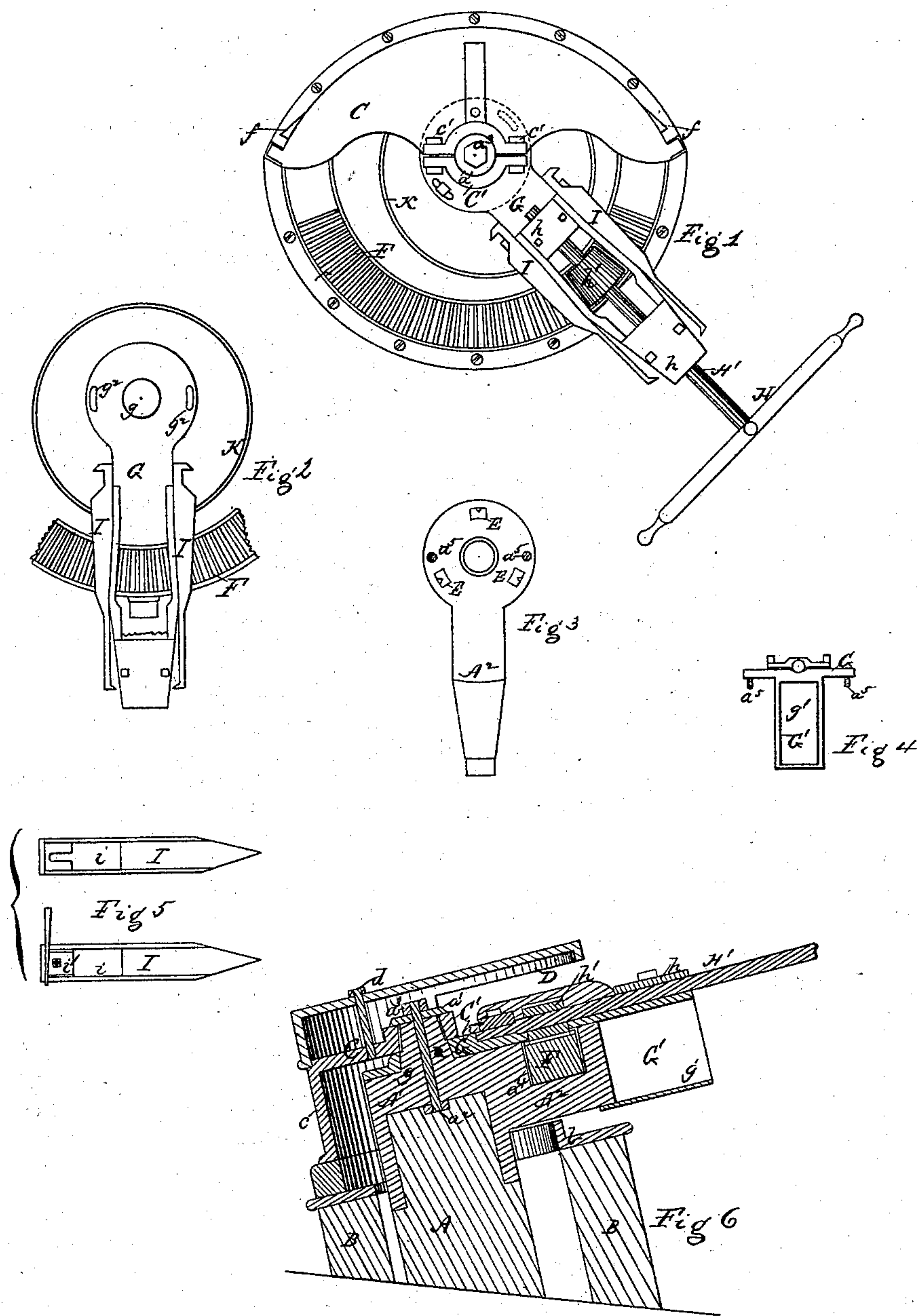


(No Model.)

J. S. LAKE.  
STEERING APPARATUS.

No. 280,191.

Patented June 26, 1883.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JESSE S. LAKE, OF PLEASANTVILLE, NEW JERSEY.

## STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 280,191, dated June 26, 1883.

Application filed January 24, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JESSE S. LAKE, a citizen of the United States, residing at Pleasantville, in the county of Atlantic and State of New Jersey, have invented certain new and useful Improvements in Steering Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a plan with wear-cap removed. Figs. 2 and 3 are plans of auxiliary and main tiller, respectively. Fig. 4 is a front end view of auxiliary tiller. Fig. 5 shows details of clutches or clamp-blocks. Fig. 6 is a vertical section of complete apparatus.

My improvements relate in part to the invention for which Letters Patent of the United States, dated December 19, 1882, No. 269,299, were granted to me, and in this connection have reference to certain details of construction, hereinafter fully set forth.

They relate also to means for lessening the wear and friction of the rudder-post, and in this connection have reference to a construction whereby the bearing of the rudder-post is transferred from the position heretofore occupied in the deck to the rudder-head, as hereinafter fully set forth.

Referring to the accompanying drawings, A represents the rudder-post, or so much thereof as stands above the deck. Surrounding said post is a hollow standard or casing, B, which is surmounted by a metallic rim, *b*. On the post A is a metal cap, A', having a projecting boss or hub, *a*.

