Jan. 19, 1926. 1,570,128

H. G. CARTER

PROCESS OF MAKING WATER BAGS

Filed June 28, 1924 2 Sheets-Sheet 1

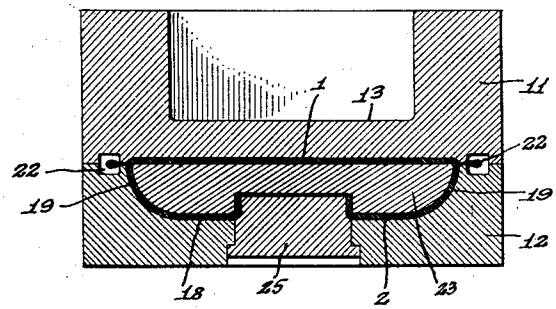

Fig. 3.

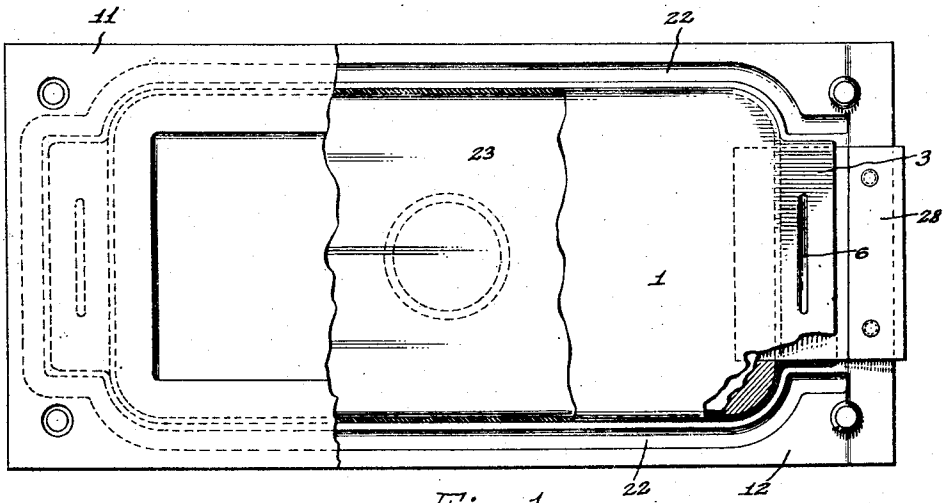

Fig. 1.

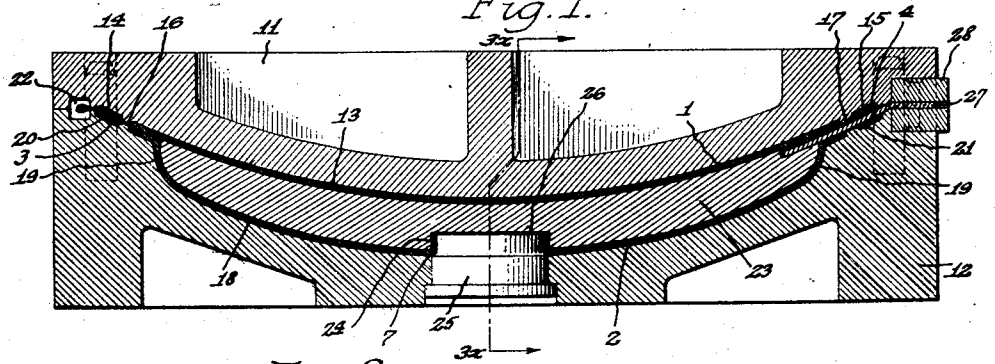

Fig. 2.

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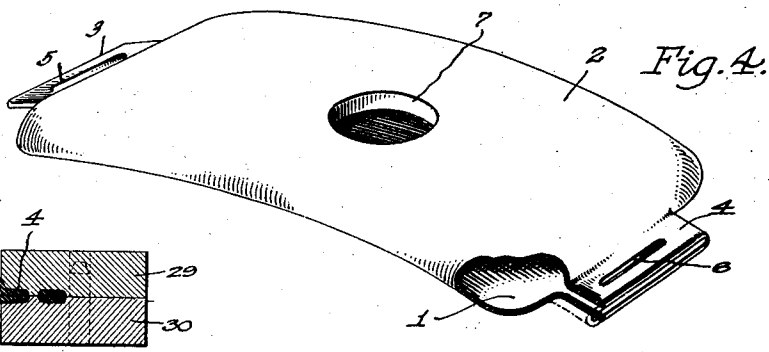

Fig. 4.

