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SELF DRAINING ATTACHMENT FOR GAS METERS.

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Fig. 1.

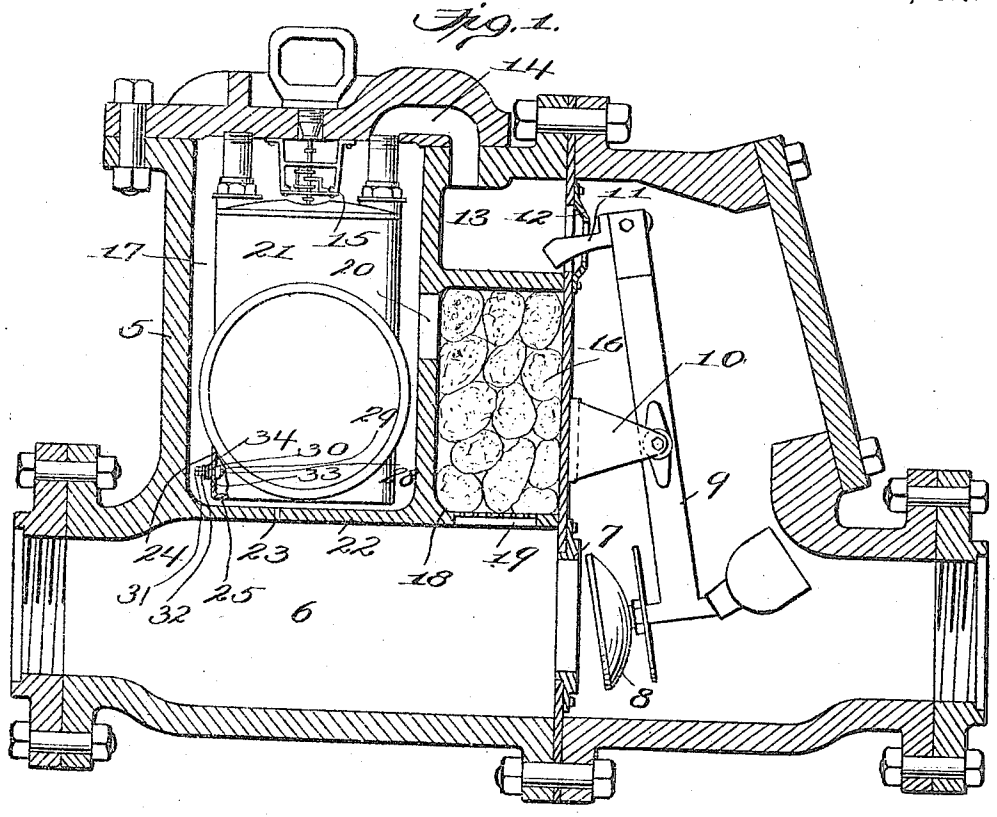
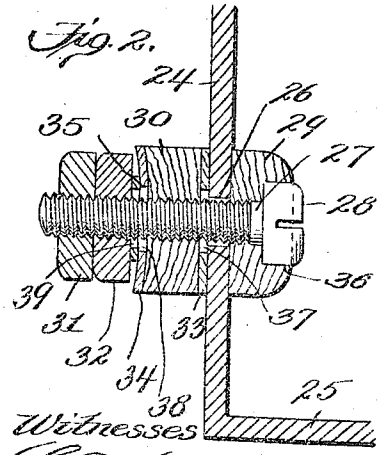


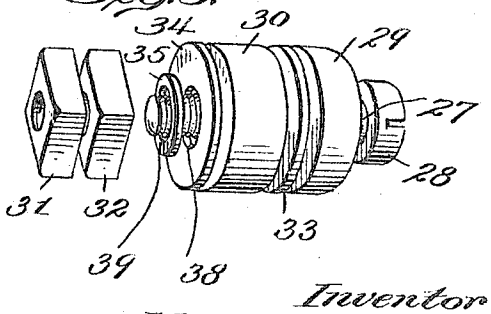
Fig. 2.



Witnesses

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Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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SELF-DRAINING ATTACHMENT FOR GAS-METERS.

1,229,842. Specification of Letters Patent. Patented June 12, 1917.

Application filed June 5, 1916. Serial No. 101,839.

To all whom it may concern:

Be it known that I, HENRY P. WESTCOTT, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Self-Draining Attachments for Gas-Meters, of which the following is a specification.

