

(No Model.)

P. DELANY.

BUOY.

No. 325,162.

Patented Aug. 25, 1885.

Fig. 1.

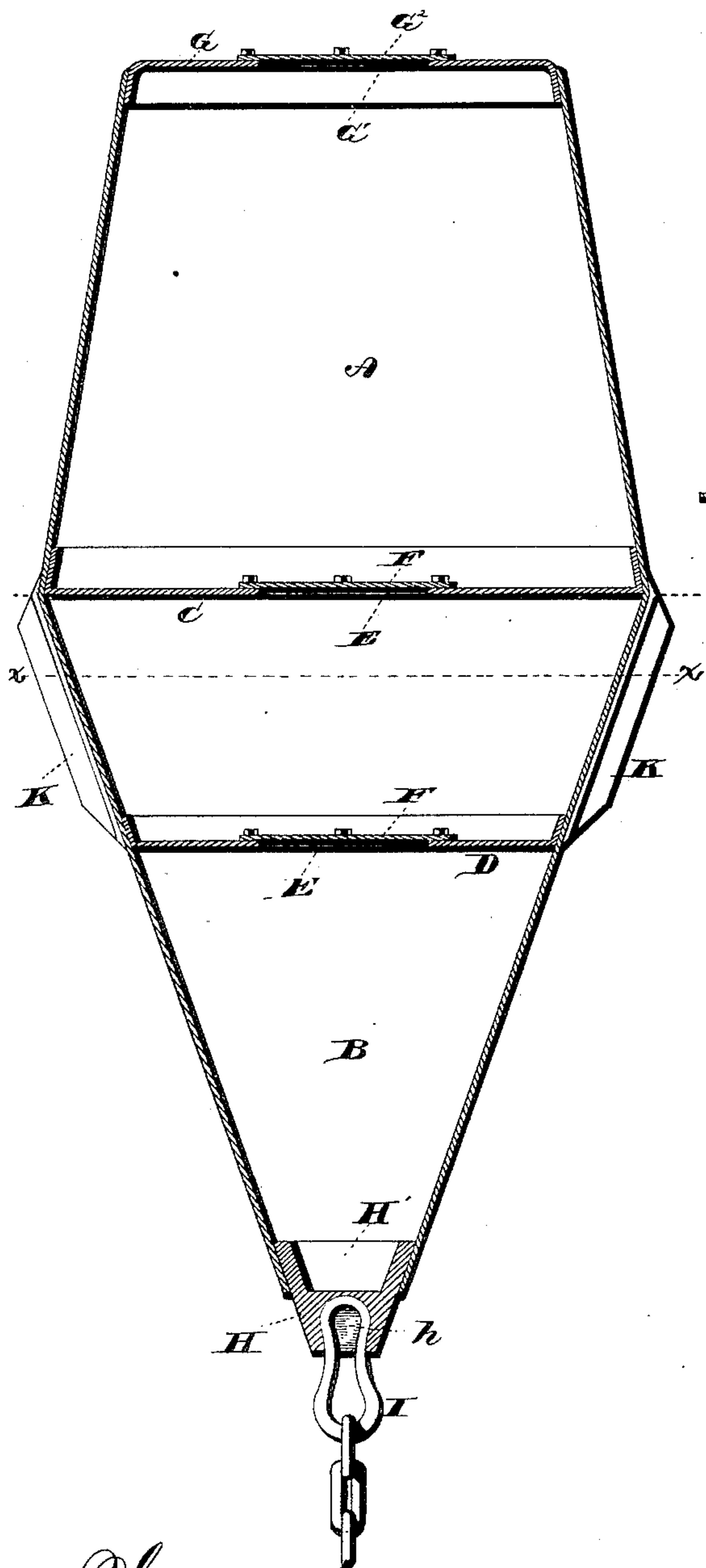


Fig. 2.