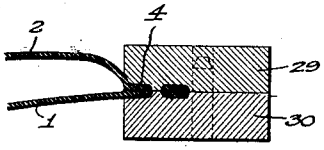

Fig. 8.

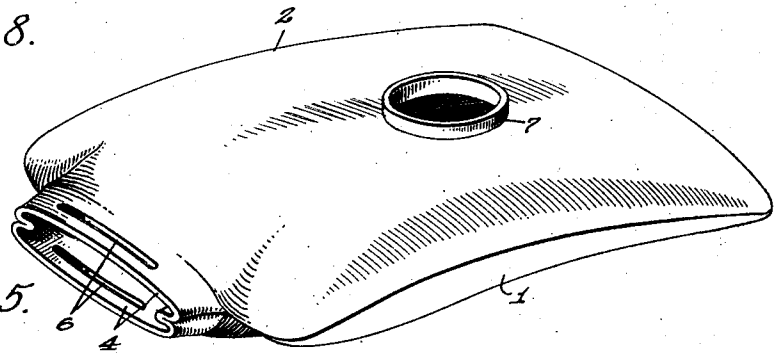

Fig. 5.

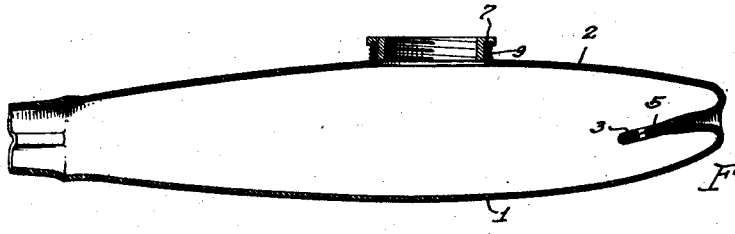

Fig. 6.

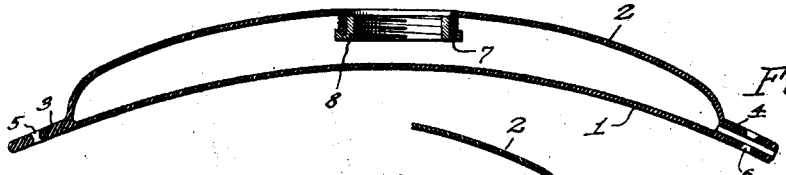

Fig. 7.

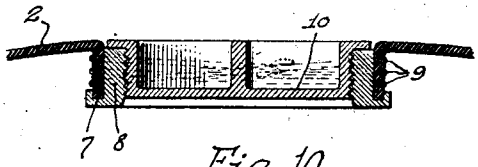

Fig. 10.

Fig. 9.

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Patented Jan. 19, 1926. 1,570,128

UNITED STATES PATENT OFFICE.

HOWARD G. CARTER, OF DETROIT, MICHIGAN.

PROCESS OF MAKING WATER BAGS.

Application filed June 28, 1924. Serial No. 722,940.

To all whom it may concern:

Be it known that I, HOWARD G. CARTER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Processes of Making Water Bags, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to the production of water bags of rubber and a similar flexible molded or pressed material having for its object to produce a bag having novel features of construction hereinafter explained and to effect this production in a manner well adapted for the purpose and facilitating the attachment of a filler ring in an internally arranged manner thereby lending itself to the provision of a water bag which will be free from externally projecting inserted or rigid parts which would otherwise be an encumbrance thereon.

A further object is to provide, in the molding of a water bag, for the supporting of a core in a manner assisting in the formation of internally projecting means, for the reception of a filler ring; and a still further object is to provide for the additional supporting of the bag in a manner preventing the angular movement of the said core in respect to the support thereof referred to, and by the passage of auxiliary supporting means through a handle portion of the bag being molded which handle portion is afterwards closed.

It is also an important object of the said invention to provide for the molding of one of the handles of the hot water bag in a temporarily tubular manner in order to facilitate the turning inside out of the bag for the attachment of parts to the interior thereof and to effect the closing and sealing of said tubular handle after the attachment of such parts and the turning of the bag back to its normal position; and still further objects subsidiary to and resulting from the aforesaid objects, or from the construction or operation of the invention as it may be carried into effect will become apparent as the said invention is hereinafter further disclosed.

