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J. MERCIER

2,399,879

ACCUMULATOR

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FIG. 1

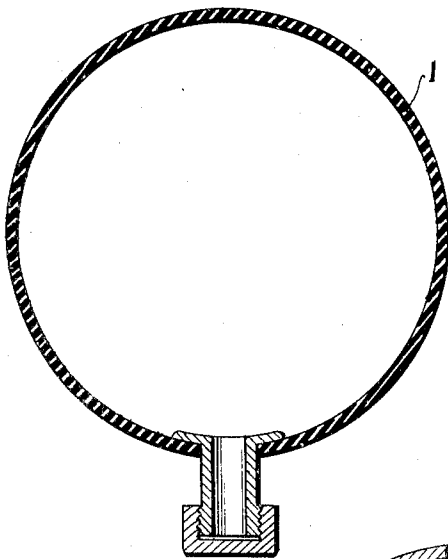


FIG. 2

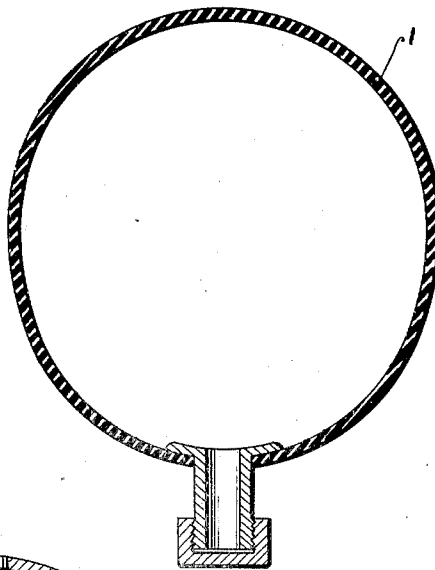
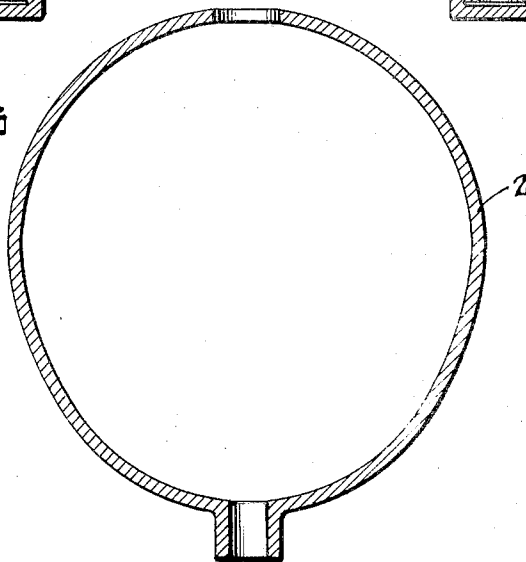


FIG. 3



INVENTOR.
Jean Mercier

BY
Howard J. Jeandron
ATTORNEY

UNITED STATES PATENT OFFICE

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ACCUMULATOR

Jean Mercier, New York, N. Y.

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3 Claims. (Cl. 138—30)

The present invention pertains to hydraulic accumulators and more particularly to a metallic container, in which an inflated bag is secured to one portion of said container—generally the upper portion—and a passage for fluid is provided in the opposite portion of the same.

With accumulators of that type disturbances have been observed when they were required to operate while inverted. In such inverted position it has been observed that delivery from the accumulator ceases although a considerable amount of liquid is still available in the container. This is believed to be due to the fact that the hydrostatic pressure causes an elongation of the bag so that it contacts and closes the passage for liquid provided in the container before all liquid is drained.

It is the object of the present invention to remove this shortcoming. To that end the container is made of a shape and size closely approaching that which a bag of the desired size and shape will assume when inflated to the limit of its flexible expansion and, then, immersed into the liquid to be stored.

Further features of the present invention will become apparent from the following description of an embodiment thereof given by way of example and illustrated in the accompanying drawing.

Fig. 1 is a cross sectional view of the bag when inflated.

Fig. 2 is a cross sectional view illustrating the form which bag 1 of Fig. 1 will assume when immersed in water; and

Fig. 3 is a cross sectional view of a container made according to the present invention.

The container 2 of Fig. 3 is shaped similar to the contour of bag 1 as shown in Fig. 2. The dimensions are determined by the bag so that it is in contact with the container when it is in the form shown in Fig. 2, contacting at the area adjacent the zone of securement and then progressively widening so as to leave a distance of approximately 2 mm. between bag 1 (in the condition of Fig. 2) and container 2 at the area opposite to the zone of securement.

The foregoing description is not intended to limit the present invention which extends to all changes, modifications and equivalents within the scope of the appended claims.

What is claimed is:

1. In a hydraulic accumulator for storing fluid under pressure which comprises a container, an inflatable spherical bag inside said container which is secured in an opening in the wall of said container, a port for fluid in the opposite por-

tion of said container to that to which the bag is secured, said container being pear shaped, the spherical bag when inflated to fully contact the walls of the container assuming a pear shape, the resistance to expansion of the wall of the bag in the smaller end of the container being greater than the resistance to expansion of the wall of the bag in the larger end of the container thereby serving to keep the bag as it expands or contracts in progressive contact with the walls of the container from the zone of attachment of the bag to the fluid port.

2. In a hydraulic accumulator for storing fluid under pressure which includes a container, an inflatable spherical bag inside said container which is secured in a lower opening in the wall of said container, a port for fluid in an opposite upper wall of the container, said container being shaped similar to the contour of said bag when inflated to the limit of its expansion when immersed in the liquid intended to be stored in said container which is generally pear shaped with the larger end upward, the spherical bag when inflated to fully contact the walls of the container assuming the same general pear shape, the bag expanding and deforming in a progressive fashion up and down with the egress or ingress of fluid under pressure through the said fluid port.

3. In a hydraulic accumulator for storing fluid under pressure which includes a container, an inflatable spherical bag inside said container which is secured in a lower opening in the wall of said container, a port for fluid in an opposite upper wall of the container, said container being shaped similar to the contour of said bag when inflated to the limit of its expansion when immersed in the liquid intended to be stored in said container which is generally pear shaped with the larger end upward, the spherical bag when inflated to fully contact the walls of the container assuming the same general pear shape, the bag expanding and deforming in a progressive fashion up and down with the egress or ingress of fluid under pressure through the said fluid port, the resistance to expansion of the wall of the bag in the lower end of the container being greater than the resistance to expansion of the wall of the bag in the upper end of the container thereby assisting the portion of the bag surrounding the fluid port to progressively leave the walls of the container during the ingress of fluid through the fluid port and to progressively meet the walls of the container during the egress of fluid from the fluid port.

JEAN MERCIER.