

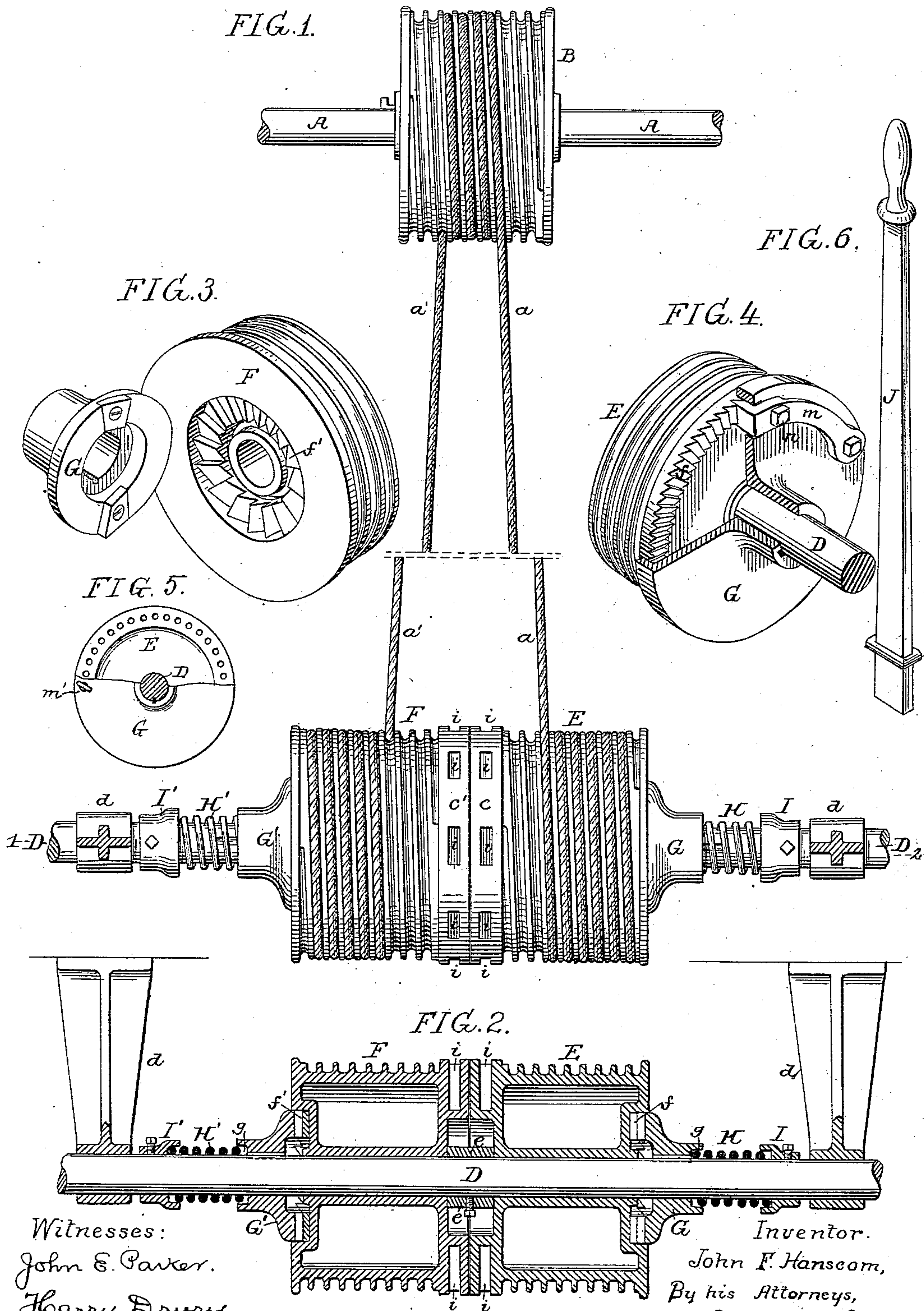
(No Model.)

J. F. HANSCOM.

APPARATUS FOR TAKING UP THE SLACK IN STEERING ROPE OF VESSELS.

No. 379,461.

Patented Mar. 13, 1888.



Witnesses:
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TAKING UP THE SLACK IN STEERING-ROPE OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 379,461, dated March 13, 1888.

Application filed July 14, 1887. Serial No. 244,273. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. HANSCOM, a citizen of the United States, and a resident of Boston, Suffolk county, Massachusetts, have
5 invented an Improved Apparatus for Taking up the Slack in Steering-Ropes of Vessels, of which the following is a specification.

The object of my invention is to provide mechanism for taking up the slack of ropes or
10 chains used in connection with steering-gear of vessels, my invention being especially adapted to steam steering-gear in which a valve has to be operated through the medium of the rope or chain from a point at some dis-
15 tance from the engine.

In the accompanying drawings, Figure 1 is a plan view of sufficient of a steam steering-gear to illustrate my invention. Fig. 2 is a longitudinal section on the line 1 2, Fig. 1.
20 Fig. 3 is a detached perspective view of clutching mechanism forming part of the device. Figs. 4 and 5 are views showing modifications of said clutching mechanism, and Fig. 6 is a view of the bar used to turn the rope-drums to
25 take up the slack.

