(No Model.)

J. H. SNELLING.

STEERING APPARATUS FOR VESSELS.

No. 382,838. Patented May 15, 1888.

Fig. 2.

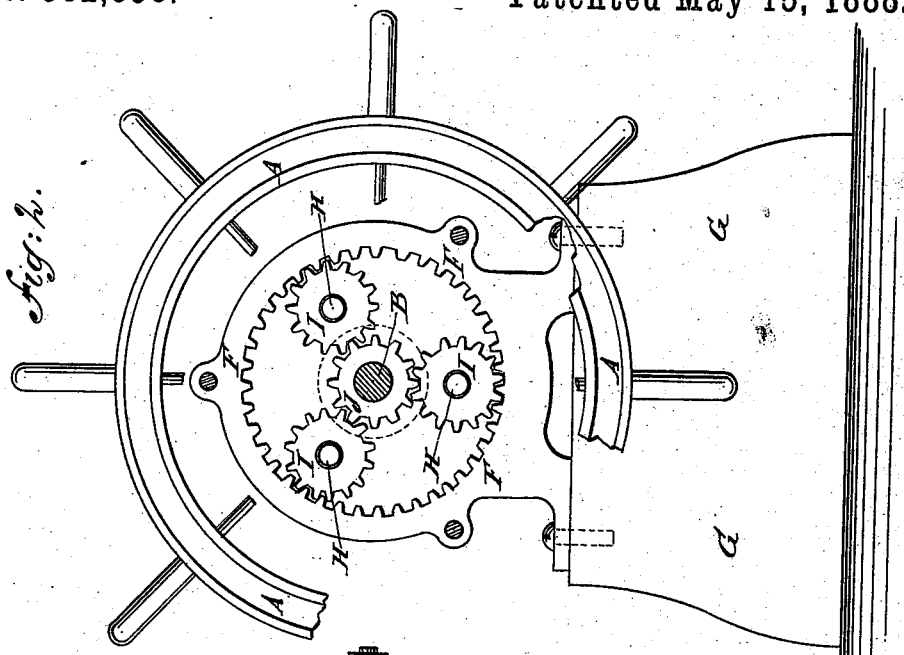


Fig. 1.

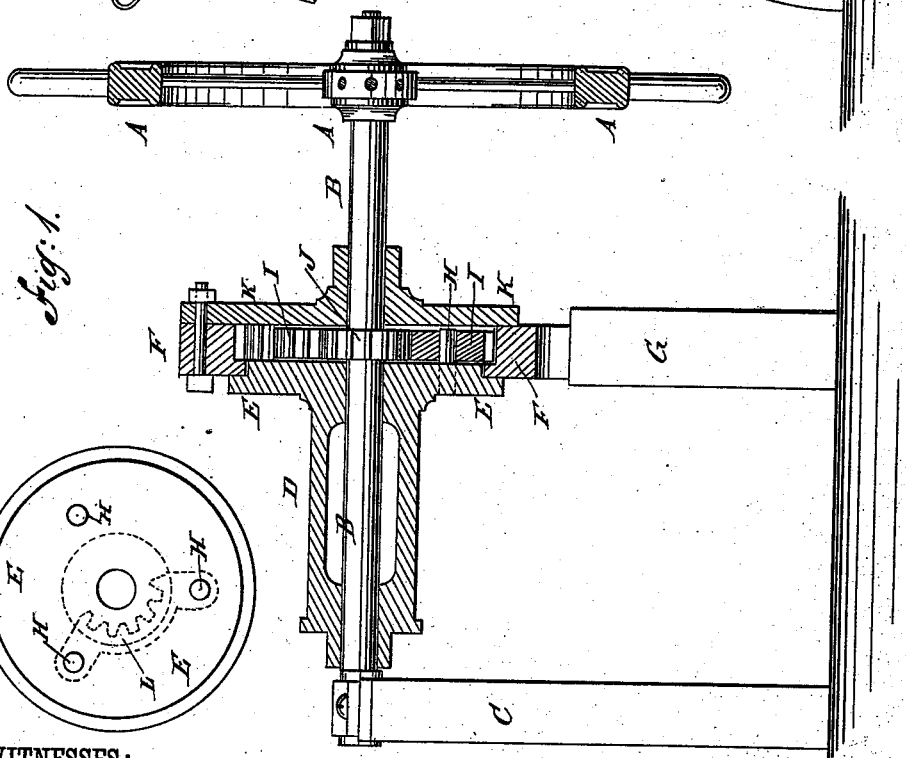
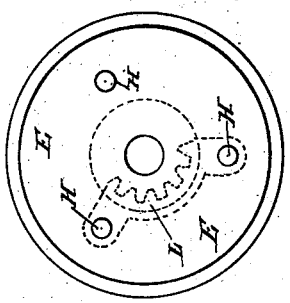


Fig. 3.



