(No Model.)

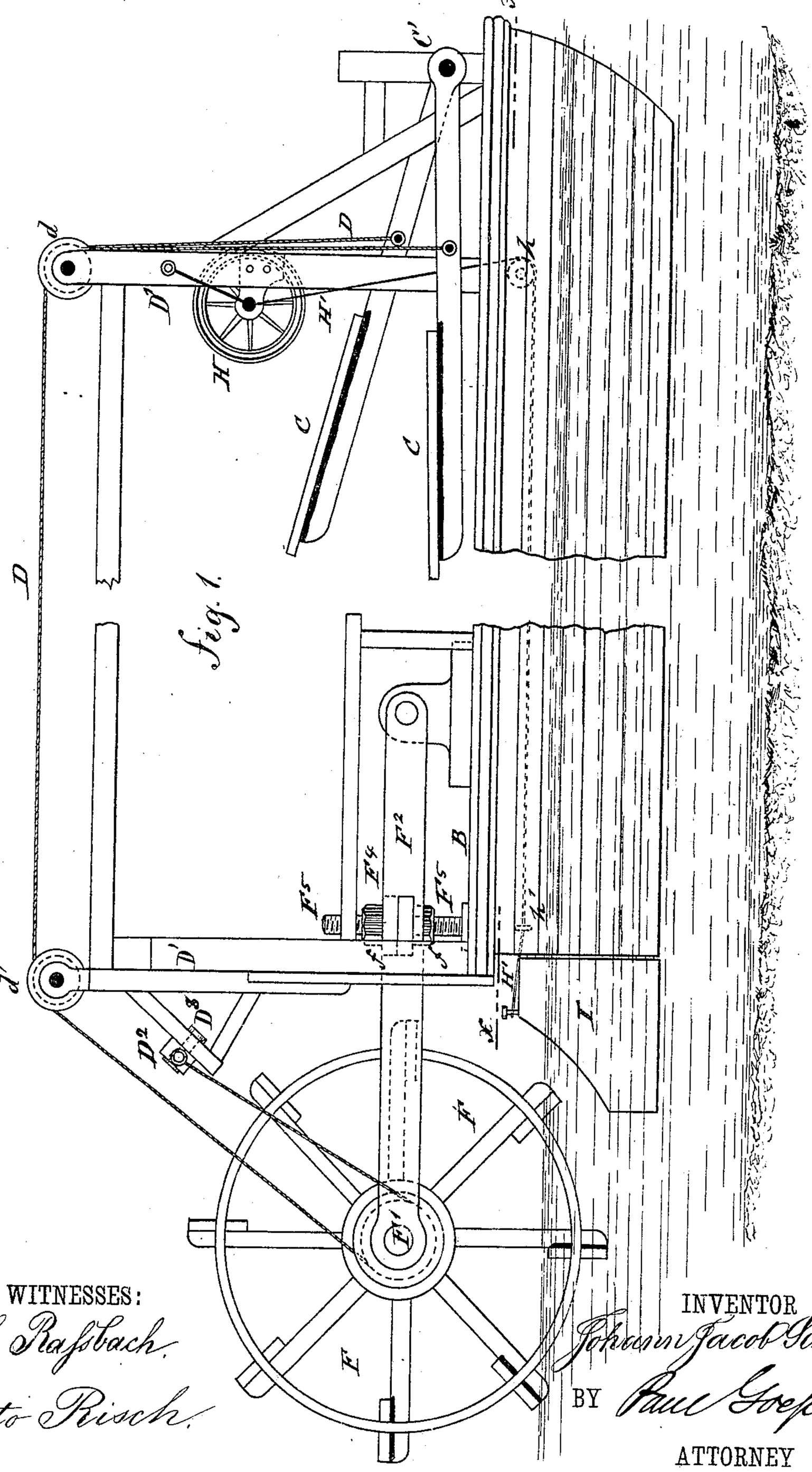
3 Sheets—Sheet 1.

J. J. SCHURR.

STERN WHEEL BOAT.

No. 270,344.

