

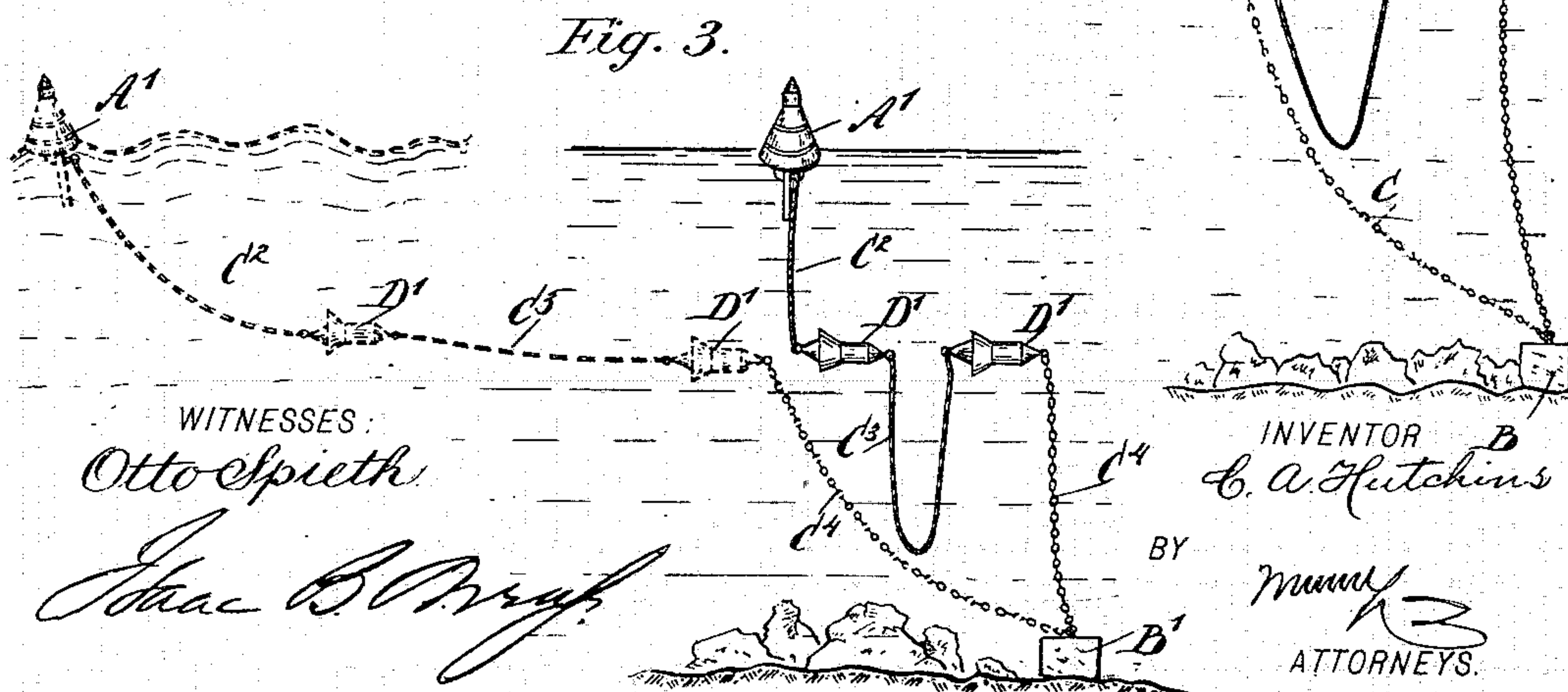
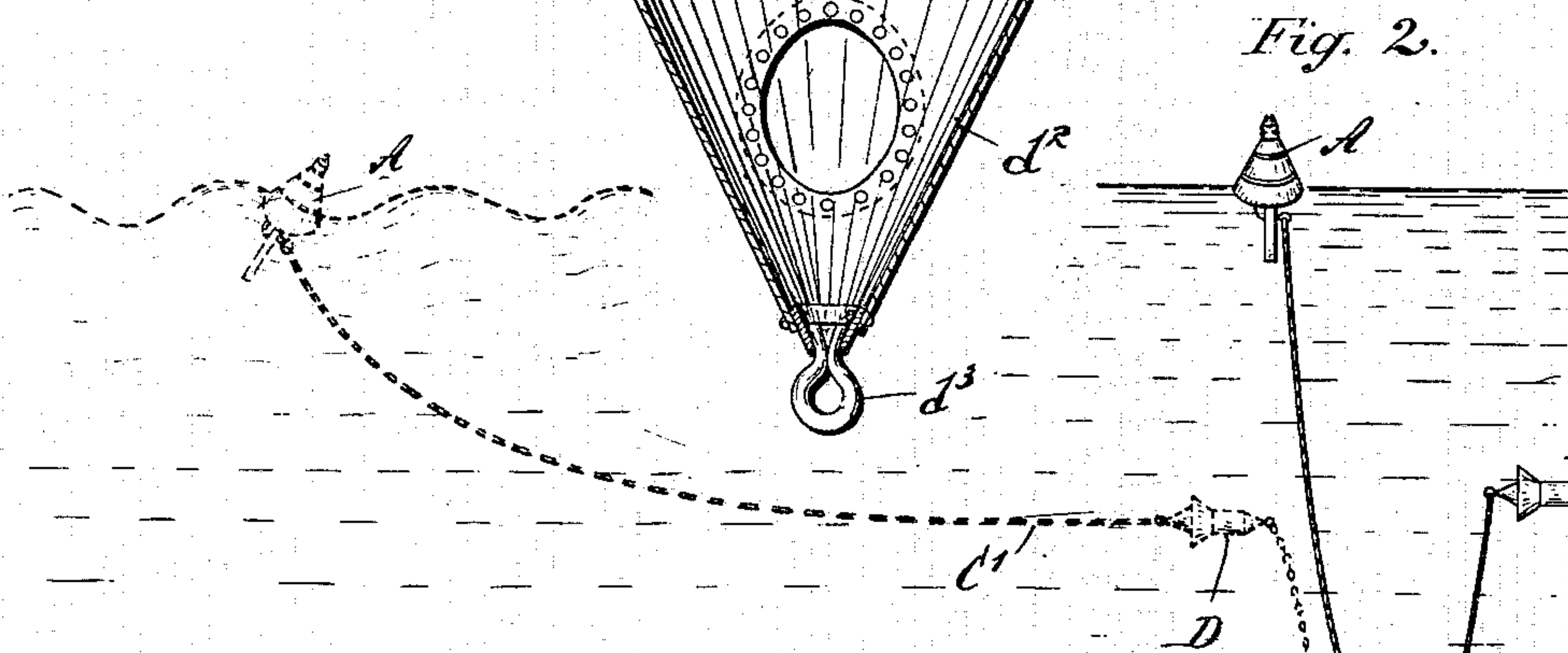