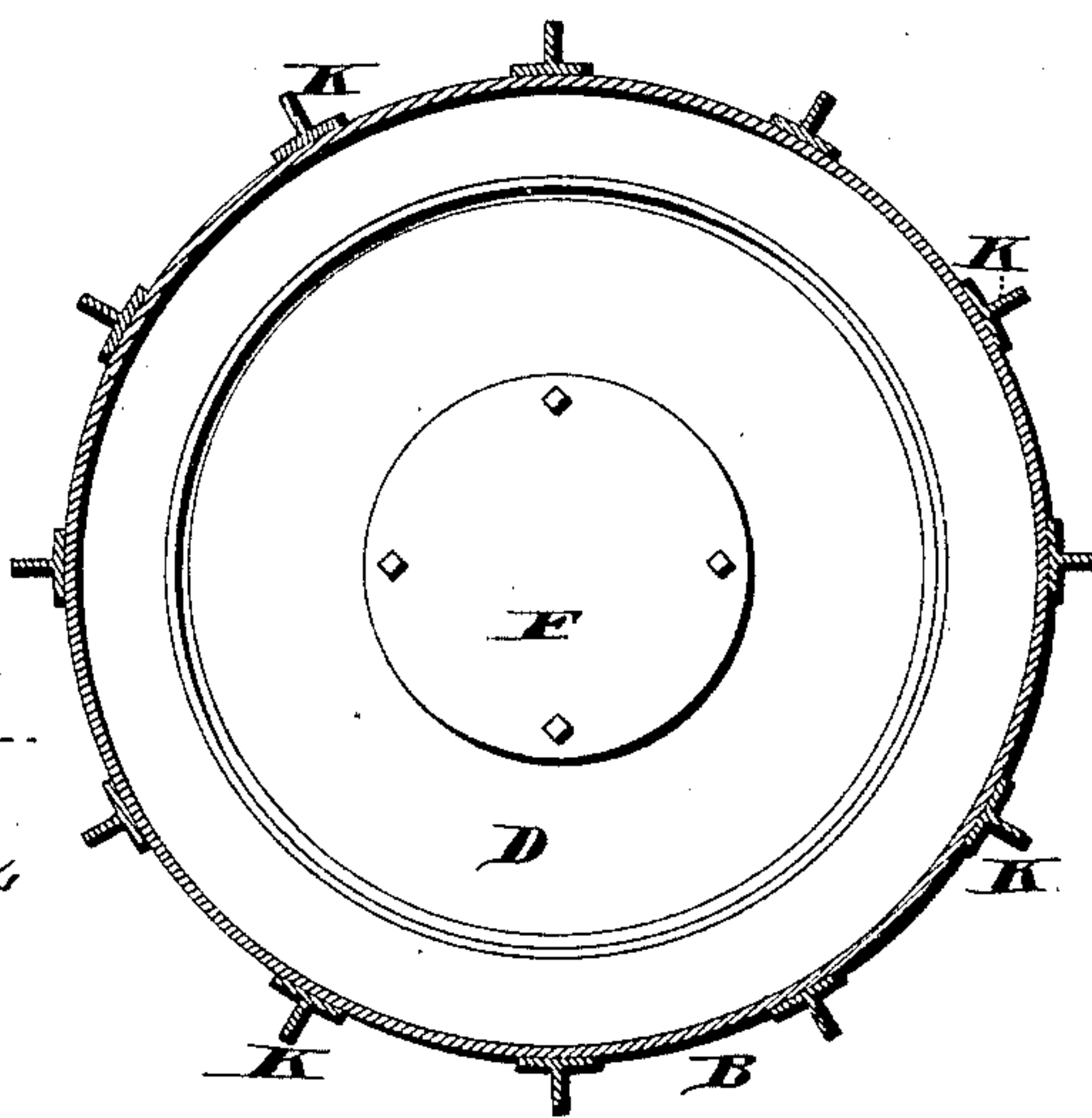


Fig. 3.



Witnesses:
Chas. J. Williamson.
Jas. C. Hutchinson.

Inventor:
Patrick Delany
by Prindle and Russell
attorney.

UNITED STATES PATENT OFFICE.

PATRICK DELANY, OF NEWBURG, NEW YORK.

BUOY.

SPECIFICATION forming part of Letters Patent No. 325,162, dated August 25, 1885.

Application filed May 9, 1885. (No model.)

To all whom it may concern:

Be it known that I, PATRICK DELANY, of Newburg, in the county of Orange and State of New York, have invented certain new and
5 useful Improvements in Buoys; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a vertical central section of my buoy; Fig. 2, a horizontal section of the same on line *xx* of Fig. 1, and Fig. 3 a detail perspective view of one of the guard-irons.

Like letters designate like parts in all the figures.

5 The object of my invention is to provide an improved buoy adapted to stand the contact of ice and ice-floes without being carried away thereby; and to this end it consists of the buoy and the parts thereof arranged, constructed,
10 and combined as hereinafter specified.

In the drawings, A designates the upper part of the buoy, similar in construction to the upper part of a government can-buoy. The lower portion, B, is made of an inverted
15 cone-shape, as shown, joined to the base of the upper part, A.

The diaphragm C within the buoy is situated at the junction of the upper and lower parts of the buoy. Besides serving to brace the buoy against crushing, this diaphragm
20 also serves to divide the interior space within the buoy up into compartments. A second diaphragm, D, below and parallel to this one, extends across within the lower portion of the buoy, serving to brace such lower part and
25 divide its interior into two compartments. Each of these diaphragms is fastened to the walls of the buoy by means of an upturned flange around its edge, which is riveted, bolt-
30 ed, or otherwise fastened, as desired, to the buoy-walls. Each diaphragm is also provided with a man-hole, E, covered by a cover-plate, F, bolted or screwed down to the diaphragm so as to make a tight joint.

35 The buoy-top G, flanged on its under side, and having its flange expanded within and fastened to the upper end of the buoy, is also provided with the usual man-hole, G', and cover G², screwed or bolted down in place.

