

A. B. MORTON.
STUFFING BOX FOR GAS METERS.
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991,225.

Patented May 2, 1911.

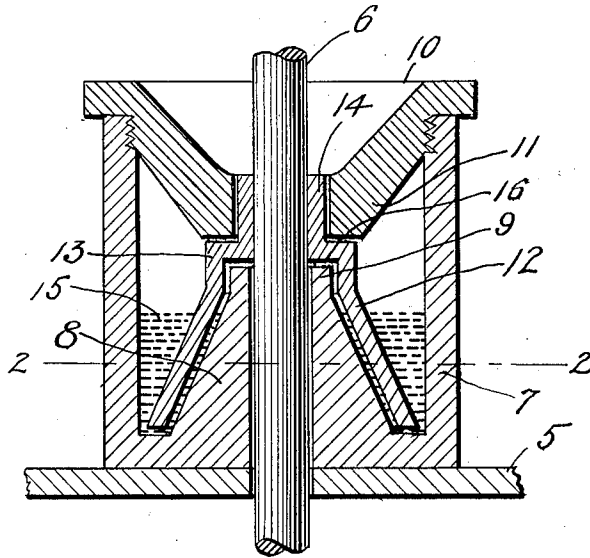


Fig. 1.

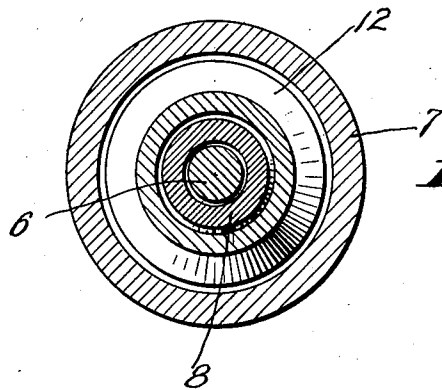


Fig. 2.

Witnesses
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ALBERT B. MORTON, OF WAKEFIELD, MASSACHUSETTS.

STUFFING-BOX FOR GAS-METERS.

991,225.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed June 20, 1910. Serial No. 567,985.

To all whom it may concern:

Be it known that I, ALBERT B. MORTON, citizen of the United States, residing at Wakefield, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Stuffing-Boxes for Gas-Meters, of which the following is a specification.

This invention relates to stuffing-boxes for gas-meters, and its object is to provide a mercury sealed stuffing-box which will effectually prevent leakage of gas, and further, to provide a stuffing-box so designed that it will retain the sealing medium while the meter is being handled, in transit, or in working position.

The invention also has for its object to establish a mercury seal of sufficient height to hold back the gas pressure under which it is desired to operate the meter, and to take the place of, and be used as a substitute for, all other forms of stuffing-box packing or seals in gas meters.

The invention consists in a novel construction and arrangement of parts to be hereinafter described and claimed, and in order that the same may be better understood, reference is had to the accompanying drawing forming a part of this specification, in which drawing,

Figure 1 is a central vertical section of the stuffing-box, and Fig. 2 is a horizontal section thereof taken on the line 2—2 of Fig. 1.

In the drawing, 5 denotes the partition or "floor" of the meter, and 6 is the flag rod. The stuffing-box is a cylindrical casing 7 which is secured to the partition by a suitable gas-tight connection. The flag rod passes through the partition and the stuffing-box. From the floor of the stuffing-box 7 rises a frusto-conical boss 8 having a central opening which is continued through the bottom of the stuffing-box, and through which opening the flag rod extends. The top of the boss terminates in a short cylindrical portion 9. The top of the stuffing-box 7 is closed by a screw cap 10 having a frusto-conical depending portion 11 which extends into the stuffing box, and has a central opening. The boss is surrounded by an inverted bell-shaped vessel 12, which is frusto-conical in form to conform to the shape of the boss. The upper portion of the vessel has a short cylindrical portion 13, from the center of which rises a reduced cylindrical portion 14,

which extends into the central opening of the screw cap 10, and has a central opening through which the flag rod extends.

In assembling the herein described parts, a sufficient quantity of mercury 15 to give the required seal is placed in the stuffing box 7, and the vessel 12 is then slipped down over the flag rod until it is in the best working position, and also submerged as far as possible in the mercury. The vessel 12 is made fast to the flag rod in such a manner as to make a gas-tight connection. The cap 10 is now screwed down, which completes the assembly of the parts.

Inasmuch as the vessel moves with the flag rod, it is desirable that it be loosely held between the cap and the top of the boss. The lower end of the cap is opposite a shoulder 16 on the vessel formed by the reduced portion 14. The part 14 is also loose in the central opening of the cap. The vessel is spaced slightly from the boss so that the sealing medium may surround the latter. The flag rod passes loosely through the central opening of the boss. The mercury column will be of such a height as to hold back the pressure under which the meter is to operate. The mercury will be retained in any position that may result from operation, handling, transportation or storing of the meter, it being returned to sealing position when the meter is placed in proper working or operating position. Friction is reduced to a minimum, and remains constant at all times. The slight friction caused by the mercury will produce less loss of pressure between the inlet and outlet of the meter than that which results from the ordinary packing now in use. The seal can be made to hold against any reasonable pressure, and its effectiveness may be increased by increasing the height of the stuffing box, or the seal contained therein.

A further advantage of the invention is that it eliminates the tendency of the meter to run fast after it has been in service for some time, since the friction is uniform at all times, whereas in the ordinary stuffing boxes, the most friction is present immediately after being packed (under which condition they are proved and inspected). This friction gradually grows less from wear of operation, thus causing the center crank and flag rod to work more freely, which results in the meter running fast, the percentage of error being dependent entirely upon how

hard the box was packed when proved, and the severity of service to which the meter has been subjected.

5 If the seal should break on account of excessive pressure, due to abnormal conditions, it will reestablish itself and be as good as before, as soon as conditions and pressure are again normal, whereas with the ordinary stuffing boxes, when once the inroad is made
10 and a leak started by the above mentioned conditions, the box will be almost sure to continue to leak until it has been repacked.

It will, of course, be understood that the parts as illustrated can be varied within considerable limits, without departure from the spirit of the invention, and I do not, therefore, wish to be considered as limiting myself to the specific details of construction, except where they are specifically referred to
15 in the claim.

The invention is described as applied to

the flag rod, but it will be evident that it may be used with equal facility in connection with the crank rod of the meter, or any other parts requiring a stuffing box.

I claim:

The combination with a stuffing box, and a rod passing therethrough; of an inverted vessel in the box carried by the rod, said box containing a liquid sealing medium in which
25 the vessel is sealed, and a frusto-conical boss in the box through which the rod loosely passes, said boss extending into the vessel, and the vessel being frusto-conical to conform to the shape of the boss.

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

ALBERT B. MORTON.

Witnesses:

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