In vessels supplied with steam steering-gear an indicator is generally placed in front of the steering-wheel to show the various positions of the rudder, and one is located at the steering-
30 engine, also indicating the position of the rudder. It often happens that the slack of the ropes or chains between these two points varies so much that the indicator at the steering-wheel does not give the precise position of the
35 rudder, and the rudder does not respond until the slack of the rope is taken up by the drum. To obviate this difficulty, I provide mechanism for taking up the slack of the rope or chain at any moment, so that both indicators will
40 correctly give the position of the rudder at all times, and the engine instantly respond to any movement of the wheel by the helmsman.

Referring to Figs. 1 and 2, A is the shaft, to which is geared the shaft of the steering-wheel
45 by which the helmsman guides the vessel. On this shaft is secured a rope-drum, B, on which are wound and to which are secured the tiller-ropes $a a'$. This shaft is provided with suitable bearings in hangers, which are secured in
50 convenient position on the deck of the vessel.

D is a shaft, which has its bearings in suit-

able hangers, $d d$, secured in the vicinity of the steering-engine, so that connection can be made with the engine-valve by simple mechanism, such as miter or bevel gears, and on the shaft
55 are two loose drums, E and F. These drums are, however, normally held in position on the shaft through the medium of suitable clutches, pins, or keys, the teeth of the clutches being so arranged that, while each of the drums when
60 moving under the influence of the tiller-rope will turn the shaft, each of said drums can be turned on the shaft, as described hereinafter, in a direction opposite that imparted by the pull of the rope, so that any slack in the latter
65 can be readily taken up.

The tiller-rope a passes around and is secured to the drum E, and the rope a' passes around the drum F in the opposite direction from that of the rope a , and its end is secured to the
70 drum. The ropes $a a'$ may be guided by suitable pulleys between the drum B and drums E and F.

The drums E and F are separated by a sleeve, e , secured to the shaft D, as shown in Fig. 2,
75 so that the two drums will not come into frictional contact with each other, the sleeve also taking the thrust of the clutching mechanism.

On the outer end of each drum E and F is a circular ratchet, $f f'$, (shown more clearly in
80 Fig. 3,) and on the shaft D are two clutch-sleeves, $G G'$, adapted to slide on but turn with the shaft, being in the present instance splined thereto. These clutch-sleeves are forced against
85 the ends of the drums by means of coiled springs $H H'$, adapted to pockets g in the clutches and to pockets in collars $I I'$, secured to the shaft, in the present instance by set-screws.

The inner rims, $c c'$, of the drums E F are
90 provided with orifices i , into any of which may be placed the lever J, Fig. 6, for turning the drums independently of the shaft, in order to take up the slack. When it is required to take up the slack of either of the ropes $a a'$,
95 the lever is placed in one of the orifices i , and by turning either drum independent of the shaft D by means of the said lever its clutch will be forced out against the action of the spring until the clutch drops behind another
100 tooth of the ratchet and the required tension is given to the rope. By this mechanism the

slack can be taken up while the gear is in use without interfering with the steering of the vessel.

In Fig. 4 I have shown a modification in which a single spring-pawl, *m*, on a stationary disk is used, the pawl engaging with ratchet-teeth on the drum. A set-screw, *n*, may be used to lock the spring-pawl to the teeth of the drum in the intervals of the movements of the latter to take up slack. This mechanism dispenses with the sliding sleeve and coiled spring, and is preferable where space is limited.

In Fig. 5 I have shown the drum provided with a series of orifices, a pin carried by a fixed disk on the shaft being inserted in one of the orifices to retain the drum when the latter has been adjusted to the proper position. The same mechanism—*i. e.*, the drums E and F—may be placed directly on a steering wheel, while the opposite ends of rope or chain may either be attached to a single drum, as B, in the vicinity of steering-engine, or may be attached directly to tiller or quadrant, the latter applying especially to yachts.

I claim as my invention—

1. The combination of the steering-rope of a steering apparatus, with a shaft and drums thereon, to which the end of the ropes are secured, either of said drums being adjustable circumferentially on the shaft to take up the slack of the rope, and means for securing the drum to the shaft after adjustment, all substantially as specified.

2. The combination, with the steering-rope,

of a steering apparatus with a shaft and drums thereon, to which the ends of the rope are secured, either of said drums being adjustable circumferentially on the shaft, a segmental rack carried by the adjustable drums, and a clutch to engage with either of the teeth of the rack, all substantially as specified.

3. The combination of the drum B on one shaft of the steering-gear, and drums E and F, carried by a second shaft and connected to the said drum B by ropes or chains, with clutches free to slide on but turning with said second shaft and engaging with ratchet-faces on the drums E and F, all substantially as described.

4. The combination of a drum forming part of the steering-gear, but loose on its carrying-shaft and having an orifice to which an operating-lever can be applied, with a clutch turning with said shaft and engaging with teeth on the drum, substantially as described.

5. The combination of the shaft having two drums, E and F, loose thereon and separated by a sleeve, with clutches turning with but sliding on the shaft and having teeth which engage with ratchet-teeth on the ends of the drums, as and for the purpose set forth.

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

JOHN F. HANSCOM.

Witnesses:

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