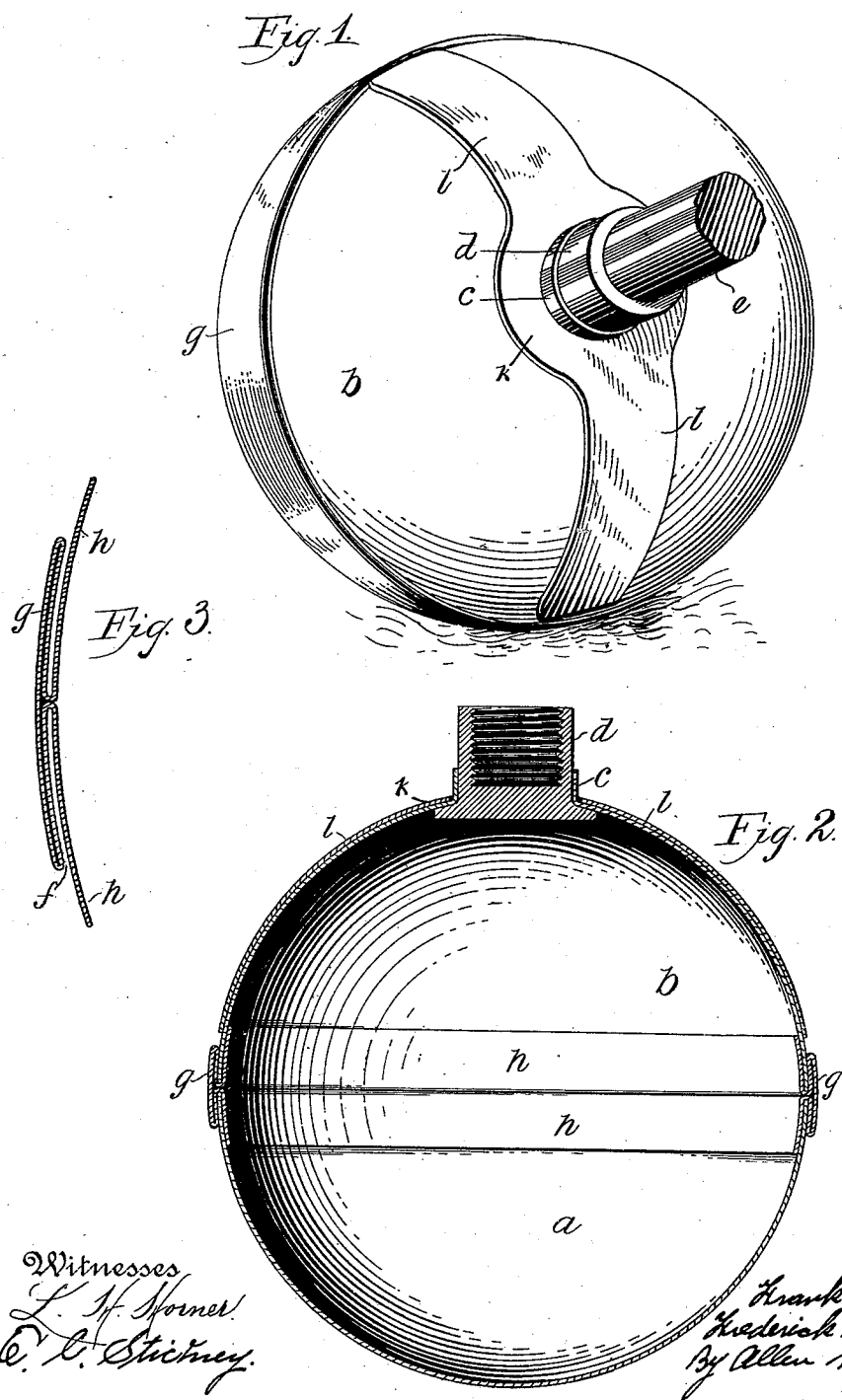


(No Model.)

F. & F. H. ENGELHARD.
FLOAT.

No. 565,885.

Patented Aug. 18, 1896.



