(No Model.)

V. D. ANDERSON.

FLOAT.

No. 540,416. Patented June 4, 1895.

Fig. 1.

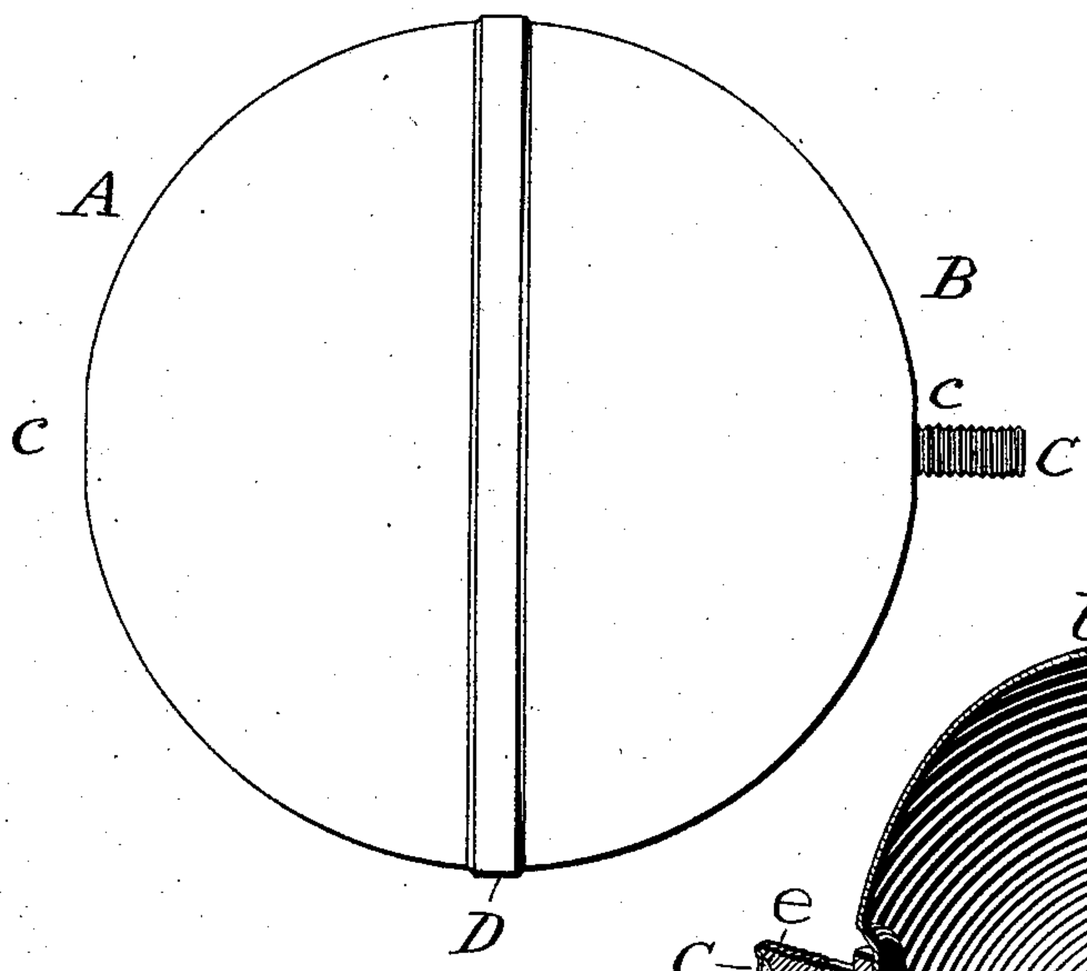


Fig. 2.

