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C. A. CLEGHORN

SELF SEALING PETROL TANK OR OTHER CONTAINER

Filed July 9, 1919

Fig. 1.

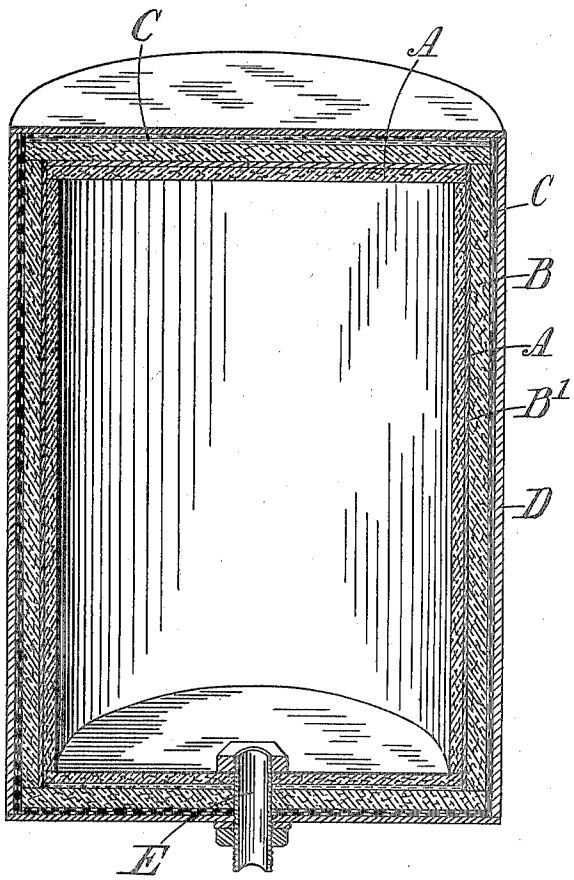
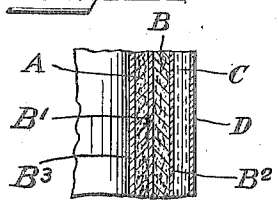


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES ANGUS CLEGHORN, OF WOBURN SANDS, ENGLAND.

SELF-SEALING PETROL TANK OR OTHER CONTAINER.

Application filed July 9, 1919. Serial No. 309,619.

To all whom it may concern:

Be it known that I, CHARLES ANGUS CLEGHORN, a subject of the King of England, residing at Woburn Sands, Bedford, England, have invented certain new and useful Improvements in Self-Sealing Petrol Tanks or Other Containers, of which the following is a specification.

This invention is for improvements in or relating to self-sealing petrol-tanks or other containers and has for its object to provide a container of this kind which may be inexpensive to manufacture and more effective than those at present in use.

According to this invention a container for fluids comprises a layer of flexible material (for example rubber) having a cellular face and a coating of Turkish birdlime on the cellular face, which coated face may constitute the inner surface of the container or may be covered with another layer of material.

Preferably the layer of material having the cellular surface is composed of sponge-rubber or other material which is cellular throughout. The cellular material may be maintained under pressure by an outer wrapping, for example of canvas, and if desired, it may be supported within by a lining of stiff material such for example as cork.

In the accompanying drawing, Figure 1 is a cross-section of one construction of petrol-tank according to the present invention, and

Figure 2 is a fragmentary section of a modified form of construction.

Like reference characters have been utilized to indicate like parts in both of the figures.

Referring first to Figure 1, the inner wall A is of cork to provide a supporting lining upon which the other layers can be built up. The tank is cylindrical in form and the cork may comprise one or more layers wrapped round a mandrel to provide a sleeve, and end discs are then applied to close the ends of the sleeve. Surrounding the cork is a layer of sponge-rubber B which is coated on its inner face with birdlime indicated at B^1. The sponge-rubber may be applied in a layer round the side walls and then end-caps placed in position to cover the ends, and the whole is held in position by a wrapping of canvas C. To give a finish to the tank and to provide a rigid exterior therefor, an outer casing of metal D is provided, which may be built up in any desired manner, one end being left open so that the container composed of cork, sponge-rubber and wrapping of canvas can be thrust into it, and then an end-cover soldered or otherwise can be secured over the open end. A connection is shown at E for a delivery-pipe.

