

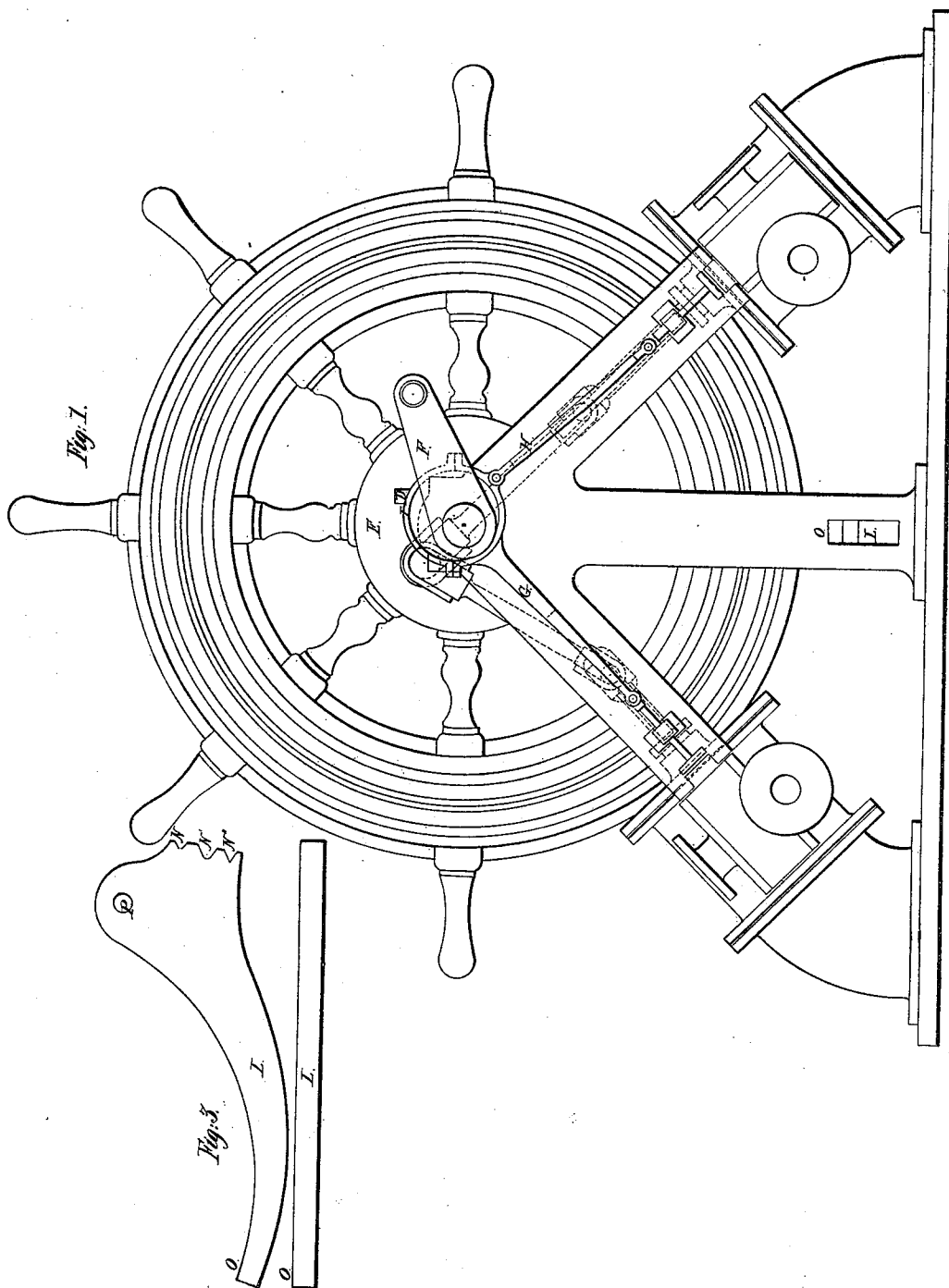
Sheet 1, 2 Sheets.

F. E. Sickels.

Steering Vessels.

N^o 29,200.

Patented Jul. 17, 1860.



