

J. N. Bitting, Sr.
Steering.

Patented Jan. 15, 1867.

N^o 61,147.

FIG. 1.

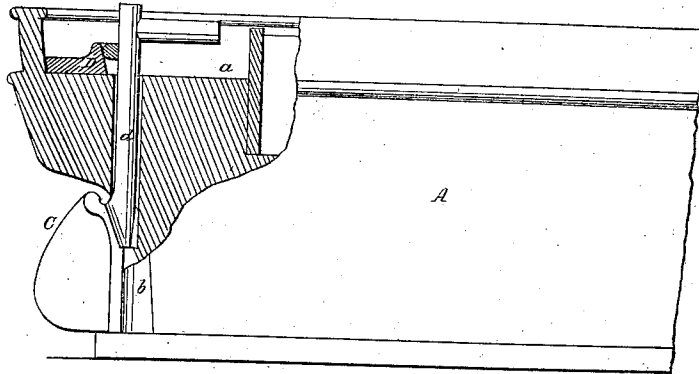


FIG. 2.

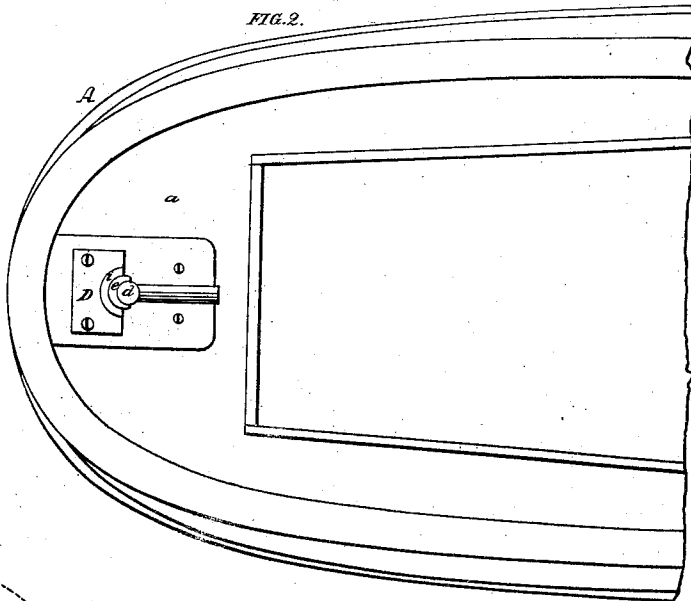


FIG. 5.

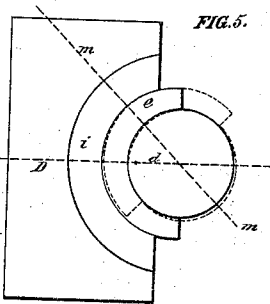


FIG. 6.

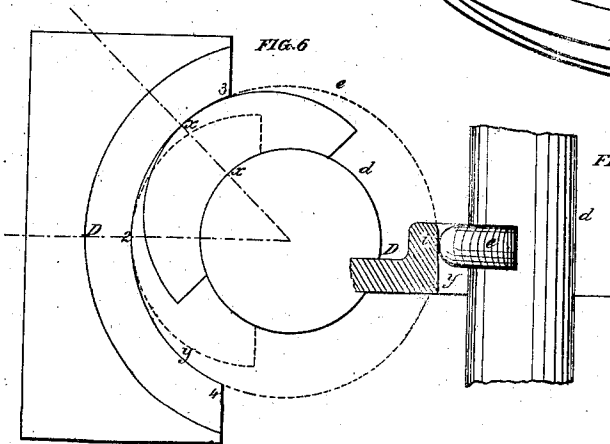
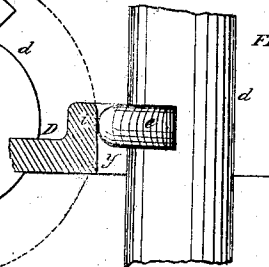


FIG. 4.



Witnesses.

Wm. Albert Sill
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Inventor.

J. N. Bitting
By his Atty
H. H. H. H.

United States Patent Office.

JOSEPH N. BITTING, SR., OF CAMDEN, NEW JERSEY.

Letters Patent No. 61,147, dated January 15, 1867.

IMPROVED RUDDER BEARING.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. N. BITTING, of Camden, Camden county, New Jersey, have invented certain improvements in Rudder Bearings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists of a projection on the stem of a rudder, in combination with a plate on the deck, the said plate having a recessed edge, forming the bearing for the said projection, and the latter and the recess in the plate being so formed, in respect to each other, that there is little friction to resist the free turning of the rudder, and no liability of its stem leaning from its proper position on being depressed, when the bearing surface near the pintle is worn.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation. On reference to the accompanying drawing, which forms a part of this specification—

Figure 1 is an elevation, partly in section, of sufficient of a vessel and rudder to show my improvements.

Figure 2, a plan view.

Figure 3, a detached sectional view, drawn to an enlarged scale.

Figure 4, the same, on the line *m m*, fig. 5.

Figure 5, an enlarged plan view.

Figure 6, a diagram illustrating my invention.

A represents a portion of the hull of a vessel, *a* being the deck, *b* the stern post, C the rudder, and *d* the rudder post. To the rudder post, at a point just above the deck *a*, is secured a metal segment, *e*, which is rounded at the edge, and is somewhat thicker in the middle, between the points *x x'*, than at the ends, as best shown in fig. 6. To the deck *a*, behind the rudder post, is secured a plate, D, a curved recess, *y*, in the front edge of which is adapted for the reception of the segment *e*, the plate at the edge of the said recess being increased in thickness by a rib, *z*. The edge of the plate D, at the centre 2 of the recess *y*, is inclined, as shown in fig. 3, but gradually becomes vertical, as in fig. 4, towards the points 3 and 4, fig. 6. When the rudder is at midships the segment *e* will bear throughout its entire curved edge against the edge of the plate D. When, however, the rudder is turned to one side or other, only the central portion of the segment, at and near the point *x*, will bear against the plate, the remaining portions being free from contact with the same, as shown in fig. 6.

In ordinary rudder bearings the extent of the bearing surfaces is so great, and the consequent friction is so excessive, that considerable labor is required to turn the rudder; the bearings also quickly wear away, and the rudder departs from its proper vertical position; the difficulty of turning the same is consequently increased, and the pintles become strained. In the above-described arrangement, when the rudder is in any position except at midships, the bearing surfaces are so small that there is but comparatively little friction, and the rudder is easily turned. When the rudder is at midships, however, the extent of the bearing surfaces is greatly increased, as the rudder, when in this position, is subject to a constant oscillating motion, and the bearing surfaces, unless of considerable extent, would rapidly wear away. As the surfaces of the segment and plate, as well as the pintle pins, wear away, the rudder will gradually descend, but will be maintained in its vertical position, in consequence of the inclination of the curved edge of the plate D, the recess *y* becoming smaller towards the lower edge of the plate, so as to compensate for the reduced diameter of the segment.

I claim as my invention, and desire to secure by Letters Patent—

The projection *e* on the rudder post, in combination with the plate D and its inclined recess on the edge, when the latter and the said projection are formed in relation to each other as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH N. BITTING.

Witnesses:

CHARLES E. FOSTER,

W. W. DOUGHERTY.