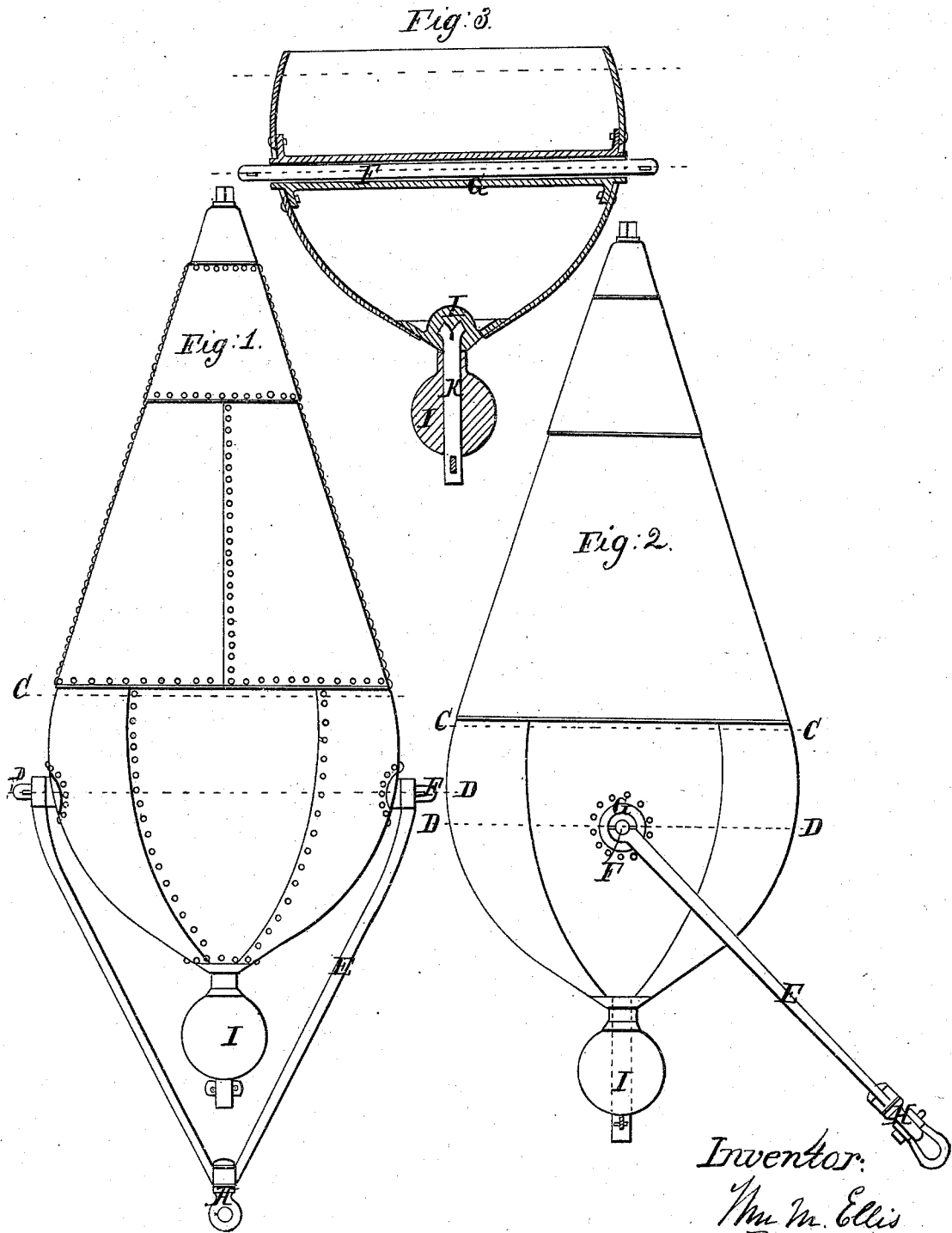


W. M. Ellis.

Buoy.

N<sup>o</sup> 15,845.

Patented Oct. 7, 1856.



# UNITED STATES PATENT OFFICE.

WILLIAM M. ELLIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

## BUOY.

Specification of Letters Patent No. 15,845, dated October 7, 1856.

*To all whom it may concern:*

Be it known that I, WM. M. ELLIS, of the city of Washington, in the District of Columbia, have invented a new and useful Improvement in the Method of Attaching Moorings to Buoys, Beacons, and other Floating Bodies; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in an arrangement for connecting the holding cables of buoys, beacons, &c., to those bodies by points at or near the line of the center of pressure of the current in which they are exposed, which points of attachment are also made to be at, or near the center of gravity of the floating bodies. By this arrangement not only much greater ease and security are given to the moorings, but what is of the greatest importance, an upright position is given to buoys, &c., in all conditions of tide or current.

In the accompanying drawings, Figures 1 and 2 are elevations of an iron buoy in two positions; Fig. 1 giving a side view of a forked holding link or shackle and Fig. 2, an edge view of the same in the inclined or oblique position assumed by it, when the buoy is driven by currents. Fig. 3, represents a vertical section of the lower half of the buoy, showing the pipe or tube, through which the bolt passes to which the cable is attached by means of a forked or V shaped link or shackle. The trunnions or studs upon which the forked link plays may be attached to the buoy, (or any floating body) in any other way, such as by stud plates riveted on the outside, or by a wrought iron hoop or band, embracing the buoy, having the studs forged or welded thereto.

The method I prefer however as being the simplest, and strongest, and offering the best facility for attaching and detaching the moorings when necessary, is that shown more particularly in Fig. 3 of the drawings; and consists in having a pipe or tube G of the required length, and flanged at either end to suit the shape of the buoy or other body, set within the said buoy or other body and securely riveted to the sides thereof by its end flanges, so as to form a water tight opening directly through the said body.

This tube or pipe adds greatly to the strength or stiffness of the buoy or other body, especially in those of large class, by firmly bracing the sides together. Through this opening a strong bolt F passes, as shown in the drawing; projecting at either end sufficiently to form the pivots upon which the eyes of the V link or shackle E play, and are secured by keys in the usual way.

It is well known that buoys as usually attached by their moorings are made to careen by every current, so as to be scarcely visible at any distance and are thus often almost useless from being either principally buried, or lying in the trough of the sea. Another disadvantage of the common mode of attachment is that the strain upon the cable is often very violent and irregular; the cable being constantly swayed about and jerked by the struggle of the buoy to obtain its equilibrium of flotation, and buoys are not unfrequently lost in consequence of the wearing or rupture of their chains. By my method of attachment however this strain is greatly relieved; as the buoy rides easily upon the water in constant equilibrium and the force exerted upon the cable is resolved into a slight vertical play. In addition to which as before indicated the buoy or beacon maintains constantly its upright position under all circumstances.

Although I have described my device chiefly as applied to buoys, I do not design to limit it to such, but consider it equally adapted to beacons, signal or light ships, and all similar floating bodies.

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

1. The method above described of mooring buoys, beacons, and floating bodies by having their cables attached to said bodies in the line of their calculated center of tidal pressure; and

2. The method of connecting the forked or V link or shackle to the said buoy or floating body, by means of a trunnion bolt passing through a metallic tube or pipe, properly set and secured within the said body.

WM. M. ELLIS.

Witnesses:

J. D. CLARK,

JOHN WATERS.