Sheet 1. 2 Sheets.

G. Coffin.

Steering.

No. 49,233. Patented Aug. 8, 1865.

Fig: 1

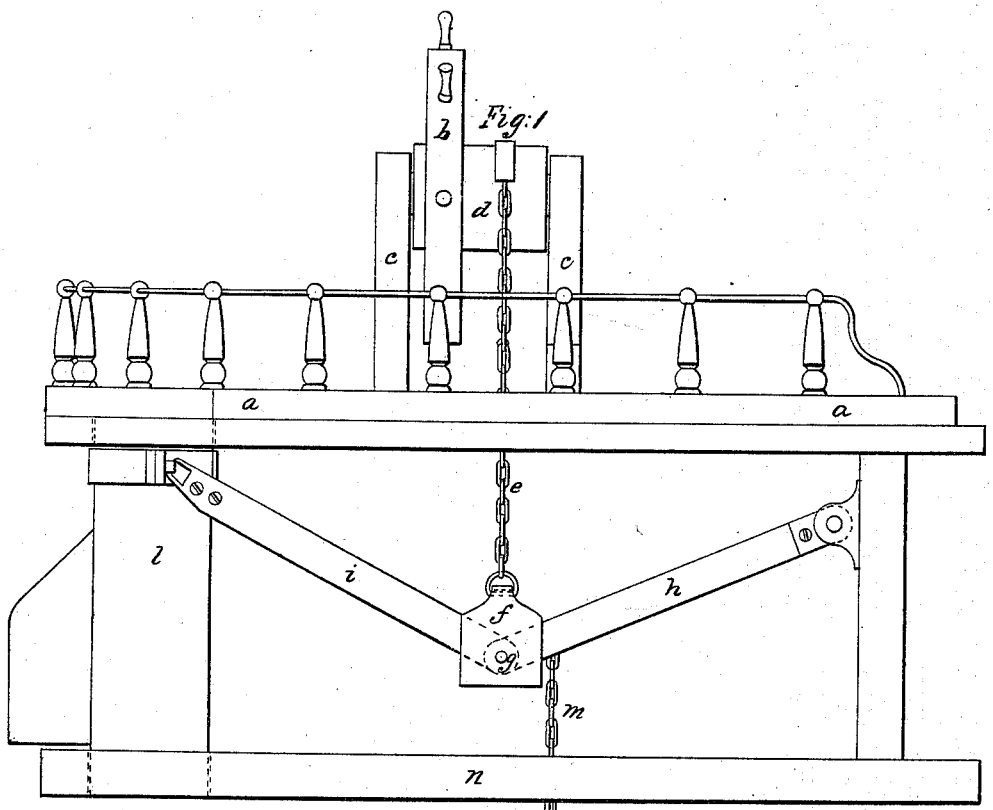
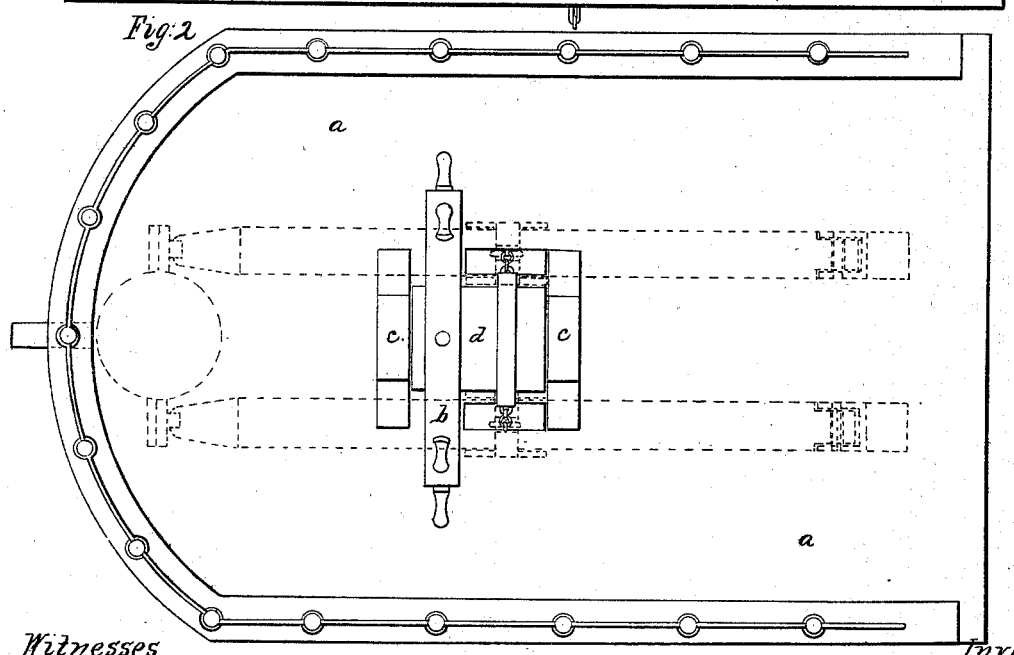


