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H. WEICHSEL
GASOMETER CONSTRUCTION

2,194,581

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FIG. 2.

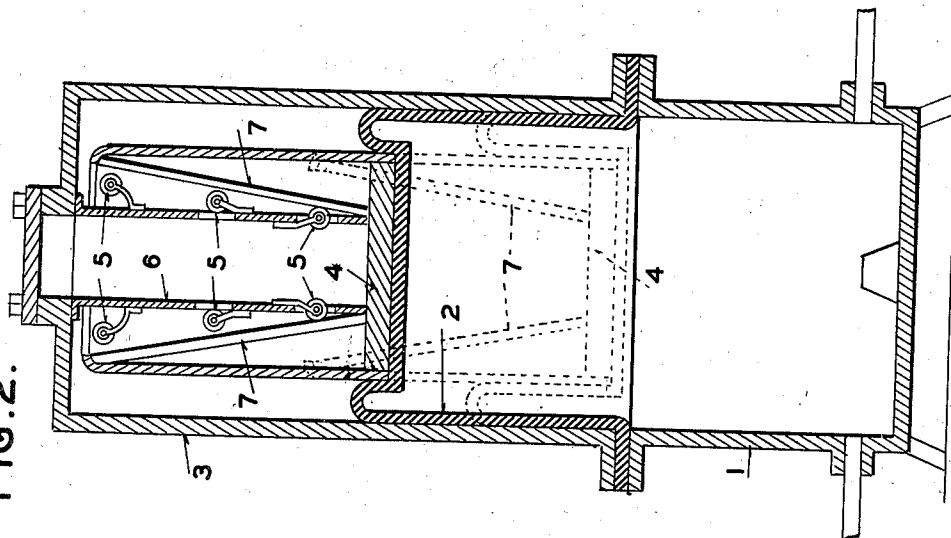
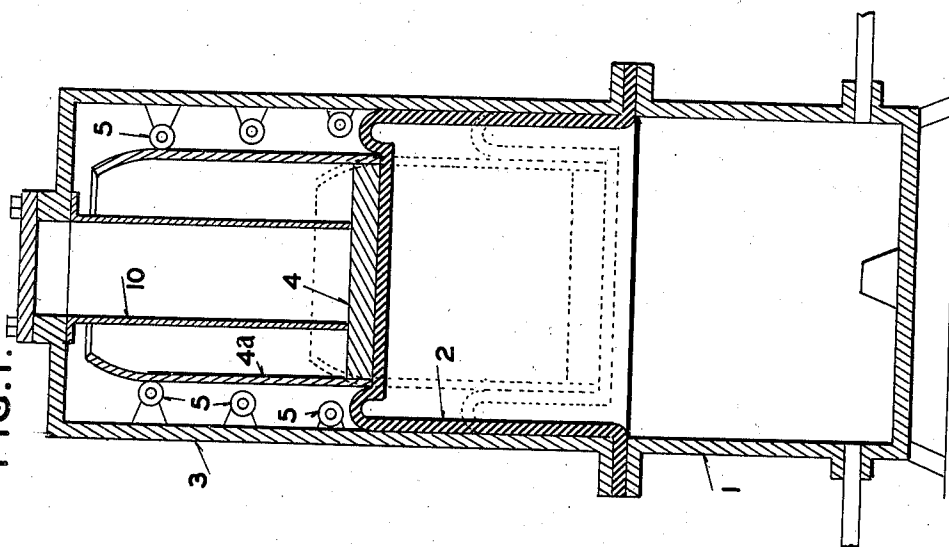


FIG. 1.



INVENTOR.
HANS WEICHSEL
BY *E. E. Huffman*
ATTORNEY.

UNITED STATES PATENT OFFICE

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GASOMETER CONSTRUCTION

Hans Weichsel, Webster Groves, Mo., assignor to
Wagner Electric Corporation, St. Louis, Mo.,
a corporation of Delaware

Application May 27, 1937, Serial No. 145,091

1 Claim. (Cl. 220—85)

My invention relates to gasometers for use in supplying inert gas to transformers and other sealed fluid containers, the general construction of the gasometer and its relation to other apparatus and with gas supply control means being illustrated in my co-pending application Serial No. 144,321.

