(No Model.) 2 Sheets—Sheet 1.

L. BALLETTO.

BOAT STEERING AND COUPLING APPARATUS.

No. 344,612. Patented June 29, 1886.

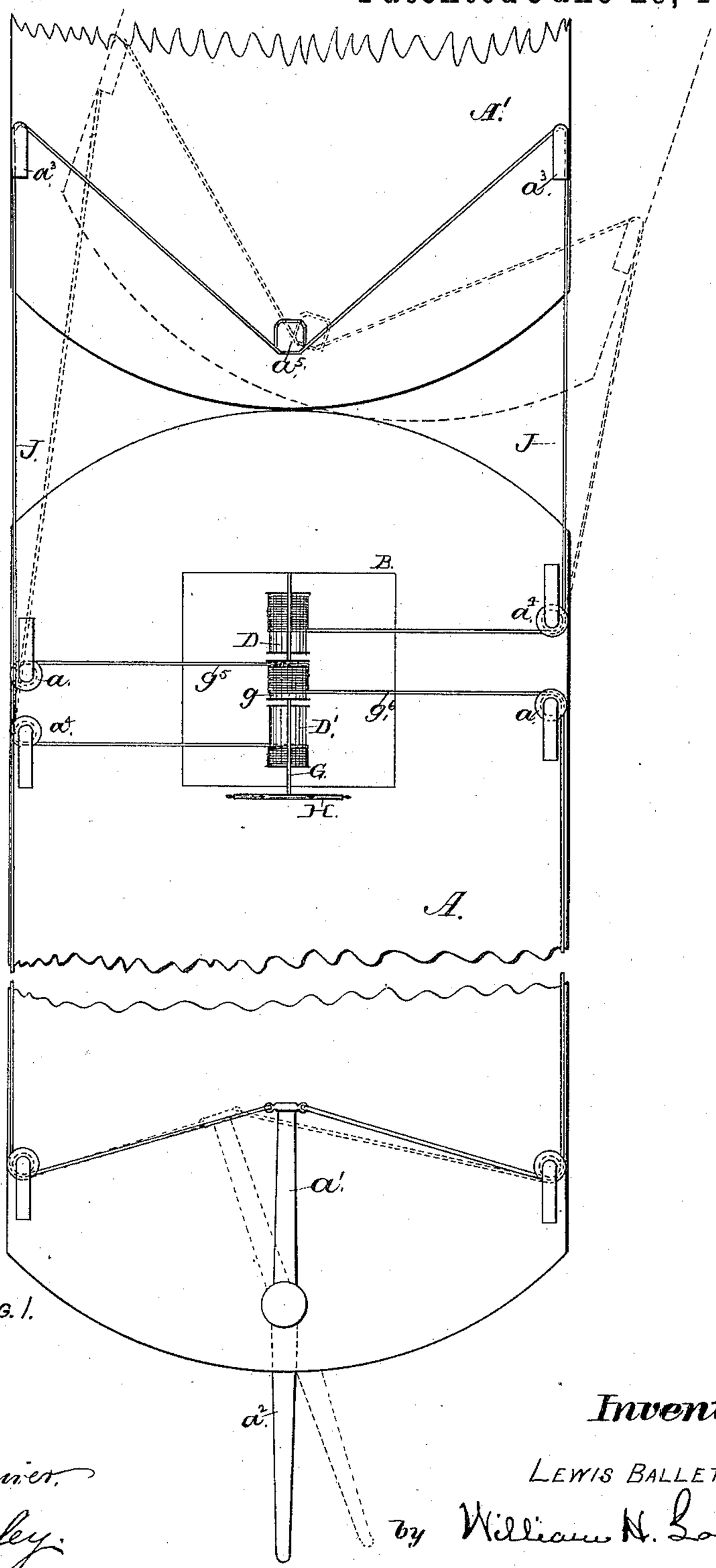

FIG. 1.

Witnesses:

S B Brenier.

W. W. Seeley.

Inventor:

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(No Model.) 2 Sheets—Sheet 2.

