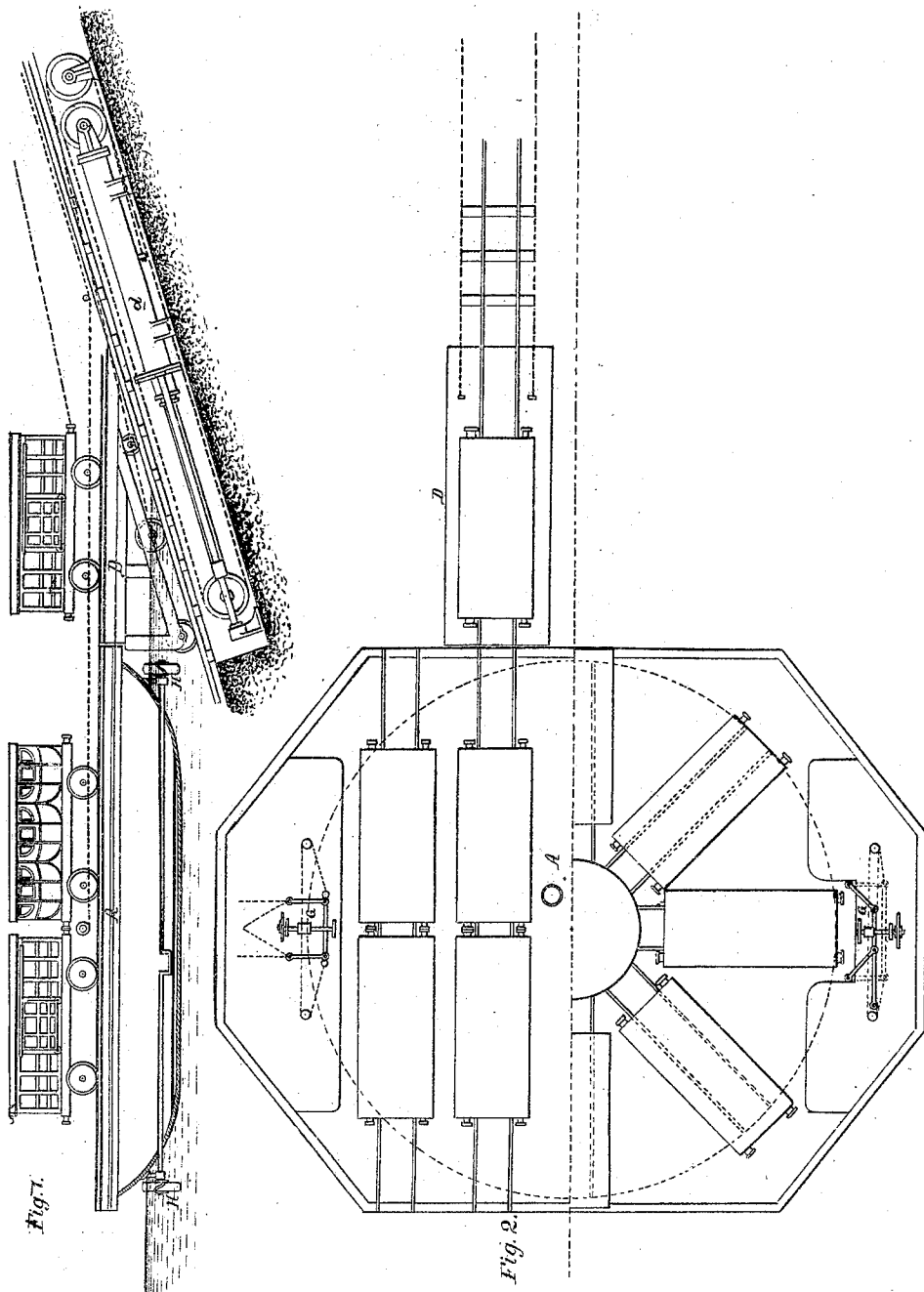


J. L. Arman,

Ships Form.

No. 108,230.

Patented Oct. 11. 1870



Witnesses  
*Wm. A. Steel.*  
*Jno. B. Harding*

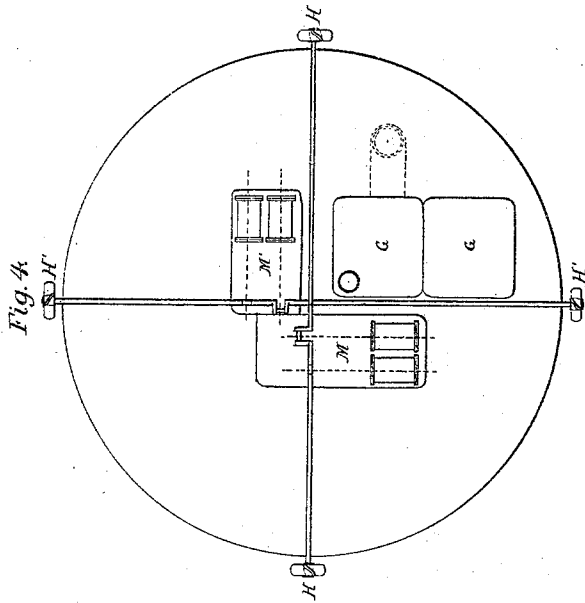
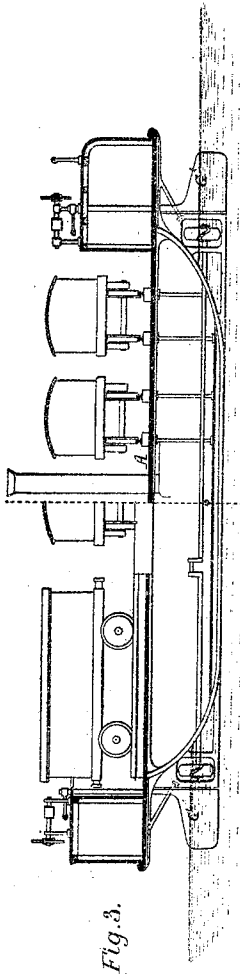
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# United States Patent Office.