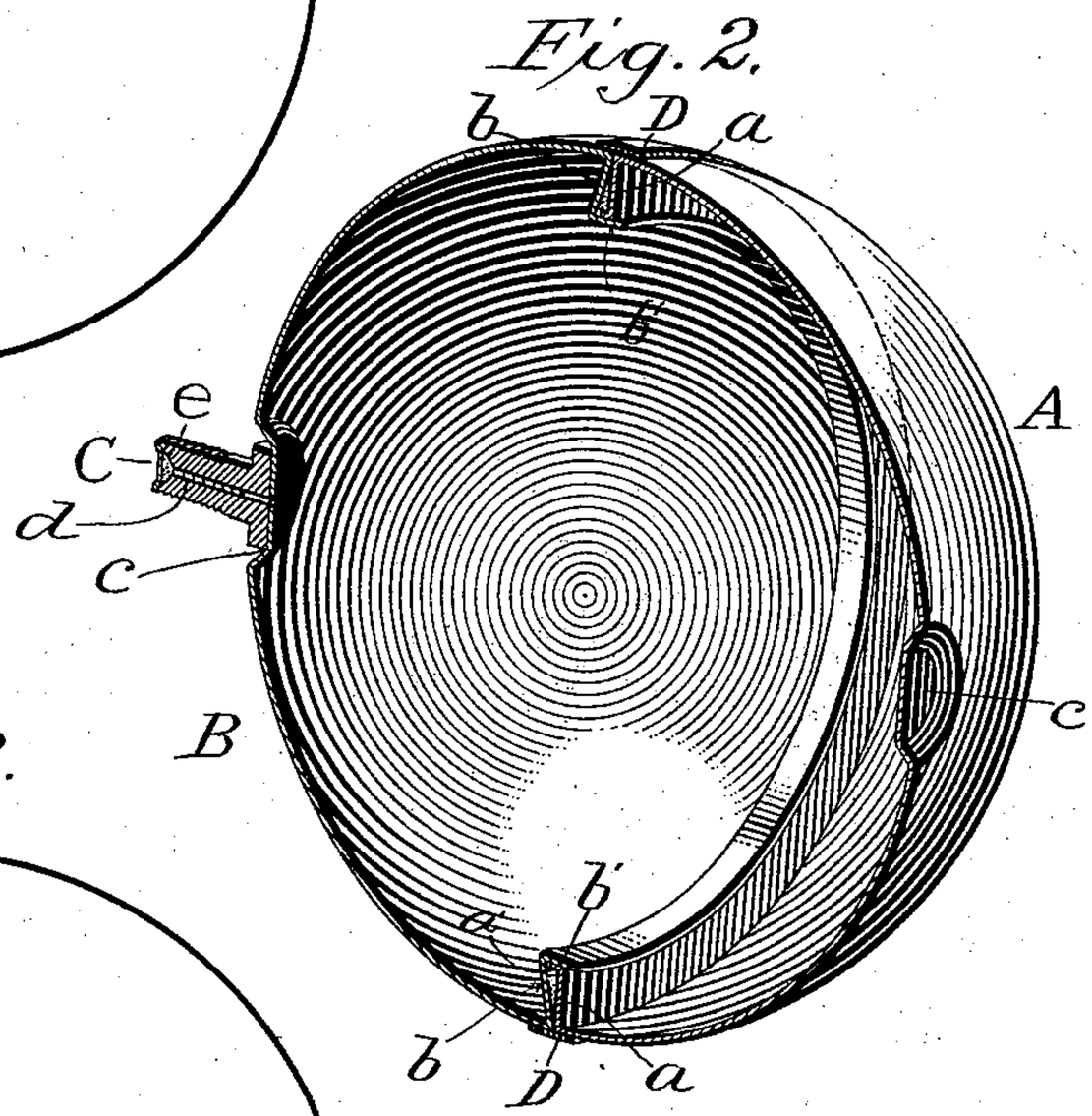


Fig. 3.

