Oct. 15, 1957 C. BRAMMING 2,809,745

PACKAGE UNIT FOR VACUUM BOTTLE COMPONENTS

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Fig. 1

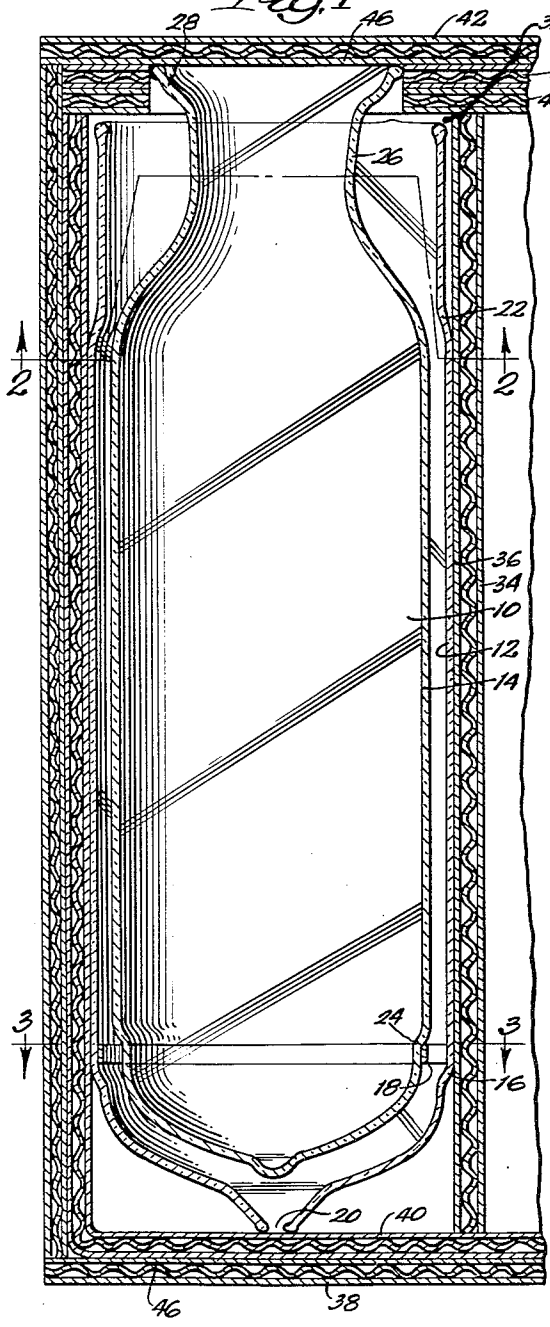


Fig. 2

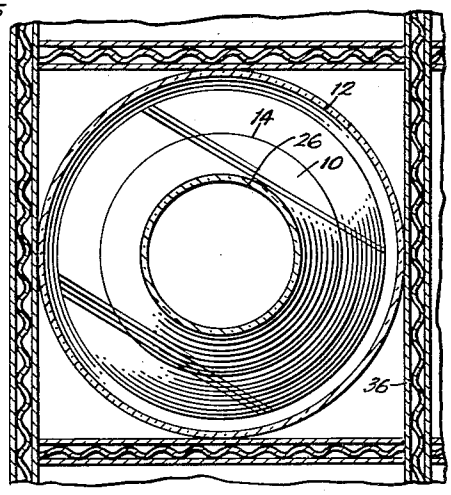
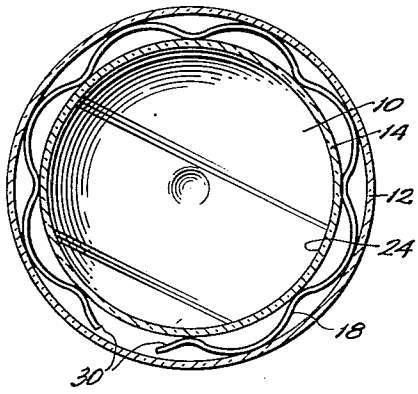


Fig. 3



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PACKAGE UNIT FOR VACUUM BOTTLE COMPONENTS

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1 Claim. (Cl. 206—46)

This invention relates to improvements in the construction, packaging and assembling of vacuum bottles.

The present day method of constructing and assembling vacuum bottles is substantially as follows. The vacuum bottles before packaging and assembling are made up in two separate parts; an inner substantially cylindrical glass wall and an outer substantially cylindrical glass wall. Economically it has been found that it is less expensive to have these parts of the vacuum bottle made by manufacturers specializing in glass products. Accordingly, when the separate glass walls have been formed by methods well known in the art, they are usually packaged in an "egg crate" type of package and shipped to the company manufacting the vacuum bottles. The inner wall is usually shipped in one package and the outer wall is usually shipped in another separate package in order to prevent breakage of the fragile walls. Consequently, the cost of packaging and shipping these units is quite substantial in relation to the complete cost of the vacuum bottle.

