

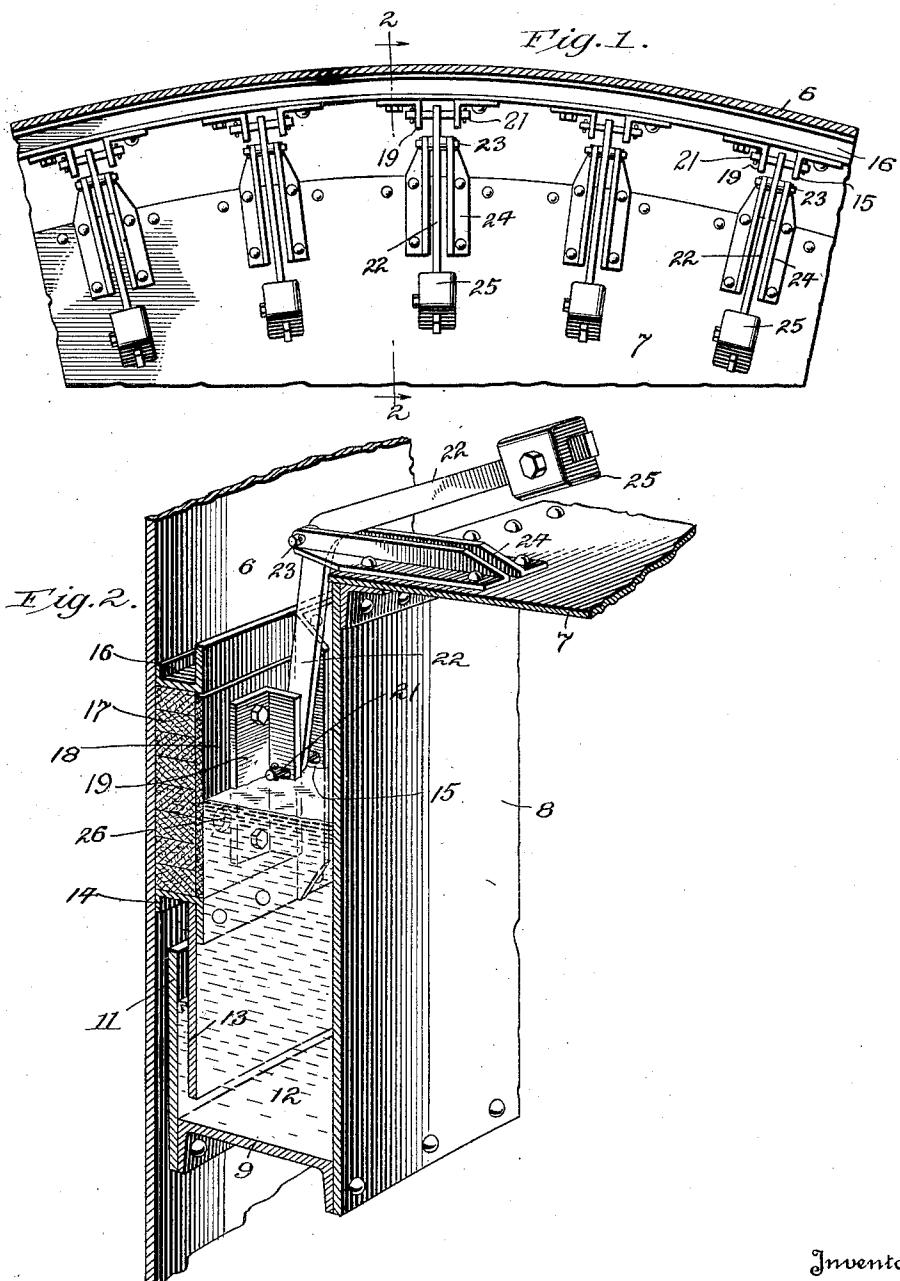
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GAS HOLDER

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UNITED STATES PATENT OFFICE

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GAS HOLDER

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This invention relates to waterless gas holders, and resides particularly in the means used to effect a seal between the vertically movable piston and the shell of the holder.

