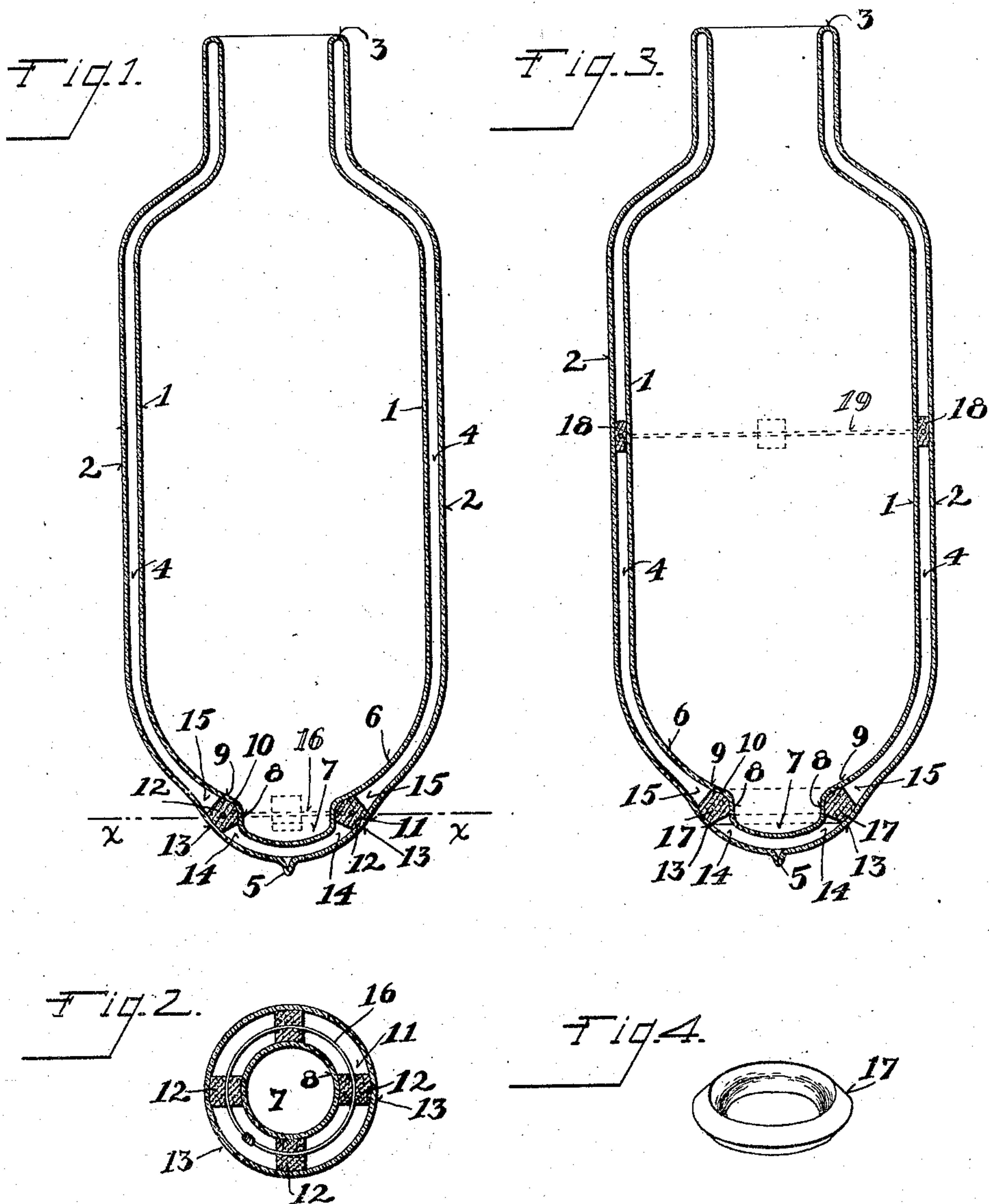


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DOUBLE WALLED VESSEL.  
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923,236.

Patented June 1, 1909.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## DOUBLE-WALLED VESSEL.

No. 923,236.

Specification of Letters Patent.

Patented June 1, 1909.

Application filed May 11, 1908. Serial No. 432,174.

*To all whom it may concern:*

Be it known that I, GEORGE P. ALTENBERG, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Double-Walled Vessels, of which the following is a specification.

It is the object of my invention to provide a double walled vessel comprising an inner member and an outer member connected at the mouth of the vessel and having novel separating means between the bases of the members, and the invention will be readily understood from the following description and claims, and from the drawing, in which latter:

Figure 1 is a central vertical section of my improved device showing the separating means as comprising separated parts or blocks. Fig. 2 is a horizontal section of the same on the line  $x-x$  of Fig. 1. Fig. 3 is a central vertical section of my improved device, showing the separating means as comprising a disk or washer between the bases of the members of the vessel; and, Fig. 4 is a perspective view of the disk or washer.