L. BALLETTO.

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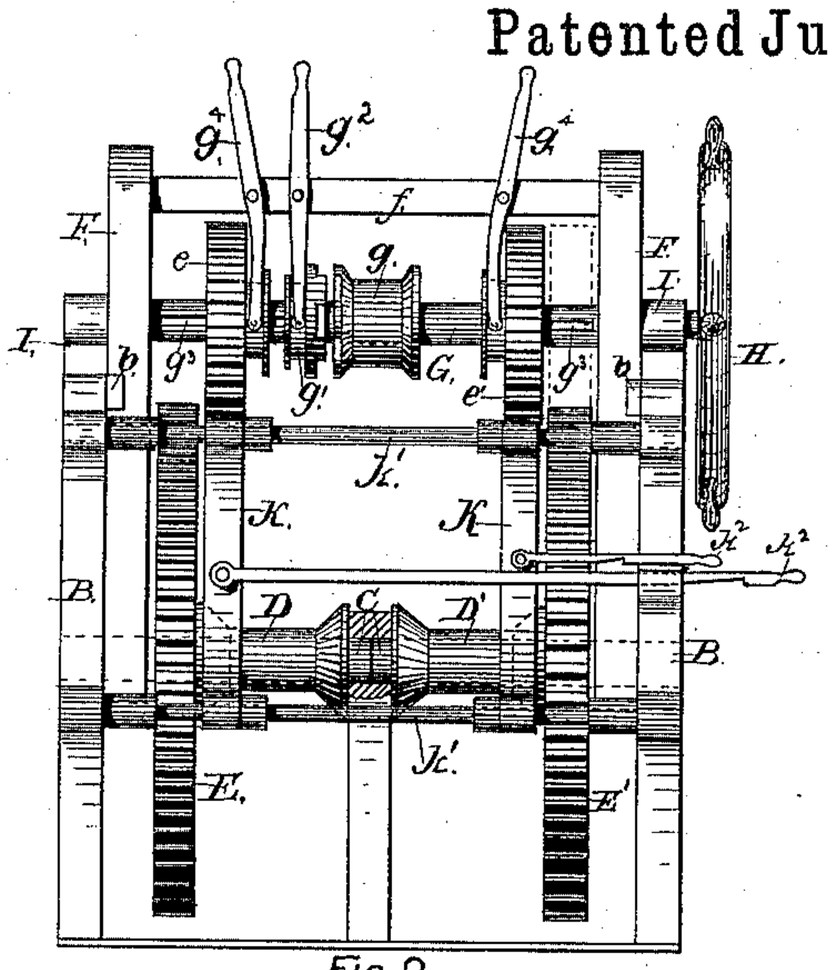

Fig. 2.