In carrying the said invention into effect, I may provide a mold having upper and lower parts formed to conform to the shape of the opposite sides of an approximately oblong water bottle with handles at its ends and bowed in its length whereby it may be effectively applied to the body of a wearer and conform to the shape of the said body, a core conforming to the internal shape of the said bag and provided with recesses on its under side into which extends a supporting projection on the lower part of the said mold of smaller diametrical dimension than the said recesses to admit of the molding, between said support and said core, of an inwardly extending annular flange, and an extension on the end of said core passing through the handle-forming parts of the mold at one end thereof, said extension being held between the parts of the mold, whereby an auxiliary support of the core is obtained and a tubular handle may be produced from the mold. All of which is more particularly described and ascertained, by way of example, having reference to the accompanying drawing, wherein—

Figure 1 is a plan of a mold, part of the cope being broken away to show the bag and parts of the bag and core being also broken away to illustrate the relationship of the several parts;

Figure 2 is a vertical longitudinal section of the same;

Figure 3 is a transverse section taken on the line $3^{\times}$—$3^{\times}$ Figure 2;

Figure 4 is a broken perspective detail view of the bag in its moulded condition;

Figure 5 is a perspective view of the same after being reversed;

Figure 6 is a longitudinal vertical section of the same in the reversed condition and with the filler ring applied thereto;

Figure 7 is a similar section of Figure 6 the bag being again turned to its normal condition;

Figure 8 is a detail sectional view showing the method of closing the outlet of the bag during vulcanizing.

Figure 9 illustrates in section the same part of the bag vulcanizing, and

Figure 10 is a detail sectional view of the filler ring and closure.

Similar characters of reference indicate similar parts in the several figures of the drawings.

The mold illustrated in the drawings is shown as being adapted to production of a

water bag of an approximately oblong configuration and bowed in its length, 1 being the face of the bag and 2 the back of the same, the said bag having its marginal portion turned inwardly towards and integrally joining the said face of the bag, 3 and 4 are handles extending from the ends of the said bag and provided with orifices 5 and 6 to facilitate the strapping of the said bag to the body of a wearer or to serve any other practical purpose such as a means for carrying the bag. The bag is also provided preferably in the center of the back thereof with an inwardly turned annular flange 7 about an opening forming an entrance to the bag which flange receives and supports a threaded ring 8 which is secured in position by the binding of the said flange thereon with wire or cord 9. 10 is a plug or closure for the filler ring 8 and is preferably designed to terminate flush with or below the level of the back 2 of the water bag so that it will not form an encumberance when in use.

In producing the said bag I may use a mold of the nature illustrated in which 11 is the upper part of the mold and 12 the lower part thereof, the said upper part being provided with a curved face 13 having a shallow depression therein conforming to the shape of the face of the bag and also with handle forming depressions 14 and 15 in which are located projections 16 and 17 corresponding to the orifices 5 and 6 of the handles of the bag. The lower part of the mold is recessed to a much greater extent to form a bowed face 18 having the marginal parts thereof 19 turned upwardly to the marginal parts of the depression forming the face of the bag and this is also provided with handle forming depressions 20 and 21 coincident to the depressions 14 and 15 of the upper part of the mold. 22 in an overflow channel extending around the greater part of the mold in the manner well known in this art.

23 is a core having a shape conforming to the inner space of the water bag and in the production of the said bag the said core is interposed betwten two sheets of rubber or rubber compound of suitable size and configuration, the parts of the mold being brought together as will be well understood to effect the required shaping of the rubber and the cohesion of the sheets to form an integral connection therebetween around the margins of the core and in the handles of the bag except as hereinafter explained.

The underside of the core 23 is provided with a cylindrical recess 24 into which enters a plug 25 fixed in the base of the lower part 12 of the mold, the said plug being of smaller diameter than the said recess whereby the rubber compound is formed therebetween into an annular flange 7 extending inwardly of the bag. 26 indicates a thin web of the rubber compound which may be permitted to remain between the top of the plug 25 and the bottom of the recess 24 in the molding operation, which web can be cut away or otherwise removed from the bag after the molding operation has been completed and the bag lifted from the mold.