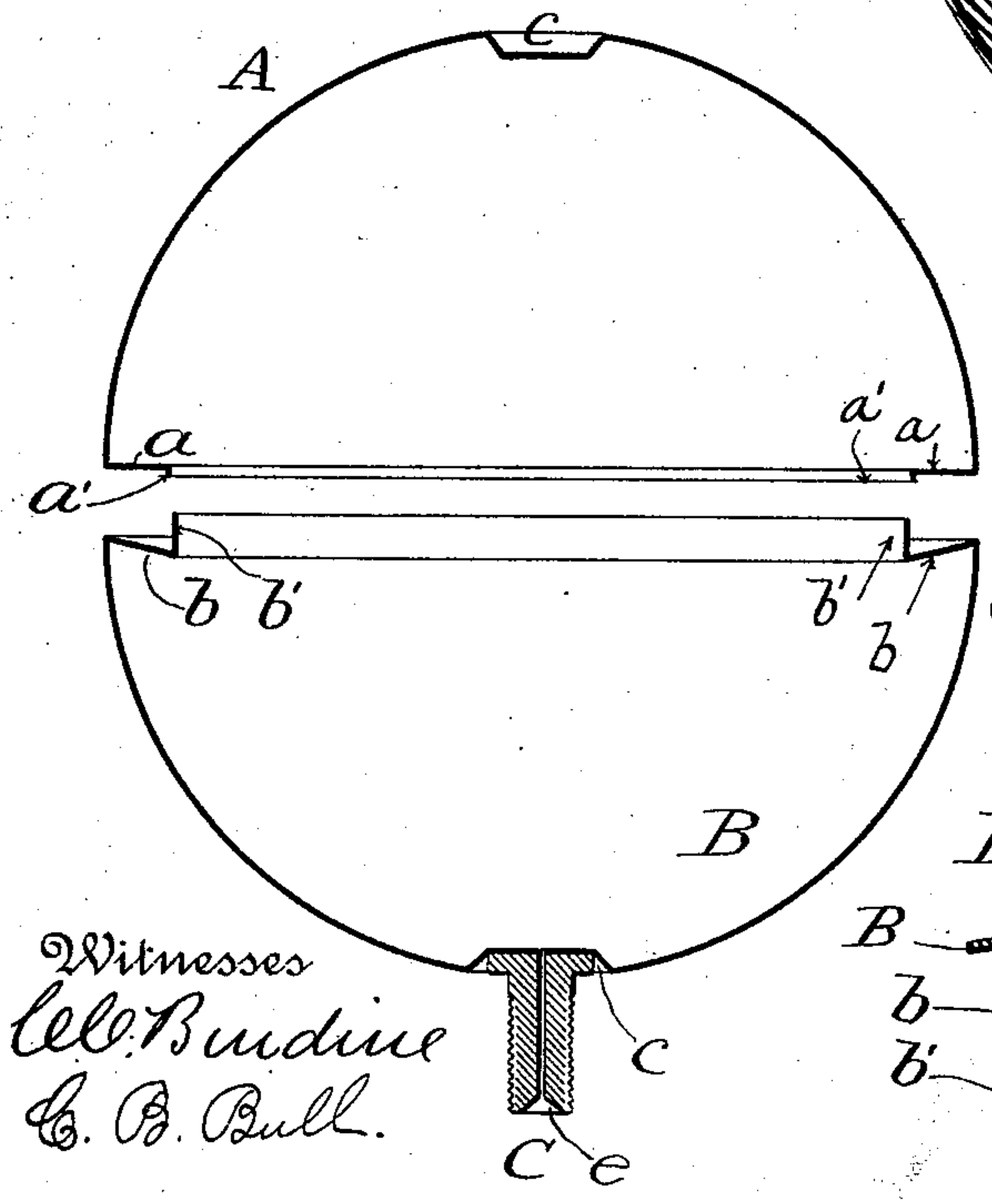


Fig. 4.

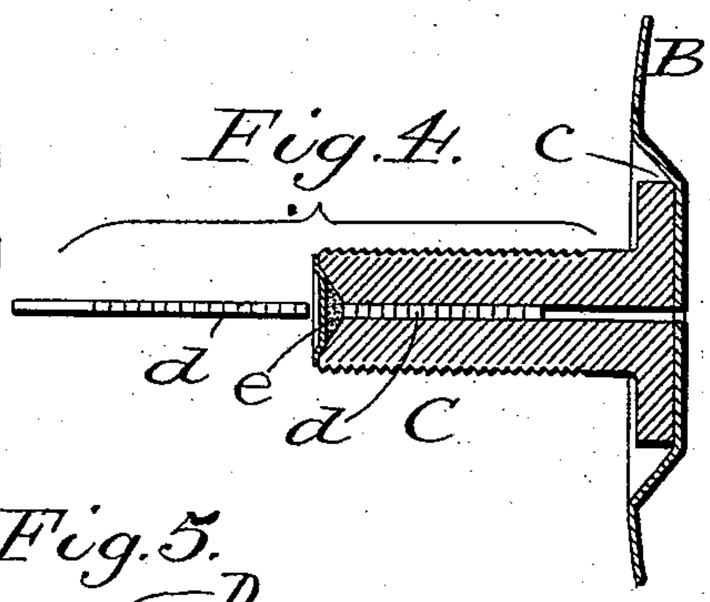
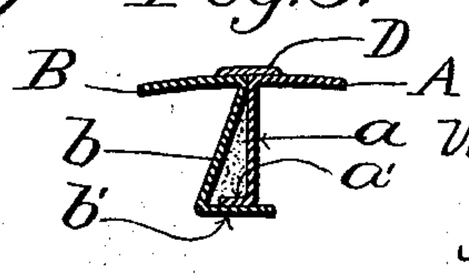


Fig. 5.



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UNITED STATES PATENT OFFICE.

VALERIUS D. ANDERSON, OF CLEVELAND, OHIO.

FLOAT.

SPECIFICATION forming part of Letters Patent No. 540,416, dated June 4, 1895.

Application filed March 25, 1895. Serial No. 543,123. (No model.)

