J. W. Kirk,

Ship Building.

No. 2972. Patented. Feb. 24, 1843.

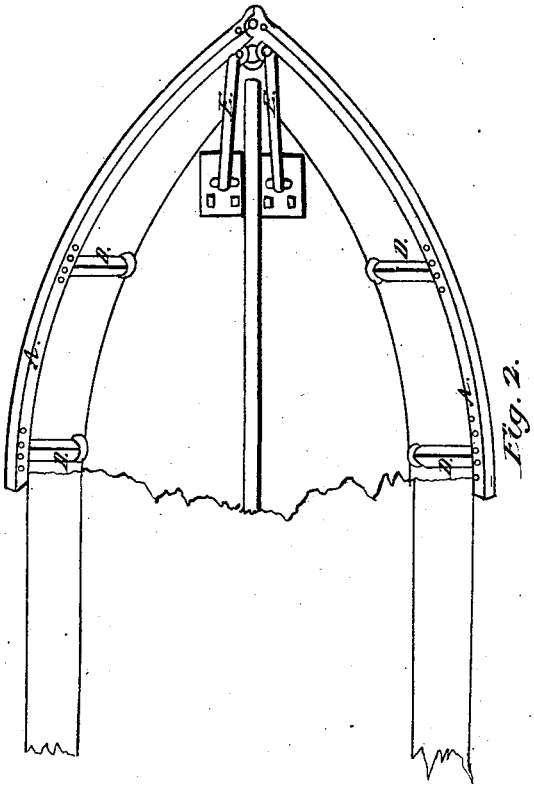

Fig. 2.

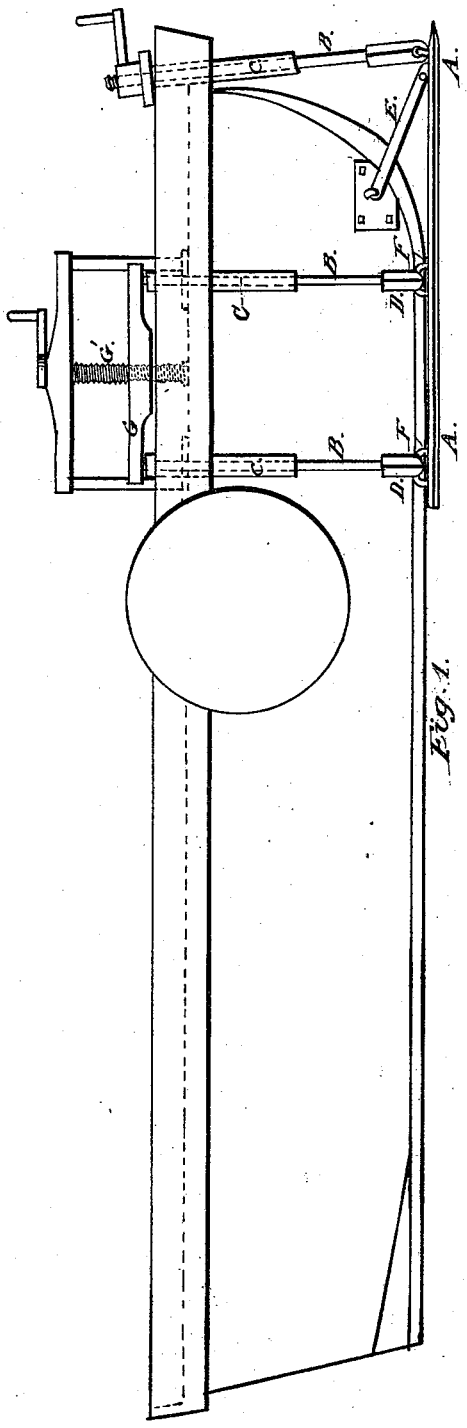

Fig. 1.

UNITED STATES PATENT OFFICE.

JOSIAH W. KIRK, OF PHILADELPHIA, PENNSYLVANIA.

FENDER TO PROTECT BOATS AGAINST INJURY FROM SNAGS AND SAWYERS.

Specification of Letters Patent No. 2,972, dated February 24, 1843.