Fig: 2



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Sheet 2 2 Sheets.

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Steering.

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Fig: 4

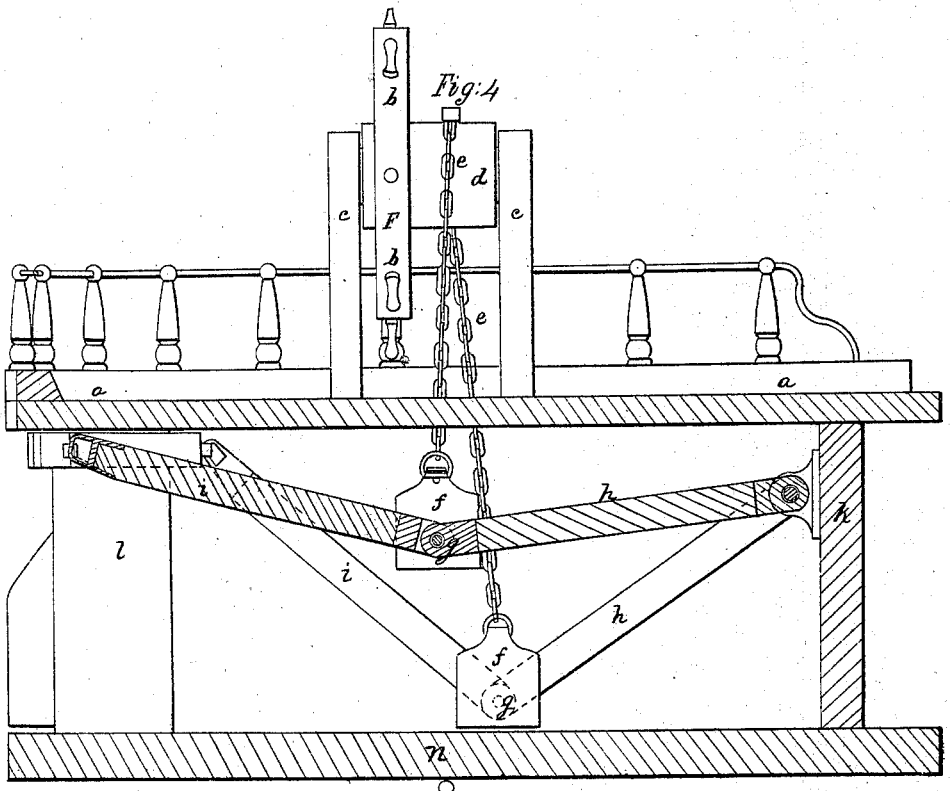
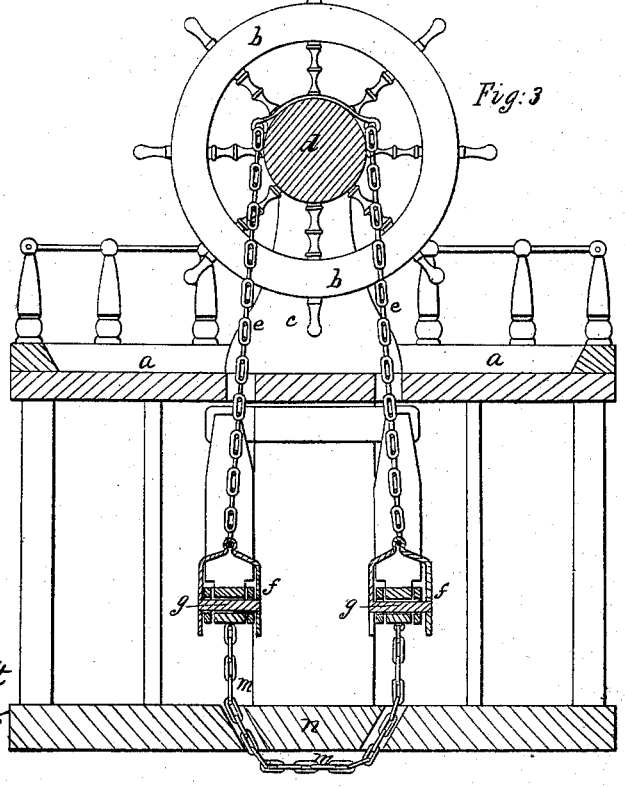