This invention relates to a self-draining attachment for use in connection with the tally of a meter for measuring casing head gas, and one object of the invention is to obviate the collection in the tally of free gasolene condensing from casing head gas which is oftentimes very heavy and very easily condensed whenever the tally or meter becomes cold, especially during the winter season. The gas entering the tally of the meter naturally comes in contact with the metal casting thereof and condenses on the walls whenever the metal is colder than the gas. The invention consists essentially of a drain opening formed in a part of the tally casting or casing and fibrous washers preferably constructed of felt and applied to the said drain opening together with suitable accessories and permitting gasolene to leak directly through the said washers, but obstructing the leakage of gas through the said washers to any material extent, the fibrous washers taking up and becoming saturated with the gasolene and serving as the leaking means for the gasolene and occluding the escape of gas through the drain opening over which the fibrous washers are placed. The invention further consists in the details of organization of the draining or leaking attachment which will be more fully hereinafter described and claimed.

In the drawing:

Figure 1 is a longitudinal vertical section of a proportional meter embodying a tally meter and showing the improved attachment applied thereto.

Fig. 2 is an enlarged detail section of a portion of the tally meter casting or casing showing a drain opening therein and the improved attachment in longitudinal section relatively to the drain opening.

Fig. 3 is a detail perspective view of the improved attachment.

The numeral 5 designates a well known form of proportional meter which generally embodies a main 6 having a valve seat 7 with which a weighted main valve 8 automatically coöperates, said valve 8 being carried at the lower end of a rocker shaft 9 intermediately fulcrumed on a rocker shaft post 10 secured to an inner part of the meter as shown, the rocker shaft also carrying a proportional valve 11 at its upper end movable through and coöperating with a proportional valve seat 12 having communication by suitable passages 13 and 14 with a tally 15. The proportional meter as shown is also equipped with a dirt collector 16 for rendering the gas to be measured free from aqueous vapor, water or oil in any form as well as from dust and sand. The dirt collector is disposed in a chamber 18, the said chamber having communication with the main 6 and the tally chamber 17 by means of openings or ports 19 and 20. The tally casting or casing 21 is suitably disposed in the chamber 17 and is of the usual type of devices of this class. All of the parts of the proportional meter thus far described are well known in the art and need not be described in detail as they form no part of the present invention except in so far as the improved attachment, which will be presently described, coöperates therewith. Moreover, the proportional meter specified is shown to illustrate one practical application of the improved attachment, but it will be understood that the attachment is not limited to this particular application and is adapted to be used with any meter or other organization wherewith its function may be performed.

In the bottom 22 of the tally chamber 17 a small drain opening 23 is formed to permit accumulations of gasolene, for instance, to flow back into the main 6 and mingle with the incoming gas. The improved attachment is applied to the side wall 24 of the tally casting or casing 21 at a suitable elevation above the bottom 25 of the latter casting or casing and coöperates with a drain or leak opening 26 formed in the said side wall 24. As clearly shown by Figs. 2 and 3, the attachment comprises essentially a threaded bolt 27 having a head 28 and two fibrous washers 29 and 30 preferably formed of felt and disposed in operative relation to the inner and outer surfaces of the side wall 24 of the tally casting or casing 21. The threaded bolt 27 is also provided with two nuts 31 and 32 for securing the same in applied position. The at-

tachment also includes as secondary constituents or accessories a leather washer 33, an iron or other suitable metal washer 34, and a ductile metal washer 35 preferably formed of lead.

In assembling the attachment in operative position in relation to the opening 26 the one fibrous or felt washer 29 is pushed over the screw-threaded bolt 27, the head 28 of this bolt being partially countersunk in the fibrous washer, as at 36. The bolt carrying the washer 29 is then inserted through the opening 26 from the interior of the casting or casing 21, the greater portion of the screw-threaded bolt 27 projecting exteriorly of the casting or casing, as clearly shown by Fig. 2. The leather washer 33 is then applied over the bolt and brought to bear in direct contact with the outer surface of the side wall 24 of the casting or casing and next to the washer 33 the second fibrous or felt washer 30 is applied, and against the outer side of the said washer 30 is the iron or other metal washer 34, and between the nut 32 and the washer 34 the washer 35 is introduced. The opening 26 is of greater diameter than the threaded portion of the bolt 27 and has a smooth wall to provide a leak opening. The opening 37 of the washer 33 is of larger diameter than the opening 26 to expose a considerable portion of the fibrous or felt washer 30 at the center around the threaded portion of the bolt 27 and adjacent to the opening 26. The openings 38 and 39 of the respective washers 34 and 35 are also greater than the diameter of the screw-threaded portion of the bolt 27 passing therethrough so as to avoid contact with the bolt and to effect a drip of the saturated washer 30 solely from said latter washer. The function of the leather washer 33 lying directly against the side wall 24 of the casting or casing 21 is to prevent leakage of gas or gasolene at the outer surface of this side wall due to the roughness of the casting or casing, the leather of the washer 33 adhering closely and making a tight joint around the opening 26 between the outer surface of the side wall 24 and the fibrous or felt washer 30 when the nuts 31 and 32 are tightened and all the washers are brought in close or compact relation. The iron or other metal washer 34 bears directly against the outer soft side of the fibrous or felt washer 30 and provides a resisting backing or support for the lead washer 35, the lead washer being held within the concavity of the washer 34 and preventing leakage of gas or gasolene at its point of location directly around the bolt 27. It will be seen that there is no washer between the fibrous or felt washer 29 and the inner surface of the side wall 24 around the opening 26, and the said washer 29 is caused to directly bear against the inner surface of the side wall 24 so as to absorb and transmit the gasolene taken up from the interior of the casting or casing 21 through the opening 26 and by way of the bolt 27 to the fibrous or felt washer 30 and from the latter drips or leaks onto the bottom 22 of the tally chamber 17 and then escapes through the drain opening 23 back into the main 6. The fibrous or felt washers 29 and 30 permit the gasolene to drip out or leak from the tally meter very slowly, yet they do not permit the loss of gas to an extent that would retard or interfere with the accuracy of the tally, and the improved attachment overcomes the great difficulty that has been experienced heretofore in the operation of measuring casing head gas due to the accumulation of gasolene within the tally meter and produced by condensation of the gasolene constituents of the gas by coming in contact with the cold metal wall or walls of the tally meter.

