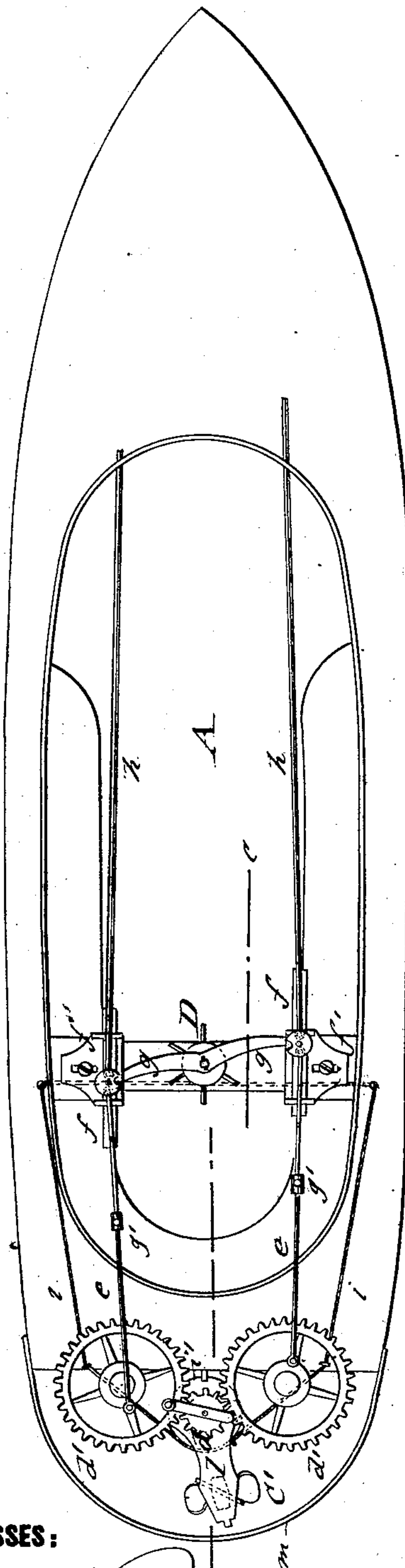


W. F. ZOEHE.
Steering-Propeller.

No. 163,716.

Patented May 25, 1875.

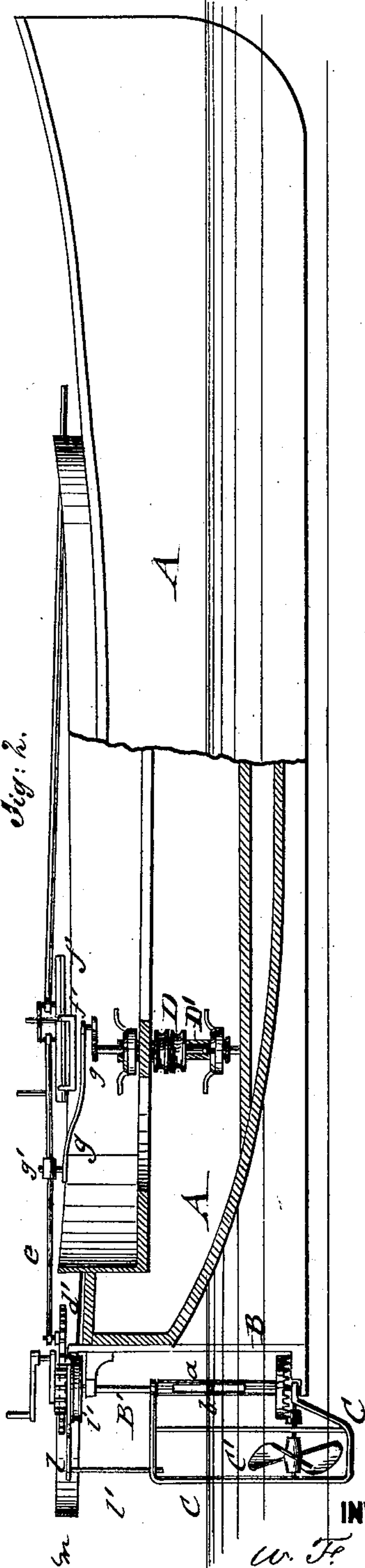
Fig. 1.