To all whom it may concern:

Be it known that I, VALERIUS D. ANDERSON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Floats, of which the following is a specification.

My invention relates to the construction of hollow metallic floats, and is designed to combine great strength and lightness.

In the accompanying drawings, Figure 1 is an elevation of the float complete; Fig. 2, a sectional perspective view of the same; Fig. 3, a sectional view showing the parts separated or as they appear previous to soldering; Fig. 4, a detail view of the mode of closing or sealing the stem by which the float is attached to the usual rod or lever, and Fig. 5 an enlarged view of the joint in its completed condition.

In the construction of floats of this general character, it is the more usual practice to strike up two hemispheres of sheet metal, and to form upon the edge of each hemisphere an outwardly projecting semicircular bead, which beads are overlapped and sweated or soldered together. Such construction answers quite well where the floats are not to be subjected to considerable pressure, but is unsuited for floats which have to withstand a heavy pressure. In soldering the two parts of such floats it is found exceedingly difficult to cause the solder to flow over or completely cover the overlapping faces of the beads, and as a consequence the union of the two is insufficient to withstand the pressure to which such floats are often subjected. The inner or inserted edge is found to collapse and draw away from the outer or overlapping edge, thus allowing liquid to enter the float and destroy its usefulness. To avoid these difficulties I proceed as follows:

I first spin or strike up two hemispherical members A and B of sheet metal, preferably copper. The member A is formed or provided with an inturned flange a which is arranged radially or approximately so, and is made of a greater or less width or depth according to the size of the float, the thickness of the metal, and like considerations. The flange a is in turn provided with a lip a' projecting outward therefrom at substantially right angles, as shown in Figs. 2, 3 and 5. The member B is likewise provided with an inturned flange b, which in turn has an outwardly projecting lip b', as shown in the same figures. The flange b is made wider or deeper than the flange a to the extent of the thickness of the metal therein, and is preferably dished or depressed, so that its inner portion lies within the plane of the outer edge or circumference of the hemisphere B. The lip a' of the member A projects a distance equal or approximately equal to the dishing or depression of the flange b, and is designed to fit accurately about the lip b' of section B, and to rest against or to closely approach the face of flange b when the two members A and B are brought together and made to touch or bear together at their circumferences, as shown in Figs. 2 and 5. The lip b' forms a guide for and a means of centering the lip a', and holds the parts in proper relation while being soldered or sweated together.

The inwardly extending flanges a and b impart great stiffness to the free edges of the hemispheres A and B, and sustain them against collapse under external pressure, but without one or both of the lips a' b', these inwardly turned flanges a and b would readily buckle, thereby destroying in great measure their stiffening or sustaining effect and permitting the collapse of the float.

As above mentioned, and as best shown in Fig. 3, the flange b is depressed or thrown below or within the radial plane as it proceeds inward toward the center of the float. This though not essential, is highly desirable, first, in order to afford space for the lip a', and, secondly, to form a containing space for the solder used in uniting the two members. If the flanges a b were made parallel and permitted to come into surface contact throughout, it would happen that when the solder should be softened and the two members pressed firmly together, the greater portion of the solder would be forced out, and there would in all cases be a liability of so completely removing the solder at points as to leave an opening through which liquid might enter. By depressing the flange, however, and making a cavity or receptacle as shown, the solder when melted simply fills said cavity or depression, and only so much thereof will be forced out

as rises above the raised circumference of the section B. By placing said section in the position indicated in Fig. 3, preparatory to soldering, I am enabled to make a joint which is completely and certainly filled with solder from the lip a' to the circumference of the float. As a consequence of this construction I produce a float having at the meeting line of its two sections a strong internal bracing or supporting ring, which is not only of a depth sufficient to withstand a very heavy pressure from without, but is also braced or stiffened laterally, so that all liability of buckling or breaking down is avoided.

In the soldering of floats of this class it is essential or at least highly desirable, to vent the interior, as otherwise the air contained within and holding more or less moisture will expand, and the moisture in some cases be converted into steam, producing an outward pressure and tending to form an opening through the solder joint at some point. In striking up the hemispherical sections A B, and for the purpose, among others, of affording a hold for the clutching and centering devices used to hold the sections while spinning the flanges a and b, there is formed in each a shallow depression c. The depression c of the section B is perforated as shown in Figs. 2 and 3, and a perforated stem or neck C is brazed or otherwise made fast to said section, its enlarged head or disk being seated in the depression c, as shown in Figs. 2, 3 and 4. After the sections A and B are firmly soldered together, a nicked wire or plug d is driven into the opening in the threaded neck or stem C and broken off at the apex of a conical depression or cavity e formed in the end of said neck, as best shown in Fig. 4. The plug being thus inserted and broken off, the cavity e is filled with solder, and thus the vent or opening is perfectly sealed.

