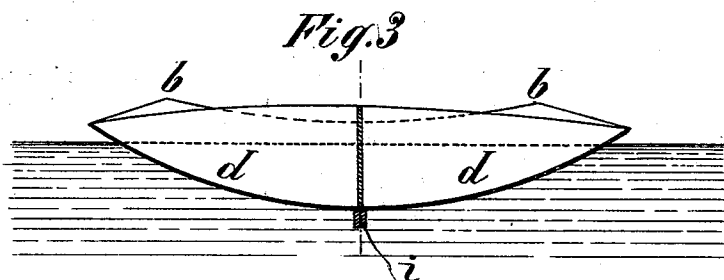
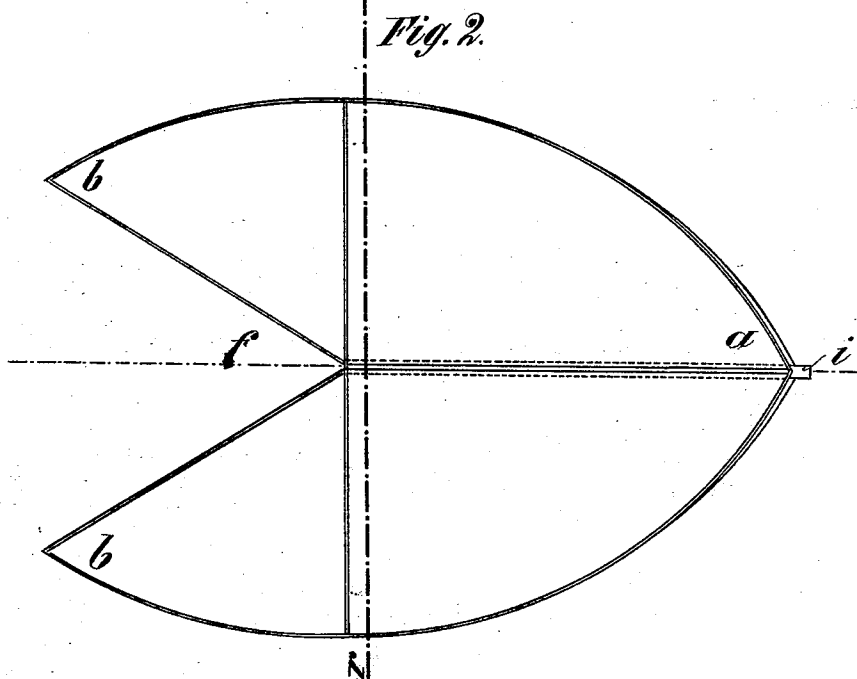
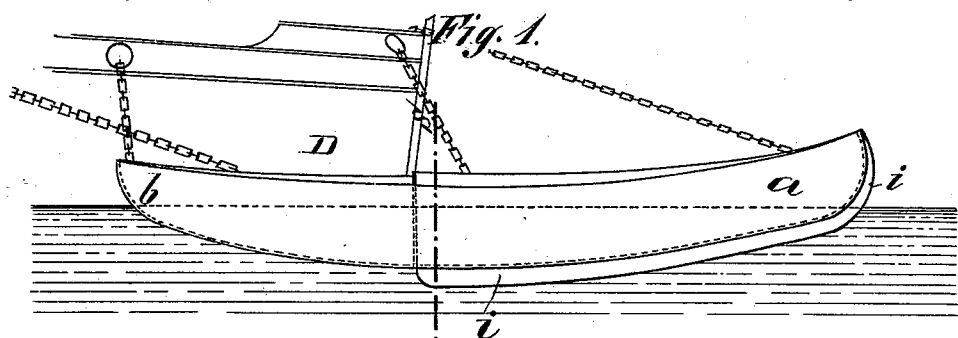


(No Model.)

E. J. WEEDERMANN.
ICE BREAKING APPARATUS.

No. 508,260.

Patented Nov. 7, 1893.



Witnesses:-
J. O. Caplinger
F. Dittmar

Inventor:
E. J. Weedermann
By *J. Dittmar*
att'y

UNITED STATES PATENT OFFICE.

ERICH JACOB WEEDERMANN, OF FLENSBURG, GERMANY.

ICE-BREAKING APPARATUS. .

SPECIFICATION forming part of Letters Patent No. 508,260, dated November 7, 1893.

Application filed September 17, 1892. Serial No. 446,236. (No model.)

To all whom it may concern:

Be it known that I, ERICH JACOB WEEDERMANN, of Flensburg, Germany, have invented certain new and useful Improvements in Ice-Breaking Apparatus, of which the following is a specification.

The object of this invention is to protect vessels, navigating in the ice, against the shocks to which they are exposed in running against the solid mass of ice. The device by which this object is obtained, is a flat boat of peculiar form, which is applied in front of the vessel to be protected.

Figure 1 of the accompanying drawings, is a side elevation of the device applied to the prow of a vessel. Fig. 2 is a top view of the device and Fig. 3 is a cross section on line *r-s* of Fig. 2.

The edge above water is of an elliptic form, as shown in Fig. 2, cut in by a sharp angle *f*; the bottom *d*, preferably made of strong metal, is flat and slightly curved up to the said edge, the front part *a* of which is a little higher than the other parts. The keel *i* is a strong metal beam, slightly curved upward and rounded at the front end. The vessel *D* to be protected, fits between the back ends *b b*, the stem coming into the angle *f*. Chains are used to secure the device to the ship.

When the vessel is running against ice, the

above described protector will break it, and gradually work it aside, and when running against solid ice, the device will be lifted up without a jerk or serious shock, on account of its rounded form and will then by its weight break the ice, so that the vessel itself can never be injured by direct contact with solid ice masses.

Having thus described the invention, what I desire to secure by Letters Patent is—

An ice breaking apparatus for vessels, consisting of a flat-topped oval vessel having a rounded bottom the rear portion of which is provided with an angular recess adapted to fit the prow of the vessel to which it is secured, said oval vessel being provided with chains for attachment to the prow and having a central longitudinal keel on its under side, the forward end of which is curved upwardly, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of August, 1892.

ERICH JACOB WEEDERMANN.

Witnesses:

CARL HANSEN,
EMIL LOWANZAY,

Both of Flensburg.