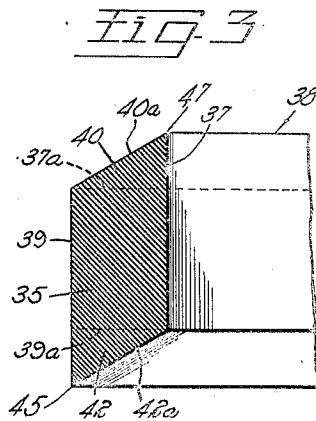
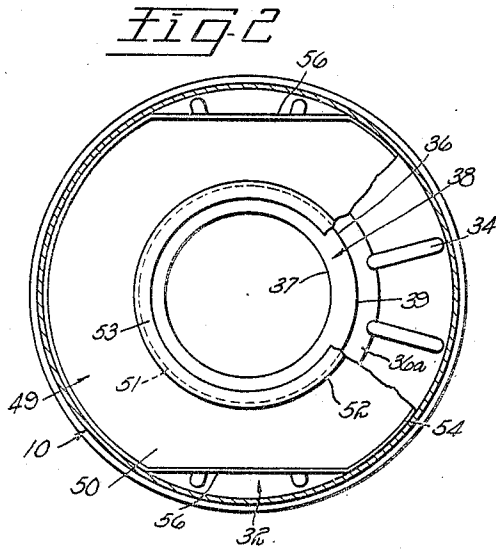
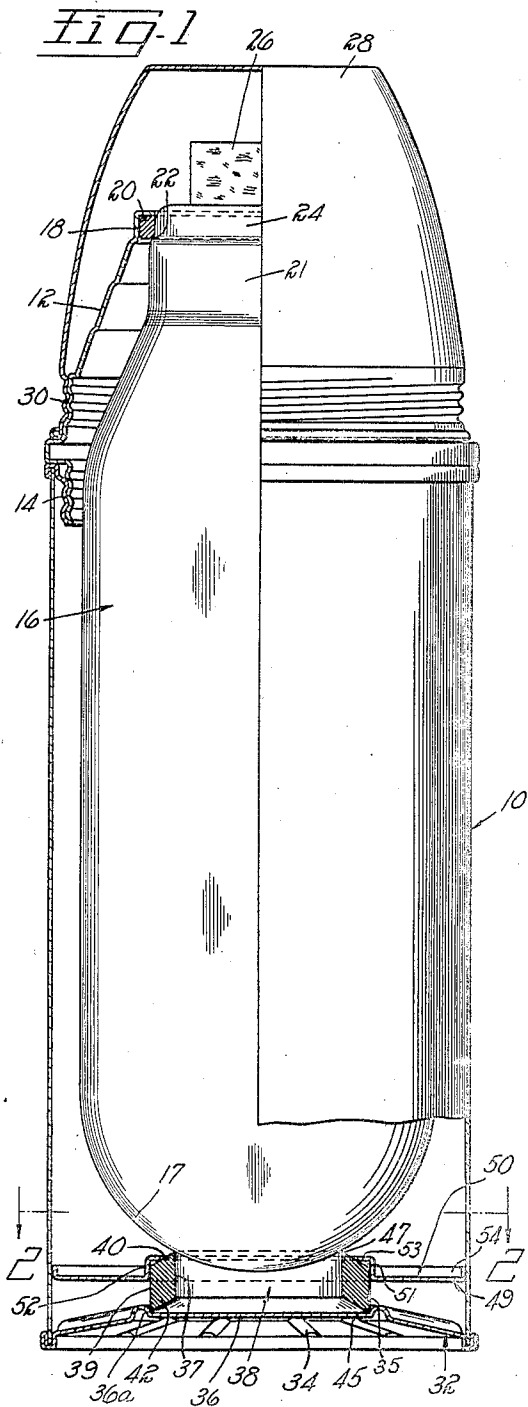


July 13, 1943.

O. M. ANDERSON
VACUUM BOTTLE SUPPORT

2,324,253

Filed Feb. 19, 1941



Inventor
OSCAR M. ANDERSON

Ludsey & Bellard
Attorneys

UNITED STATES PATENT OFFICE

2,324,253

VACUUM BOTTLE SUPPORT

Oscar M. Anderson, New Britain, Conn., assignor
to Landers, Frary & Clark, New Britain, Conn.,
a corporation of Connecticut

Application February 19, 1941, Serial No. 379,582

4 Claims. (Cl. 215—13)

The present invention relates to vacuum bottles of the type wherein a fragile vacuum container is mounted within an outer protective metal casing.

