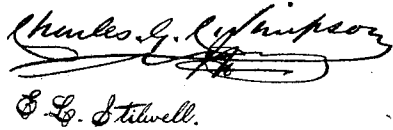


MEANS OF ATTACHMENT OF SHIPS' RUDDERS.

Patented April 18, 1876.



G. Bonvetti

UNITED STATES PATENT OFFICE.

GEORGE H. COUVRETTE, OF MONTREAL, CANADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO PIERRE FRIGON, OF SAME PLACE.

IMPROVEMENT IN MEANS OF ATTACHMENT OF SHIPS' RUDDERS.

Specification forming part of Letters Patent No. **176,285**, dated April 18, 1876; application filed March 10, 1876.

To all whom it may concern:

Be it known that I, GEORGE HENRY COUVRETTE, of the city and District of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in the Attachments of Rudders to Ships and other Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to improvements on the attachment of rudders to vessels for the purpose of rendering the same removable and capable of being replaced from the deck of the vessel while the same is at sea. In case the rudder should become defective after starting on a voyage it may readily be removed and brought on deck, where it may, if possible, be repaired, and again replaced from the deck, or, by carrying a spare rudder, already fitted, the disabled one may be laid on one side, and the spare one shipped in its place.

In the drawings hereunto annexed, similar letters of reference indicate like parts, and Figure 1 is a sectional elevation, showing my invention. Fig. 2 is a sectional elevation, showing my invention. Fig. 3 is a plan of Figs. 1 and 2. Fig. 4 is a section on line 1, Fig. 1. Fig. 5 is a section on line 2, Fig. 1. Fig. 6 is a section on line 3, Fig. 1.

I shall describe my invention as attached to a vessel having a screw-propeller, and from the same it will at once be readily understood how it may be applied to other vessels.

Letter *a* is the stern of a vessel of ordinary construction; *b*, the opening in which the propeller works. *c* is the stern post, and *d* the rudder-post attached thereto in the ordinary manner. This rudder-post is constructed, however, as hereinafter described. *e* is an ordinary rudder-shoe, except in this case it is made to extend aft of the rudder-post, as shown. *f* is what I call a rudder-tube attached at the bottom to the shoe *e* in any ordinary manner, to make it solid and firm therewith, while the top part is secured firmly in the frame-work *g* of the vessel, for which extra packing and filling may be required. *h* are stationary clasps, and *i* are movable ones. Those *h* might be made in one and the

same piece with the rudder-post *d*, only for the extra expense of doing so; otherwise they will be firmly secured thereto, as shown in Fig. 5; and by extending the flanges of *h* back onto the stern-post they will also serve the purpose of an additional binding to hold *c* and *d* together. The clasps *i* have their forward ends received in grooves *k* formed in the post, extending from the clasps *h*, as indicated by the dotted lines at letters *k* in Fig. 1. Each of the clasps *h* and *i* are made with an opening to receive the tube *f* and rudder-stock *l*. They are also each provided with a slot, *m*, extending vertically through the aft end of them, of sufficient weight to let the blade of the rudder *o* pass freely through. The rudder-tube *f* is from the level of the deck down to the point 4 a complete tube; only on the center of the aft side a vertical slot, *n*, is formed, of equal width to those, *m*, and situated to agree with them in position, so that when the rudder is amidships, sufficient power being applied to lift it, it can slip through the grooves *m n*, and is thus free to come up, and, if desired, to be altogether drawn out. Below the point 4 the amount that the tube is cut away will depend upon the amount that it is desired to enable the rudder to turn. As shown in the drawings, it is reduced to a half-tube, which will enable the rudder to be turned nearly at right angles with the line of the vessel. It will be observed that openings *p'* are cut in the rudder to enable it to do this. In attaching the parts *d, f, h*, and *i*, I first attach the clasps *h* to the rudder-post *d*. The post and clasps are then attached to the stern-post. I then put in place the clasps *i*. These, it will be remarked, are attached together by any suitable connection *i'*, to cause them to move as if in one and the same piece. The opening in the ends of the clasps having been cut, so that they are in one and the same straight line, the tube *f* may now be slipped in place from above. The openings in the clasps *h* should be as tight as the getting in place of the tube *f* will allow, and their junction may be secured by screw-bolts, while those in the clasps *i*, although a good fit, should be a free sliding one. In all of them, however, the part of the

clasps against which the rudder-stock rests is a free sliding fit. This having been done the rudder may next be put in place. Its foot *q* enters the shoe, as shown in Fig. 1 by dotted lines. Its stock is provided with a collar, *r*.