To all whom it may concern:

Be it known that I, JOSIAH W. KIRK, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful apparatus for protecting steamboats and other vessels from injury by snags and sawyers and from drift-timber, which improved apparatus I denominate the "Mississippi snag-fender;" and I do hereby declare that the following is a full and exact description thereof.

My snag fender consists of a strong bar of wrought iron, which is so placed as to embrace, or surround, the bows of the boat, and is held by means of suitable bars and braces in such situation as shall cause it to be brought into contact with the upper end of a snag before it can touch the boat, and shall thereby cause the boat to glance off, and thus prevent it from being injured. This fender may be about one third of the length of the boat, more or less, and is capable of being raised and lowered by means of screws, a rack and pinion, a windlass, or tackle. When in use, as a snag fender, it is to be lowered so as to be as deep as, or somewhat deeper, in the water than the bottom of the boat. It is to stand in a horizontal plane, and is so curved as to give it the form, and nearly the dimensions, of the gunwale of the fore end of the boat. Its distance from the boat, along each side, will, in general, when in use, be about twelve feet; and at the stem it may extend to fifteen feet. These distances, as well as the dimensions of the respective parts which may be named, may, of course, be varied according to the size of the boat, and the dictates of experience. When employed as a defense against drift timber, the fender is to be raised to the surface of the water, or nearly so.

In the accompanying drawing, Figure 1, is a side view of a steam boat, with the fender and its appendages in place. Fig. 2, is a bottom view of the same.

A, A, is the wrought iron fender, which I propose to make about nine inches wide, and about four or five thick at its middle, from which it may taper off at each edge.

B, B, B, are bars of iron, which extend down at the guards, through the deck of the boat, passing through sockets, C, C, made fast to the boat, within which they slide up and down. These bars may be four, or five, inches in diameter, and of such length as will be required by the draft of the boat. At their lower ends, D, D, where they connect with the fender, they are bent out, so as to form an angle of twenty two degrees, more or less, with the horizon, and are flattened so as to have a form similar to that of the fender, in order to lessen their resistance in passing through the water; the angle at which the part D, D, stands, will effectually prevent the contact of the end of a snag with them, as it passes along the outer edge of the fender.

E, E, are braces of iron, which may be about fifteen feet long, and from four to five inches in diameter; the braces are jointed to the fender, near to its forward point, and to the bottom of the boat, near its stern. Where they are jointed to the boat, they are to bear against a stout plate of wrought-iron, say a foot wide, two feet long and an inch and a half, or two inches, in thickness; said plates being fitted, and firmly secured in place, as they are to bear the direct thrust when the fender is brought into contact with a snag. As these braces, when the fender is raised, or lowered, must move in the segment of a circle, it is necessary to allow of play, to a certain extent, at the junction of the lower ends of the bars B, B, with the fender; and this may be effected by means of staples, F, F, on the fender, made sufficiently long to allow them to slide through the loops, or eyes, on the lower ends of the bars, which loops embrace said staples. The fender may be made in two pieces, if preferred, jointed together at the forward point, where they meet together.

The sockets C, C, may reach down nearly to the water line, so as to admit of the raising of the fender, when desired, to that height.

G, G′, represents a slide and screw, sustained in a suitable frame, for raising or lowering the fender.

H, is a simple nut and wrench which may be used for the same purpose; the means of effecting this object may, however, be varied so as to apply other mechanical powers to the same purpose.

Should it so happen that the point of the fender meets the center of a snag so directly that the boat would not tend to glance off therefrom, such will be the strength of the fender, that it would undoubtedly break off, or split the snag, and protect the boat from injury; and it must be apparent that the cases must be very rare in which its security

would not be rendered perfect by this apparatus.

Having thus fully described the nature of my invention, and shown the manner in which the same will operate, what I claim therein as new, and desire to secure by Letters Patent, is—

The combining with a steam boat, or other vessel, of a fender of iron constructed substantially in the manner herein set forth, so that it shall be brought into contact with a snag, or other similar obstruction, in advance of the hull of the boat, and cause it to glance off, or otherwise to protect it from injury; the whole structure being arranged and operating as herein described and made known.

J. W. KIRK.

Witnesses:
THOS. P. JONES,
JOHN HITZ.