Heretofore in the manufacture of such devices difficulty has been encountered due to the fact that it is impossible to accurately control the length of the inner fragile vacuum container, which is of the well-known double wall structure with the air exhausted from between the walls. As these containers are made of glass, they vary in length; this variation being as much as one-eighth of an inch for containers which are to be fitted into the same size outer protective metal casings. As a result, considerable breakage has occurred during the assembling of such devices due to the differences in said overall length in the vacuum containers and the inability of the supporting means provided therefor to compensate for such differences. In many instances where the vacuum bottle was successfully assembled, breakage would occur afterwards because the supporting means for the fragile container, having been put under considerable strain during the assembly, would not afford sufficient resiliency to compensate for jars and shocks to which the bottle is subjected when in use.

The object of the present invention is to provide an improved supporting means which permits the assembly of the vacuum container within the outer protective metal casing without breaking same due to variations in length, while still maintaining sufficient resiliency to afford a cushion for absorbing jars and shocks when the bottle is used after assemblage.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangements of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing:

Figure 1 is a profile view of a vacuum bottle wherein a portion of the outer shell is cut away so as to more clearly illustrate a type of mounting embodying the present invention;

Fig. 2 is a cross-sectional view taken along the line 2—2 of Fig. 1 and is shown with the vacuum container removed and a portion of the positioning member for the container broken away; and

Fig. 3 is an enlarged cross-sectional area of the cushioning means.

Referring to the drawing, 10 denotes the usual cylindrical vacuum bottle case which is formed of metal or other suitable protective material, and 12 indicates the customary sleeve fastened to the top of the case by suitable screw threads 14. The sleeve 12 is adapted to secure within the

casing the fragile container 16 which is of the usual double wall construction with the space between the walls evacuated, and terminating at its lower end in a hemispherical base 17 and at its upper end in a neck 21 having a reduced throat portion 24 which defines the neck an upwardly facing annular shoulder 22. To cooperate with the throat portion 24, the upper periphery of the sleeve 12 is provided with a right angular shoulder 18 adapted to receive a rubber sealing ring 20, which ring, when the parts are assembled, engages the shoulder 22 to provide a resilient connection between the upper end of the fragile container and the casing as well as to prevent the flow or leakage of liquid into the casing. As is usual, the fragile container may be provided with a closure cork 26, and the casing includes the usual cap or cover 28 detachably secured to the sleeve 12 by threads 30.

To provide a support for the hemispherical base 17 of the container 16, the bottom 32 of the casing is slightly depressed upwardly and, for greater strength and rigidity, is reinforced by radially upset ribs 34. Centrally of the bottom 32 there is provided a circular recess 36 defined by a circumferential shoulder 36a stamped upwardly from the base for receiving and centrally positioning a cushioning member comprising a resilient rubber ring 38 upon which the base 17 of the fragile container 16 rests.

As illustrated in Figs. 1 and 3, the ring 38 in cross section includes a rectangular body portion 35 and upper and lower supporting shoulders 40 and 42 of substantially less cross sectional area than the body portion and extending vertically therefrom. As indicated, the body portion 35 is defined by inner and outer parallel or right cylindrical walls 37 and 39 and the top and bottom walls indicated by the dotted lines 37a and 39a. In the particular embodiment shown, the supporting shoulders 40 and 42 are coextensive with the body portion 35 and are of right triangular cross section reversed with respect to one another to provide upper and lower conical walls 40a and 42a tapering upwardly and inwardly from the outer wall 39 to the inner wall 37. In this manner, the body portion and supporting shoulders combine to provide a cross section which when positioned within the casing will dispose the acute apex 45 of the lower triangular shoulder within the recess 36 in abutment with the bottom shoulder 36a and the acute apex 47 of the upper triangular supporting shoulder centrally of the casing to provide a support for the hemispherical bottom 17 of the container 16.