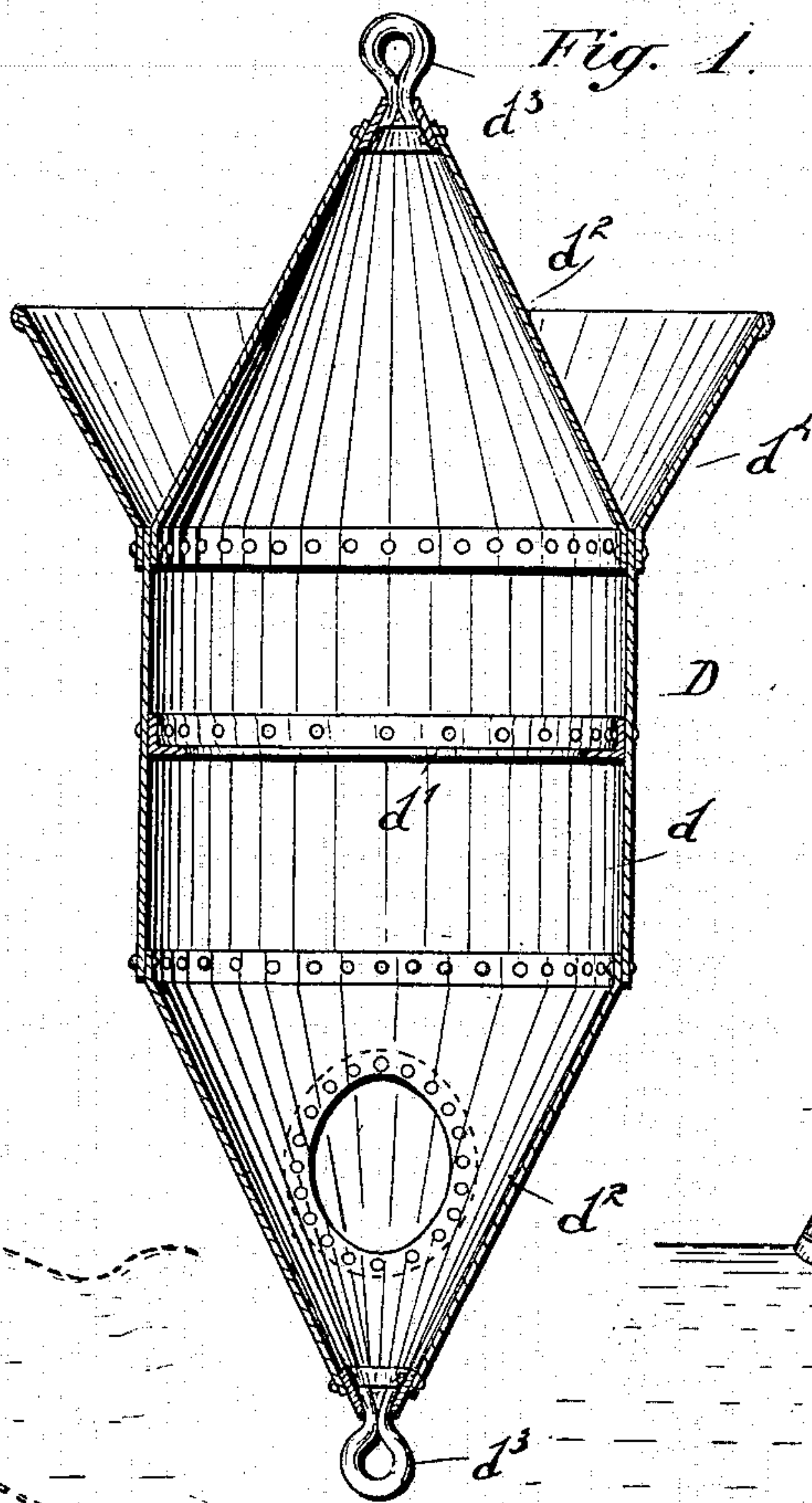
No. 612,109.

