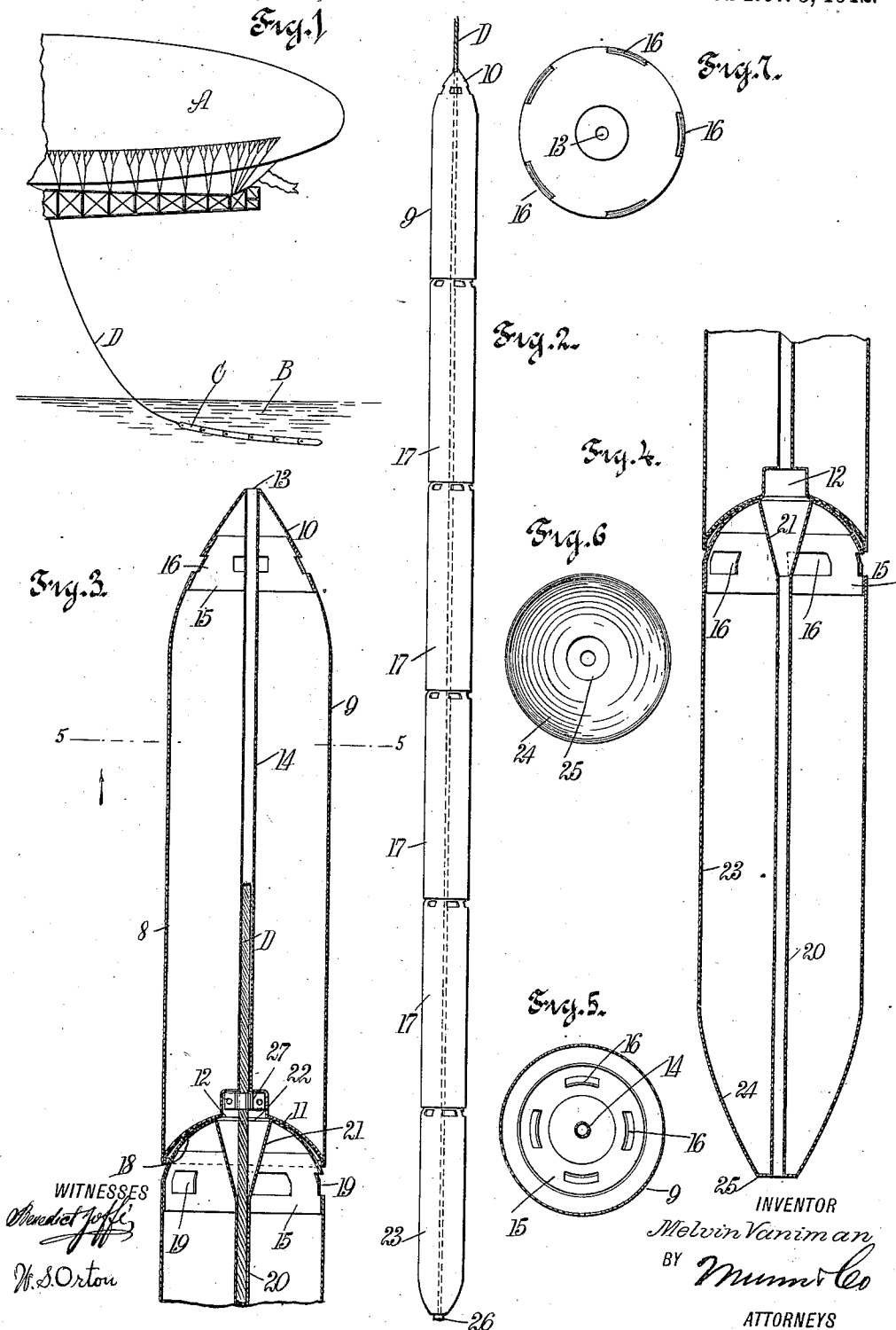


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EQUILIBRATOR.
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1,043,376.

Patented Nov. 5, 1912.



UNITED STATES PATENT OFFICE.

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EQUILIBRATOR.

1,043,376.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed October 18, 1911. Serial No. 655,401.

To all whom it may concern:

Be it known that I, MELVIN VANIMAN, a citizen of the United States, and a resident of Atlantic City, in the county of Atlantic and State of New Jersey, have invented a new and Improved Equilibrator, of which the following is a full, clear, and exact description.

My invention relates to a combined equilibrator and ballast, more applicable to aeronautic devices, and an object of my invention is to provide a means for quickly raising water-ballast to the aeronautic ship while sailing over water, and which may, if desired, be used as a drag.

A further object of my invention is to provide a device of the above-indicated character, which, in passing through the water, will offer a minimum resistance to the movements of the aeronautic ship.

I attain the above-outlined objects by disposing a series of hollow buckets on the end of a flexible lift, depending from the aeronautic ship.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side elevation of the rear portion of an airship, showing a preferred embodiment of my invention depending therefrom; Fig. 2 is an enlarged side elevation of my equilibrator; Fig. 3 is an enlarged longitudinal transverse section, showing the upper bucket and the top of the next adjacent bucket; Fig. 4 is a view similar to Fig. 3, showing the lowermost bucket and the lower part of the next adjacent bucket; Fig. 5 is a transverse sectional view, taken on the line 5—5 of Fig. 3, looking in the direction of the arrow; and Fig. 6 is an end view of the lowermost bucket, looking upward on Fig. 4; and Fig. 7 is an end view, looking downward on Fig. 3.

