Mortimer & Gardiner.

Steering.

No 8,546. Patented Nov. 25, 1851.

Fig. 3.

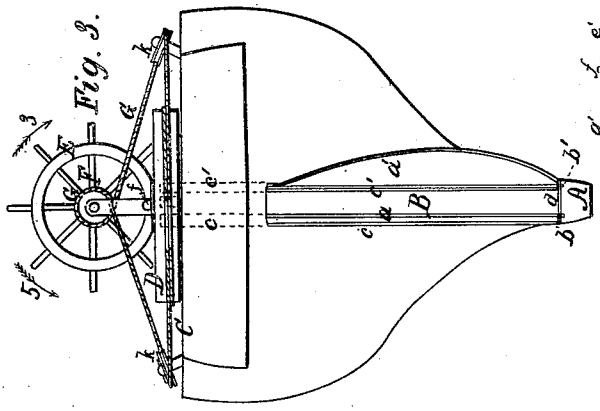


Fig. 4.

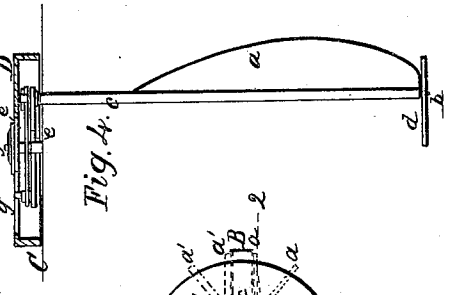


Fig. 5.

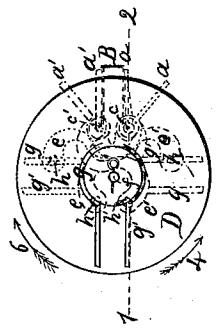


Fig. 1.

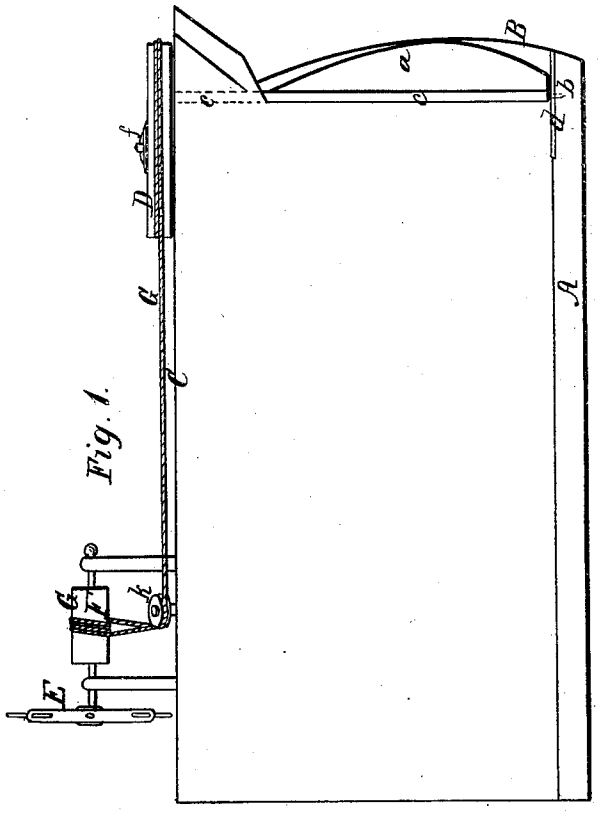
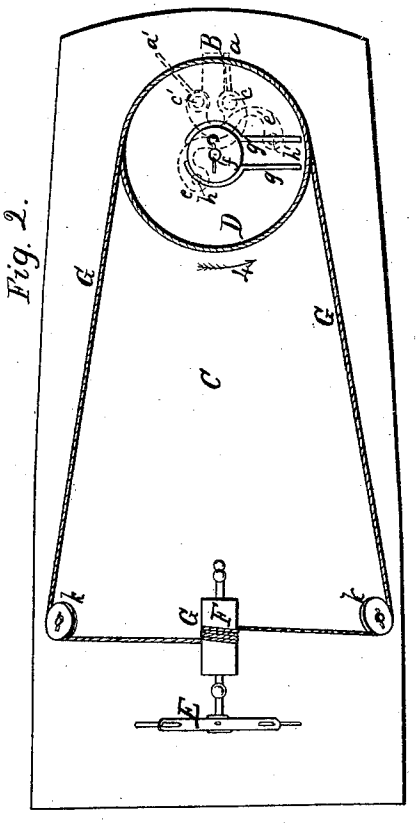


Fig. 2.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOS. H. MORTIMER AND JAS. M. GARDINER, OF CHARLESTON, SOUTH CAROLINA.

METHOD OF OPERATING RUDDERS.

Specification of Letters Patent No. 8,546, dated November 25, 1851.

To all whom it may concern:

Be it known that we, THOMAS H. MORTIMER and JAMES M. GARDINER, both of the city and district of Charleston and State of South Carolina, have invented certain new and useful Improvements in Apparatus for Steering Ships and other Vessels; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a side elevation of the after part of a vessel having our apparatus attached. Fig. 2, is a plan of the same. Fig. 3, is a stern view of the same. Fig. 4, is a vertical section of the apparatus through the line 1—2, in Fig. 5. Fig. 5 is a diagram showing the apparatus in various positions, as seen from above.

