E. G. Green.

Steering.

No. 100,750. Patented Mar. 15, 1870.

Fig. 1.

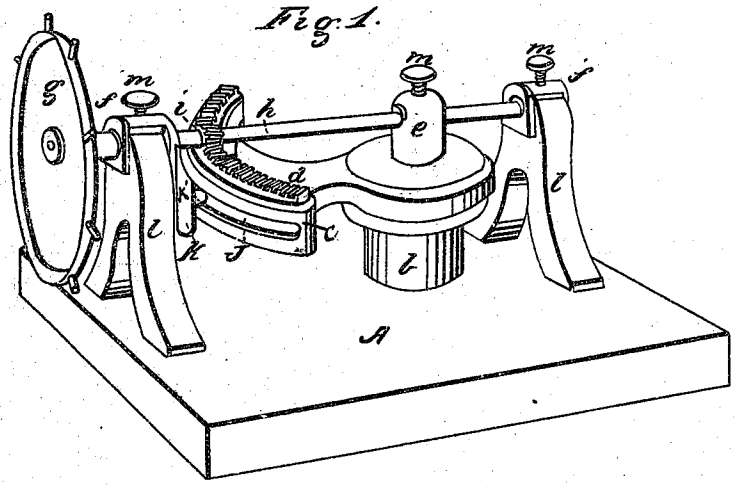
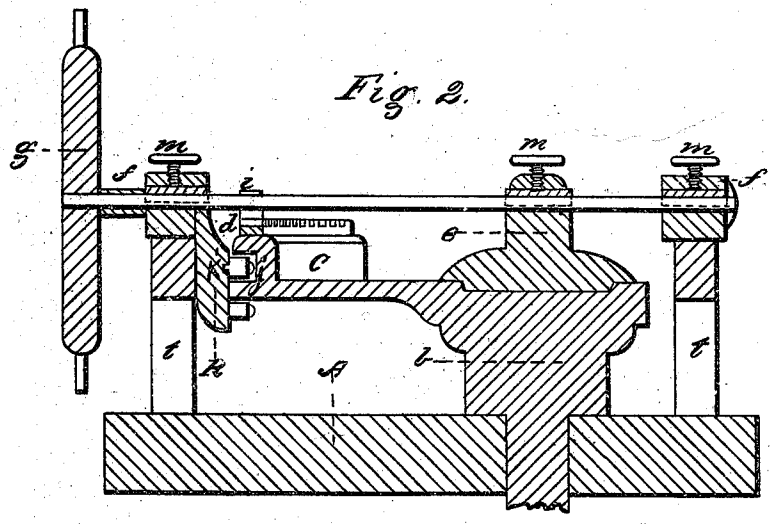


Fig. 2.



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EBENEZER G. GREEN, OF EAST GLOUCESTER, MASSACHUSETTS.

Letters Patent No. 100,750, *dated March* 15, 1870.

IMPROVEMENT IN STEERING-APPARATUS.

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

I, EBENEZER G. GREEN, of East Gloucester, in the county of Essex, and State of Massachusetts, have invented an improved Steering-Apparatus, of which the following is a specification.

Nature and Objects of the Invention.

The invention makes use of a hand-wheel, actuating a shaft having gearing which operates the toothed segment of the rudder-head, whereby the rudder is operated and performs its work in any direction desired. The fastenings or confinings of the shaft are also so constructed that when the rudder grounds in shoal water, or strikes any obstacle and is lifted up, the whole apparatus is lifted, and when the obstruction is removed falls back without injury or displacement of any of its parts; and the object of this invention is so to apply the wheel, shaft, pinions, gearing, and other apparatus to the rudder-head, as to secure greater safety to the rudder, and greater ease and efficiency in managing the vessel.

Description of the Accompanying Drawings.

Figure 1 is a side elevation of the invention, showing the same as attached to the vessel when in use.

Figure 2 is a vertical section of the same, showing all its different parts.

The letter A represents a form or part of a vessel to which the steering-apparatus is attached.

b, the rudder-head.

c, the segment of the rudder-head having gearing *d*.

e, the cap of the rudder-head.

f f', boxes or movable housings supporting the shaft.

g, the wheel.

h, its shaft.

i, pinions on the shaft.

j, a recess or groove in the end of the segment of the rudder-head.

k k', rollers supporting and guiding the segment of the rudder-head.

l l, supports of the shaft and other apparatus fastened to the deck.

m m m, adjusting-screws in the top of the boxes, which, when turned down upon the shaft, keep it in position.

General Description.

A represents that part of a vessel to which the steering-apparatus is applied.

b is the rudder-head to which is attached the rudder-post descending through the deck to the water, in the usual manner; the rudder-head also has a segment constructed and extending outward in the manner seen in fig. 1 in the drawings, upon the extremity of which is a rail provided with gearing; in the end of this segment is a groove, *j*; (see figures in drawing.)

The end of the bottom of the segment rests upon a roller, *k*, secured to the housing by a screw or other fastening, upon which it is movable; also another roller, *k'*, secured in like manner, plays in the groove *j*; by turning the wheel, the rudder, it will be seen, is easily moved in either direction, and at the same time it is perfectly secured. The boxes *f f'* are let into mortises in the top of the supports *l l*, and are movable, so that, in case the rudder strikes an obstacle, or is thrown upward, it carries with it the shaft of the wheel, with the boxes, &c.

The wheel is made in the usual manner, and is attached to the shaft *h*, the shaft passing through the boxes *f f'* in the manner seen in figs. 1 and 2, and through the top of the cap *e*. Through the top of the boxes and cap are screws, which are brought down upon the shaft, or a fender upon the shaft. The object of these screws upon the shaft is to secure the rudder in any position desired. Instead of these screws a dog may be used, striding the shaft upon the rail at the end of the rudder-head segment outside the gearing, and fitting into teeth, pins, or other fastenings upon the end of the segment.

The whole apparatus, except the wheel, may be covered with a box or other covering having openings to the screws. By means of the wheel, the pinions on the shaft running in the gearing upon the segment of the rudder-head, great power may be brought to bear upon the rudder. The movements of the rudder are also steady and uniform in operating, and if the rudder is thrown up no injury will result therefrom.

Claims.

1. The arrangement of the movable boxes *f f'*, and the movable cap *e*, having adjusting-screws *m m m*, the wheel *g*, and the shaft *h*, having pinions *i*, with the supports *l l*, and the rudder-head *b*, having gearing *d*, whereby the rudder may be thrown upward without injury to the parts above named, the whole being combined and operating substantially as and for the purpose described.

2. The arrangement of the groove *j*, the rollers *k k'*, in combination with the segment of the rudder-head, having gearing *d*, and operated by the wheel *g* and shaft *h*, with its pinions *i*, the several parts above named being constructed, combined, arranged, and operating substantially as and for the purpose described.

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