With this construction, when the fragile container is positioned onto the ring 38 and then forced downwardly, the supporting shoulder or shoulders, being of relatively small cross sectional area, will readily compress to conform to the

shape of the base 17 and compensate for the difference in length between the container 16 and the outer protecting container. Inasmuch as the shoulders are coextensive with the ring body 35, should the container 16 be of excessive length, the increased compression will be transmitted to and absorbed by the body portion 35. However, as the body portion 35 is of substantial cross sectional area, it will still retain substantially its full resiliency, whereby when the bottle after assembly is subjected to abnormal shocks or jars the body portion will absorb same and thus prevent breakage of the container.

In order to positively position the upper shoulder 40 of the ring centrally of the casing, there is provided a false bottom 49 comprising a substantially circular metal plate 50 having an outer peripheral edge 54 which closely contacts the inner wall of the casing 10 but is free to move relative thereto. The plate 50 is further provided with a central aperture 51 of substantially the same diameter as the outside diameter of the body portion of the ring 38, and extending upwardly from the peripheral edge of the aperture 51 is a vertical flange 52 from which there extends laterally a circumferential flange 53 defining a second aperture of greater diameter than the inside diameter of the ring. In this manner, the flanges 52 and 53 cooperate to provide a support for the plate 50, which plate obviously is thus fully supported by the ring 38 at a point below the contacting edge between the upper supporting shoulder 40 and the hemispherical bottom 17 of the fragile container. When so supported, it will be seen that upon assembly and depression of the cushioning member the plate 50 will float therewith while still preventing spreading or dislodging of the ring from the recess 36; in this way cooperating with the bottom shoulder 36a to maintain the cushioning member centrally of the casing. For convenience in assembly, segments of the plate may be cut away, as at 56, so as to prevent an air lock when the plate is slid into the casing to position it onto the cushioning member.

From the foregoing it is apparent that the vacuum bottle is assembled by initially positioning the cushioning ring and plate 50 in the bottom of a container 10. Thereafter the fragile container is positioned on the cushioning member or ring 38 and the sleeve 12 secured onto the container until the ring 20 is brought into close engagement with the shoulder 22 to force the container 10 downwardly against the ring 38. When this occurs, the initial deformation will be taken up by the supporting shoulder or shoulders which, due to their reduced cross sectional area, will deform more rapidly than the body area 35 of the ring, and, during this action, the ring is maintained centrally of the casing by the plate 50 and the shoulder 36a. Due to the relative pliability and easy deformability of the supporting shoulders, the cushioning member as a whole is somewhat free to accommodate itself and properly cushion the container and compensate for extreme lengths thereof, thus preventing any breakage during the assembly. After being assembled, due to the fact that the body portion of the ring is under practically no compression, it retains its substantially full resiliency to absorb the shocks to which the bottle is subjected during use.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A vacuum bottle including a casing having a bottom member, a container of fragile material located therein, cushioning means between said bottom member and said container, said means comprising an elastic ring having a body portion of substantial cross sectional area and a shoulder coextensive with and extending upwardly from said ring and of substantially less cross sectional area than the body portion, means carried by the bottom member of the casing and engaging said ring adjacent the bottom thereof for positioning said ring centrally of the casing, and means supported by said ring adjacent the upper peripheral edge thereof and loosely contacting said casing for maintaining the supporting shoulder of said ring centrally of the casing.

2. A vacuum bottle including a casing having a bottom member, a container of fragile material located therein, means for supporting said container comprising a rubber ring resting on the bottom member, said rubber ring including a body portion and a readily compressible supporting shoulder coextensive with and extending upwardly from the body portion for receiving the bottom of said fragile container, a shoulder on said bottom member for maintaining the lower portion of said ring centrally of the casing, a plate loosely positioned within and contacting the wall of said casing, said plate being wholly supported by said cushioning member whereby said plate cooperates with said bottom member shoulder for maintaining said cushioning member centrally of the casing.

3. A vacuum bottle including a casing, a container of fragile material located therein and having a tapering bottom and cushioning means between the bottom of said casing and the bottom of said container, said means comprising a rubber ring having an inwardly and upwardly extending tapered lip terminating in an acute edge and supporting said vessel thereon, and an outwardly and downwardly extending tapered lip terminating in an acute edge located and supported on the base of said casing.

4. A vacuum bottle including a casing, a container of fragile material located within said casing, said container having a hemispherical bottom, and cushioning means between the vessel bottom and the bottom of said casing, said means comprising a cylindrical rubber ring generated by a rhomboid having its upper acute vertex located inwardly toward the generating axis of the ring.

OSCAR M. ANDERSON.