Patented Jan. 9, 1883.



WITNESSES:

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ATTORNEY

(No Model.) 3 Sheets—Sheet 2.

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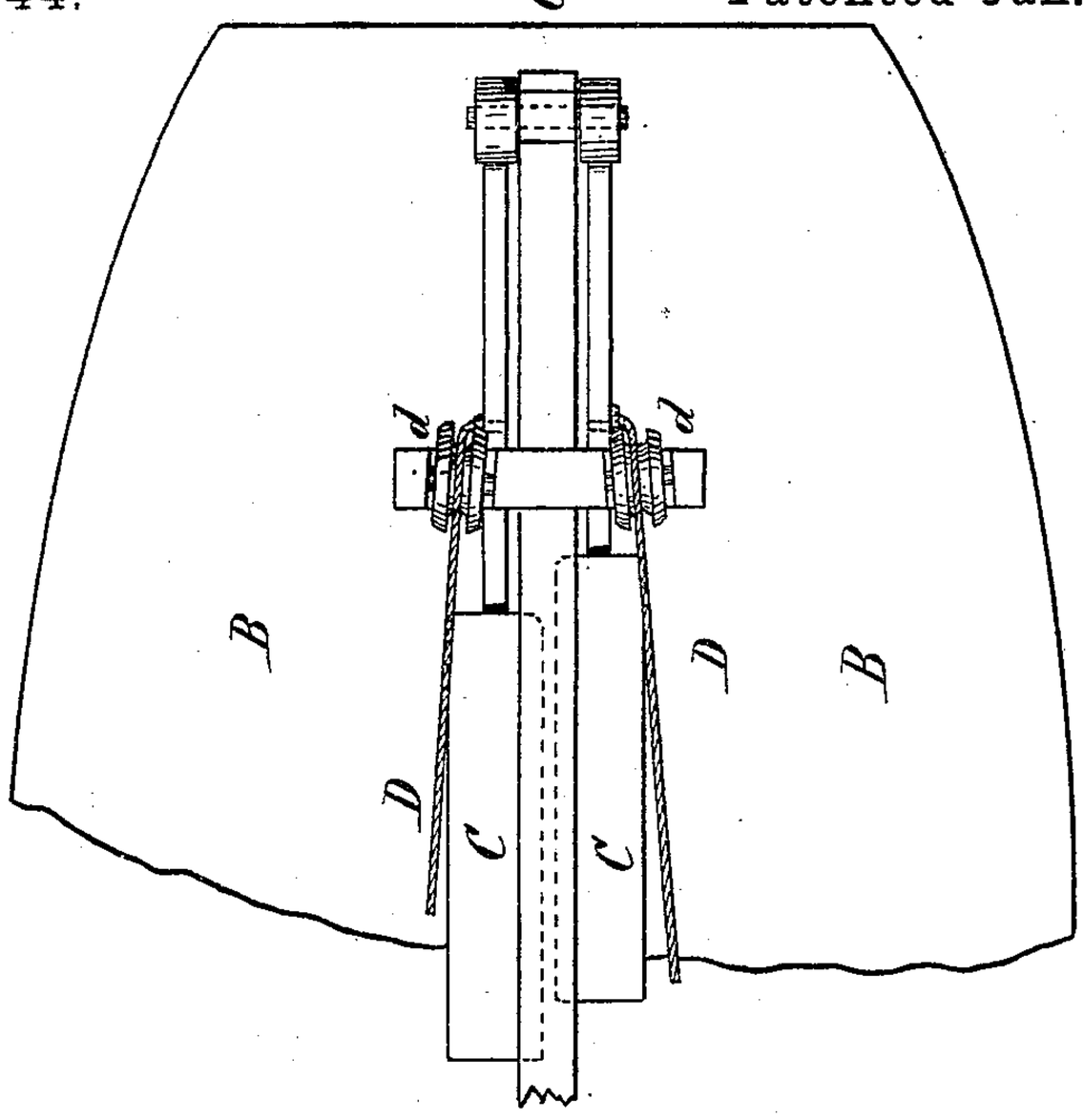