Obviously the sponge-rubber may be coated on both sides with birdlime if desired, and the cork may be coated on the inner side with birdlime to render it non-porous. Such a construction is illustrated in Figure 2 in which the sponge-rubber has on its two faces layers B^1 and B^2 of birdlime, and the cork has on its inner face a layer B^3 of birdlime.

It will be appreciated that instead of sponge-rubber, other material such as woven fabrics made in such manner as to provide a cellular surface may be used to receive the coating of birdlime, the object being to provide a holding means for the birdlime, and the cellular structure affords such holding means. Similarly rubber could be used having a cellular surface and not made cellular throughout as will be readily understood. By a cellular surface, is meant such a surface as comprises cells or holes much larger than are present in the ordinary type of canvas or other fabric. In this latter the interstices between the strands or threads are too small to afford efficient holding means for the birdlime. Cells or holes of less than one-tenth or one-sixteenth of an inch will not in most cases be satisfactory.

The invention is not limited to petrol-containers but is applicable also to pneumatic tyres, the cellular surface of the material carrying the Turkish birdlime serving the same purpose therein, namely to keep the Turkish birdlime in place for sealing purposes. It has previously been proposed to use Turkish birdlime as a self-sealing means in tyres, where the inner surface of the said tyres was roughened to facilitate the application of the birdlime, but it has not been proposed to use a material having a cellular surface to retain said birdlime in place.

Obviously the stiff outer casing D may be dispensed with and also the stiff inner lining A is not essential, as although it is desired to have the layer B under compression, this being of sponge-rubber would be in any case

compressed by the outer wrapping of canvas provided a thick enough layer of rubber be employed to offer some resistance.

In operation the sponge-rubber tends to close up after a bullet has passed through it, and the birdlime completes the sealing.

The birdlime may be applied to the sponge-rubber under pressure to drive it as far as possible into the same, and obviously two or more layers of sponge-rubber with birdlime between them may be employed if desired.

The Turkish birdlime is preferably prepared for use either by the process described in the specification of United States patent Serial No. 268405 or by the process described in the specification of British Patent No. 758/1919.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A container for fluids comprising a layer of sponge rubber and a coating of Turkish birdlime disposed on the face of the rubber.

2. A container for fluids comprising a layer of sponge rubber and a coating of Turkish birdlime disposed on that face of the rubber which is directed towards the interior of the container.

3. A container for fluids comprising a layer of sponge rubber and a coating of Turkish birdlime disposed on the face of the rubber which coating is covered with another layer of material.

4. A container for fluids comprising a layer of rubber having a cellular face wherein the cells are much larger than in canvas of ordinary type and a coating of Turkish birdlime on the cellular face which coated face is covered with another layer of material.

5. A container for fluids comprising a layer of flexible material which is cellular throughout, and a coating of Turkish birdlime on both sides of said layer.

6. A container for fluids comprising a layer of sponge rubber which is cellular throughout and a coating of Turkish birdlime applied to both sides of the layer.

7. A container for fluids comprising a layer of flexible material having a cellular face of the character described, a coating of Turkish birdlime on the cellular face and an outer wrapping applied to the layer of flexible material to maintain it under pressure.

8. A container for fluids comprising a layer of flexible material having a cellular face of the character described, a coating of Turkish birdlime on the cellular face, an outer wrapping applied to the layer of flexible material to maintain it under pressure and an inner supporting lining of stiff material.

9. A container for fluids comprising a layer of flexible material having a cellular face of the character described, a coating of Turkish birdlime on the cellular face, and an outer canvas wrapping to maintain the flexible material under pressure.

10. A container for fluids comprising a layer of rubber having a cellular face, a coating of Turkish birdlime on the cellular face, an outer wrapping of canvas applied to the rubber to maintain it under pressure and an inner supporting lining of cork.

11. A container for fluids comprising a layer of rubber having a cellular face, a coating of Turkish birdlime on the cellular face, an inner supporting lining of cork, an outer canvas wrapping to maintain the rubber under pressure and a stiff protecting covering outside of the canvas.

12. A container for fluids comprising a layer of rubber having a cellular face, a coating of Turkish birdline on the cellular face, an inner supporting lining of cork, an outer canvas wrapping to maintain the rubber under pressure and a metal protecting casing on the outside of the canvas.

In testimony whereof I affix my signature.

CHARLES ANGUS CLEGHORN.