A. Smith.

Hydraulic Propeller.

No. 37,710. Patented Feb. 17, 1863.

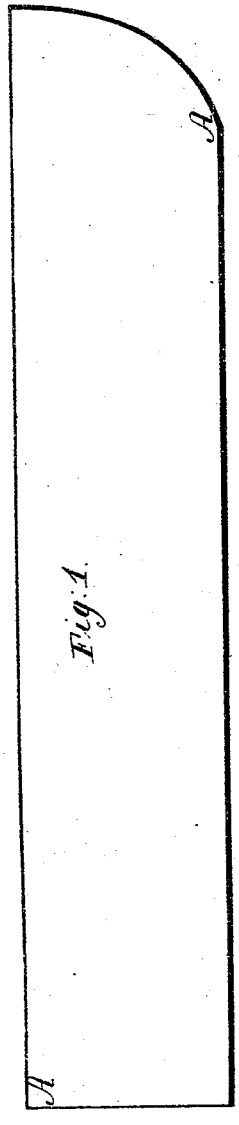


Fig. 1.

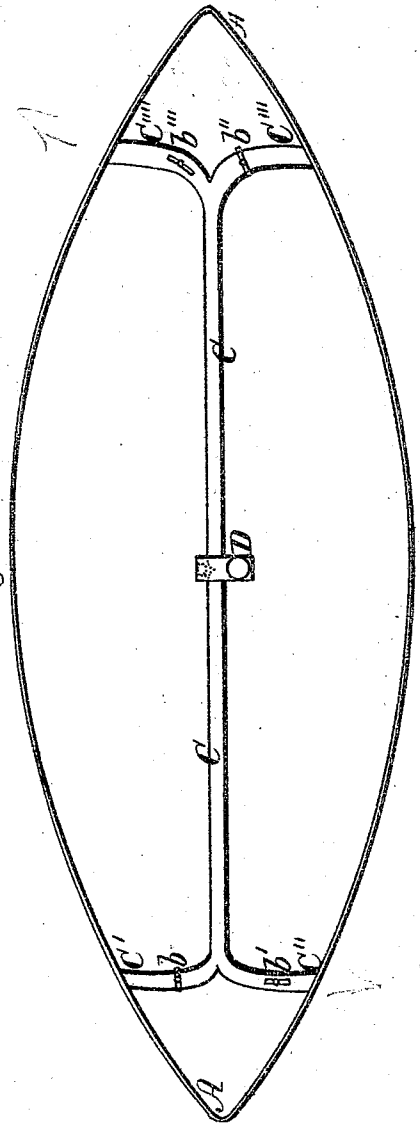


Fig. 2.

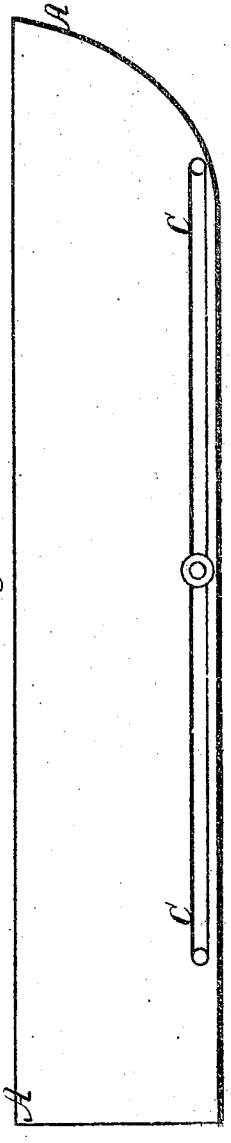


Fig. 3.

Witnesses;
C. G. Gale
Jas Donovan

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per C. D. Gale

UNITED STATES PATENT OFFICE.

ADDISON SMITH, OF PERRYSBURG, OHIO.

IMPROVED STEERING APPARATUS.

Specification forming part of Letters Patent No. 37,710, dated February 17, 1863.

To all whom it may concern:

Be it known that I, ADDISON SMITH, in the town of Perrysburg, county of Wood, and State of Ohio, have invented a new and improved construction of war-vessels, by which means the vessel can be turned around on its center without changing its location in the water; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and references thereof, in which—

Figure 1 shows a longitudinal elevation of the vessel; Fig. 2, a top view, the deck being removed; Fig. 3, a sectional elevation showing the height of the pipes from the bottom, drawn through *x x* of Fig. 2.

The nature of the invention consists in an arrangement of pipes in a war-vessel in such manner that the water in which the vessel floats may be used by the force of the steam-engine propelling the vessel to turn the vessel around, as on a pivot, without changing the location of the vessel, and to make certain lateral movements. It is often a very awkward and slow operation to bring a large vessel into her birth in a dock, requiring a half hour or three-fourths of an hour to accomplish it. It is still more awkward for a vessel of war in action to change her position from that of bows on to that of broadside, or that of broadside to that of stern, and vice versa, yet with the present devices, hereinafter explained, all these changes can be effected with ease and celerity.

Although the devices here used may with equal facility be applied to any vessel, it is supposed to be specially adapted to vessels of war in action, and the arrangements have been made for such vessels especially.

Let A A represent the ship of war; C C, a large metallic pipe extending from end to end of the ship horizontally, and branching near each end into two arms, each opening externally into the water outside of the vessel, which water enters from the four open mouths of the four branches c' c'' c''' c'''', and flows freely through the pipes; but each arm is supplied with suitable valve to open and close at the will of the engineer, and all at his control, which valves, forming no part of the invention, are not represented in the drawings, except by stop-cocks, merely to show what is nearly or about their position.

D is a coupling-piece to be used to form the connection between the forcing-pumps of the engine and the four discharge-openings c' c'' c''' c''''.

a is a valve for supplying the water-chamber in the hold, for the purpose of charging the water-pumps. It communicates between the coupling-piece D and the water outside by a channel. (Not seen in the drawings.)

b b' b'' b''' are valves for controlling the water in the branch pipes C. They may be stop-cocks or any form of valve.

It is proper to say of the devices herein claimed that they have nothing to do with propelling the boat or vessel, but are only an extra means of turning around without moving her out of her location.

Operation: It will be perceived upon examination of Fig. 2 that if the valves b and b'' be closed and valves b' and b''' be open, as indicated in the figure, and the pumps of the engine (connected with D, but not here represented in the drawings) be put into action, and water from outside be forced into the pipe C C, a strong current will be forced out against the water at the mouths of pipes c'' and c'''', by which means the two ends of the vessel, by the reaction, will be turned around on its center, the ends moving in a direction opposite to that in which the water is discharged, according to the well-known principles of "action and reaction," "which are equal and contrary." If we open valve b or b', it is evident that this end of the vessel will be turned around on a center lying somewhere between the middle and the opposite end of the vessel, and if the water be discharged from c''' and c'' at the same time the vessel will move sidewise, but in the opposite direction to that of the currents of discharge.

I do not claim pipes running through a vessel with branches for steering or propelling the vessel; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a main pipe with branches *c c c c*, branching at right angles

with the keel, for the purpose only of turning a vessel on a center or moving it sidewise, as herein described.

2. The arrangement of pipe C C in the hold of the vessel, in combination with the branch pipes c' c'' c''' c'''', the axis of the discharging portion of said pipes being nearly at a right angle with the keel, substantially in the manner and for the purposes herein set forth.

ADDISON SMITH.

Witnesses:
EDM. F. BROWN,
S. D. GALE.