Applicant departs from this practice by permitting the inner wall to be placed within the outer wall and within one package when the units are packaged and shipped. This can be done, without breaking the fragile walls, by inserting a novel resilient spacer ring which keeps the walls in spaced apart relation after the units have been packaged, while they are in transit and after they have been formed into a finished vacuum bottle. By thus being able to insert the cylindrical inner wall into the outer cylindrical wall, in the same package, the material necessary for packaging the units is reduced to half. Another advantage is a reduction of cost of shipping because half as many packages are necessary.

It is also possible by employing this new method for packaging vacuum bottles to reduce the cost of manufacturing the two walls into a unitary vacuum bottle. Under present day methods, after the various packages housing the separate inner and outer walls have been received at the manufacturing plant and uncrated and assembled, resilient spacers are generally interposed between the walls to prevent movement of the walls relative to each other after they have been formed into a unitary vacuum bottle. Thus by using the novel spacer ring, the walls need only be packaged and assembled once which, of course, reduces the total cost of manufacturing the finished unitary vacuum bottle.

A general object of this invention, therefore, is to provide a new method for constructing and packaging the glass walls of vacuum bottles.

Another object of this invention is the provision of a novel type of spacer ring between the glass walls of a vacuum bottle.

Still another object of this invention is to reduce the cost of packaging and shipping separate glass walls for vacuum bottles by providing a method whereby the separate walls of the vacuum bottle may be packaged and shipped as a unit.

Another object of this invention is to provide a new and improved vacuum bottle which is simple to construct, and economical to manufacture.

The novel features which are believed to be characteristic of the invention are set forth with particularity in the appended claim. The invention itself, together with further objects and advantages thereof, will best be understood by reference to the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 is an axial cross sectional view of an incompletely formed vacuum bottle packaged in accordance with the principles of the present invention;

Figure 2 is a cross sectional view taken on line 2—2 of Figure 1; and

Figure 3 is a cross sectional view taken on line 3—3 of Figure 1.

Referring now to the drawings, the numeral 10 generally designates the incomplete form of a vacuum bottle embodying the principles of the invention. The vacuum bottle 10 comprises an outer substantially cylindrical wall 12 and an inner substantially cylindrical wall 14 constructed of glass or any similar composition. The outer wall 12 and the inner wall 14 are manufactured separate and independent of each other by methods well known in the art.

Generally the outer wall 12 is of the same construction and configuration whether it is desired to make a standard mouth vacuum bottle or a wide-mouth vacuum bottle. The outer wall 12, throughout the larger part of its length, is substantially cylindrical except near the bottom of the wall, where an inturned shoulder 16 is provided which is adapted to support the new spacer ring 18. The outer wall 12 is also provided with an open tubulation 20 at its bottom to permit evacuation of air after the walls 12 and 14 have been fused and closed at their top. The outer wall 12 preferably has a small reduced neck portion 22 to provide additional area for the necessary surrounding members (not shown) which protect the vacuum bottle after it has been completely formed into an integral unit.

The inner wall 14 also is generally cylindrical throughout most of its length. An inturned shoulder 24 has been provided near its bottom and adjacent to the shoulder 16 of the outer wall 12. The underside of the shoulder 24 is designed to rest upon the spacer ring 18 and cooperate with the shoulder 16 of the outer wall 12 to prevent the spacer ring 18 from relative movement. The inner wall 14 is generally closed at its bottom as shown in Figure 1.

The inner wall 14, at its uppermost part, can have a greatly reduced neck portion 26 to form a standard mouth vacuum bottle. The upper portion of the interior wall 14 terminates in an elongated annular flange 28 the lower part of which is fused to the outer wall 12 by heating the flange 28 together with the uppermost portion of the outer wall 12 to form an impervious lip (not shown). The outer portion of the flange 28 is ordinarily cut off.

This method is well known in the art. Of course, if it is desired to make a wide-mouth vacuum bottle in contradistinction to a standard mouth vacuum bottle as shown in Figure 1, the reduction of the neck portion 26 of the inner wall 14 would not be as great and would depend directly upon what diameter size of mouth is desired. This invention encompasses either the use of an inner wall 14 which is used to make a standard mouth or a wide-mouth vacuum bottle.

The spacer ring 18 with which it is desired to keep the walls 12 and 14 in a spaced apart relation, when the two walls are packaged and during the life of the vacuum bottle, is preferably of a curved, undulated or scalloped design. The ring 18 is preferably made of a resilient metal and is not continuous but has a gap between its

terminal ends **30**. The purpose of making the ring **18** non-continuous is to permit flexing of the ring in the event that lateral or axial forces or stresses and strains are imparted to the ring by either of the walls **12** or **14** when the walls **12** and **14** are packaged or when the vacuum bottle is in use after the vacuum bottle has been completely formed.