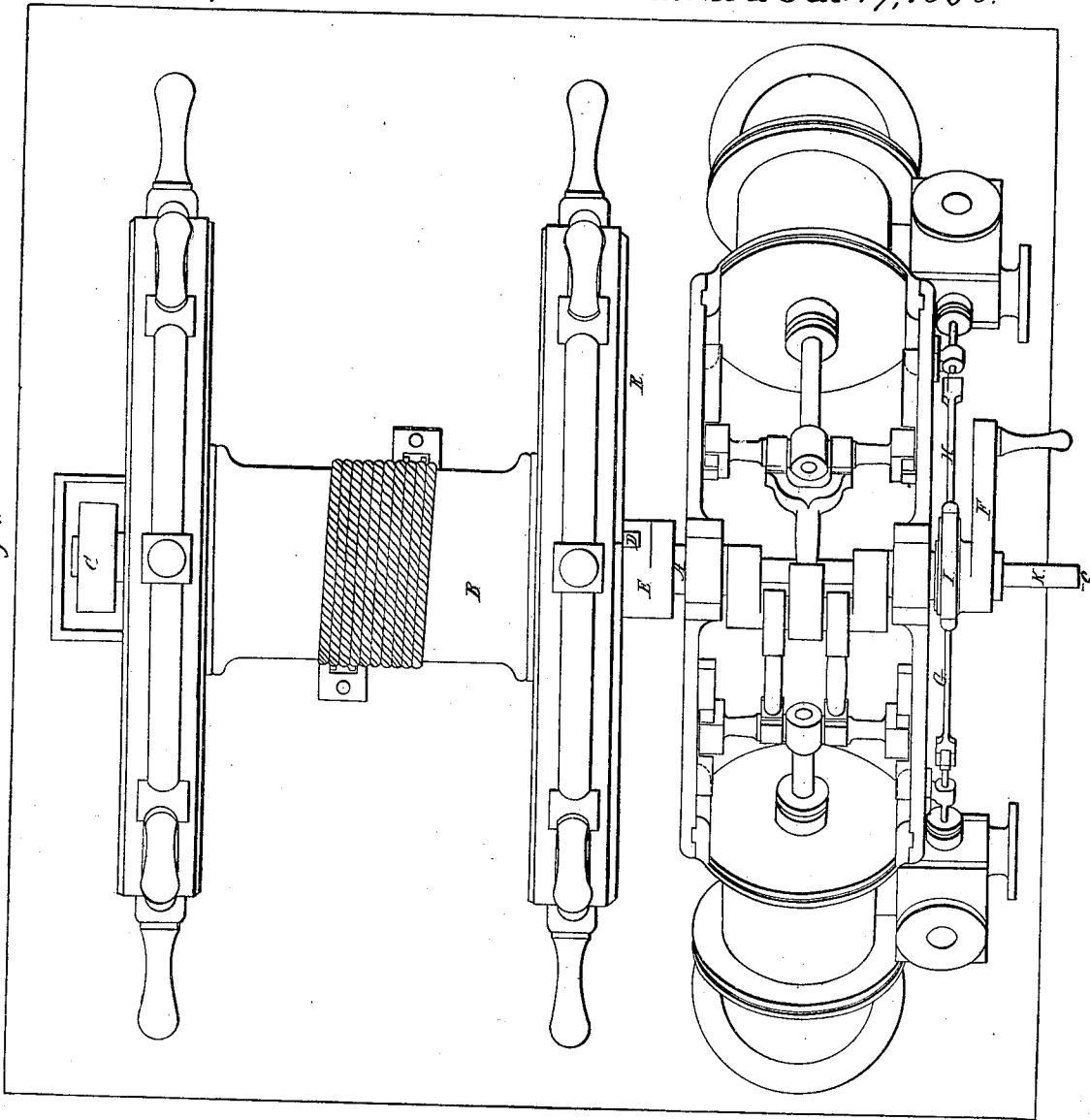
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UNITED STATES PATENT OFFICE.

FREDERICK E. SICKELS, OF NEW YORK, N. Y.

MODE OF STEERING VESSELS.

Specification forming part of Letters Patent No. 29,200, dated July 17. 1860; Reissued September 29, 1874, No. 6,068.

