

F. FORD.

Ice-Breakers and Fenders.

No. 143,003.

Patented September 23, 1873.

Fig. 1.

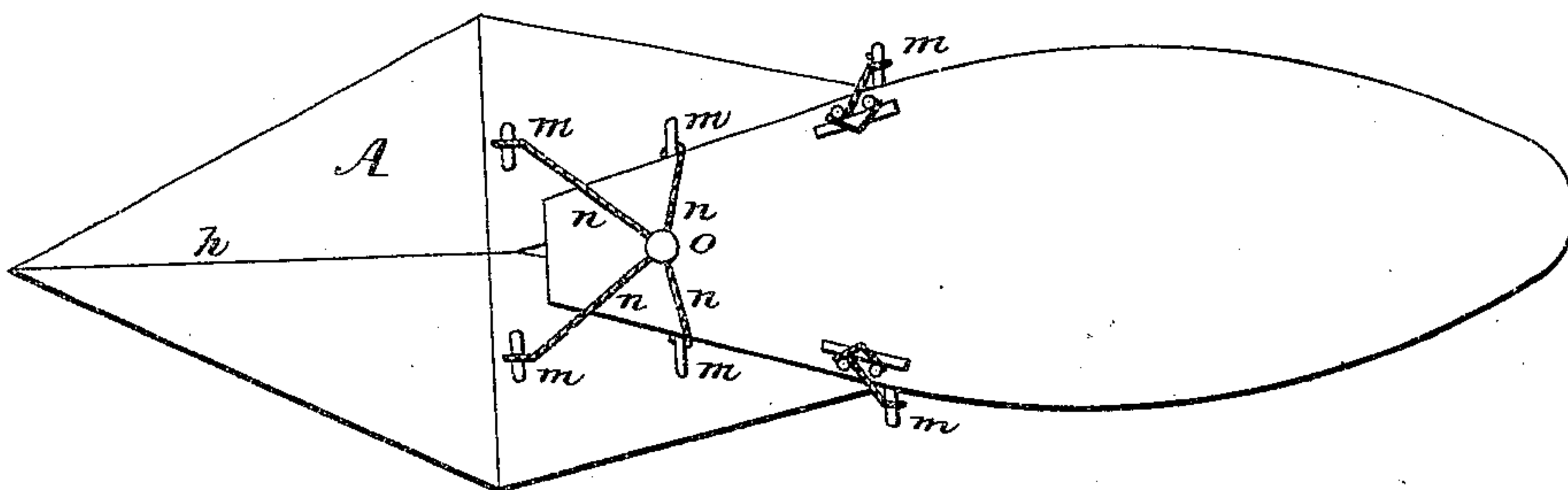
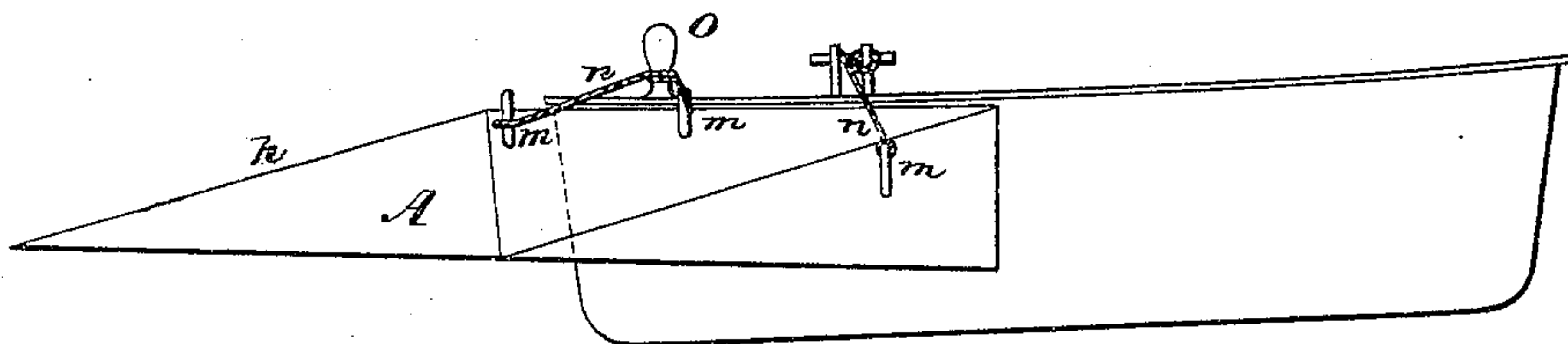


Fig. 2.



Witnesses.  
C. H. Johnson.  
H. A. Daniels.

Inventor:  
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By his Attorney C. B. Towles.

# UNITED STATES PATENT OFFICE.

FREDERICK FORD, OF POINT PLEASANT, WEST VIRGINIA.

## IMPROVEMENT IN ICE BREAKERS AND FENDERS.

Specification forming part of Letters Patent No. **143,003**, dated September 23, 1873 ; application filed July 18, 1873.

*To all whom it may concern:*

Be it known that I, FREDERICK FORD, of Point Pleasant, in the county of Mason and State of West Virginia, have invented certain new and Improved Detachable Ice-Fender for Protecting Bows of Vessels from Ice; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings which form part of this specification.

Figure 1 is a plan view of a boat with fender attached. Fig. 2 is a side view of Fig. 1.

Like letters in all figures of the drawings indicate like parts.

This invention relates to an ice fender or breaker, to be attached to the bows of boats and other vessels to protect them from injury from the ice, as will be hereinafter more fully explained and pointed out in the claim.

A represents the fender, which is intended to be of heavy timber, with a keelson running longitudinally through the center of it, the cross-timbers being suitably arranged to connect with the said keelson, the whole being bolted or fastened in the usual manner, and strengthened, by such mechanical means as the circumstances of the case may require, to withstand the use to which it will be put. The fender will be made perfectly water-tight, and the exposed parts covered with iron.

Of course the size of the fender will depend upon the size of the vessel or boat it is to be used on; and the object is to have a boat provided with one, and ready to be attached to the bow at any time when the necessity of the case demands it. The shape of the fender will be best explained by reference to the figures of the drawing; and in the construction

thereof the timbers will be made to conform to that shape.

The angular portions of the fender, when in position for use, will be up; while the flat portion thereof will be below, or down in the water; and, it will be seen, as the boat moves forward the fender will run in or under the ice, and, lifting it up, the edge or crown *h* of the angle of the fender will cut or break it in two, and the ice or pieces thereof, thus broken, will be thrown on each side and off of the fender, thus fully protecting the bow of the boat from damage.

The rear end of the fender will be constructed so as to straddle or embrace the sides of the bow snugly, (see Figs. 1 and 2,) and will be attached thereto by means of the rings *m*, or their equivalents, and the cable *n*, the latter being passed through the rings, and then made fast to a post, *o*, and at other available points on the bow of the vessel.

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

The detachable ice fender or breaker A, having the front tapered to a point, and the edges of the rear inclined inwardly, and the surface of the fender beveled and covered with iron, and provided with rings *m* to receive the cable *n*, by which it is attached to the bow of the vessel, the whole constructed and applied substantially in the manner and for the purpose as shown and set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of June, 1873.

FREDERICK FORD.

Witnesses:

JAMES H. COUCH, Jr.,  
D. W. POLSLEY.