1 represents the inner member of the vessel and 2 the outer member thereof, which are preferably connected at the mouth 3 for forming a space 4 between the members. The vessel is preferably formed of glass, the space surrounding the inner vessel. This space is a heat-insulating space and the air in it is preferably withdrawn or practically exhausted for forming a vacuum. The air may be withdrawn through a nipple 5 which is afterward sealed. The wall of the space may be provided with suitable silvering solution.

The base 6 of the inner vessel is preferably provided with a depression 7 at its middle for forming a depending portion 8 and a laterally extending portion 9 in the base of the inner vessel, which depending and laterally extending portions are preferably annular about the axis of the inner vessel and form a seat 10, shown annular, between the depression 7 and the outer portion of the base of the inner vessel. The depression 7 is preferably cup-shaped and a part of the contents-receiving portion of the inner member of the vessel. A separating device 11 is received in the seat 10 and preferably comprises separating-pieces 12. The outer member is provided with a base 13 arranged to act with the depending portion 8 and the

laterally extending portion 9 of the base of the inner member for retaining the separating means or support in the seat 10 against vertical displacement, or shifting upwardly or downwardly. The bases of the inner and outer members preferably converge as shown at 14 15 at the respective sides of the separating means.

In order to prevent shifting of the separating-pieces about the axes of the members I prefer to mount them on a wire 16, shown as a ring, and I prefer also that the separating-device or support shall be located between the bases of the members of the vessel within the longitudinal projection of the wall of the inner member thereof. If desired the separating means may take the form of a washer 17, or disk, received about the longitudinally extending portion 7 of the base of the inner member. The washer, disk or separating-pieces are preferably of a heat-insulating material, and I have found asbestos a suitable material for the purpose although other materials may be employed. The material of the washer, such as asbestos, is porous, and permits the air in the space thereabove to be readily drawn through its pores for exhausting said space through the nipple 5.

By means of my improved device the members of the vessel are supported from each other by separating means between their bases so that the inner member may receive longitudinal support from the outer member, and the members may also receive relative lateral support at their bases, and I prefer that the base of the inner member shall have the depression extending into and past the lateral planes of the separating device, and I further prefer that said depression shall be free of support from the outer base adjacent the longitudinal axes of said members.

In some sizes of vessels it is also desirable to have a separator or separators between the members of the vessels intermediate of their lengths between their bases and the neck of the vessel for supplying intermediate support for said vessels, and I prefer to accomplish this by providing separating-blocks 18 in the space between the members of the vessels intermediate of the length of said members, which blocks are preferably mounted on a wire 19 which may be in the form of a ring of such size as to press the blocks 18 against the inner vessel.



Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A double walled vessel comprising in combination an inner member and an outer member connected at the mouth of said vessel and having heat-insulating space between said members, and separating means between the bases of said members, the base of said inner member having a depending contents-receiving portion about which said separating means are located, the base of said outer member having a depending portion surrounding said separating means and depending portion of said inner member, and said depending portions of said bases of said outer and inner members being within the longitudinal projection of the wall of said inner member.

2. A double walled vessel comprising in combination an inner member and an outer member connected at the mouth of said vessel and having heat-insulating space between said members, separating means between the bases of said members, the base of said inner member having a depending contents-receiving portion about which said separating means are located, the base of the said outer member having a depending portion surrounding said separating means and depending portion of said inner member, and said depending portions of said bases of said outer and inner members being within the longitudinal projection of the wall of said inner member, and separating means between said members intermediate of their lengths and outside the longitudinal projection of the wall of said inner member.

3. A double walled glass vessel comprising in combination an inner member and an outer member connected at the mouth of said vessel and having heat-insulating space

therebetween, said members having bases, the base of said inner member having a cup-shaped depression, the base of said outer member surrounding said cup-shaped depression, and separating means located about said cup-shaped depression between said bases and within the longitudinal projection of the wall of said inner member.

4. A double walled vessel comprising in combination an inner member and an outer member connected at the mouth of said vessel and having heat-insulating space therebetween, said members having bases provided with longitudinally extending depressions within the longitudinal projection of the wall of said inner member, and separating means between said depressions located about the longitudinal axes of said members and within the longitudinal projection of the wall of said inner member.

5. A double walled vessel comprising in combination an inner member and an outer member connected at the mouth of said vessel and having heat-insulating space therebetween, said members having bases, the base of said inner member having a cup-shaped depression, the base of said outer member surrounding said cup-shaped depression separating means between said bases and within the longitudinal projection of the wall of the said inner member, and additional separating means between said members intermediate of their lengths and outside the longitudinal projection of the wall of said inner member.

In testimony whereof, I have subscribed my name hereto in the presence of two subscribing witnesses.

GEORGE P. ALTENBERG.

Witnesses:

O. S. BRYANT,  
HOMER BRADFORD.