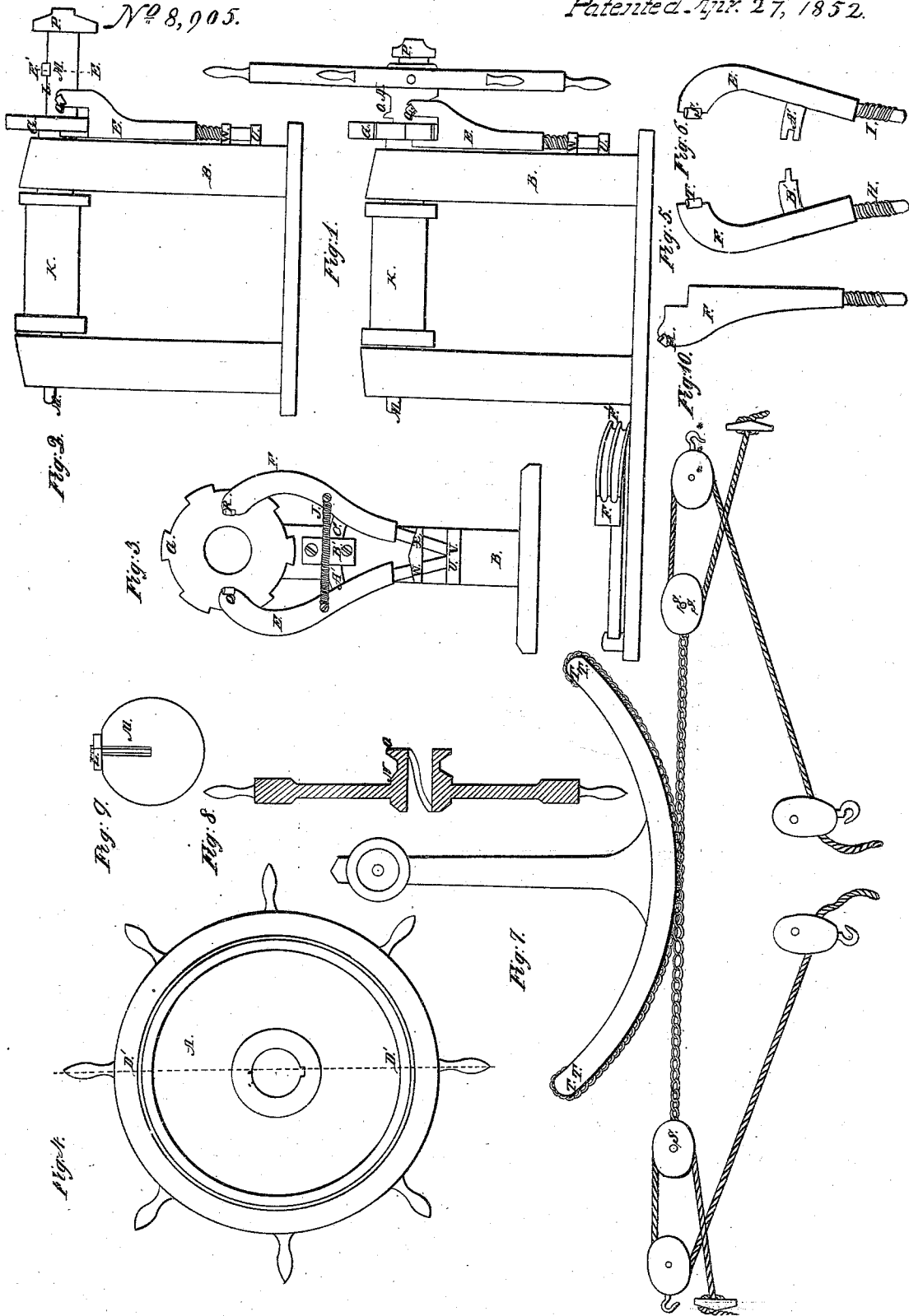


N. T. Edson.
Steering Apparatus

Patented Apr. 27, 1852.

No 8,905.



UNITED STATES PATENT OFFICE.

NATHANIEL T. EDSON, OF NEW ORLEANS, LOUISIANA.

RELIEF STEERING APPARATUS.

Specification of Letters Patent No. 8,905, dated April 27, 1852.

To all whom it may concern:

Be it known that I, NATHANIEL T. EDSON, of the city of New Orleans and parish of Orleans, State of Louisiana, have invented
5 a new and useful Improvement in a Ship's Steering-Wheel; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the let-
10 ters of reference marked thereon.

The nature of my improvement consists in the application of a forked and unforked pawl, with a single ratchet, formed so that
15 both pawls can work on it from opposite directions, and rubbers placed face to face or back to back, and on the same side of the wheel, and applying springs to the pawls, to prevent the parting of the rope or chain, and other injuries subject to an otherwise sud-
20 den contact of the pawls and ratchet, whereby I am enabled to save much of the space and expense, and otherwise increase the practicability of the larboard and starboard
25 pawl and ratchet for the purpose of protecting the helmsman against the violence of the sea, heretofore patented; also, the attaching of chains and blocks to a tiller or sweep, in such a manner as to leave the tiller
30 rope equally taut, and furnish an equal leverage in every position of the tiller.

