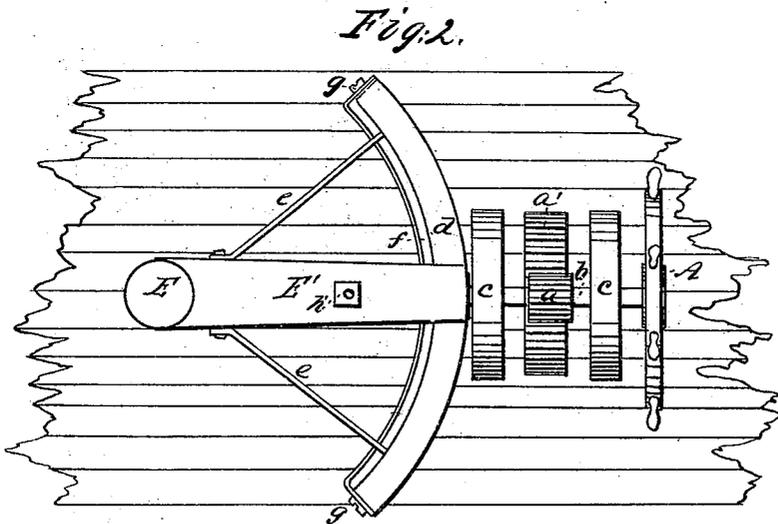
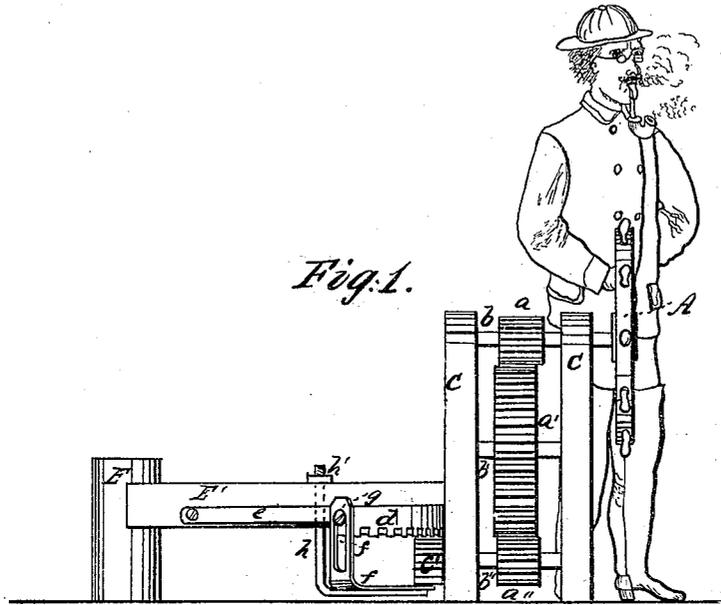


*A. Sargent.*  
*Steering.*

*N<sup>o</sup> 81,114*

*Patented Aug. 18, 1868.*



*Witnesses*  
*C. F. Brown*  
*J. W. Beadle.*

*Inventor*  
*Amos Sargent*  
*by Geo. E. Brown*  
*atty.*

# UNITED STATES PATENT OFFICE.

AMOS SARGENT, OF BREWER, MAINE.

## IMPROVEMENT IN STEERING APPARATUS.

Specification forming part of Letters Patent No. **81,114**, dated August 18, 1868.

*To all whom it may concern:*

Be it known that I, AMOS SARGENT, of Brewer, in the State of Maine, have invented a new and useful Improvement in Steering Apparatus for Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is a plan view of the same.

This invention consists of a mechanism for steering all kinds of sailing-vessels and steamers, arranged in such manner as to diminish the effect of violent blows from the sea on the rudder, and to bring the rudder completely under the control of the helmsman with small expenditure of force, as will hereinafter more fully appear.

To enable those skilled in the art to make and use my invention, I now proceed to describe its construction and operation.

Similar letters in the drawings refer to like parts.

A represents a steering-wheel of ordinary construction, such as is in common use on vessels.  $a a' a''$  represent cog-wheels, which are connected with shafts  $b b' b''$  supported by uprights  $c c$ , the cog-wheel  $a$  being connected with the wheel A by the shaft  $b$ . Said cog-wheels are of different sizes, the wheel  $a'$  being the largest. On one end of the shaft  $b''$  is a pinion,  $c'$ , which meshes with a curved rack,  $d$ .

E represents the rudder-shaft, and  $E'$  an arm extending at right angles from said shaft, and securely fastened to the rack  $d$  in any suitable manner. For additional security, braces  $e e$  are attached, one on each side of the arm  $E'$ , forming acute angles with the same, the opposite ends of these braces being suitably secured to the concave side of the

rack  $d$ . Beneath the rack  $d$ , and separated from it by the pinion  $c'$ , is a strip of metal,  $f$ , with a curvature corresponding to that of the rack, the ends of which are bent to form right angles, and contain longitudinal slots  $f' f''$ , through which are passed set-screws  $g g$  in the ends of the curved rack  $d$ . Said strip  $f$  is designed as a track for the pinion  $c'$ . It is also flexible, and admits of a vertical motion by means of the slots  $f' f''$  and bolt  $h$ , which bolt is also bent to form a right angle, the horizontal portion being flattened and fastened to the under side of the track  $f$ , and the vertical portion passing up through a socket in the arm  $E'$ , said socket admitting of a free up-and-down motion. The bolt  $h$  is secured at the top by a nut-screw,  $h'$ .

It will be seen that by this arrangement the position of the rudder is not liable to be changed by the sudden and powerful shocks to which all rudders are subjected from the blows of the sea, the combination of the rack and pinion and cog-wheels rendering it an exceedingly difficult matter to wrench the wheel from the operator's hands. The curved track  $f$  is also a great advantage, as any inequality in the surface of the deck, or any obstacle liable to be lying on the deck, is easily surmounted by the vertical motion of the track.

The operator is also enabled to regulate the position of the rudder with great exactness and ease.

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

The curved and elastic guard  $f$  applied to the rack  $d$  and pinion  $c'$ , as and for the purpose set forth.

AMOS SARGENT:

Witnesses:

NATHAN L. PERKINS,  
DANIEL SMITH.