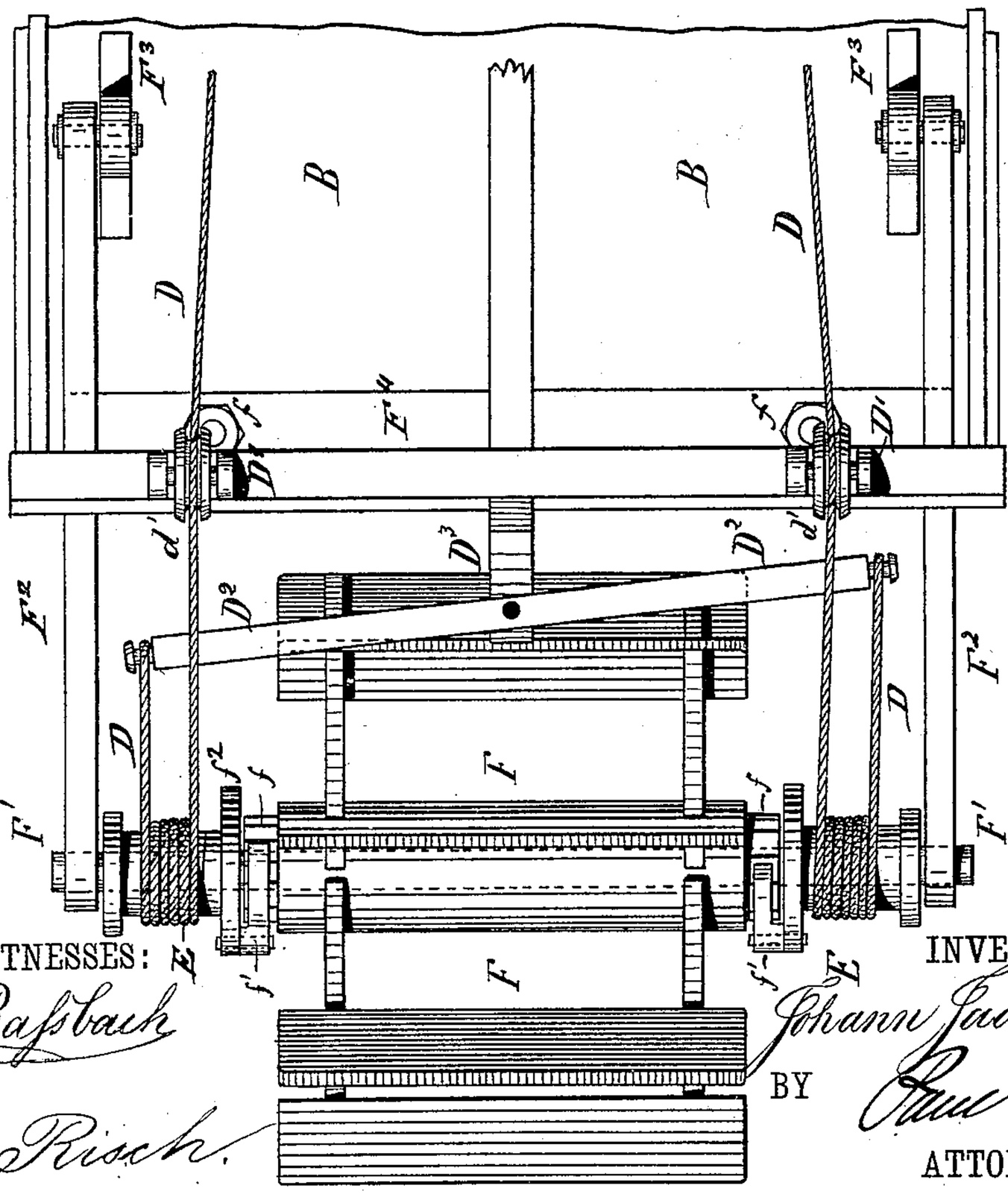


Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

J. J. SCHURR.

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Patented Jan. 9, 1883.