Witnesses
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FLOAT.

SPECIFICATION forming part of Letters Patent No. 565,885, dated August 18, 1896.

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To all whom it may concern:

Be it known that we, FRANK ENGELHARD and FREDERICK H. ENGELHARD, citizens of the United States of America, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Floats, of which the following is a specification.

The object of our invention is to provide a float which shall be simple and economical in manufacture and capable of withstanding very great strains in proportion to the amount of material employed, so as to be more light and durable than those hitherto provided for this purpose.

Our invention therefore consists in the construction, combination, and arrangement herein set out.

In the accompanying drawings, in which like letters of reference indicate like parts, Figure 1 is a perspective view of the completed float. Fig. 2 is a vertical section thereof, and Fig. 3 is an enlarged sectional view through one side of the annular binder adapted to secure the two parts of the shell together.

In the construction of our device we employ two hemispherical portions, a lower portion *a*, and an upper portion *b*, the latter having centrally thereof a collar *c*, within which is inserted the threaded socket *d*, adapted to receive the end of the lever, bar, or stem *e*.

The two hemispherical portions are secured together by means of the annular web or binder, which is of the sectional conformation illustrated in Fig. 3, that is to say, it comprises a double continuous outer fold *g* and upper and lower inner folds *h*, all of said folds following the contour of the diametral portion of a sphere, so as to lie closely against the terminal portions of the hemispheres *a b*. Between the fold *g* and the folds *h* there is a narrow space into which said terminal portions of the hemispheres are received. After said terminal portions have been inserted in said spaces they are firmly secured therein, and a water-tight joint is effected, preferably, by means of solder poured into said spaces, and if desired the edges of the outer fold *g* are swaged down upon said hemispherical portion, so as to make a smooth continuous

joint. This construction materially reduces the expense of manufacture of floats, inasmuch as each separate portion can be economically manufactured, and the whole readily put together. Moreover, it produces a much stronger float for the same amount of material than a continuous sphere of uniform thickness, inasmuch as the binder is placed where the float receives the greatest strain and the most difficult joint in the float made up of two sections.

In order to further brace the float against vertical strain, we have provided the web or reinforce *k*, having a circular aperture surrounding the collar *c* and having two extensions *l*, which descend toward the equatorial binder *f* and are secured to the float in any convenient manner. This web also performs the further important function of helping the collar *c* and the part of the hemisphere *b* adjacent thereto to resist lateral strain of the socket *d*. We prefer that the reinforce *k* be secured to the exterior, as illustrated, but it will readily be seen that the desired result will be attained if it be secured upon the interior.

Having thus fully described our invention, what we claim is—

1. In a float the combination of two hemispherical portions, and an equatorial binder, having folds, between the faces of which each said portion is independently secured, substantially as described.

2. In a float the combination of two hemispherical portions and an equatorial binder having inner and outer folds between which the edge of each said portion is independently secured, so that a part of the binder is inside and a part outside of the float, substantially as described.

3. In a float, the combination of two hemispherical portions and an equatorial binder, formed in a single piece of metal, having a double outer fold, and single inner fold, within which each said portion is independently secured, substantially as described.

4. In an equatorial binder for a float, the single piece of metal of annular form having the continuous annular surface folded upon itself at top and bottom until said folded portions meet, and then folded back along two

folds contiguous with each other, substantially as described.

5 5. In a float, the combination with the float portion proper of spherical curvature, having the aperture for the lever-bar socket, of a web having an opening surrounding said aperture and descending extension secured in their lower portion to the float proper, substantially as described.

10 6. In a float the combination of the hemispherical portion *b* having the collar *c* of the socket *d* and the web *k* surrounding said collar and socket, substantially as described.

15 7. In a float, the combination with the body portion, having the collar *c*, of the socket *d*,

and the web *k* inclosing said collar and socket and having the downward extensions *l* secured at their lower end to said body portion, substantially as described.

8. In a float, the combination with the body portion of spherical shape, with a reinforce-piece *k* shaped to fit the float-shell and secured thereto and a stem-receiving boss passing through the reinforce substantially as shown.

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