The present invention is concerned with means for preventing tilting of the weight element of a gasometer of the type described in my aforesaid co-pending application and which comprises a gas chamber partly formed by a flexible inflatable bag on the upper surface of which a weight element is carried, and a protective casing element in which the weight and bag are moved during operation.

In gasometers of this type it is important that the weight element embody a cylindrical upwardly extending part, the outer surface of which forms a support for a part of the outer surface of the torus portion of the bag which is formed and exists in the various operative positions. The provision of this portion raises the center of gravity of the weight as a whole above the bottom of the weight which contacts with the upper surface of the bag, and the higher the center of gravity, the greater the tendency of the weight to tilt out of the desired horizontal position. In gasometers of relatively small height in relation to the capacity, the supporting extension of the weight referred to can be of such length that even in the fully inflated condition of the bag it does not extend much above the torus, but where it is desired to employ gasometers of relatively small diameter and, therefore, of substantial height in order to secure the necessary gas chamber capacity, the weight extension must be of such length that when the bag is approaching its fully inflated condition, the center of gravity of the weight is high enough to result in undesirable tilting. The object of the present invention is to provide means for avoiding tilting of the weights in gasometers of the relative dimensions just described.

In the accompanying drawing Figure 1 illustrates an embodiment of my invention, and Figure 2 illustrates a modification thereof.

I have indicated the gas supply and discharge pipes of the gasometer, but have not shown either the apparatus to which the gasometers are connected or the gas supply control means as these form no part of the present invention and reference is made to my aforesaid co-pending application for illustration of a suitable gas supply and control apparatus and the relation of the

gasometer here described to apparatus in which a supply of inert gas is maintained under constant pressure throughout a wide range of temperature conditions of such apparatus.

Referring to Figure 1, the gasometer comprises a casing element 1, a flexible bag element 2, the edges of which are clamped between the casing element 1 and the upper casing element 3 receiving and forming a guide for the bag and weight element 4 throughout the major portion of the normal range of positions these parts occupy in operation of the apparatus. As indicated in the figure, the gas chamber formed by the casing element 1 and the bag 2 is relatively high in comparison with its width when the bag is fully inflated and also when it is only partially inflated, this relation of height to width being desirable when the question of floor space for the apparatus is a factor to be considered. In such design it is necessary that the extension 4a of the weight, which forms a support for the inner surface of the torus or annular portion of the bag throughout the range of its movement, be of a height approximately equal to the height of the bag when in fully inflated condition. Thus, the center of gravity of the weight member as a whole is sufficiently above the bottom of the weight that the tendency of the weight to tilt during movement of the bag would be substantial and, therefore, means are required to prevent this tilting. To secure this result I provide a plurality of spaced guide rollers 5 on the walls of the casing element 3 arranged in at least three spaced vertical rows, whereby tilting of the weight in any direction can be prevented.

It is advisable that the extension 4a of the weight be slightly conical and rounded at the upper end, as shown. It is also desirable that the distance of the guide rollers from the casing wall be progressively increased from the bottom upward in each series. By the arrangement indicated, if the weight in moving upwardly from its dotted line position, shown in Figure 1, tends to tilt, the lower roller against which it contacts will limit this tilting, but the lower series of rollers will form a guide space considerably larger in diameter than the diameter of the weight extension, whereby there will be no tendency to binding. As the weight rises, the middle series of guide rollers will cause the weight to assume a more nearly vertical position and the top series will, when reached, bring the weight to a substantially vertical position.

Figure 2 illustrates a modification of the apparatus just described in which, instead of being

mounted in the walls of the casing, the rollers are carried by a tubular member 6 attached to the top of the casing. The ballast weight is provided with at least three spaced roller guide rails 7 which are inclined from the vertical, as shown in the figure, whereby the same gradual restoring of the weight from tilted to perpendicular position during its rise, is brought about, as referred to in connection with the description of the apparatus of Figure 1.

In the apparatus described, the upper limit of movement of the bag and weight is determined by the tubular member 6 of Figure 2 or the cylindrical element 10 of Figure 1, these parts 6 and

10 each being attached to the top of the casing.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

In a gasometer comprising a flexible bag element, a weight element carried thereon, said weight having an upward extension, and a vertically spaced series of rollers cooperating with said weight element to prevent tilting of the weight during its upward and downward travel, the rollers of the lowest series defining a circle which is of different diameter than that of the circle defined by a higher series of rollers.

HANS WEICHSEL.