s is a cap for securing to the deck, &c., and prevent the rudder rising. *t* is a bolt, attached to *i*, and carried upward through an opening made in the upper clasp *h*, and thence through the vessel, any ordinary means, such as a stuffing-box, being provided to render the passage of *t* through the skin and timbers of the vessel water-tight, while the bolt is free to slide up and down. The bolt *t* is provided with a screwed upper extremity, entering into a correspondingly screwed nut, *u*, supported and retained in place by any ordinary collars and plates, firmly attached to the deck and frame-work, at the same time leaving it free to revolve. The nut is extended above the deck, as at *w*, in any suitable manner for getting hold for turning it by levers, &c. *x* is an opening made through the stern, of sufficient size for the rudder to pass freely through, and needs not to be any bigger than for this purpose. This will be closed with any suitable removable hatchings, *y*. *z* are ribs, strengthening the rudder-blade, and answering another purpose, presently described.

Although four clasps, *h i*, are shown and described, their numbers may be increased. I would further say that one movable clasp, *i*, may be used, or a greater number, and, if desired, all the clasps may be made stationary, in which case I should dispense with the clasps *i*, bolt *t*, nut *u*, and other attachments thereto. I also shorten the clasps *h*, to bring the tube *f* close up to the rudder-post *d*, and, if desired, it might be made in one with it, or be formed in the rudder-post.

The invention having been constructed as first herein described, the rudder in place, as shown in the drawings, any suitable tackling may be rigged to lift the rudder, the arrangement of which forms no part of the present invention. This having been done, the tiller, which is attached in the ordinary way to the stock *l* above the deck, is got amidships, bringing the rudder to that position. The nut *u* is then turned, to cause the clasps *i* to rise. This will bring them upon the bridge-pieces *p*, immediately above them, and to cause them

to enter more freely. The edges of the bridges and corners of the clasps may be rounded or chamfered off. To prevent the rudder when working about in a sea, from causing a spreading strain upon the two jaws formed by the slot *m* in the clasps *i* as they are raised, the corners *a'* of the ribs *z* are formed to bear upon the corners *b'* (see Fig. 6) before or at the same time that the bridge-piece bears against the side of the slot. Should the tiller be broken and not available, any other means may be adopted to get the rudder as steady as possible. For this purpose it would be very useful to carry a lever with a screw-clamp socket on the end of it, to fit the rudder-stock, and to form a temporary hand-tiller; and if these are not at hand the clasps must be used alone, and as the rudder works about in the sea they will take hold upon the bridge-pieces in the act of rising, and hold the rudder steady. The steering-gear is now disconnected and the hatchings *y* are taken off; then the cap *s*. The rudder may now be raised and altogether removed, if desired. It or a spare rudder may be returned to its place, the tiller-gear again connected, and the cap *s* put on and the clasps *i* lowered, after which the hatchings will be put on.

In the case of all the clasps being stationary, the rudder will have to catch itself in the clasps as it works about in the act of raising, and the disconnection and connection of the tiller and gear will also have to be made as best they can, while the rudder works about, unless held steady by the clamp-lever above adverted to, or other means for holding the rudder steady; but after it is once raised and caught in the clasps it can be drawn out. This forms the great advantage of having the movable clasps *i*.

What I claim is as follows:

1. The combination of the stock and rudder *l o*, rudder-tube *f*, stationary clasps *h*, and movable clasps *i*, substantially as and for the purposes described.

2. The combination of the stock and rudder *l o*, rudder-tube *f*, clasps *h* and *i*, rudder-post *d*, screwed bolt *t*, and nut *u*, as described.

G. H. COUVRETTE.

Witnesses:

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E. L. STILWELL.