5 Generally stated, the present application is subordinate to my prior applications Serial No. 302,783 filed August 29, 1928, and Serial No. 302,784 filed August 29, 1928, as to the use of a dip seal and as to the feed of lubricant from this dip seal to the packing element by the pressure of gas in the holder. Consequently no broad claim is here made to those features.

A preferred embodiment of the invention 15 is illustrated in the drawings, in which,—

Fig. 1 is a fragmentary plan, partly in section.

Fig. 2 is a perspective showing the parts sectioned on the line 2—2 of Fig. 1.

20 In the drawings a cylindrical gas holder shell is shown, but shells of polygonal form are in common use and the invention may be adapted to such shells by obvious modifications.

25 The vertical wall or shell of the holder is indicated generally by the numeral 6. The piston consists of a flat plate structure 7 and a depending peripheral skirt 8 materially smaller in diameter than the shell 6, and a peripheral trough which encircles the lower portion of the skirt 8 and which is made up of a bottom 9 and a side wall 11. This confines a bath 12 of liquid lubricant such as oil, tar, etc.

35 Dipping into the bath 12 is an annular metal skirt 13 which is riveted to one flange of a channel-shaped scraper member 14. The other flange seats against the shell 6 and serves to remove ice or other obstructions 40 therefrom. Extending upward from the channel member 14 are a plurality of spaced brackets 15, which at their upper ends are riveted to a reversely arranged channel-shaped scraper 16.

45 Confined between the scrapers 14 and 16 are a plurality of annular strips 17 of absorbent packing material, such as felt. These annuli can not be made continuous in 50 holders of ordinary size, but the joints in successive strips are staggered relatively to each

other to prevent leakage. The group of strips 17 is backed up by a flexible annulus 18 of sheet metal, to which are attached a plurality of angle brackets 19. There is one bracket 19 for each member 15 and the two are spaced apart and bridged by a pin 21, the engagement being loose so that the pin can cant when the member 19 moves outward relatively to the member 15.

55 Each pin 21 is engaged by a corresponding lever 22. These levers are pivoted at 23 on brackets 24 and are loaded by weights 25, or any equivalent means. In this way the levers support the entire packing and scraper structure and develop a force reaction between the member 19 and 15 which urges the packing elements 17 and 18 outward relatively to the scrapers 14 and 16. It will be observed that the packing structure while closely confined by the scraper structure is mechanically independent thereof.

60 It will be observed that the lubricant bath is subject, outside the skirt 13, to the gas pressure in the holder, and hence rises to a high elevation within that skirt. This makes it possible to lubricate the packing strips 17 through ports 26 formed in the annulus 18.

65 The embodiment shown in the drawings is intended to be illustrative rather than limiting, and possible modifications are contemplated.

70 What is claimed is,—

1. In a waterless gas holder the combination of a shell; a piston movable vertically therein to vary the effective volume of the holder; a liquid retaining trough encircling the piston; a substantially rigid scraper structure encircling the piston and including two spaced annular scraping elements in contact with the shell, the lower scraping element having means to form a dip seal with the liquid in said trough; absorbent sealing elements confined between said scraper elements; and means for supporting the scraper elements on the piston and for exerting yielding pressure on the sealing elements.

75 2. In a waterless gas holder, the combination of a shell; a piston movable vertically therein to vary the effective volume of the 80

holder; a liquid retaining trough encircling the piston; a substantially rigid scraper structure encircling the piston and including two spaced annular scraping elements in contact with the shell, the lower scraping element having means to form a dip seal with the liquid in said trough; an absorbent sealing medium confined between said scraper elements; and means comprising a plurality of loaded levers for supporting said scraper structure and for developing a force reaction between the scraper structure and the sealing medium to force the latter into sealing engagement with the shell.

3. In a waterless gas holder, the combination of a shell; a piston movable vertically therein to vary the effective volume of the holder; a scraper structure encircling the piston and including two vertically spaced annular scraping elements; a packing element mounted between said scraping elements; and means comprising a plurality of loaded levers arranged to support said scraper structure and to develop between the latter and the packing element a force reaction which urges the packing element into sealing contact with the shell.

In testimony whereof I have signed my name to this specification.

JOHN R. L. SANTOS.

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