Fig. 3.

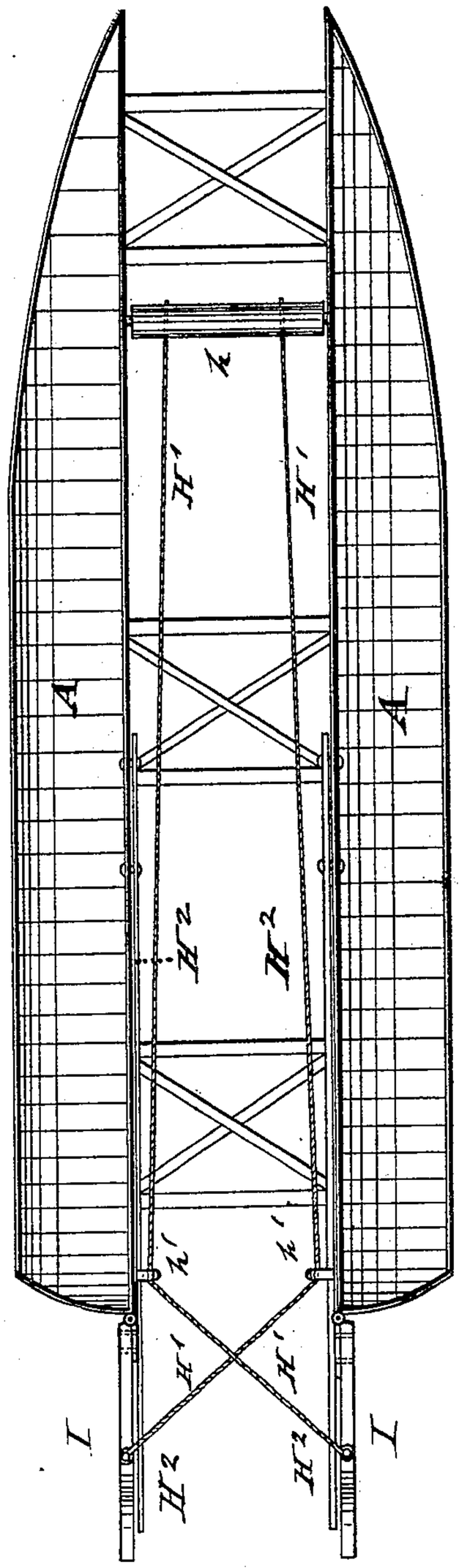


Fig. 4.

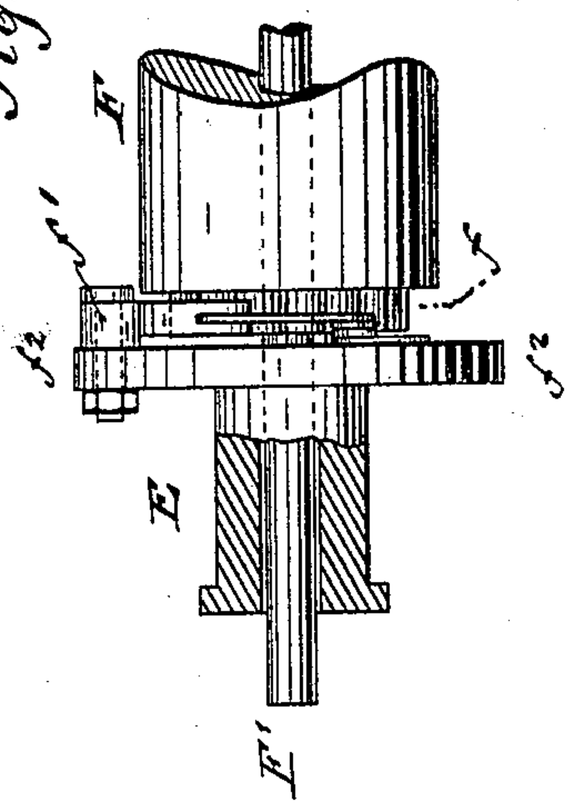
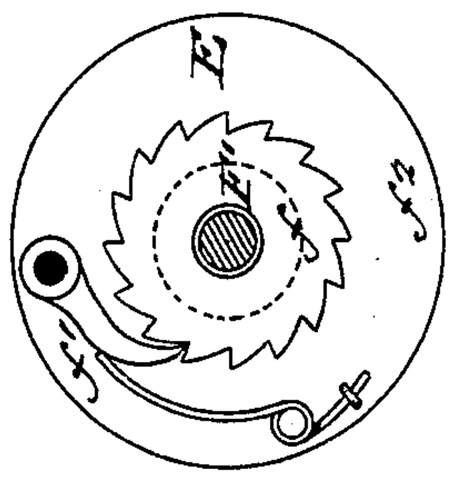


