

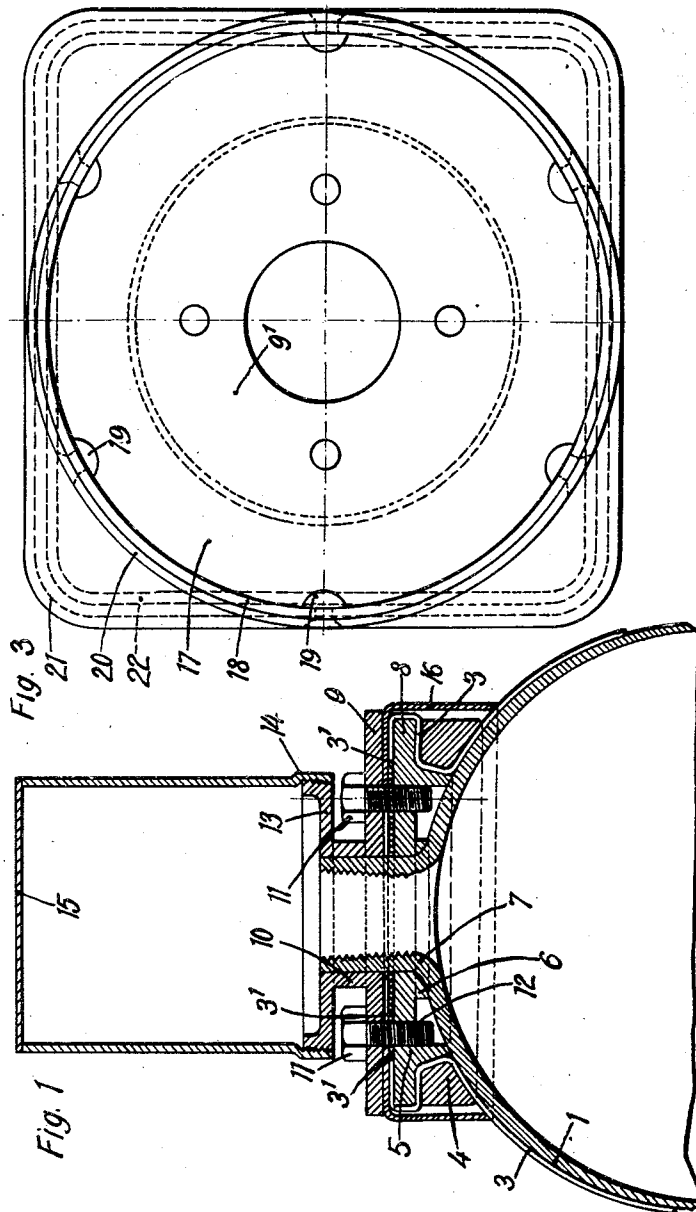
April 21, 1931.

C. DUMAT

1,801,910

REINFORCED GAS CONTAINER

Filed Jan. 3, 1929 2 Sheets-Sheet 1



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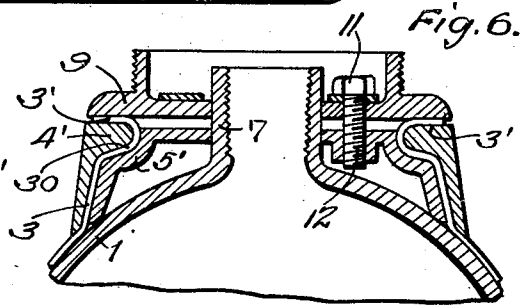
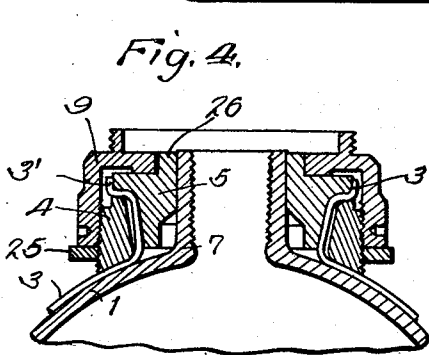
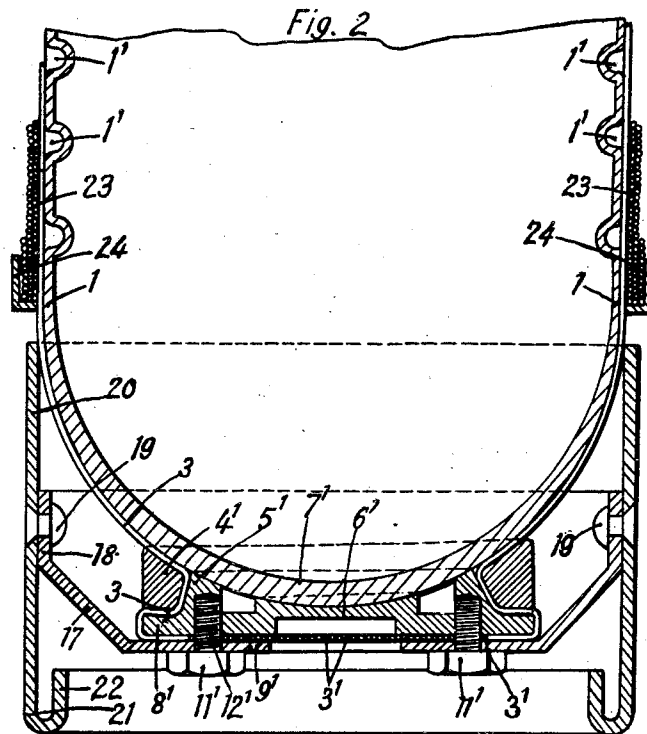
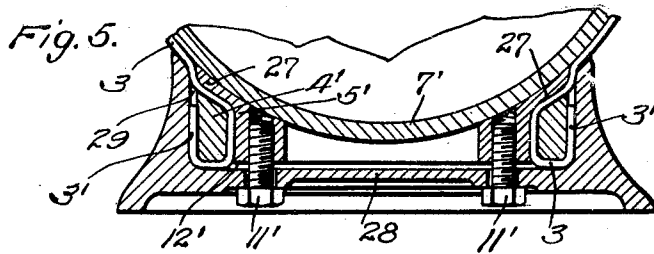
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UNITED STATES PATENT OFFICE