Fig: 3



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

GEORGE COFFIN, OF BOSTON, MASSACHUSETTS.

IMPROVED STEERING APPARATUS.

Specification forming part of Letters Patent No. **49,233**, dated August 8, 1865.

To all whom it may concern:

Be it known that I, GEORGE COFFIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ship-Steering Apparatus; and I do hereby declare that the following description, taken in connection with the accompanying plate of drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improved steering apparatus.

Figure 1 is a side elevation of a portion of the poop and spar decks of a vessel, showing my improvements applied thereto. Fig. 2 is a plan or top view of the upper deck. Fig. 3 is a transverse vertical section taken through the steering-wheel. Fig. 4 is a longitudinal vertical section.

The principal difficulty experienced in ship-steering apparatus as constructed according to modern improvements has consisted in the number and complexity of its parts, as in case of derangement or breakage at sea it is almost impossible to repair or replace such portions of the apparatus as may be damaged or rendered wholly useless.

The object of my improvements is to combine great simplicity of construction with extraordinary power and quick and regular action, and in such a manner that the parts shall not be liable to get out of order or broken, or, if so, can be easily repaired or replaced by the ship's carpenter with materials usually on board.

a a a in the drawings represent the upper or quarter deck of a vessel having placed on it the steering-wheel *b b*, supported by suitable standards, *c c*.

To a drum, *d*, on the axle of the steering-wheel are fastened two chains or ropes, *e e*, each of which is fastened to a clasp, *f*, through which passes a pivot, *g*, that forms a joint for two lever-bars, *h i*, the former being hinged to suitable posts, *k*, and the latter to a collar on the rudder-post *l*, the whole forming a toggle-jointed lever. A chain, *m*, connects the two sets of toggle-jointed levers, passing through the spar-deck *n*, as shown in Fig. 3.

It will be readily seen from the foregoing description that a slight turn of the steering-wheel will, through the alternate movement of the toggle-jointed levers, convey the necessary action to the rudder with great power, quickness, and regularity, and that the maximum of power is applied when it is most required—viz., when the resistance to the rudder is the greatest or when it is "hard-up."

An advantage especially to be mentioned arising from the above-described arrangement of devices consists in the fact that so little movement is necessary to be given to the wheel in order to convey the necessary action to the rudder, a turn of two spokes, for instance, of the wheel giving the extreme limit of motion to the rudder. The power being applied also between-decks leaves the quarter-deck clear of all obstructions and avoids the liability of any of the parts being carried away by a sea breaking on board.

Having thus described my improvements, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

The arrangement of the two sets of toggle-jointed levers attached to the rudder-post and operated by the steering-wheel, substantially as hereinabove described.

GEO. COFFIN.

Witnesses:
JOSEPH GAVETT,
O. A. HOUGHTON.