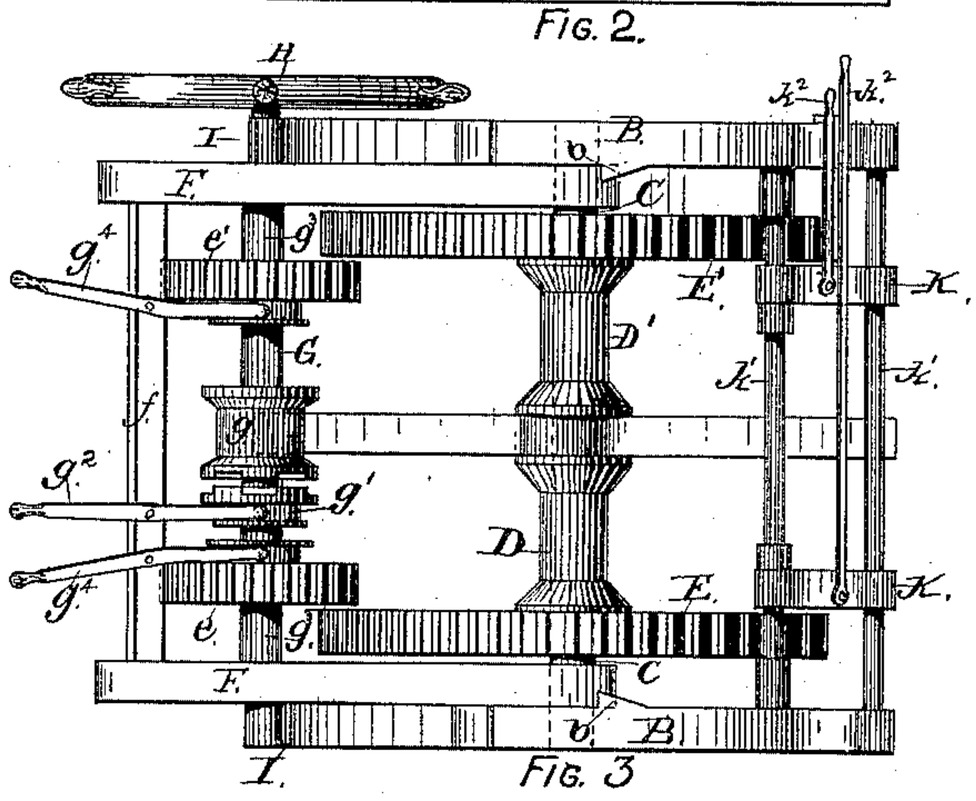

Fig. 3

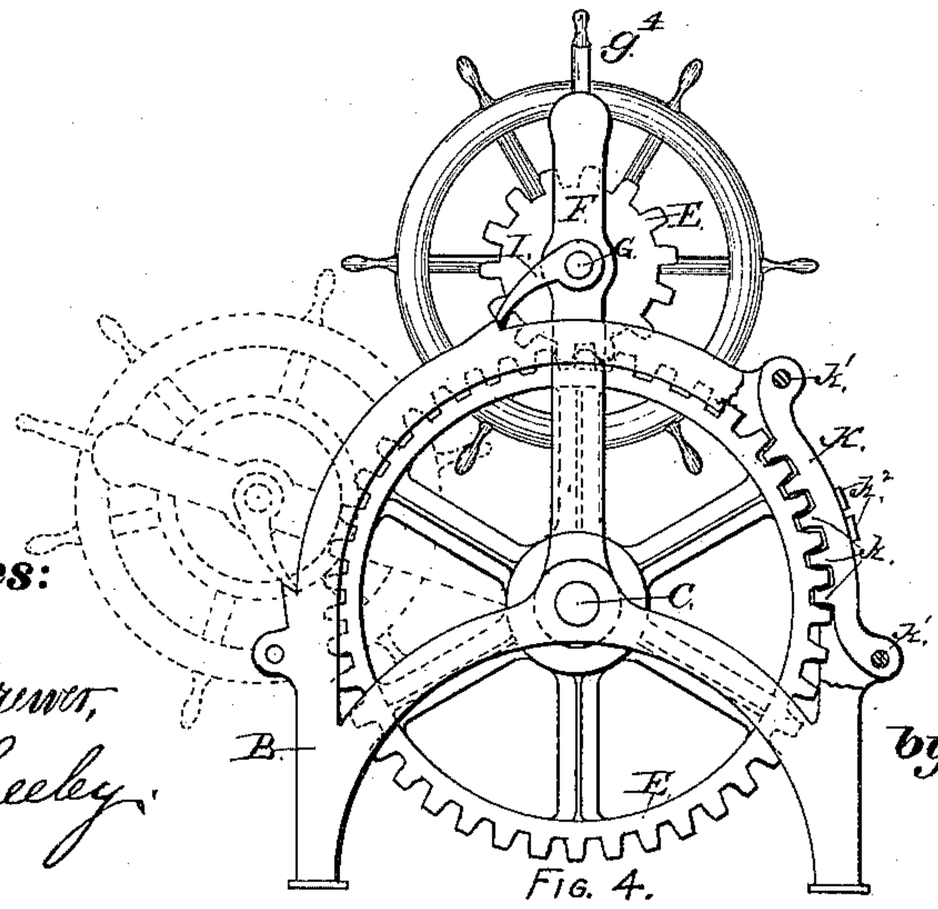

Fig. 4.

Witnesses:

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W. W. Seeley.

Inventor:

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UNITED STATES PATENT OFFICE.

LEWIS BALLETTO, OF NEW YORK, N. Y.

BOAT STEERING AND COUPLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 344,612, dated June 29, 1886.

Application filed November 20, 1884. Serial No. 148,396. (No model.)

To all whom it may concern:

Be it known that I, LEWIS BALLETTO, of the city, county, and State of New York, have invented a new and useful Improvement in Boat-Steering and Coupling Apparatus, of which the following is a specification.

My invention consists of mechanism, herein shown and described, whereby by means of a single hand-wheel the rudder of the boat carrying the apparatus may be operated to steer said boat and another boat in advance coupled thereto, and the angular position of the latter in respect to the steering-boat may be changed thereby, as occasion may require.

In the accompanying drawings, which are herein referred to and form part of this specification, Figure 1 is a skeleton plan view of the steering-boat and part of the advance boat as when coupled together, and Figs. 2, 3, and 4 are respectively a side elevation, plan view, and end elevation of the mechanism for steering and coupling said boats.

As represented in the drawings, A is the boat carrying the steering and coupling machinery, and A′ the foremost boat coupled thereto.

B is the frame-work of the steering and coupling machinery. In said frame-work suitable bearings are formed, in which two independent drum-shafts, C, are arranged to rotate. Said shafts range in direct line with each other and with the longitudinal center line of the boat A′. The foremost of said shafts has a drum, D, and gear-wheel E secured to it, and in like manner the rearmost shaft is provided with the drum D′ and gear-wheel E′.