Patented Oct. 11, 1898.

C. A. HUTCHINS.
ATTACHMENT FOR BUOY CABLES.

(Application filed Sept. 15, 1897.)

(No Model.)



WITNESSES:

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CHARLES ALFRED HUTCHINS, OF HALIFAX, CANADA.

ATTACHMENT FOR BUOY-CABLES.

SPECIFICATION forming part of Letters Patent No. 612,109, dated October 11, 1898.

Application filed September 15, 1897. Serial No. 651,752. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALFRED HUTCHINS, of Halifax, Province of Nova Scotia, and Dominion of Canada, have invented a new and Improved Attachment for Buoy-Cables, of which the following is a full, clear, and exact description.

This invention is adapted particularly to waters where heavy seas and strong tides are prevalent, and the attachment is so constructed that the strain on the cable and mooring is relieved and so that the danger of fouling and breaking the cable is avoided.

This specification is the disclosure of one form of my invention, while the claims define the actual scope of the conception.

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 figures.

Figure 1 is a vertical section of the submerged float or drag which I employ. Fig. 2 is a view showing the buoy complete in the position it assumes when in use, the dotted lines illustrating the position of the parts when under strain in a heavy sea; and Fig. 3 is a similar view illustrating the use of two floats or drags when the strain of the cable is very great or the water is too shallow for one float to sustain the necessary scope of mooring clear of the bottom.