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHANN J. SCHURR, OF PITTSBURG, PENNSYLVANIA.

STERN-WHEEL BOAT.

SPECIFICATION forming part of Letters Patent No. 270,344, dated January 9, 1883.

Application filed September 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHANN JACOB SCHURR, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Propelling Vessels, of which the following is a specification.

This invention has reference to an improved mechanism for propelling pleasure-boats, canal-boats, and other vessels; and the invention consists of a boat having a paddle-wheel arranged at its stern, said paddle-wheel receiving continuous rotary motion by means of oscillating treadles which are connected by properly-guided transmitting-cords with loose sheaves on the shaft of the paddle-wheel, said sheaves engaging alternately by pawls pivoted thereto ratchet-wheels on the hub of the wheel. The transmitting-cords are passed several times around the sheaves and connected at their ends to a centrally-fulcrumed oscillating lever, which causes the alternate winding up of one of the transmitting-cords on one sheave while the other cord is unwound from the other sheave. The shaft of the paddle-wheel is supported in backwardly-extending beams, which are pivoted at their inner ends to deck-posts of the boat and provided at intermediate points with vertically-adjustable screw-standards, by which the depth of the wheel in the water may be regulated. The boat is made of two hulls, side by side, laterally braced and connected together, having a central longitudinal channel between them, the rudders being applied to the stern of the hulls and operated by a steering-gear near the treadles and by connecting cords or chains by the party operating the propelling mechanism.

In the accompanying drawings, Figure 1 represents a side elevation of my improved propelling mechanism for vessels. Fig. 2 is a plan view of the same; Fig. 3, a horizontal section on line *x x*, Fig. 1; and Figs. 4 and 5 are details of the pawl-and-ratchet mechanism by which rotary motion is transmitted from the sheaves to the paddle-wheel.

Similar letters of reference indicate corresponding parts.

In the drawings, A A represent the hull of a vessel constructed of two hulls, which are pointed at the bows and laterally connected by strong braces, so as to form a central longitudinal passage-way for the water. The hulls A A support the deck B, on which the propelling mechanism is arranged. This consists of two oscillating treadles, C C, which are pivoted to a fixed deck-post, C′, near the bow. A power-transmitting cord, D, is attached to each treadle and guided over pulleys *d d′*, that are supported on vertical posts D′ D′, one pair near the treadle, the other at the stern of the boat, as shown in Fig. 2. The pulley-supporting posts D′ D′ are properly stiffened by longitudinal and lateral brace-pieces. The transmitting-cords D pass from the stern-pulleys *d′ d′* downward and around loose sheaves E of the paddle-wheel shafts, one at each side of the paddle-wheel F. After passing a number of times around the sheaves E the cords D are attached to the ends of an oscillating lever, D^2, that is centrally fulcrumed to an inclined bracket-frame, D^3, secured to the transverse brace-frame of the stern-posts D′, as clearly shown in Figs. 1 and 2. The hub of the paddle-wheel F is keyed to the shaft F′, and provided at both ends with fixed ratchet-wheels *f*. These ratchet-wheels are alternately engaged by spring-pressed pawls *f′*, applied to a disk-shaped flange, f^2, at that end of the sheaves adjoining the hub of the paddle-wheel. By the alternating action of the treadles one of the transmitting-cords causes the turning of its sheave in the forward direction, so that its pawl engages one of the ratchet-wheels of the hub and imparts thereby rotary motion to the paddle-wheel F. The strain exerted by the unwinding of the cord D on the fulcrumed lever D^2 pulls the same toward the sheave that has just turned the paddle-wheel. The opposite end of the lever D^2 exerts thereby a strain on the second cord D, which causes the second sheave to turn, but in opposite direction to that of the first sheave, so that its pawl passes clear over the teeth of the adjoining ratchet on the hub of the paddle-wheel, and causes the winding up of the transmitting-cord D on the sheave and the raising of its treadle C, so that it is ready to be lowered by the action of the party propelling the boat. By lowering the treadle just raised the transmitting-cord D, attached to the treadle, causes the turning of the sheave that has just moved clear of the