When floats of this general character are used in steam traps and other places where they are subjected to high temperatures and pressures, there is a liability of the solder being chemically attacked or becoming softened and escaping from the joint. For the purpose of precluding such effect, and incidentally of strengthening the joint and improving the appearance of the float, I deposit around the same and over the joint a band D of copper or other metal, such as is used for the sections A and B. This band may be of any suitable width and thickness, the width being determined by a coating of wax or other equivalent material applied to the exterior surface of the sections A B, except such portions as are designed to be covered by the band D. After being deposited to a suitable thickness, the band D is or may be dressed off in a lathe to give a smooth even finish.

It will be seen that the flanges a and b may be varied in form, and that each may be dished if desired, but in practice the construction shown and described is preferred. So too, the flanges may be radial and arranged face to face, without departing from the spirit or scope of my invention, but such construction involves far greater care in soldering, and is less certain of producing the desired integrity.

It is not essential that both flanges a and b be provided with laterally projecting lips, though it is advisable so to construct them. The dished flange should be so provided, if used, in order to prevent the escape of solder to the interior of the float when uniting the sections.

While I have described and shown the sections A B as hemispherical in form, it is obvious that other forms may be adopted, and my invention is not restricted thereto, but applies to any and all forms of section embodying the features set forth, and the term section is to be read with this understanding.

The inturned flanges a and b are to be distinguished from mere interlocking collars turned upon wood or metal sections, or cast in metal. My sections are made of sheet metal, and the flanges are united face to face.

The construction permits the use of far thinner and lighter metal than has hitherto been feasible for floats required to withstand considerable pressure, and the consequence is that an adequate lifting capacity is secured with a comparatively small float, thus permitting the employment of smaller tanks than have heretofore been practicable. The reduced size also lessens cost of material used in manufacture, and thus the invention is of material advantage from every point of view.

Having thus described my invention, what I claim is—

1. A float composed of two hollow sheet metal sections, each provided with an inwardly extending flange at its edge, the outer faces of said flanges being abutted and soldered together, substantially as and for the purposes set forth.

2. A float comprising two hollow sections, each provided with an inwardly extending flange at its edge, said flanges being in turn formed with laterally projecting lips and joined one to the other, substantially as set forth.

3. A float comprising two hollow sections, each provided with an inwardly extending flange having a lateral lip, said flanges being placed face to face and united by an intervening layer of solder.

4. A float comprising two hollow sections A and B, one section provided with an inwardly extending flange a having lateral lip a', the other section provided with a dished flange b having lateral lip b', and a body of solder filling the space between and firmly uniting said flanges, substantially as described and shown.

5. A float comprising two hollow sections and an internal supporting ring formed integral with the sections, and of increasing width toward the center of the float.

6. A float comprising two hollow sections each provided with an inwardly extending

flange, said flanges abutting at the circumference of the float, but spreading apart toward the center thereof, whereby a wide solder space is provided.

7. A float composed of two hollow sections each provided with an inwardly extending flange at its edge, a layer of solder between and uniting said flanges, and a band of metal deposited on the exterior of the float over the seam or joint, whereby the solder is protected and the appearance of the float is improved.

8. The herein described float comprising section A having flange *a* and lip *a'*, section B having flange *b* and lip *b'*, a layer of solder interposed between and uniting the flanges *a*, *b*, and a band of metal deposited over and protecting the meeting line of the sections.

9. A float comprising two sections A and B, one section A provided with an internal flange, the other section provided with an internal flange and with a lip extending therefrom at an angle, said lip being adapted to engage the edge of the flange on section A when the two sections are brought together, and means for uniting the sections.

10. A float comprising two sections, one provided with an internal flange and the other provided with an internal flange having a lip extending outwardly therefrom at an angle, and a metallic band deposited on the float at the junction of the two sections after the flanges have been sweated together or united by solder.

11. A float comprising two sections, one section provided with an internal flange, the other section provided with an internal flange having a lip projecting outwardly therefrom at an angle, a layer of solder between and uniting said flanges, a neck or stem secured to one section of the float, and a vent or opening through said stem, said stem being permanently closed after the sections are united, substantially as set forth.

In witness whereof I hereunto set my hand in the presence of two witnesses.

VALERIUS D. ANDERSON.

Witnesses:
WM. H. DE WITT,
FLORENCE PEARSON.