin and blocks the slot a' , as shown in Fig. 5, until a coin has been removed by the push-piece G.

The quantity of gas passed as the equivalent of a coin inserted may be varied by the use of change-wheels or other well-known speed-varying contrivances connecting the push-piece G with the moving part of the meter.

Having now described our invention, what we wish to secure by Letters Patent is—

1. In a coin-freed gas-meter, the combination of a valve D for controlling the passage of gas, a lever C connected to the valve and operated by the weight of a coin to control

said valve, and a push-piece G for removing such coin, substantially as and for the purposes set forth.

2. In a coin-freed gas-meter the combination of a lever C having an inclined portion c^5 and operated as described, with a push-piece G operated as described, whereby the release and rise of said lever is gradual, for the purpose set forth.

3. In a coin-freed gas-meter the combination of a lever C having an inclined portion c^5 and an inset at the foot of such portion and operated as described, with a push-piece G operated as described, whereby the release and rise of said lever commences gradually and terminates suddenly, for the purpose set forth.

4. In a coin-freed gas-meter the combination of the valve, a lever connected thereto and operated as described with a push-piece G having a semicircular concave end and operated as described, for the purpose of removing a coin from the end of said lever, substantially as set forth.

5. In combination with a coin-freed gas-meter, the recessed spring k , adapted to allow one coin at a time to be removed by the push-piece G, substantially as set forth.

6. In a coin-freed gas-meter the combination of a lever C, push-piece G, chamber b , and recessed spring k which will give way either laterally or vertically before a bent coin and allow the same to be removed, said lever, push-piece, and spring operating in the chamber b , substantially as set forth.

7. In a coin-freed gas-meter, a chamber in communication with the gas-main, a valve in such chamber operated by a coin-weighted lever and controlling the passage of gas from such chamber into the meter and a flexible cover on such chamber, said flexible cover being attached to, and provided for the purpose of allowing free play to, said lever and valve-connecting device, all in combination and operating substantially as herein set forth.

8. In combination in a coin-freed apparatus, a gas-supply, a valve, a pivoted coin-lever connected to the valve and adapted to be operated by the weight of the coins, a pusher operating at the end of the pivoted lever to discharge the coin therefrom, and means for operating the pusher, said pusher being arranged to hold down the end of the pivoted lever, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

H. GAMWELL.
C. GAMWELL.

Witnesses:

WILLIAM DAVIES,
J. A. CONBROUGH.