For ease and economy in packaging, the incomplete vacuum bottle unit **10** is preferably placed into a multicellular type of package. Figure 1 shows one of the cells of such a package which is generally indicated by the numeral **32**. The cell **32** is preferably made of a stiff paper substance having side walls **34** and **36**, bottom walls **38** and **40** and top walls **42** and **44**. These walls are generally filled with a soft yieldable material **45** such as corrugated paper, or the like, to protect the fragile incomplete vacuum bottle **10** when the units are packaged and while they are in transit. This type of package is well known in the art.

Method of packaging

As stated heretofore, it is common practice to place the outer glass wall **12** in one package and the inner glass wall **14** in another package and then ship the units separately to the place of manufacture where the walls **12** and **14** are removed and manufactured into an integral formed vacuum bottle. This method of packaging was necessary because no method of packaging or inexpensive form of construction had been found heretofore which permitted the interior wall **14** to be inserted into the exterior wall **12** and packaged and shipped as a unit. This, of course, resulted in an increased amount and cost of packaging material necessary to ship the separate units, as well as an increased cost of transportation because of the greater number of packages required to be transported.

This costly problem is solved by inserting the outer glass wall **12** into a cell **32**, then dropping a spacer ring **18** into the outer glass wall **12** until it is supported by the shoulder **16** of the outer wall **12**. The inner wall **14** is then inserted until the underside of the shoulder **24** of the inner wall **14** rests upon the ring **18**. The spacer ring thus acts to keep the walls **12** and **14** in a spaced apart relation and also absorbs any force or stress and strains which might be exerted against the units which might otherwise cause breakage of the glass walls **12** and **14**. The inner wall **14** is kept in a spaced apart relation at its uppermost part by having a cut out portion **46** in the top walls **42** and **44** to conform to the size of the flange **28** of the inner wall **14**.

After the packaged units, as shown in Figure 1, have been shipped, the incompletely formed vacuum bottle **10** is removed as a whole and assembled into a complete unit by merely fusing the flange **28** of the inner wall **14** with the upper portion of the outer wall **12** as described heretofore. After the two walls have been fused at the top, air is evacuated through the tubulation **20** and the latter is closed. During this manufacturing procedure, the spacer ring **18** is retained between the walls **12** and **14** to receive and minimize any stress and strains to the vacuum bottle after it is integrally formed and when in use. This, of course, greatly reduces the cost of assembling the vacuum bottle units into a complete vacuum bottle because it is not necessary to reassemble the units after they have been shipped and to insert resilient pads which are usually placed between the walls of a vacuum bottle during assembly.

From the foregoing description, it will be evident that a new method has been provided for packaging incomplete and unformed units of vacuum bottles and to greatly reduce the cost thereof. A new construction of a vacuum bottle has also been provided by adapting a novel form of spacer ring which performs the double function of permitting the walls of a vacuum bottle to be packaged together and to act as cushioning means after the vacuum bottle has been completely formed. Moreover, the overall cost of manufacture of a vacuum bottle has been decreased by reducing the amount of work required to assemble the vacuum bottle units into formed vacuum bottles and by eliminating the amount of packaging material necessary to ship the incompleted vacuum bottle unit, as well as the resultant transportation cost.

While a specific embodiment of the invention has been shown and described, it will, of course, be understood that the invention is not limited thereto and that the appended claims are intended to cover all modifications and alternative constructions falling within the true spirit and scope of the claim.

I claim:

A package unit for vacuum bottle components, said unit comprising a glass outer shell having a generally cylindrical side wall with a bottom wall thereon, said outer shell having an open mouth at the upper end thereof, a glass inner shell telescopically received within said outer shell in spaced relation thereto and having a generally cylindrical side wall with a bottom wall thereon, said mouth of said outer shell being large enough for said inner shell to pass therethrough, said inner shell having an open mouth portion at the upper end thereof and projecting substantially above the top of said outer shell, said outer shell having an internal upwardly facing shoulder therein adjacent the lower end thereof, said inner shell having an external downwardly facing shoulder adjacent the lower end thereof but above the level of said internal shoulder, a ring fitted between said inner and outer shells and between said shoulders thereon, said ring supporting said inner shell and centering the lower portion thereof within said outer shell, a protective carton having carton wall means closely fitting around said outer shell and having a bottom wall with said outer shell supported thereon, said outer shell thereby being supported and centered in said carton wall means, a cover mounted on said carton and closely overlying said mouth portion of said inner shell for retaining said inner and outer shells against endwise movement in said carton, and a centering member mounted in said carton under said cover and having an opening closely fitting around said mouth portion of said inner shell and centering the upper portion of said inner shell relative to said outer shell.

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