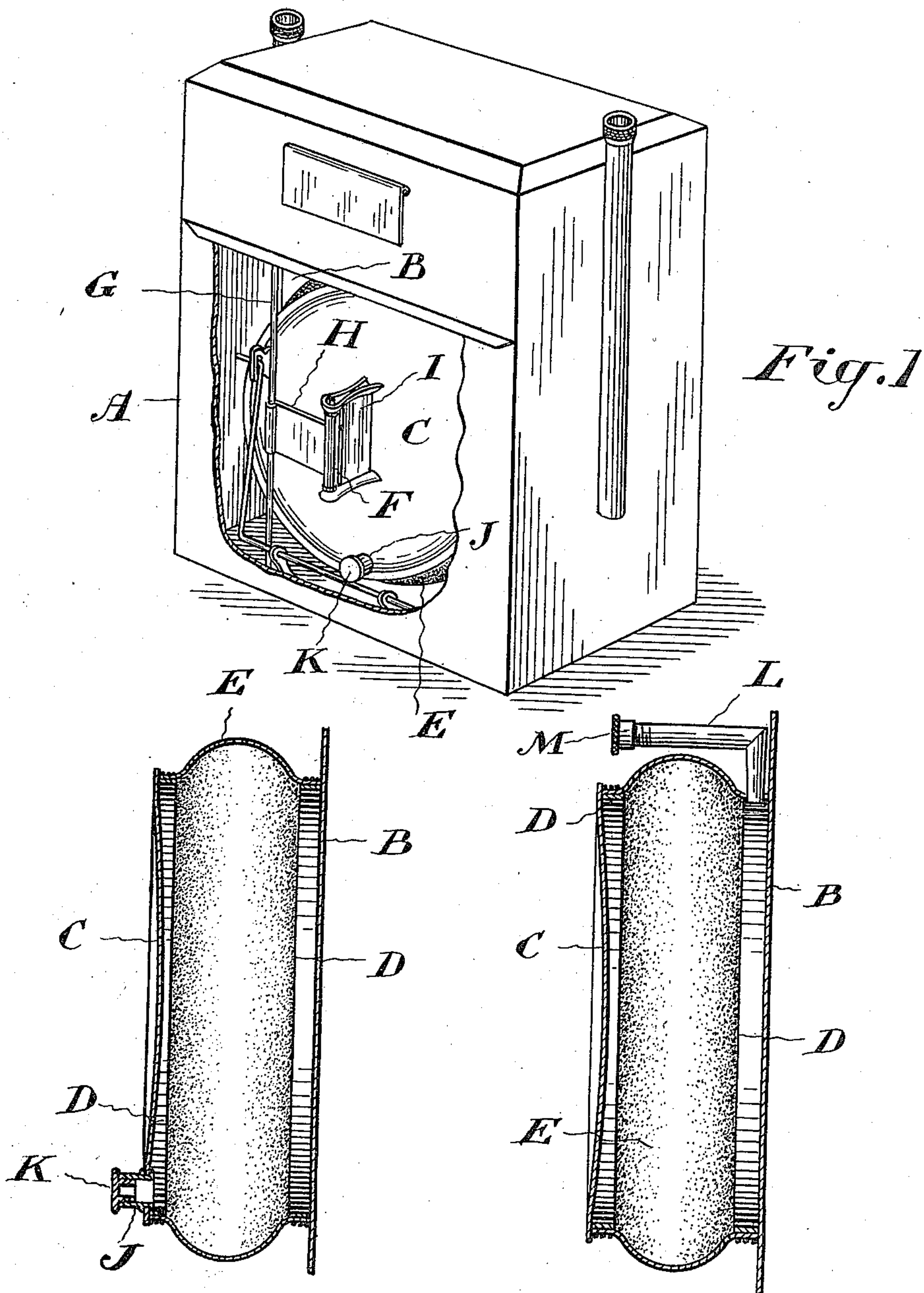


J. W. DANAHER.  
GAS METER.  
APPLICATION FILED MAR. 23, 1910.

974,775.

Patented Nov. 8, 1910.



*Fig. 2*

*Fig. 3*

WITNESSES:

*W. G. McMillan*  
*E. P. Hall.*

INVENTOR.  
*J. W. Danaher*  
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ATTORNEYS



# UNITED STATES PATENT OFFICE.

JOHN W. DANAHER, OF TORONTO, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF TO  
ELIAS E. SLAGHT, OF TORONTO, CANADA.