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REINFORCED GAS CONTAINER

Application filed January 3, 1928, Serial No. 330,082, and in France January 9, 1928.

The present invention relates to improvements in recipients adapted for the storage and the transportation of gas, and chiefly relates to recipients of this class which consist of a light expanding envelope, optionally corrugated, which is surrounded by longitudinal binding wires which are completed (or not) by transverse binding wires.

The improvements, the subject matter of the invention, relate essentially to the securing of the longitudinal binding wires upon the bottle or casing, and this operation is attended with great difficulties, since the wires, before being definitely secured in place, must be given the necessary tension to bind the apparatus. On the other hand, the bottles in general use have a cylindrical form and a hemispherical bottom, so that it becomes still more difficult to secure the said wires. It is also preferable to provide such bottles or casings with a square base of stamped sheet metal, whereby the bottles filled with gas are prevented from rolling when transported.

By the apparatus according to the present invention, all such drawbacks are obviated. At each end of the vessel or bottle, the longitudinal binding wires, cut to the proper length, are inserted between a ring-shaped female piece which is centered on the axis of the bottle and a male piece whose form corresponds to that of the female piece. The ends of said wires are brought against the lower part of said male piece and are held by a terminal member which is pressed against the male piece and holds the entire securing device in position.

At the lower part of the bottle, the terminal member consists of the central part of the square base which completes the vessel, and which is secured to said male piece by threaded bolts. The female piece may consist of two parts, for the proper insertion of the male piece, and these two parts are assembled by bolts and nuts, or are held together by a pressure collar or ring provided with bolts and nuts.

At the upper part of the bottle, and adjacent the neck, the terminal member consists of a cap which is mounted by tight friction

on the bottle neck, and upon which is screwed the cap of the recipient. The said cap is secured to the male piece by threaded bolts, or is held against the said male piece by screwing to the female piece which is in this case threaded, and is provided with a lock nut.

In certain constructional forms, the binding wires after traversing the female piece, may be brought upon the male instead of upon the female piece, in which case their ends are held between the female piece and the terminal member.

The accompanying drawings show various embodiments of the invention.

Fig. 1 is a lengthwise axial section of the upper part of a bound vessel according to one embodiment of the invention.

Fig. 2 is a lengthwise section of the lower part of the apparatus shown in Fig. 1.

Fig. 3 is a plan view of the lower part of the vessel shown in Figs. 1 and 2, with the vessel or main body removed.

Figs. 4 and 5 are views analogous to Figs. 1 and 2, showing the upper part and the lower part of a second construction.

Fig. 6 is a view analogous to Figs. 1 and 2, showing the upper and lower part of a third construction.

With reference to Figs. 1, 2 and 3, 1 is the bottle or main body of the recipient, which may comprise corrugations such as the transverse corrugations 1' and is surrounded by the longitudinal binding wires 3. The said wires 3, which are supposed to have been cut to the proper length, are placed against the main body of the bottle 1 and are disposed at the top of the bottle in the interior of a female piece 4 having a ring shape, and whose lower face has the form of the bottle against which it is applied. Into the piece 4 is inserted a male piece 5 whose external outline corresponds to the internal outline of the piece 4, said piece 5 comprising a central socket portion 6 by which it may be mounted on the neck 7 of the bottle, and it has a flat-surfaced flange 8 by which the wires 3 are applied upon the upper face of the ring 4. The wires 3 are applied upon the upper face of the ring 4. The wires 3 are then bent down at their ends 3' upon the upper flat surface of

the male piece 5, and are held in position by the cap 9, which is provided with a socket portion 10 by which it may be fitted by tight friction on the bottle neck 7, and may be held against the male piece 5 by the threaded bolts 11 screwing into the holes 12 in the piece 5. The socket 10 has a very wide flange 13 which is threaded at 14 and on which is screwed the cap 15 of the recipient. A protecting cap 16 may be placed upon the bottle neck, it being inserted between the ends of the wires 3' and the cap 9.