40 The water-line of the buoy comes at the line of juncture of the upper and lower parts, A B, of the buoy, and consequently at the

level of the upper diaphragm, C, within. Such diaphragm is then best situated for resisting the pressure or blows of anything floating
55 upon the surface of the water.

In the lower end of the lower part, B, of the buoy is fastened the metal block H, having the shape of an inverted frustum of a cone, whose upturned larger end fits within the end
60 of part B, as shown, and can, if desired, be fastened by bolting or riveting. On account of its shape this block obviously cannot be pulled down and out through the end of the part B, into which it is fitted, but any down-
65 ward pull upon it will only tend to force it more tightly in place. I have shown the upper end of block H as being recessed at H'; but this, of course, is not necessary.

The lower end of the block is provided with the recess or socket *h*, flaring upward, or made
70 smallest at its lower end. Into this socket is expanded the upper end of a link, I, to the lower end of which the anchor-chain is to be attached.

75 The buoys of all shapes as heretofore made have been very liable to be carried away by the contact of ice or ice-floes. While they have been liable to be crushed by the ice, they have also been of such shape and construc-
80 tion that floating ice or ice-floes coming into contact with them would take such a hold of them that they were very apt to be torn from their moorings and carried away. To avoid this, and to render my buoy capable of stand-
85 ing the contact of ice-floes without being crushed or carried away thereby, I have made the bottom part or that part which is in the water of an inverted-cone shape, as described, and have braced the buoy within at the water-
90 line and also below by the diaphragms described, and to the outside of such conical lower part of the buoy I have fastened the pieces of T-iron K K K. These T-irons,
95 which are arranged all around the buoy, as shown, extend upward in vertical planes from the level of the lower diaphragm, D, to and a little above the level of the upper diaphragm, C. The cross of the T is fastened to the side
100 of the buoy by riveting or otherwise, as desired, so that the perpendicular rib or web of the iron extends outward in a radial plane from the buoy side. The upper and lower ends of these irons are cut so as to incline in-

ward toward the sides of the buoy, as shown in the drawings. When so formed the ends of the irons offer no projections or shoulders against which ice or any floating object could catch as the buoy rises and falls, or if the ice or object should be extensive and heavy enough to bear down and ride up over the buoy.

As is well known, ice floats so deeply that only a very small fraction of the same is above the water. The T-irons as arranged by me upon the buoy are then, obviously, in the most advantageous position for receiving the contact of the ice. As they extend over the space between the two interior diaphragms their ends will be supported against inward pressure by such diaphragms. They will then guard and protect most effectually the part of the buoy-shell between such diaphragms, which, being just below the surface of the water, would be most exposed to the action of ice and floating bodies.

The ribs formed by the out-turned webs of the T-irons afford little chance for the ice to take hold of the buoy, while protecting the shell of the buoy from actual contact of the body of the ice.

Again, if a floe of heavy ice should strike the buoy it would only bear it down, riding up over the ribs thereon. As soon as the floe passed the buoy could then rise again unharmed. The same action would take place if the buoy were struck by any large and heavy floating object besides ice.

I do not claim herein as my invention, in combination with a buoy, bars extending down along the outside of the buoy and below the lower end thereof, and fastened together at their lower ends to form an attaching place for the anchor-chain.

Having thus fully set forth the nature of my invention, what I claim is—

1. In combination with a buoy, the series of longitudinal guard-bars or fenders attached to the buoy, having their lower ends cut or beveled inward and downward, substantially as and for the purpose described.

2. In combination with the buoy, the T-shaped bars attached by their cross-plates to the sides of the buoy, so that each bar extends longitudinally with reference to the buoy, and having their lower ends cut or beveled inward and downward, substantially as and for the purpose described.

3. In combination with the buoy, the angle-bars attached thereto, extending longitudinally of the same from points at or near the water-line to points below the same, and having their upper and lower ends cut or beveled inward toward the side of the buoy, substantially as and for the purpose described.

4. In combination with the shell of the buoy, an internal stiffening diaphragm extending across the same at or about the water-line, the second similar diaphragm below this, and the series of longitudinal bars on the outside of the shell extending over and a little beyond the portion of the shell between the diaphragm, and having ribs or flanges extending out radially with reference to the shell, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of April, A. D. 1885.

PATRICK DELANY.

Witnesses:

ALBERT N. CHAMBERS,
ARTHUR M. JOHNSTON.

It is hereby certified that in Letters Patent No. 325,162, granted August 25, 1885, upon the application of Patrick Delany, of Newburg, New York, for an improvement in "Buoys," an error appears in the printed specification requiring the following correction: In line 68, page 2, the word "diaphragm" should read *diaphragms*; and that the Letters Patent should be read with this correction therein that the same may conform with the record of the case in the Patent Office.

Signed, countersigned, and sealed this 1st day of September, A. D. 1885.

[SEAL.]

G. A. JENKS,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.