ratchet-wheel on the hub of the paddle-wheel in forward direction, so that its pawl engages the ratchet-wheel and imparts thereby a rotary motion to the paddle-wheel, while the sheave and pawl at the other end of the paddle-wheel shaft turn clear of the ratchet-wheel by the action of the oscillating lever D′, so as to wind up its transmitting-cord and raise thereby the first treadle, C, again. In this manner the alternating lowering and raising of the treadles produces a continuous rotary motion of the paddle-wheel in one direction, as the transmitting-cords cause the alternate engagement and disengagement of the pawls of the sheaves with the ratchet-wheel of the hub of the paddle-wheel in connection with the oscillating motion of the lever D², that is actuated by the transmitting-cords D D. In this manner the boat can be propelled with comparatively little effort by the party or parties working the treadles.

The shaft F′ of the paddle-wheel F revolves in bearings at the ends of longitudinal beams F², which are pivoted at their front ends to fixed deck-posts F³, and extended to sufficient length back of the stern B. The beams F² are connected by a transverse stiffening-piece, F⁴, which is supported on vertical screw-standards F⁵, by which the pivoted beams F² may be set higher or lower, they being then secured rigidly in position by tightening screw-nuts *f f*, so that the paddle-wheel may be made to dip more or less into the water according to the greater or less load of the boat.

In place of the treadle action any other means by which the transmitting-cords are alternately actuated—such as an oscillating lever—may be employed, as I do not confine myself to the special mechanism described.

The propelling mechanism of the boat may also be worked by steam-power, if desired.

The boat is steered from a steering mechanism arranged near the treadles, so that the person working the treadles can also operate the steering mechanism. It consists of a lever or steering-wheel, H, that is connected by two transmitting-cords, H′, which pass over a guide-roller, *h*, between the hulls, and over pulleys or eyes *h′* to the rudders I I at the stern of the same, as shown in Figs. 1 and 3. The rudders are simultaneously operated parallel to each other, they being acted upon at their insides by strong springs H², (shown in Fig. 3,) whereby the return motion of the same is facilitated.

The advantages of my improved propelling mechanism for vessels are that the vessels can be propelled with greater speed and with less effort; secondly, that the vessel, being built of two hulls, cannot capsize, so as to furnish thereby greater security; thirdly, that owing to the large deck which can be arranged on the hulls a large number of persons or a large quantity of freight can be carried by the vessel.

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

1. The combination, with a boat having two hulls arranged side by side, of a vertically-adjustable paddle-wheel located at the stern of the boat, alternately-working treadle, power-transmitting cords, loose sheaves on the shaft of the said paddle-wheel connected by pawl-and-ratchet mechanism with the hub of the wheel, and the fulcrumed lever, whereby a continuous rotary motion is imparted to the paddle-wheel, substantially as described.

2. The combination, with a boat having two hulls, of a steering mechanism consisting of a rudder at the stern of each hull, a steering-wheel at the bow, intermediate cords and pulleys, and springs for facilitating the return motion of the rudders, substantially as described.

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

JOHANN JACOB SCHURR.

Witnesses:

JOSIAH COHEN,

HARRISON H. LIVINGSTON.