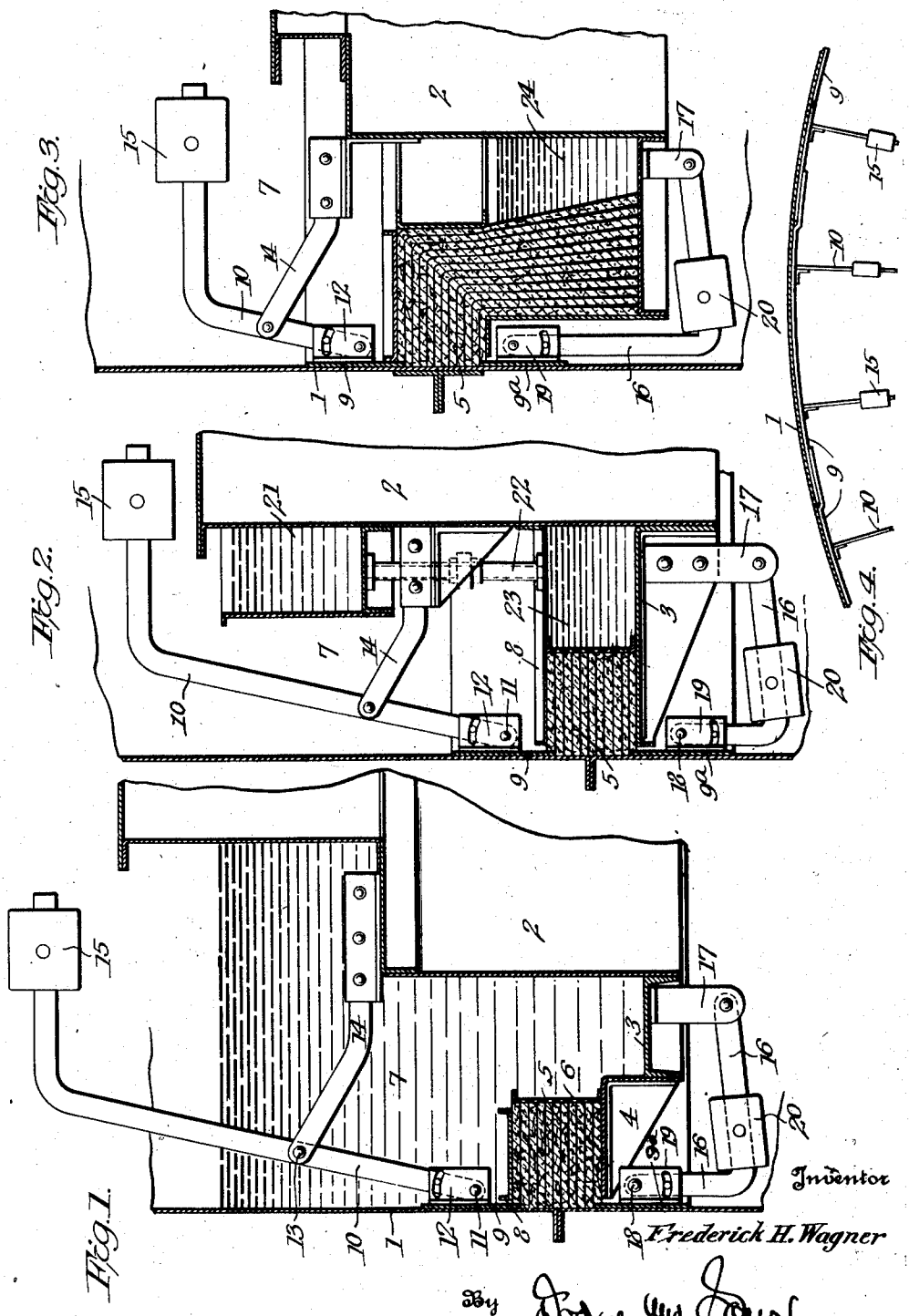
Nov. 25, 1930. F. H. WAGNER 1,782,949

GAS HOLDER

Filed Nov. 3, 1927



Patented Nov. 25, 1930 1,782,949

UNITED STATES PATENT OFFICE

FREDERICK HENRY WAGNER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE BARTLETT HAYWARD COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND

GAS HOLDER

Application filed November 3, 1927. Serial No. 230,868.

This invention pertains to gas holders and more particularly to that type commonly known in the art as waterless gas holders. Such type of holder is set forth and claimed in the United States patent to Jagschitz, No. 1,275,696, dated August 13th, 1918.

The present invention has to do with a specific form of sealing means employed between the movable closure and the adjacent face of the wall of the body of the reservoir.

The invention, in a sense, is an improvement upon the constructions shown in my copending applications Serial Nos. 143,765 and 143,766, filed October 23, 1926. Said cases, in a generic sense, involve the use of capillary fibrous material designed to be carried by the movable closure and to be held in sealing relation to the adjacent face of the wall of the reservoir, means being provided for supplying a lubricating, sealing medium to such fibrous material.

The present invention embodies the same fundamental idea in conjunction with means to prevent the fibrous material, where it contacts the wall of the reservoir or holder, from curling or unduly bending as the closure moves upwardly or downwardly, as the case may be.

Several embodiments of the invention are shown in the accompanying drawings wherein,

Figures 1, 2 and 3 are sectional elevations of so much of the closure and the wall of the holder as is necessary to an illustration of the invention, the difference between the structures lying primarily in the means for supplying the sealing, lubricating medium to the fibrous sealing material, and

Figure 4 is a top plan view of a portion of the means employed for forcing the rubbing bars outwardly against the holder wall, said bars likewise preventing curling or turning of the ends of the sealing material as above noted.