Similar letters of reference indicate corresponding parts in each of the several figures.

This invention consists in certain means to be employed in vessels steered by two rudders, one on each side of the sternpost, for the purpose of controlling the said rudders and bringing either one into operation while the other is stationary.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

A, represents the keel of the vessel, B, the sternpost, and C, the deck. The sternpost is nearly of the form of a rudder, or has another suitable post or timber secured to it, alongside which the rudders may hang and be protected.

a and *a'*, are the rudders which may be of metal or timber and of a form similar or nearly similar to the rudders in common use, they are placed one on each side of the sternpost A, and may be hung by pintles in the usual manner; the lower ends of their posts *c*, *c*, are provided with pivots *b*, *b'*, which fit in holes or bearings in a metal plate *d*, secured above the keel or in any other bearings so arranged so that the bottom of the rudder is at a distance above the vessel's keel, the upper ends of the posts *c*, and *c'*, pass through the deck and are provided with tillers *e* and *e'*, of equal length.

D, is a wheel or drum consisting of a plate or disk of metal having an overhanging rim, it is hung so as to be capable of turning freely on a stationary stud or pivot *f*, secured to the deck in the line of its center and therefore at an equal distance from each rudder post. The rim of this wheel is of sufficient depth to inclose the tillers and is hung so that its lower edge just clears the deck; there are two slots *g*, *g'*, in the disk of the wheel D, of similar form, part of each forming an arc of a circle described from the axis *f*, and part being straight, the straight parts of both slots being parallel and at equal distances from a radius of the wheel. The tillers of the rudders are secured on the posts one a little higher than the other and cross each other, that *e*, on the post *c*, of the rudder *a*, is provided at or near its end with an upright stud or pin *h*, which fits in the slot *g*, so as to work freely in it, and that *e'*, on the post *c'*, of the rudder *a'*, is provided with another pin or stud *h'*, which fits in the slot *g'*. These pins on the tillers may either fit the slots so as to slide or work freely in them, or may carry friction rollers capable of running within them.

E, is a common steering wheel carrying a barrel F, on its shaft; an endless rope or chain G, G, passes around the barrel F, and around sheaves *k*, *k*, to the wheel or drum D, around which it also passes. By turning the wheel E, motion is communicated to the wheel or drum D, for the purpose of controlling the operation of the rudders which we will now proceed to describe.

When the helm is amidships both the rudders lay close alongside the sternpost, the wheel D, is then in such a position that the straight parts of the slots *g* and *g'*, are in line parallel with the line of the vessel's keel (see Fig. 5). The studs or pins *h*, and *h'*, are both in the curved parts of the respective slots in the disk of the wheel D, in which they work, but close to the points at which the straight parts commence. Suppose then that it is desired to steer the vessel to the right hand or to "starboard," it will be necessary to operate the starboard or right hand rudder *a'*. This will be effected by turning the steering wheel F, in the direction shown by the arrow 3, in Fig. 3, which will give motion to the wheel D, upon its axis in the direction of the arrow 4, in Figs. 2 and 5, and as soon as the wheel D begins its motion the stud *h'*, on the tiller *e'*, of the rudder *a*, will enter the straight part of the slot *g'*, and thereby receive motion to the left or to the "port" throwing out the rud-

der a', from the sternpost (see Fig. 2 and also the blue lines Fig. 5). The rudder a, will receive no motion during the motion of the wheels above described but will remain stationary close to the sternpost, as the stud or pin h, on its tiller e, will be in the curved part of the slot g, which being an arc of a circle described around the axis on which the wheel D, moves will pass the stud pin without moving it. When it is desired to return the rudder a', to its position amidships the steering wheel E, is turned back in the direction of the arrow 5, (Fig. 3) giving motion to the wheel or drum D, in the direction of the arrow 6, (Fig. 5). If the motion of the steering wheel is continued in the last named direction, at the same instant that the rudder a', reaches its place alongside the sternpost, the stud or pin h, enters the straight part of the groove g, and commences moving along it, moving the tiller e, to the right hand or to starboard, and operating the port or left hand rudder a, steering the vessel to port; the stud or pin h', on the tiller e, of the rudder a', is in the curved part of the slot g', during the time that h, is in the straight part of that g, and therefore the rudder a', remains stationary as shown by black lines in Fig. 5.

It may be understood by the foregoing explanation of the operation of the rudders that whenever the steering wheel is moved, motion will be given to one of the rudders, and that when one is in motion the other is stationary alongside the sternpost, as while the stud of one tiller is in the straight part of its groove in the disk of the wheel D, the stud on the other tiller will be in the curved part of its groove. The effect of the rudders is the same as that of a single rudder, as the instant one becomes stationary the other commences its action.

Having thus fully described our invention we will proceed to state what we claim as new and desire by Letters Patent.

We claim controlling the operation of the rudders in such a manner as to bring either into operation while the other is stationary, by means of the pins or studs h, h', on their tillers in combination with grooves or slots g, g', in a wheel or disk G, receiving motion upon an axis f, or by the equivalents of the same substantially as herein described.

THOS. H. MORTIMER.
JAS. M. GARDINER.

Witnesses:
ALEX. GORDON,
E. GAMAGE.