A movable frame composed of the side pieces, F, and cross-bar *f*, which frame has the shafts C for its pivotal center, is arranged to swing from the erect position shown in Fig. 2 and the full lines of Fig. 4 to a nearly horizontal position, as shown in Fig. 3 and the dotted lines of Fig. 4. In the side pieces, F, suitable bearings for the shaft G are formed. A drum, *g*, is fitted loosely on said shaft, so that the latter can be rotated independently of the drum. The drum *g* is provided with lugs, which engage with the clutch-coupling *g′*, so as to lock said drum to the shaft G and cause them to rotate as one piece. The clutch-coupling slides on a spline in the shaft G, and is thrown into and out of gear with the drum *g* by means of a lever, g^2, fulcrumed on the cross-bar *f′*. Pinions *e* and *e′* are arranged to slide on the shaft G, (splines g^3 being provided for that purpose,) and their sliding movements being effected by means of levers g^4, fulcrumed to the cross-bar *f′*. The pinions *e* and *e′* are adapted to engage in the gear-wheels E and E′, respectively, so as to impart motion to either of said wheels, as occasion requires. A hand-wheel, H, is secured to the rearmost end of the shaft G, for the purpose of imparting motion to said shaft.

The side pieces, F, when the movable frame is in its erect position, bear against stops *b* on the frame-work, and are secured thereagainst by pawls I, and the latter may be connected together so as to move simultaneously, or each may be moved independently.

The steering-drum *g* receives the steering-rope, one part, g^5, of which leads off from the upper side of said drum, and the other part, g^6, leads from the under side of said drum, so that any rotatory movement of the drum while it winds up one part of the steering-rope will reciprocally unwind the other part. The steering-ropes g^5 and g^6 lead off to their appropriate sides of the boat A, and are carried around by suitable guide-sheaves, *a*, and are secured to opposite sides of the tiller *a′*, so as to operate the rudder a^2 for steering the boat, in the usual manner.

The rope J is for securing the two boats together stem and stern, and for this purpose it is secured around the timber-head a^3, or other suitable fastening near the stern of the leading boat. One part of the rope J is then carried around a chock or sheave, a^3, on the leading boat, from thence aft and around a sheave, a^4, on the steering-boat, and from thence to the drum D of the steering and coupling mechanism. The other part of the rope J is carried around in like manner at the opposite side of the boats, and is secured to the drum D′. The opposite parts of the rope J should be wound around their respective drums in opposite directions, so that when the two pinions *e* and *e′* are in gear with their appropriate wheels, E and E′, any rotatory

movement of the shaft G while it winds up one part of the rope from one drum will reciprocally unwind the other part of said rope from the other drum. When occasion requires, either one of the pinions may be slipped out of gear from its wheel while the other pinion is held in gear, so as to wind one part of the rope J while the other part remains in a stationary position; also, when occasion requires, by coupling the drum *g* to the shaft G, (as hereinbefore described,) and sliding the pinions *e* and *e'* into gear with their respective wheels, E and E', the drum *g* and drums D and D' will be moved simultaneously, and in this manner the rudder a^2 will be moved, and the relative angular position of the two boats will be changed at one and the same instant, so as to effect a quicker change in the direction of the movement of the two boats than can be effected where the course of one boat is effected by the course of another boat in the usual manner. Provision is made by means of two sliding stoppers, K, (which are provided with projections *k*, for engaging in the teeth of the gear-wheels,) to lock either or both of the drums D and D' in fixed positions. Said sliding stoppers are adapted to slide on the rods *k'* of the frame-work, and each is provided with a suitable handle, k^2, by which it can be moved as occasion requires.

By means of the movable frame F, hereinbefore described, provision is made for allowing the steering-boat to pass under low bridges on the canal, while the apparatus for operating the steering-ropes and coupling-ropes are retained in gear for immediate use. While running on the long unobstructed stretches of the canals or in rivers, the movable frame F can remain in the upright position shown by the full lines of Fig. 4, which will enable the pilot to stand in an erect position; but when passing under low bridges the movable frame F can be swung over into the position indicated by dotted lines in Fig. 4, where the highest part of the apparatus will be brought down to the level of the deck of the cabin.

I claim as my invention—

1. In an apparatus for steering and coupling boats, the combination, with a steering-drum, *g*, loosely fitted on a shaft, G, having a hand-wheel, H, secured thereto and provided with a coupling, *g'*, whereby said drum can be fastened to said shaft, and the sliding pinions *e* and *e'*, of the coupling-drums D and D' and gear-wheels E and E', all secured to the shafts C, as herein set forth, the said steering and coupling drums and their coupling devices being so arranged that all or any number of said drums can be engaged to operate at one time, as herein specified.

2. The combination, with the shafts C, provided with coupling-drums D and D' and gear-wheels E and E', of the movable frame F, having the shafts C as its pivotal center, and carrying a shaft, G, having the steering-drum *g* loosely fitted thereon, and provided with sliding pinions *e* and *e'* and hand-wheel H, the said steering-drum being provided with a coupling, *g'*, by which said drum and shaft G can be fastened together to rotate as one piece, and the pinions *e* and *e'* being adapted to engage in gear with the wheels E and E', so as to rotate the drums D and D', in the manner and for the purpose herein specified.

LEWIS BALLETTO.

Witnesses:
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S. B. BREWER.