In the drawings, having reference more particularly to Figures 1 and 4, 1 denotes the wall of the body of the gas holder and 2 the movable closure or piston-like member, the latter being somewhat smaller in diameter than the internal diameter of the shell of the holder.

Secured to the lower portion of the closure is a rigid outwardly extending structural element 3 which forms the support for a bracket or shelf 4 which extends entirely around the closure. Resting upon the bracket is a plurality of layers of fibrous material such as felt and indicated by 5. These layers, preferably break joint at their ends as they extend around the holder. At their inner ends they are backed up by a perforate annulus 6, which, together with the member 3, the bracket 4, and the wall of the closure 2, form a pocket 7 for the reception of the lubricating material such as oil of the proper viscosity.

Overlying the fibrous elements 5 is a member 8 which acts to hold the fibrous elements in position. This member of course extends entirely around the closure.

As will be seen, the upper and lower layers of the sealing element do not extend outwardly into contact with the inner face of the wall of the holder and associated with said relatively narrow upper and lower elements is means to prevent curling of the layers as the closure moves upwardly and downwardly within the shell. In connection with the upper portion I provide a series of plates 9 formed of metal having a certain degree of flexibility, which plates, as will be seen upon reference to Figure 4, have their ends off-set and stand in overlapping relation. The lower edges of said plates extend downwardly past the outer edge of the uppermost layer of felt or fibrous material. Said plates are urged outwardly into contact with the wall of the holder by a lever 10, the lower end of which is pivotally connected as at 11 to a bracket 12 secured to the plate. The lever is fulcrumed as at 13 to an arm 14 rigidly secured to the closure 2, the lever at its upper end being provided with a weight 15 through the adjustment of which requisite pressure may be exerted upon the plate 9 to force the same outwardly.

A second and duplicate series of plates of like form and arrangement, as the plates 9, one of which plates of the second series is

designated 9ª for the sake of clearness, is positioned below the bracket, the upper edges of the plates extending upwardly beyond the outer edge of the lowermost layer of felt, said plates being urged outwardly against the wall of the holder through any suitable mechanism. In the present instance, I have shown a lever as 16 fulcrumed at its inner end to a downwardly extending bracket 17, the lever at its opposite end being upturned and fulcrumed at 18 upon a bracket 19 secured to the plate.

A weight 20 adjustably mounted upon the lever 16 tends to rock the lever and to force the plate 9ª outwardly into contact with the wall of the holder.

From the foregoing it will be seen that the plates 9 and 9ª prevent the outer edges of the fibrous material from curling upwardly or downwardly as the closure rises or falls.

In Figure 2 the same general arrangement as to the means employed for preventing the curling of the edges of the felt is illustrated but in this instance the oil is fed from a separate tank 21 through a pipe 22 into a chamber 23 which is formed in rear of the felt or fibrous closure. Parts which are duplicated in Figures 1 and 2 are similarly lettered.

In Figure 3 the same arrangement of plates for preventing the curling of the felt sections is shown but the felt sections in this instance are much wider and their inner portions are down-turned and extend into a reservoir 24 filled with the proper lubricant.

It is of course conceivable that insofar as the generic invention is concerned a single layer of fibrous material, provided it be thick enough, might be employed in conjunction with the plates, hence the invention is not to be limited to a sealing medium formed of a plurality of elements.

The use of a plurality of layers is, however, advantageous over a single layer particularly where bolt heads or rough places may protrude from the inner face of the wall of the shell; the plurality of layers will move over such projections with greater facility and without leaving any opening through which the gas may escape.

What is claimed is:

1. In a waterless gas holder the combination of a shell; a movable piston-like closure located therein; an absorptive sealing medium carried by said closure and contacting the inner face of the shell; means for holding a body of liquid in contact with the inner portion of the sealing medium and by which latter the liquid is carried outwardly into contact with the inner face of the shell; and means cooperative with the upper and lower faces of said medium and at its outer edge to prevent displacement or curling of the same as the closure moves up or down.

2. A waterless gas holder as set forth in claim 1 wherein the means cooperative with the sealing medium comprises a series of flexible plate-like elements urged outwardly into contact with the wall of the holder shell.

3. In a waterless gas holder the combination of a shell; a movable piston-like closure therefor; an absorptive sealing medium carried by and surrounding the closure; means for holding a body of liquid in contact with the inner portion thereof; a series of plates extending around the inner face of the holder, the ends of the plates overlapping, with the edges of said plates contacting the adjacent face of the sealing medium; and means acting to force said plates into face-wise contact with the inner face of the wall of the holder.

4. In a waterless gas holder the combination of a shell; a movable piston-like closure therefor; a fibrous sealing medium carried by and surrounding the closure, said medium being produced from a plurality of superimposed felt layers; means for holding a body of liquid in contact with the inner portion thereof; a series of plates extending around the holder above and below said felt layers, the ends of the plates overlapping and the edges of said plates contacting the adjacent face of the sealing medium where it bears against the inner face of the wall of the holder; and means acting to force said plates into face-wise contact with the inner face of the wall of the holder.

5. In a waterless gas holder the combination of a shell; a movable piston-like closure located therein; an absorptive sealing medium formed from a plurality of superimposed layers carried by said closure, the outer face of said sealing medium contacting the inner face of the shell; means for holding a body of liquid in contact with the inner portion of the sealing medium; and means cooperative with the upper and lower portions of said medium at its outer edge to prevent displacement or curling of the same as the closure moves up or down.

6. In a waterless gas holder the combination of a shell; a movable piston-like closure located therein; an absorptive sealing medium extending around the closure, the outer face of said medium contacting the inner face of the shell; means for holding a body of liquid in contact with said sealing medium; and means cooperative with said medium at its outer edge to prevent displacement or curling thereof during movement of the closure.

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

FREDERICK HENRY WAGNER.