One or more of the attachments may be applied to the meter, the number used depending on the character of the meter and the quantity of the condensed product accumulating in the meter.

What is claimed is:

1. The combination with a gas meter, of a self-draining attachment therefor comprising contiguously arranged transmitting absorbent elements respectively disposed in spaced relation interiorly and exteriorly of and in part bearing against the wall of the meter.

2. The combination with a gas meter, of a self-draining attachment comprising contiguously arranged transmitting absorbing elements secured adjacent to each other on opposite sides of the wall of the meter.

3. The combination with a gas meter having a drain opening in a wall thereof, of a self-draining attachment for a condensed product comprising transmitting absorbing elements applied in operative relation to opposite sides of the wall adjacent to and around the said drain opening.

4. The combination with a gas meter having a drain opening in a wall thereof, of a self-draining attachment for a condensed product comprising transmitting absorbing elements applied in operative relation to opposite sides of the wall adjacent to and around the said opening, and securing means extending through the absorbing elements and said opening.

5. The combination with a gas meter having a drain opening in a wall thereof, of a self-draining attachment for a condensed product comprising transmitting absorbing elements applied in operative relation to opposite sides of the wall adjacent to and around the said opening, a securing device extending through the absorbing elements and opening, and means interposed between

one of the elements and the outer side of the wall around the securing means to prevent the escape of gas.

6. The combination with a gas meter having a drain opening in a wall thereof, of a self-draining attachment for a condensed product comprising transmitting absorbing elements applied in operative relation to the opposite sides of the wall adjacent to and around the said opening, a washer interposed between one of the elements and the wall to compensate for roughness of the latter and form a gas-tight joint, securing means extending through the elements, said interposed means and the opening, and another washer interposed between a part of the securing means and one of said elements to prevent leakage of the condensed product around the securing means and compel the said product to pass out solely through the outer element.

7. The combination with a gas meter having a drain opening in a wall thereof, of a self-draining attachment for a condensed product comprising felt washers applied in operative relation to opposite sides of the wall adjacent to and around the said opening, a leather washer interposed between the outer side of the wall and the adjacent felt washer, a lead washer at the outer side of the outer felt washer, and a securing device extending through all the washers and the said opening and having means for tightly assembling the washers relatively to the wall and opening and one another.

8. The combination with a gas meter having a drain opening in a wall thereof, of a self-draining attachment for a condensed product comprising felt washers applied in operative relation to opposite sides of the wall adjacent to and around the said opening, a leather washer interposed between the outer felt washer and the outer surface of the wall, a metal washer against the outer side of the outer felt washer, a lead washer against the outer side of the said metal washer, and a screw-bolt inserted through the washers and the opening and having securing devices on the outer end to tightly assemble all of the washers in contact with each other and the leather washer and inner felt washer in direct contact with the wall around the opening.

9. An attachment of the class specified comprising a longitudinally extending securing device having transmitting absorbent washers thereon with a sealing washer interposed therebetween, and a ductile metallic washer adjacent to the outer side of one of the absorbent washers to render the latter gas-tight.

10. An attachment of the class specified comprising a headed screw-bolt provided with securing means on the threaded portion thereof, felt washers on the bolt, a leather washer between the felt washers, and metallic washers between the outer side of the one felt washer and the securing means, the one metallic washer being of a ductile character to form a gas-tight joint with the washer which it engages relatively to the screw-bolt.

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

HENRY P. WESTCOTT.

Witnesses:
F. H. STERRETT,
H. A. GLICK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."