Shut 1–2 Shuts.

H. F. Shaw.

Steering-Apparatus.

No 79263 Patented Jun. 23, 1868.

Fig: 1

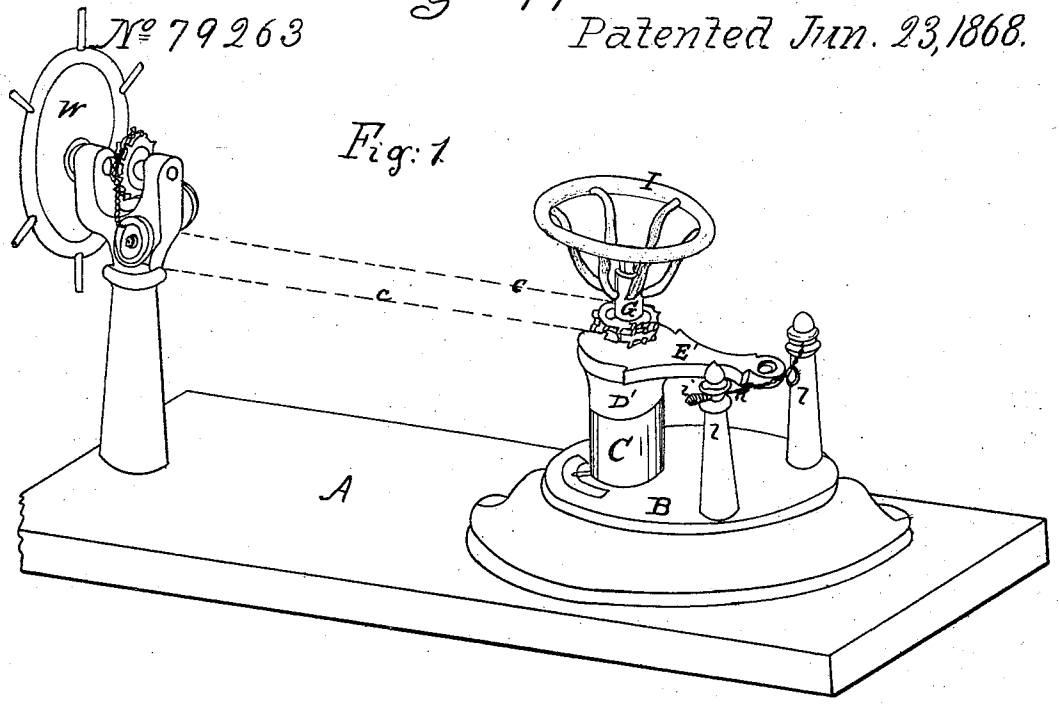


Fig: 2.

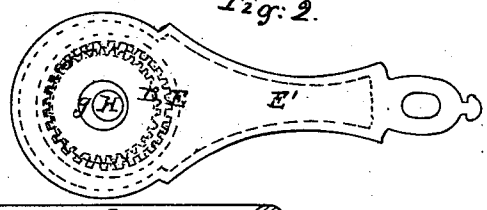
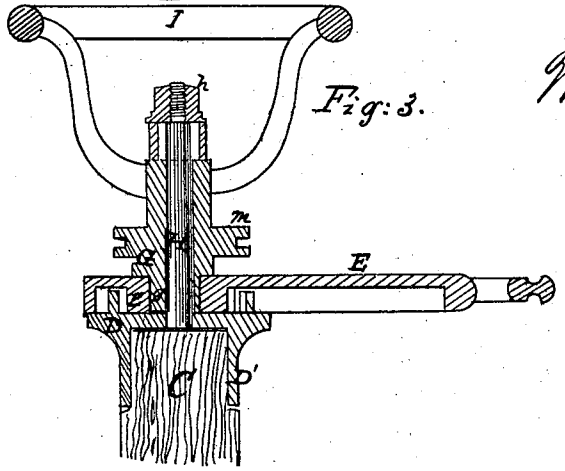


Fig: 3.



Inventor

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Witnesses

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M. S. C. Wilde.

Sheet 2 - 2 Sheets.