I have shown an air-ship A, shown in its passage over the water B, within which water is the equilibrator C more particularly forming the subject-matter of this invention, which equilibrator is attached to the air-ship by a flexible lift D, by means of which lift the equilibrator may be raised or lowered relative to the ship, the equilibrator comprising a series of hollow, metallic, cy-

lindrical buckets 8, in this case shown to be six in number.

The upper bucket 9 has a conical or tapered nose 10 at its upper or forward end, and the end opposite the nose is formed into a concaved substantially semi-spherical depression 11. The central portion of the depression 11 has an external pocket 12, opening into the depression 11.

Extending from the center of the pocket 12 to the point 13 of the nose 10 is a cylindrical metallic tube 14, formed integral with the metal of the nose and the metal forming the end 11. The conical nose, adjacent the point 13 has within the bucket a reinforcing metallic plate 15, conforming in configuration to and in contact with the inner wall of the nose 10.

Apertures 16 extend through the nose 10 and through the reinforcing plate 15, by means of which apertures water is admitted to the interior of the bucket. Disposed in alinement in rear of the upper or forward bucket 9 are a series of similarly-shaped buckets 17, but one of which will be described in detail, it being understood that the same description will apply to the several intermediate buckets. These buckets are similar in construction to the bucket 9, described in detail, with the exception that, instead of the conical nose 10, the upper ends of the intermediate buckets have their ends formed into a semi-spherical head 18, conforming substantially to the configuration of the depression 11, so that, in effect, a ball-and-socket joint is afforded between the upper end 18 of one bucket and the depression 11 of the next adjacent bucket.

A series of apertures 19 extend through the head 18 at a point where the head meets the conical sides of the bucket and through the reinforcing plate 15. The lower ends of each of the intermediate buckets 17 correspond in construction to the construction described in detail for the lower end of the upper or forward bucket 9.

A tube 20, similar to the tube 14 extends centrally through each of the buckets 17, with the exception that the upper end of each of these tubes is formed into a funnel end 21, the outer open end 22 of which is of a diameter slightly greater than the diameter of the pocket 12. The lowermost bucket 23 is similar in construction to the buckets

17, with the exception that the lower or rear end has a conical nose 24, similar in construction to the nose 10. The nose 24 terminates in a blunt end 25, centrally extending inward from which is the centrally-disposed tube 20 leading to the funnel end 21 at the opposite extremity of the bucket 23.

The lift D passes through the alined tubes 14 and 20 in the central buckets, and terminates in a stop 26 bearing upon the blunt end 25. Preferably, there is positioned within each of the pockets 12 a clasp 27 of any suitable construction, rigidly affixed to the lift D, and so positioned with reference to the clasp in the next adjacent pocket 12 that the several buckets are maintained in their relative position, but at the same time flexion is permitted between the several buckets, so that the buckets may take a position, while moving through the water, to offer a minimum resistance to the water.

It is to be understood that this equilibrator may be lowered into the water to offer a drag, if desired, or the device may be used as a water-lift to raise water-ballast to suitable tanks within the air-ship.

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 matters contained herein in the above description or shown in the accompanying drawings, 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 merely intended to cover all 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, and that materials, sizes and relativities of parts are non-essential, except as called for in the claims.

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

1. In an equilibrator for air ships, a series

of meshing buckets arranged in longitudinal alinement, and flexible means maintaining said buckets in engagement.

2. In an equilibrator, a series of cylindrical buckets disposed in longitudinal alinement, a ball and socket connection between adjacent buckets, and flexible means maintaining said buckets in alinement.

3. In an equilibrator, a bucket of general cylindrical form having one end shaped to form a semi-spherical depression, the opposite end having a conical nose, a tube extending from said nose of said depressed end, a flexible lift passing through said tube, and means maintaining said bucket on said lift.

4. In an equilibrator, a bucket of general cylindrical shape having one end depressed in the form of a semi-sphere, a pocket in said depressed end, and a flexible lift passing through said bucket having a clamp rigidly affixed thereto and positioned within said pocket.

5. In an equilibrator, a bucket of general cylindrical shape having a conical nose at one end, and a reinforcing plate within said conical nose conforming in configuration to and in contact with the inner wall of said nose, said reinforcing plate and said nose having apertures extending therethrough affording an entrance to said bucket.

6. An equilibrator comprising a series of buckets in longitudinal alinement, the adjacent ends of said buckets shaped to afford a ball and socket connection between them, a centrally disposed tube in each of said buckets and in alinement, one end of each of said tubes enlarged to form a funnel end, and a flexible connection passing between said tubes, said funnel ends preventing said flexible connection from interfering with the relative movements between said buckets.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MELVIN VANIMAN.

Witnesses:

EVERARD B. MARSHALL,
ARTHUR WRIGHT.