(No Model.) 2 Sheets—Sheet 1.

# J. J. KUNSTÄDTER.

## PROPELLING AND STEERING VESSELS.

No. 345,702. Patented July 20, 1886.

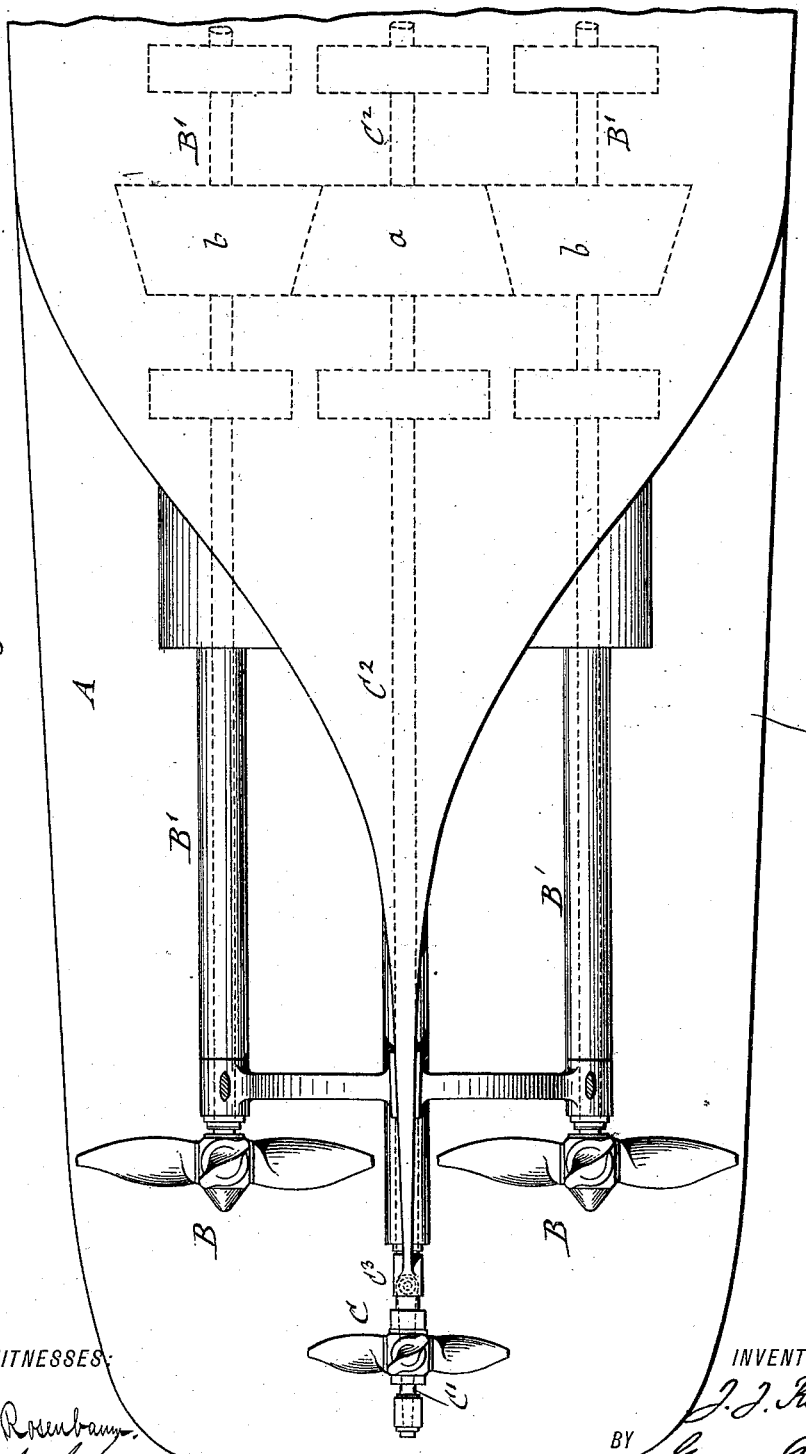


Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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## PROPELLING AND STEERING VESSELS.

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Fig. 3.