C represents a bearing-plate, which is formed with a depending flange, *c*, which rests upon the rim *b*, and has an adjustable box, C', into which the hub or boss *a* passes, and which affords a bearing to the latter. Lost motion or wear is taken up by screwing in the screws *c'* which hold the two parts of the box C' together. Above the boss *a* is a washer, *a'*, held in place by a bolt, *a''*, which passes through said boss and washer, and is provided with a nut or burr, *a'''*. The washer rests, as shown, upon the bearing or box C', so that the rudder-post is, by the means described, afforded a

bearing and support for its head. The deck-bearing heretofore provided is thus dispensed with, and, as the head-bearing described is of much less area than such deck-bearing, and is, besides, wholly metallic, and in such position that it can easily be kept oiled, the friction and wear of the rudder-post bearing is largely decreased, rendering the movement of the rudder much more easy than heretofore.

If desired, a weather-cap, D, which rests upon the plate C, and is held thereon by bolts or screws *d*, may be provided.

The cap A' is secured on the rudder-post A by keys E E, or in any other suitable manner, and is formed or provided with a radial projection, A<sup>2</sup>, which constitutes the tiller. The upper side of this tiller has a transverse groove, *a'*, in which rests a segmental fixed rack, F, the extremities of which are secured at *f f* to the flange or feet of the plate C.

Above the cap A', and between it and the bearing-plate C, is the "auxiliary" tiller referred to in my aforementioned patent. This auxiliary tiller consists of an elongated plate, G, having an opening, *g*, for the passage of the boss or hub *a*. Said plate projects outwardly over the main tiller, and is formed with a pendant or downward extension, G', at its outer end. This projection has a mortise-opening or chamber, *g'*, into which the outer end of the main tiller A<sup>2</sup> enters. As the chamber *g'* is wider than the end of said tiller A<sup>2</sup>, the latter has some space for lateral movement therein. H is the hand-wheel, whose shaft H' is supported on the auxiliary tiller G, and held there by means of cross plates or staples *h h*. Said shaft carries a pinion, *h'*, which meshes with the teeth on the segmental rack F. I I are clamp blocks or clutches having openings *i i* for the passage through them of the segmental rack F. Their outer sides are grooved, and provided with slides *i' i'* to take up lost motion due to wear against the sides of the rack F. These clutches are held against the sides of the auxiliary tiller by a C-spring, K, which surrounds the rudder-post A, its ends bearing against said clutches near their inner extremities. The operation of the auxiliary tiller and clutches is substantially as set forth in my patent above referred to, and need not therefore



herein be further described. There is this difference, however, in the detail of construction between my present improvement and the patented invention. In the patent the auxiliary tiller is represented as swiveled on the rudder-post by means of a metal strap. With this construction there is a tendency to lateral "wobbling" on the part of said auxiliary tiller. To correct this I have in the present case formed parts of both the main tiller and the auxiliary tiller, where they encircle the rudder-post, as broad plates, giving an extended bearing or surface, and connect the parts by bolts  $a^5$ . This prevents the defect pointed out. To hold these plates together, they are connected by bolts  $a^5 a^6$ . To prevent strain upon these bolts, the auxiliary tiller is slotted, as shown at  $g^2$ , where said bolts pass through it.

It will be noted that the cap  $A'$  not only forms the bearing-head of the rudder-post, but also the tiller; and I would here remark that this portion of my invention may be usefully employed without the auxiliary tiller and clutch arrangement, in cases where parties may not desire to use the latter.

By the construction described, it will be seen that the rudder is, in effect, suspended from the cap, the latter being supported on the frame or casing. This gives the rudder a bearing above deck, which is readily accessible for oiling and other purposes, and where it is protected from the water.

What I claim as my invention is as follows:

1. The combination, with a rudder post or head, of a cap located above or over the same, upon which said post or head is suspended, substantially as shown and described.

2. The combination, with rudder-post  $A$ , of cap  $A'$ , having hub or boss  $a$ , standard or casing  $B$ , plate  $C$ , with bushing or box  $C'$ , bolt  $a$ , with nut, and washer  $a'$ , overlapping said plate, whereby said post is suspended overhead and supported upon the surrounding casing, substantially as shown and described.

3. The combination, with rudder-post  $A$ , of cap  $A'$ , having on its under side a socket which receives the upper end of said post, and on its upper side a boss which forms a hub, and having also a lateral projection or arm forming a tiller, substantially as shown and described.

4. The combination of main tiller  $A^2$ , having on its upper side a projecting boss which forms a hub, with auxiliary tiller  $G$ , having a central opening for the reception of said hub, said parts having broad flanges or annular plates surrounding said hub and opening, whereby an extensive surface-bearing is afforded for said parts, substantially as and for the purpose set forth.

5. The combination of main tiller  $A^2$ , having hub  $a$  and bolts  $a^5 a^5$ , with the auxiliary tiller having a central opening for the passage of the hub  $a$ , and slots  $g^2 g^2$  for the reception of the bolts  $a^5 a^5$ , whereby said main tiller and auxiliary tiller are secured together so as to allow of independent movement of either, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of January, 1883.

JESSE S. LAKE.

Witnesses:

ANDREW ZANE, Jr.,  
WILL H. POWELL.