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

Figure 1 is a longitudinal elevation of the
35 wheel, and a representation of the machine complete. Fig. 2 is the representation of the machine, with the wheel A removed. Fig. 3 is a front representation of the post B, which bears the wheel, the pawls E and
40 F, the ratchet G and spring J, which keep the pawls up to the work, with bearings W and X, on which the springs H and I rest, and through which the lower part of the pawls pass, cap C', which keeps the arms
45 A' and B' in their proper places, and bearings U and V, which receive and sustain the pawls after the elasticity of the springs is spent. Fig. 4 is a side representation of the wheel A. Figs. 5 and 6 represent the sides
50 of the pawls E and F next the post, rollers S and T, spiral springs H and I, placed upon them, and arms A' and B', which, with the spring J, keep the pawls in their places; also, the mortise and tenon at their
55 ends, whereby each pawl has the benefit of both springs. Fig. 7 represents the rudder-

head, tiller, and a sweep attached to its end, the shape of which is ascertained by placing one point of the compass or dividers at the center of the rudder-head, and the other at
60 the end of the tiller. Its length should be about one-fourth of the circle, in the outer side of which sweep there is formed two grooves, one above the other, as seen
65 at F' in Fig. 1, to receive a chain each, of equal length to the sweep, to which is attached a block, at one end as seen at S S, the other made fast to their respective ends
of the sweep, as seen at T T.

The machine complete, with all its parts,
70 I call the wheel; but I also call that portion of the machine marked A, the "wheel A." The drum K acts on the old principle, a number of turns being taken around the
75 drum with the rope, one end of it is passed through a block attached to the deck, then through a block attached to the larboard gunwale of the ship, then through the block
80 as seen at S S, and made fast to the gunwale of the ship; the other end in like manner to the starboard gunwale of the ship, and through the other block S to the other
gunwale. I cut a spiral groove from end to end, half around the inner surface of the
85 hub of the wheel A, as seen in Fig. 8, which Fig. 8 is a sectional view of Fig. 4, across line D' D', to act in conjunction with the roller L (Fig. 2,) set upon the shaft M,
which groove, acting as a female screw, and the roller L as a male screw, compels the
90 wheel A to travel forward and aft, until it is brought up by the ends of the hub alternately bearing against the ratchet G, and the shoulder P on the shaft M.

Q and R, in the pawls E and F (Fig. 3),
95 are rollers set in diagonal bearing, to match the diagonal bearing of the rubbers N O (Fig. 1). Fig. 9 is a sectional view of roller L and shaft M in the line E' E' of Fig. 2, with a pin through its center fast in the
100 shaft M. The pawl E is made forked, as seen at Figs. 1 and 2, to receive the roller S, which bears against the outer or post side of the ratchet G as a guide, and also the roller Q, allowing it to play upon the
105 rubber O. The pawl F is made unforked, as seen in Fig. 10, and its roller R plays upon the rubber N, on the opposite side, and of course hidden in Fig. 1. The length of the
110 shaft between the ratchet wheel G and the shoulder, upon its end, is equal to the length of the hub upon wheel A, and the breadth

of the two bearings N and O, measured horizontally. The wheel being put at midships between them, both these rollers Q and R are clear of the rubbers N and O, and the
 5 pawls E and F allowed to work in the ratchet G. The wheel now being put to port, the groove in the hub of the wheel A, traveling upon the roller L (Fig. 2), will carry the wheel astern until the hub is
 10 brought up against the ratchet G; in its progress the rubber N, meeting the roller R, will rub up the pawl F, allowing the ratchet G to pass under it as long as the wheel is pressed to port. When the wheel
 15 is changed from port to starboard, the wheel A, traveling upon the roller L, is brought up, pressing against the shoulder P. In its progress the rubber O will meet the roller Q, and rub up the pawl E, and allow the
 20 ratchet to pass under it in turn. On a sea striking the larboard side of the rudder, the wheel A is forced midships between the ratchet G, and the shoulder P; and removing the bearing N from under the roller R,
 25 allows the spring J to draw the pawl F against the ratchet G. The weight of the sea pressing upon the rudder, acting through the tiller-ropes upon the drum K, will cause the ratchet G, to bear upon the
 30 pawl F, which being held up only by the spring H (Fig. 5,) will gradually be forced down until its end rests upon the bearing V (Fig. 3,)—thus relieving the pawl,

ratchet, and tiller-rope from the sudden shock and severe strain that would otherwise ensue. On the sea striking the starboard side of the rudder, the ratchet will act in the same manner upon the pawl E, its springs, etc.

The cap-piece C' is intended merely to hold the pawls E, and F, by their arms A' and B' in their places, without preventing them from having sufficient play to act as above described.

Having thus described the nature of my invention, the way in which it is constructed, and its operation, I do not claim any particular part of the apparatus as new; but what I claim as my invention, and for which I desire Letters Patent, is,

1. The combination of the forked and unforked pawls with a single ratchet, and with rubbers N and O placed face to face, and on the same side of the wheel A.

2. I claim the combination of the spring J, the arms A', B', and the cap-piece C', with the relieving springs H, I, whereby the pawls are supported with sufficient firmness, but at the same time permitted to have sufficient play to admit of the action of the said relieving springs, all as substantially set forth, represented and described.

NATHANIEL T. EDSON.

Witnesses:

C. J. BARTLETT,
 T. S. BARTLETTE.