At one end of the said core 23 is an extension 27 which passes between that part of the mold forming one of the handles and thereby cores out this handle leaving it in tubular formation as indicated in Figures 4 and 7, this extension forming an auxiliary support for the said core 23 and being attached to a block 28 which is clamped between the upper and lower parts of the mold when the same is in use. It will be seen that, in addition to forming a support for the core, the said extension 27 also ensures an opening in the handle 4 for the extraction of the core by or prior to the reversal of the bag, thus permitting the said bag to be removed from the said core and turned inside out, when the said bag will have the appearance indicated in Figure 5 of the drawings from which it will be seen that the flange 7 is then exterior to the bag and is thus adapted to receive the threaded filler ring 8 as indicated in Figure 6. The said flange is then suitably bound to the filler ring such as by means of a wire winding 9. The operation of applying the filler ring to the bag can be much more readily effected in this manner than would be the case were it necessary to attach it from the inside of the bag without reversal.

After this latter operation the bag is again reversed, bringing it back to its normal condition illustrated in Figure 7, following which the tubular handle is closed by pressure such as by means of members 29 and 30, shown in Figure 8, and vulcanized forming a closed handle as indicated in Figure 9 and completing the molding operation.

The result is a seamless water bag free from external inflexible projections, having a substantial filler opening therein for the entrance of water thereto, and being of a shape adapted for the purposes to which such a water bag may be applied; and the production of such a water bag is very simply effected, the various operations necessary thereto being capable of being carried out in a very convenient manner with complete access to all the parts requiring attention.

It will be further apparent that the provision of means ensuring an opening in the handle for the purpose of reversing the bag, in the course of its manufacture, will not involve complicating the mold inasmuch as the securing of this opening is effected by means forming the support for the core.

This invention may be developed within the scope of the appended claims without

departing from the essential features of the invention, and it is desired that the specification and drawings may be read as being merely illustrative and not in a limiting sense, except as necessitated by the prior art.

What I claim is:—

1. In the manufacture of water bags, apparatus comprising a mould adapted to produce a bag having an end handle, a core within said mould, a core supporting plug on said mould entering a larger recess in said core whereby an annular inwardly flanged filler opening is formed in said bag, and an auxiliary supporting extension on said core, said extension rendering the said handle tubular to form a temporary opening through which said bag may be reversed and thereafter restored to a normal non-reversed condition.

2. The method of manufacturing a water bag which consists in the moulding of a bag with an annular inwardly flanged filler opening in one side thereof and a temporary opening in the end of said bag, reversing said bag through said end opening, attaching a filler ring to the flange of said filler opening, restoring the bag to normal non-reversed condition through said end opening, and thereafter sealing said end opening.

3. The method of manufacturing a water bag which consists in the moulding of a bag with an annular inwardly flanged filler opening in one side thereof and a tubular handle on said bag, reversing said bag through said tubular handle, attaching a filler ring to the flange of said filler opening, restoring the bag to normal non-reversed condition through said tubular handle and thereafter sealing said opening.

4. In the manufacture of a water bag, a moulded body of rubber compound comprising a reversible bag having a temporary opening in one end and a filler opening in one side, said filler opening being provided with a marginal inwardly turned annular flange for the purpose specified.

5. In the manufacture of a water bag, a moulded body of rubber compound comprising a reversible bag having a temporarily tubular handle, and an inwardly flanged opening in one side of said bag, as and for the purposes specified.

6. The process of making water bags wherein upper and lower sheets of rubber compound are compressed about a core within a mould to form said sheets into a hollow bag having a tubular end handle, reversing the bag through the tubular handle, attaching parts to the inner surface of the bag exposed by such reversal, restoring the bag to its normal non-reversed condition, and sealing the tubular handle.

7. The process of making water bags wherein upper and lower sheets of rubber compound are compressed about a core within a mould to form said sheets into a hollow bag having a tubular end handle and an annular inwardly flanged filler opening, reversing the bag through said tubular handle to expose said flanges, attaching a filler ring to the flange of said filler opening, restoring said bag to its normal non-reversed condition, and sealing the tubular handle.

8. The process of making water bags wherein upper and lower sheets of rubber compound are compressed about a core within a mould to form said sheets into a hollow bag, having end handles, supporting said core by means of a plug in said mould entering a larger recess in the underside of said core whereby an annular inwardly flanged filler opening is formed in said bag and temporarily reversing said bag during application of a filler ring to said flange.

9. The process of making water bags wherein upper and lower sheets of rubber compound are compressed about a core within a mould to form said sheets into a hollow bag having a tubular end handle supporting said core by means of a plug in said mould entering a larger recess in the underside of said core whereby an annular inwardly flanged filler opening is formed in said bag, temporarily reversing said bag through said tubular handle, applying a filler ring to said flange, and sealing said tubular handle after restoring said bag to its non-reversed condition.

In testimony whereof I affix my signature.

HOWARD G. CARTER.