JEAN LUCIEN ARMAN, OF BORDEAUX, FRANCE.

Letters Patent No. 108,230, dated October 11, 1870.

## IMPROVEMENT IN PROPELLING VESSELS.

The Schedule referred to in these Letters Patent and making part of the same.

I, JEAN LUCIEN ARMAN, of Bordeaux, in the Empire of France, have invented a Boat with Circular Draught and Quadruple Propulsion, of which the following is a specification.

### *Nature and Object of the Invention.*

This arrangement consists of a vessel, or species of ferry-boat, with circular draught, capable of being driven by four screws or propellers, which are arranged, at equal distances apart, around the vessel, and at the extremities of shafts, which cross each other at right angles in the center of the vessel.

The object of this arrangement is to permit the boat to be impelled in whatever direction may be desired, and whatever may be the force of contrary currents, and that without obstructing the stream for the passage of other vessels; for, with the means at present employed, it is often difficult, not to say impossible, to cross or traverse, without considerable loss of time, a river having a rapid current, and which is often crowded with ships and other vessels.

Such passages may be readily made by my arrangement of a boat with circular draught and four propellers, it being sufficient, in order to cross a stream or river, to go turn the boat that two of the screws on the same line or diameter of the boat may be directed up and down stream, or in the direction of the current, while the two others are directed across the stream.

The two first, in proceeding, will oppose themselves to the force of the current, and the other two will serve to drive the vessel forward, while the rudders will guide it on this progress.

In this manner crossings of considerable width may be rapidly accomplished, which, in sea-ports, at the confluence of streams and large rivers, will render great service for the disembarking or the transportation of travelers and goods.

Such a system, carried out in suitable dimensions, can be used for the carrying across of carriages, wagons, boats, and even of entire railway-trains. It presents, besides, for long and important crossings, an advantage which will be much appreciated by travelers; namely, that of avoiding the rolling and pitching of ordinary vessels.

Used as a vessel of war, with an iron-clad tower upon deck, and covering cannon placed at right angles, it will be of great service to the military marine by permitting evolutions with the greatest facility, as the platform or deck may be pivoted at the center without interfering with the cannon.

This facility of evolution is essentially due to the quadruple propulsion, and the arrangement is suscep-

tible, as seen, of receiving in practice divers other useful applications.

### *Description of the Accompanying Drawing.*

Figure 1 is a section through the center of the boat, and through one of the motive axes;

Figure 2, a plan view of the deck of the vessel;

Figure 3, a section at right angles to that shown in fig. 1; and

Figure 4, a sectional plan on the line of the propelling axes.

The four propellers H H and H' H' are driven in couples by engines M M', so that they may be turned at different speeds.

The engines which are here represented, as of the horizontal type, may be arranged in any other manner, as vertical, inclined, &c.

Upon the same foundation are one or more boilers, G, around which are the coal-bunks.

The propellers may be easily arranged, on account of the very form of the boat.

The rudders G' are placed in the direction of the axis selected for the forward and backward progress, and they can be fixed to act alternately as angular cutwaters in the direction in which the boat divides the current.

Where the boat is to be used for transporting wagons or cars, the stowage of the latter upon the deck A may be effected in two ways, as indicated in the plan, fig. 2; that is to say, upon parallel tracks, or upon tracks radially arranged and moved by a turning-plate. This second arrangement prevents the least displacement of the boat during the loading or unloading.

Communication between the boat and the quay is established by a bridge, D, arranged to be raised or lowered, according to the height of the tide or the swellings of the river, so that it may always be placed perfectly level with the deck of the boat.

This bridge may be moved by any suitable arrangements of winches or hydraulic apparatus, *d*.

In descending the inclined plane connected with the bridge, wagons may be detained by a single winch, and, for the ascent, a steam-winch may be placed in the boat to haul up the wagon to a given point.

Passengers' cabins can, if necessary, be built upon the deck, but these arrangements may be varied according to the nature of the service for which the vessel is intended.

In using a boat constructed as above described as a vessel of war, it will always have the advantage over other vessels of moving with extreme rapidity by means of quadruple propulsion.

If the boat be employed as a floating bridge for crossing a large river or arm of the sea, the going and coming may be effected simply by changing the direction of the propellers' motion without the necessity of turning.

Two of the propellers H, for example, may be employed for driving the boat, while the others, which turn more or less slowly, will serve to resist the force of the current.

Such a boat will not present any obstacle for ascending or descending navigation, for fouling can be easily prevented owing to the facility with which the boat may be propelled in any direction.

*Claim.*

The within-described boat of circular draught and

quadruple propulsion, or a circular boat having four screws or propellers secured to the opposite ends of, and driven by two shafts, which cross each other at right angles in the center of the boat, the said propellers being operated substantially in the manner described, so that the boat may be navigated in any direction without deflection or leeway.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JEAN LUCIEN ARMAN.

Witnesses:

E. RICHARDS,  
BISSEX.