WITNESSES:

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Fig. 2.



INVENTOR:

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WILHELM F. ZOEHE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STEERING-PROPELLERS.

Specification forming part of Letters Patent No. **163,716**, dated May 25, 1875; application filed March 6, 1875.

To all whom it may concern:

Be it known that I, WILHELM F. ZOEHE, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Propelling Attachment to Boats, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view, and Fig. 2 a side elevation, partly in vertical longitudinal section on line *c c*, Fig. 1, of a common pleasure-boat with my improved propelling and steering attachment.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved propelling and steering device for small pleasure-boats, by the use of which oars may be dispensed with, and a propelling-screw, driven by the persons in the boat, be employed in place thereof.

My invention consists in the employment of a propelling-screw that is driven by hand-power applied to actuating lever-rods, which rods are pivoted to sliding and guided pieces, transmitting the power alternately, by intermediate gear-wheels, to the shaft of the screw. The screw is secured to a supporting-frame sliding in vertical direction for yielding to obstructions, and is also employed for steering the boat by connecting the screw-frame, by a governing arm and wheel, ropes, and pulleys, with the steering-wheel of the boat.

In the drawing, A represents a boat of the size of the common row-boat in use. A stationary standard, B, at the stern-post, having rear-extending top and bottom arms, supports a vertical revolving shaft, B', on which slides readily, in vertical direction, the screw-supporting frame C, the slotted tubular slide part *a* of which is acted upon by a cross-pin, *b*, to produce the revolving of the slide part *a* with the shaft B', and transmit, by cog-wheel at the lower end, and a pinion of the screw-shaft, motion to the propelling-screw C'.

The part of frame C below the gearing is rounded off or inclined, for the purpose of raising readily the sliding screw-frame when the same comes in contact with obstructions, while admitting instantly the return of the

screw to the required depth as soon as the obstruction is passed. The screw is in this manner protected against injury when in its lowermost position, as shown in Fig. 2.

The vertical shaft B' is revolved by means of a pinion, *d*, at its upper end, that gears with cog-wheels *d'*, whose shafts turn in side bearings at the stern of the boat. The cog-wheels *d'* are revolved by crank-lever rods *e*, that are pivoted eccentrically to the cog-wheels *d'*, and, at the opposite end, to slide-pieces *f*, guided in supporting and laterally-adjustable plates *f'*. The crank-lever rods *e* are provided with handles, to be worked alternately by the person sitting at the stern. The motion of the rods may be assisted by swinging treadles, operated by the feet in connection with the arms, the treadles being connected, by a central shaft, with upper elbow-levers *g*, to connecting pivot-pins *g'* of the lever-rods *e*.

For obtaining greater speed, and propelling the boat with less effort, sliding rods *h* are arranged in longitudinal direction at both sides of the boat, and pivoted to the slide-pieces *f*, to be taken hold of by the persons sitting in the boat, and giving, by the alternating motion imparted to the same, additional propelling power to the screw.

The steering-wheel D is applied, by its hollow shaft D', to the axle of the treadles, and operated either by hand or foot, as found most convenient.

If one person propels the boat, he may use the hands for working the screw, and the feet for operating the steering-wheels, or vice versa.

The steering-wheel D connects, by side ropes and pulleys *i*, with a guide-wheel, *i'*, placed on the vertical shaft B', turning loosely thereon. An arm, *l*, of wheel *i* connects, by downward-extending rod *l'*, with the screw-supporting frame C, without interfering with the vertically-sliding motion of the same, causing therefore the swinging of screw-frame and screw to either side, according as the steering-wheel is turned.

The screw is used jointly for propelling and steering the boat, the different operating parts being so constructed that they may be readily attached to or taken off the boat, as desired,

the gear-wheels and screw-frame being, when attached, protected against injury by a detachable guard-band, *m*, that is applied to the stern.

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

The combination of the rudder and screw-frame *C*, propelling-screw *C'*, tube *a*, vertical

driving-shaft *B'*, driving-gearing *d d'*, guide-wheel *i*, arm *l*, rod *l'*, and steering-ropes *i i*, as and for the purpose set forth.

WILHELM F. ZOEHE.

Witnesses:

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