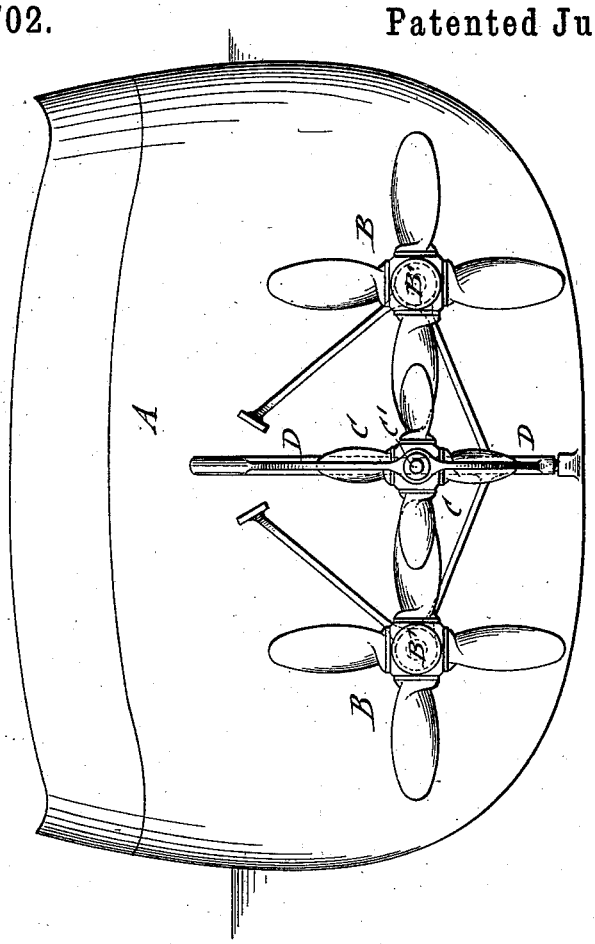
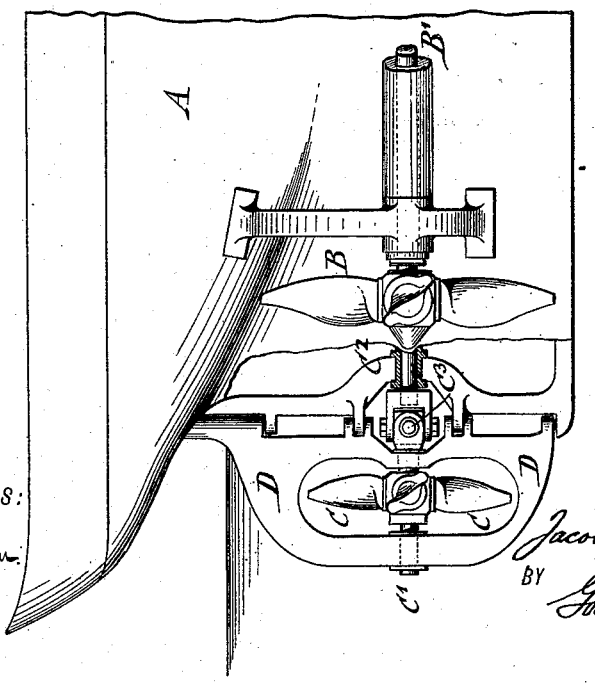



Fig. 2.

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# UNITED STATES PATENT OFFICE.

JACOB J. KUNSTÄDTER, OF NEW YORK, N. Y.

## PROPELLING AND STEERING VESSELS.

SPECIFICATION forming part of Letters Patent No. 345,702, dated July 20, 1886.

Application filed November 23, 1885. Serial No. 183,585. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB J. KUNSTÄDTER, of the city, county, and State of New York, have invented certain new and useful Improvements in Propelling and Steering Vessels, of which the following is a specification.

The vessels which are fitted up with so-called "twin propellers" have the disadvantage that they can only be steered with considerable difficulty, as the rotating motion of one of them has to be interrupted when it is desired to quickly turn the vessel to one side or the other.

The object of this invention is to provide means for effectively steering vessels with twin propellers; and the invention consists in arranging a rudder having a steering-propeller intermediately between the twin screws, said steering-propeller being swiveled to a center shaft by a universal joint, and the center shaft geared with the shafts of both propeller-screws.

In the accompanying drawings, Figure 1 represents a bottom view of a vessel fitted with twin propellers, and with my improved propelling and steering device, and Figs. 2 and 3 are a side and an end elevation of the same.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a vessel which is propelled by "twin screws"—that is to say, by two screws, B B, that are arranged symmetrically to the central longitudinal axis of the vessel. The shafts B′ B′ of the propeller-screws B B are operated by the engine in such a manner that the motion of either one of them can be interrupted without stopping the other. A third or steering propeller, C, is applied to an auxiliary shaft, C′, supported in bearings of the rudder D, and rotated by a center shaft, $C^2$, that is located in line with the longitudinal axis of the vessel A, and rotated in bearings intermediately between the bearings of the shafts of the twin screws B B. Rotary motion is imparted to the center shaft, C′, by a friction-wheel or bevel-wheel, *a*, that gears with bevel-wheels *b b* on the shafts B′ B′, or in any other suitable manner, so that the motion is transmitted to the shaft of the steering-propeller C by one of the shafts B′ B′, even if the motion of one of them should be interrupted. The auxiliary shaft C′ of the steering-propeller C is connected to the center shaft, $C^2$, by a universal joint, $C^3$, preferably of that construction which is shown in my prior patent for steering-propellers, dated September 9, 1879, No. 219,405. By thus arranging a rudder with a steering-propeller intermediately to and at some distance back of the main propelling-screws a more powerful propelling action is exerted on the vessel, so that the same is brought fully within control and capable of turning quickly and within a short radius, especially as the propelling-screw responds to the action of the steering-gear and exerts a steering action on the vessel before the motion of either one of the main screws can be interrupted. As soon as the motion of either main screw is interrupted the motion of the other screw will assist in the quick turning of the vessel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of twin propeller-screws and their shafts, an intermediate center shaft located in line with the longitudinal axis of the vessel, an auxiliary shaft supported in bearings of the rudder, a universal joint connecting the center and auxiliary shaft, a steering-propeller on said auxiliary shaft, and motion-transmitting gearing, by which the center shaft is rotated by either one or both of the main shafts, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JACOB J. KUNSTÄDTER.

Witnesses:
PAUL GOEPEL,
MARTIN PETRY.