At the lower part of the bottle, the said wires 3, which are in constant contact with the body of the bottle, are brought into the interior of a ring 4' into which is fitted the male piece 5 which makes contact with the body of the bottle and comprises on the one hand a central part 6 for centering it on the bottom 7' of the bottle, and on the other hand—a flat flange 8' adapted to press the wires 3 against the lower face of the ring 4. The wires 3 are then bent over at 3' against the lower face of the male piece 5' and are held by the disk 9' which is secured to the piece 5' by the threaded bolts 11' engaging in the holes 12' in said piece. The disk 9' comprises a tapered flange 17, whose upper cylindrical part 18 is held by the rivets 19 to a cylindrical member 20, which is enlarged at its lower end so as to form a square bottom 21 provided with an internal flange 22. The arrangement consisting of the disk 9' and the cylindrical member 20 forms the bottom part or base of the recipient, as shown in Fig. 3.

As shown in Fig. 2, it is feasible to mount upon the longitudinal binding which consists of the wires 3, a transverse binding by the use of the wires 23, held by the collars 24.

In the construction shown in Figs. 4 and 5, it is observed that at the upper part, the female piece 4 is externally threaded, and that the cap 9 is screwed directly to said piece instead of being secured to the male piece 5 by bolts, said cap being held in place by a lock nut 25. The male piece 5 is fitted by tight friction to the neck 7 and comprises at the top a shoulder 26 upon which is centered the cap 9. The end 3' of the wires 3 is herein supposed to be stopped before attaining the upper face of the male member. The female member 4 may consist at will of one part or of two parts.

At the lower part, the male piece 5' must be put in place before the female piece 4'. The said male piece has an elongated upper flange 27 corresponding to the shape of the bottle and disposed above the upper surface of the ring 4, so that the wires 3 will be uniformly pressed between said face and the flange 27. The lower flange 8' and the part 6 are eliminated, and the wires 3, which are disposed against the lower face of the ring 4', then rise at 3' around the outline of the ring. They are held in position by the base part 28 which

is in this case made in a single piece and comprises an internal recess 29 corresponding to the external form of the ring 4', as shown in Fig. 5. The said base is secured to the male piece 5 by the bolts 11', as before.

In the constructions shown in Figs. 1 and 4, the longitudinal binding wire is brought to the upper part upon a small diameter, i. e. the smallest internal diameter of the ring 4, and thus at the level corresponding to this diameter, certain of the wires will necessarily overlap, and to hold them in the proper manner by pressure, it is quite necessary to provide grooves on the inner face of the wires forming an extra thickness. Such grooves have not been shown.

The securing device shown in Fig. 6 is much simpler than the preceding. At the upper part, the male piece 5 is fitted by tight friction upon the bottle neck 7. It has the form of a downwardly opening truncated cone and comprises a lateral recess 30; said piece is placed in position before the female piece 4' which has a corresponding tapered shape. The wires 3 which are held between the two pieces are bent down at 3' upon the upper face of the female piece 4'. The cap 9 is mounted on the male piece 5', as before, by means of threaded bolts 11. At the lower part, the male piece 5' has a small upper flange 27 by which it can be placed in position and adapted to the form of the bottle, as well as the corrugations 37 on its outer lateral face. The female piece 4' has an elongated upper external flange 32, which extends in contact with the wires 3 beyond the flange 27 of the male piece 5'. The said female piece 4' is made in two parts, connected together by the bolts and nuts 33, and it is outside the said male piece 5'. The base part has the same construction as in Fig. 3, except that the portion 17 is horizontal, and the said base is also secured as in the preceding case.

The constructional forms herein described, are given solely by way of example, in order to show the principle of the invention, whose general features were specified at the beginning of the description. It is also feasible to mount upon the longitudinal binding arrangement thus constituted, suitable transverse binding wires, without departing from the spirit of the invention.

Claims:

1. An improvement in the securing of the longitudinal binding wires in the bound recipients adapted for the storage and the transportation of gas, which is characterized by the passing, at each end of the bottle or recipient, of the longitudinal binding wires, cut to the proper length, between a female piece in the form of a ring centered on the axis of the bottle and a male piece fitting upon the form of the female piece, the ends of the wires being brought down against the base of said male piece or of said female piece

and being held by a terminal member which is pressed against one of said pieces and assures the maintenance in position of the whole securing device.

5 2. An improvement, as claimed in claim 1, in which, at the end next the base of the bottle, the terminal member consists of the central part of the square foot completing the construction of the recipient and is secured

10 to the male piece by means of threaded bolts.

3. An improvement, as claimed in claim 1, in which, at the end next the top of the bottle, the terminal member consists of a cap fitted by force upon the neck of the bottle and

15 on which is mounted the cap of the recipient and which is secured to the male piece by means of threaded bolts.

4. An improvement, as claimed in claim 1, in which, at the end next the top of the bottle, the male piece has a lateral recess in

20 which the female piece applies the binding wires, which are thus bent upon the upper face of the female piece.

In testimony whereof he has signed this

25 specification.

CLÉMENT DUMAT.

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