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STEERING APPARATUS FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 382,838, dated May 15, 1888.

Application filed March 12, 1886. Serial No. 195,055. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SNELLING, of Peru, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Steering Apparatus for Vessels, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my improved steering apparatus. Fig. 2 is a front elevation of the same, partly in section and parts being broken away. Fig. 3 is a front elevation of the flanged end of the drum, and showing in dotted lines a modification.

My invention is an improvement in the class of steering apparatus in which the tiller-chains (or ropes) are wound upon a drum, carrying on its vertical face one or more loose gears, which mesh with a fixed internally-toothed rim, and also with a central gear fixed on and rotating with the shaft of the steering-wheel, whereby said loose gears travel with the drum and between the said fixed rim and rotating gear. In constructing this kind of apparatus heretofore, the fixed and internally-toothed rim or band has been made separate from the standard in which the wheel-shaft has one of its bearings, and was detachably secured to said standard by means of screw-bolts. This construction and arrangement are objectionable in view of the valuable space occupied, as well as the weight and cost of the parts.

In my invention the standard and fixed internally-toothed rim or band are one and the same, instead of being made separate, and the shaft-bearing is bolted to such combined standard and band, so as to form also a face-plate which protects the gearing, as hereinafter described.

A represents the hand-wheel, which is keyed or otherwise secured to the forward end of the shaft B. The rear end of the shaft B revolves in a bearing attached to a frame, C, or other suitable support. Upon the shaft B is placed a drum, D, which is made smooth when a rope is to be used, and is made in the form of a chain-wheel when a chain is to be used, and from which a rope or chain is led to the rudder in the ordinary manner.

Upon the forward end of the drum D is formed a flange, E, the outer edge of which is rabbeted to receive the flanged rear edge of the internally-toothed gear-band F. The lower edge of the internally-toothed gear-band F is provided with lugs or brackets to receive the bolts that secure it to the frame or support G. To the flange E are attached three (more or less) studs, H, upon which revolve small gear-wheels I. The teeth of the gear-wheels I mesh into the teeth of the gear-band F and into the teeth of the small gear-wheel J, keyed or otherwise secured to the shaft B. The gearing is covered and protected by a cap-plate, K, bolted to the stationary internally-toothed gear-band F, and through the center of which the shaft B passes. It will be seen that the band F thus serves as a standard for supporting the bearing K of the wheel-shaft, and by such double function the apparatus is rendered lighter, cheaper, and less bulky than those in which the standard is made separate from the band. With this construction, when the shaft B is turned by operating the hand-wheel A, the gear-wheel J, attached to the said shaft, turns the gear-wheels I, which mesh into the teeth of the internally-toothed stationary gear-band F as a fulcrum, and are thus caused to rotate the flanged drum D and operate the rudder with an increased leverage, depending upon the relative diameters of the gear-wheels, and at the same time the apparatus will be kept within a convenient space.

In case the steering apparatus should be disabled by the breaking of the gearing, the cap-plate K can be detached and the gear-wheels I replaced by a segment, L, of an internally-toothed gear-wheel, which has perforated lugs upon its ends to receive two of the studs H, as indicated in dotted lines in Fig. 3; but in this case the flanged drum D will be rotated directly by the gear-wheel J, attached to the shaft B, and without any advantage of leverage.

The convenient position of the driving and

driven parts gives a very compact construction and permits the use of parts of the machine as a containing case or box.

The drum, although geared to the shaft and revolving upon it, is in a position favorable to be fastened to the said shaft should any of the teeth break.

The intermediate gear-wheels are shown as single pinions; but obviously they may be compound wheels—that is to say, double wheels of two different diameters, the larger meshing into the toothed band and the smaller into the driving-pinion, or vice versa, to produce different proportions of leverage without altering the size of the gear-band.

Having thus fully described my invention, what I claim is—

In a steering apparatus, the combination of the combined standard and internally-toothed rim F with the wheel-shaft and its gear J, the drum and its gears I, mounted loose on studs fixed in the flange of said drum, the cap-plate K, in which the shaft has its front bearing, and bolts for securing said plate to the standard, as shown and described.

JOHN H. SNELLING.

Witnesses:
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