In the use of floating or can buoys it is frequently the case that changes in the tides and winds cause the cable to be dragged about on the bottom and become fouled either with itself or with the bottom, so that the cable is shortened and the efficiency of the buoy is impaired, or, worse still, in a heavy sea the buoy is liable to part the cable and go adrift. I avoid this danger by holding the loose folds of the cable off the bottom of the body of water in which the buoy is placed, so that the cable is slacked off and taken in according to the strain from the floating buoy. I also relieve the strain on the mooring by employing a drag against the strain from the floating buoy, so that as a heavy sea strikes said buoy the strain on the cable is transmitted first to the drag and thence in a diminished degree to the mooring itself.

Referring to Fig. 2, the floating buoy A is held to a heavy mooring B by means of a

cable in two sections C and C'. Interposed between the sections C and C' of the cable is the submerged buoyant drag D. The full lines in Fig. 2 show the parts when at comparative rest in good weather. Then the buoyant drag D is almost directly over the mooring B, and the cable is held free above the bottom of the body of water. Now when the floating buoy A is placed under strain the cable becomes taut, as the dotted lines show, and plays out to give the buoy the necessary freedom. When a heavy sea strikes the floating buoy, the section C' of the cable immediately receives the strain and the buoyant drag D breaks the greater portion of the strain on the section C' of the cable, permitting the section C of the cable to transmit but a small portion of the strain originally applied to the section C'. It therefore will be seen that the buoyant drag performs the double advantageous purpose of preventing the fouling of the cable and of taking the main portion of the strain off the mooring. When the cable is insured against fouling, all liability of its parting is avoided, since buoy-cables rarely part except when entangled and unduly shortened, and by relieving the strain on the mooring the liability of the buoy shifting is also avoided.

The buoyant drag, as illustrated in detail in Fig. 1, consists in a cylindrical body portion d , having an internal annular strengthening-rib d' , and conical ends d^2 respectively provided with eyes d^3 , to which the several sections of the cable are attached with a swivel. Secured to one end of the body d and surrounding the main portion of one of the conical ends d^2 is an outwardly-flaring skirt d^4 , that forms a cup-shaped end for the drag, and the skirt being placed next to the floating buoy, as shown in Fig. 2, forms the drag against the action of the buoy, as before explained.

On comparatively deep shoals it is not necessary to give the floating buoy as much play about the mooring as is necessary on comparatively shallow shoals, because the seas are less violent on the deep shoals, and consequently the strain on the buoy is less severe. Fig. 3 shows the range of the buoy on the shallow shoal—for example, thirteen fathoms of water. In this case it is desirable to

give the floating buoy A' a cable in three sections C², C³, and C⁴ and provide the buoyant drags D', so as to insure holding the cable entirely above the bottom. The section C⁴ of the cable is attached to the mooring B', and in calm weather the cable is held as shown by full lines in Fig. 3. When the floating buoy is under strain, as the dotted lines show, the cable will be played out and the two drags will exert a double dragging influence against the strain.

The submerged buoy is intended more particularly for use in mooring the larger and more expensive class of buoys—such as automatic, whistling, and bell buoys—and also for mooring light-ships. It may also be used with advantage by cable-ships when laying and repairing submarine cable when necessary to bury the cable.

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

1. An attachment for marine-buoy cables,

the attachment having a buoyant rigid body capable of being held by the cable to float at a point between the bottom and the surface of the water and also having a rigid skirt extending outward from the body and forming a drag against the movement of the attachment through the water.

2. An attachment for marine-buoy cables, the attachment having a rigid and buoyant cylindrical body portion with tapering ends, which ends are adapted respectively to have sections of the cable attached thereto and the body portion being capable of being held by the cable to float at a point between the surface of the water and the bottom thereof, and the body having at its cylindrical portion an outwardly-flaring rigid skirt forming a drag against the movement of the attachment through the water.

CHARLES ALFRED HUTCHINS.

Witnesses:

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