



# United States Patent Office.

D. W. HOWARD, OF DETROIT, MICHIGAN.

*Letters Patent No. 70,215, dated October 29, 1867.*

## IMPROVEMENT IN RUDDERS.

*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, D. W. HOWARD, of Detroit, in the county of Wayne, and State of Michigan, have invented a new and useful Improvement in Rudders; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my improved rudder.

Figure 2 is a horizontal cross-section of the same taken through the line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved rudder, so constructed and arranged that a slight movement of the rudder-post will produce as much steering power as a much greater movement of the rudder-post in a rudder constructed in the ordinary manner; and it consists in the rudder, constructed and arranged as hereinafter more fully described.

A is the rudder-post, which is hung to the stern of the vessel in the ordinary manner. B is the rudder-blade, the middle part of which is cut away, as shown in fig. 1. C is a vertical bar, the ends of which are attached to the upper and lower parts of the rudder-blade B, or which may form a solid part of said rudder-blade. D are two wings, hinged to the inner edge of the bar C, and which are of such a size as to fill up the cut-away part of the rudder-blade.

By this construction the forward part of each of the wings D is free to move inward till it comes in contact with the inner side of the other wing. But neither of the wings can move outward farther than to be on a straight line parallel with the line of the vessel's keel.

In using the rudder, a slight movement of the rudder-post brings the rudder-blade into such a position that the pressure of the water will bring one of the wings D into the position shown in red in fig. 2, giving to the rudder as great a steering power as a much farther movement of the rudder-post would give to an ordinary rudder.

It should be observed that this improvement can be readily attached to old rudders without its being necessary to make the rudder entirely new, thus greatly diminishing the expense of applying the improvement to vessels already in use. The rudder may be made of wood or metal, as may be desired. The rear part of the rudder-post A, opposite the wings D, may be made round, as shown in the drawings, but I prefer to make it flat or slightly concave, so that the free edges of the wings D may work closer to said post.

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

The combination of the hinged wings D and vertical bar C with the upper and lower parts of the blade B, and with the post A, substantially in the manner herein shown and described, and for the purpose set forth.

D. W. HOWARD.

Witnesses:

J. M. WELCH,

S. B. McCracken.