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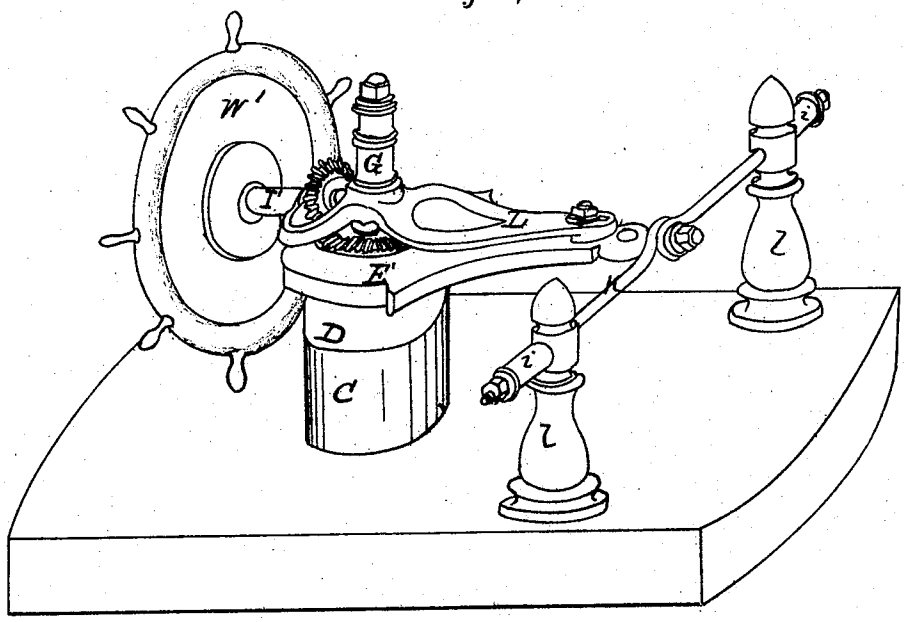
Fig: 4.



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Letters Patent No. 79,263, *dated June* 23, 1868.

IMPROVEMENT IN STEERING-APPARATUS.

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

Be it known that I, HENRY F. SHAW, of West Roxbury, in the county of Norfolk, and State of Massachusetts, have invented a new and useful Improvement in Steering-Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of an apparatus embodying my invention.

Figure 2 is a view of the operating-gears.

Figure 3 is a transverse vertical section of a portion of fig. 1.

Figure 4 is a modification of the mode of operating the apparatus.

The nature of my invention consists in the employment, in a steering-apparatus, of a differential gear, operating in connection with an eccentric-shaft, one of the gears being held, and the shaft being made to rotate, so that the other or unconfined gear will have a motion around its own centre, imparting a corresponding motion to the rudder-post and rudder, whereby the latter may be readily turned in any direction, and will remain in any set position, without being held by the capstan, or secured in any other manner, regardless of any force brought to bear upon the rudder or rudder-post below the operative-gears.

Referring to the drawings, A represents the deck of a vessel, on which is placed a platform, B. C is the rudder-post, to the upper end of which is attached a metal frame, D. Forming a part of this frame is a cylinder, D′, having a spur-gear cut upon its external surface. E is a cylinder, with a spur-gear upon its internal surface, as seen in fig. 2, and is attached to or forms a part of a frame or arm, E′, extending to the rear, where it is attached to a chain or rod, *k*, secured to posts *l l* or other suitable fixtures. By this means the internal spur-gear is allowed a limited oscillating motion, without rotating. To the ends of the chains or rods *k*, which are fastened to the arm of the gear E, are attached springs or some elastic material, *i*, for the purpose of avoiding any unusual strain upon the gears and rudder-post, which may be occasioned by the action of the water upon the rudder. To the top of the rudder-post C is attached a spindle, H, to which is secured the sleeve G, provided at its lower end with an eccentric portion, *g*, fitting within the central opening of the internal gear E, and by which the oscillating movement of the latter is effected. I is the wheel by which the rudder is operated. W represents a wheel, by which the rudder can be operated by means of chains or rods *c*, extending to any part of the vessel.

By this construction of a steering-apparatus, the rudder may be very readily turned in either direction, and will be firmly held in any position, without the necessity of holding on to the wheel, or any other retaining-devices, regardless of any force that may be brought to bear upon the rudder or post below the operative parts, thus avoiding accidents, so liable to occur to the man at the wheel, in a rough sea.

In fig. 4, which is a modification of the apparatus, the wheel W′ is attached to a shaft passing through the sleeve L′, on the other end of which shaft is a bevel-gear, which engages with a corresponding bevel-gear attached to the eccentric-sleeve, that operates the external gear E′, as shown in fig. 3.

The sleeve L′ forms a part of a rigid frame, L, supported by the spindle on the rudder-post, and, extending to the rear, is provided, at its end, with a slot, through which works the pin on the end of the plate E, and by which the same is supported in connection with the rods *k*.

By this construction a greater steadiness is insured to the operative portions of the apparatus.

The motion and position of the rudder may be indicated by means of a pointer, *p*, on the rudder-post and an index-plate.

The internal gear E may be made to rotate, and the external gear D to oscillate, instead of operating as herein specified, if desirable.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the rudder-post C, of the sleeve G, provided with the eccentric, *g*, and the gears D and E, substantially as and for the purpose specified.

The combination of a spring with the arm of the oscillating-gear E, substantially as and for the purpose specified.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY F. SHAW.

Witnesses:

J. H. ADAMS,

E L. DYER