To all whom it may concern:

Be it known that I, FREDERICK ELSWORTH SICKELS, of the city, county, and State of New York, have invented a new and useful
5 Mode of Steering Vessels.

There are various contrivances now in use for controlling and operating the rudders of vessels, the intention being to create such a leverage that a person or persons will have
10 sufficient power to work the rudder.

The principle and character of my invention consist in bringing to the aid of the steersman the power of steam, so arranged as to alternately move and hold the rudder
15 of the vessel in any required position, according to the action of the steersman.

In the accompanying drawing Figure 1 is a side view, and Fig. 2 is a top view, of two common high-pressure steam-engines of the ordinary construction, and as shown in
20 the drawing, geared at right angles, and made to drive around the common shaft A.

The same letters refer to the same parts in each figure.

25 The shaft passes through an ordinary steering wheel B, and terminates in a bearing C.

D is a key which passes through the hub E which is permanently fast to the steering
30 wheel B.

This key D, also passes through one side of the shaft A, thus connecting the steering wheel B with the driving shaft A of the engines.

35 L is a lever friction brake shown in Figs. 1 and 2 attached in its place, and in Fig. 3, separate therefrom. The brake has a bearing in the upright of the engine nearest the steering wheel and will act by means of grooves N, N', N'' (shown in Fig. 3) pressing
40 upon corresponding beads on the side R of the steering wheel, when the lever is pressed upon at O, it turning upon a pin P.

The crank F is fastened to the eccentric I, which operates the D-slide valves of both
45 engines by means of the connections G, H, leading to them respectively, and the steersman by turning around this crank F, causes the steam engines to turn around in the same
50 direction, and with the same number of revolutions; for the application of power depending upon the turning and holding by the steersman of the crank F, the engines must move correspondingly, provided they
55 have sufficient power to hold and move the

rudder as required, they being properly connected with the boiler furnishing the steam. After the steersman has opened the valve to either engine the piston of that engine may move to the end of the cylinder, producing a motion in advance of the action of the steersman, but that advanced motion cannot continue without, in doing so, causing the piston to encounter the steam which pressed it forward, and without steam on
60 the other side to aid its motion, and this resistance would act, as occasion required, to hold or move the rudder agreeably to the action of the steersman.

It is evident that the application of steam
70 as here explained to operate rudders may be made more or less direct, and variously arranged and located, as for instance the driving shaft of the engine may drive a pinion which may gear into a wheel attached to
75 the steering wheel, or attached directly to the tiller or stock of the rudder, and suitable pipes being connected, the admission and exhaustion of steam may be made by any valve or cock or other device, operated by
80 the steersman, so arranged as to apply or reverse its action; and it is also evident that any greater or less amount of machinery between the first action of the steam and the final application of the power derived there-
85 from, to the rudder, may be made to suit the convenience of the various cases that arise in practice; and it is also evident that in applying steam it may be used in connection with any method of operating the rudder,
90 for instance as in the drawing it is shown in combination with an ordinary steering wheel, and by removing the key D, the steering wheel will be entirely independent of the action of steam, and could be worked
95 in the ordinary way; or if a cog wheel and pinion were used, a clutch could be thrown out to disconnect the engine from the steering wheel, or any other device for readily and instantly disconnecting machinery could
100 be used, so that in case it was required at any time, either from accident to any part of the machinery, or from a desire not to use the steam except in case of emergencies, or from
105 other cause, the means will have been provided for disconnecting the steam engine from any steering apparatus in combination with which it may be used, it being important to select the plan that would involve
110 the least amount of machinery with the

greatest facilities in practice. It is also evident that the power furnished by steam will enable the steersman to control an increased size rudder.

5 Having thus fully explained the nature and character of my invention, what I claim as new and desire to secure by Letters Patent is—

10 1. The combination of the rudder of a vessel with machinery to cause the power of

steam in connection with the action of the steersman, to alternately move and hold the rudder.

2. The specific arrangement of machinery herein shown or any other substantially the same for the purpose specified.

FREDERICK E. SICKELS.

Witnesses:

A. B. STOUGHTON,
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