GAS-METER.

974,775.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed March 23, 1910. Serial No. 551,076.

*To all whom it may concern:*

Be it known that I, JOHN W. DANAHER, of the city of Toronto, Province of Ontario, Canada, have invented certain new and useful Improvements in Gas-Meters, of which the following is a specification.

This invention relates to dry gas meters in which the gas chambers are formed of bellows having leather sides and metal end disks. The leather is in the first place well oiled to render it pliable but in a few years the action of the gas renders the leather hard which affects the action of the meter. It then becomes necessary to re-oil the leather to restore its original pliability. This it is found cannot be done satisfactorily from the outside and the usual practice has been to cut a hole in the end disk through which a swab could be introduced and the leather oiled therewith. As a large central hole was necessary, the rock arm connection through which the motion of the disk was conveyed to the gearing was of course removed with the piece of the disk cut out, and after the oiling a new piece had to be soldered on the disk and the connection again soldered in place. This process is expensive and necessitates the subsequent re-adjustment of the meter gear as it is impossible to insure the replaced parts being in exactly their original positions.

It is the object of my invention to make the oiling of the leather from the inside possible without cutting holes in the disk thus avoiding all the trouble and expense of the present system.

I attain my object by the construction shown in the accompanying drawings in which—

Figure 1 is a perspective view of a meter constructed in accordance with my invention and partly broken away to expose the interior. Fig. 2 is a section of one of the bellows of a meter constructed in accordance with my invention. Fig. 3 is a sectional detail showing a modification of the invention.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A is the casing of the meter and B the partition or diaphragm dividing the bellows compartments. This partition forms one end of each bellows, the outer end of

each bellows being formed by a disk C. The partition and the disk are each provided with a flange D to which the leather E forming the sides of the bellows is attached.

F is the usual hinged guiding frame of the disk C.

G is the vertical spindle conveying the movement of the bellows to the register as shown. The rock arm H is rigidly connected to this vertical spindle and is pivoted on the connection I secured to the center of the disk C.

In the preferred construction shown in Figs. 1 and 2 I form a hole in the disk C close to the edge of the disk so that it will not only serve for the introduction of oil but will also serve for the draining out of any surplus. This location is important as the disk is usually dished as shown. This hole is provided with a suitable closure. For this purpose a threaded flange J is provided and a screw cap K adapted to screw into the flange. As a variation the opening may be made in one of the flanges D as shown in Fig. 3, preferably that one which is connected to the partition B. A tube L is connected with this opening and extends to any convenient position, its end being closed by the screw cap M.

With each form the mode of operation when the leather of the bellows is to be oiled is as follows—The closure of the opening is removed and a sufficiency of oil poured in. The meter is then slowly rotated so that the oil runs around the leather thoroughly soaking the same. As soon as the leather is thoroughly saturated, the surplus oil is drained out and the closure again applied. Of course, each of the bellows of the meter will be similarly treated. It will be necessary, of course, to unsolder the back and front of the meter to get at the bellows, but this has to be done in any case. With my construction, however, the cost of cutting open the disks, replacing the parts and re-adjusting the meter is entirely avoided. As meters require to have their bellows re-oiled every three to five years the total saving during the life time of the meter is considerable, while the increased expense of my construction is exceedingly small.

I do not desire, of course, to limit myself to the exact constructions shown as various other modifications besides that shown might

be devised which would fall within the scope of my invention.

What I claim as my invention is:—

- 5 1. A gas meter provided with bellows having annular leather sides and an oil opening adjacent said leather sides and a closure therefor, said opening being arranged and located to drain the bellows as well as to form an oil inlet.
- 10 2. A gas meter provided with bellows having annular leather sides and metal ends, one end of the bellows having an opening

therein provided with a freely removable and replaceable closure.

3. A gas meter provided with bellows 15 having annular leather sides and an outer end disk of metal having an opening therein adjacent the edge of the disk and provided with a screw threaded closure.

Toronto, Ont. this 16th day of March 1910. 20

JOHN W. DANAHER.

Signed in the presence of—

J. EDW. MAYBEE,

E. P. HALL.