

JOHN S. STITES.

Improvement in Propulsion of Vessels.

No. 116,236.

Patented June 20, 1871.

Fig. 1.

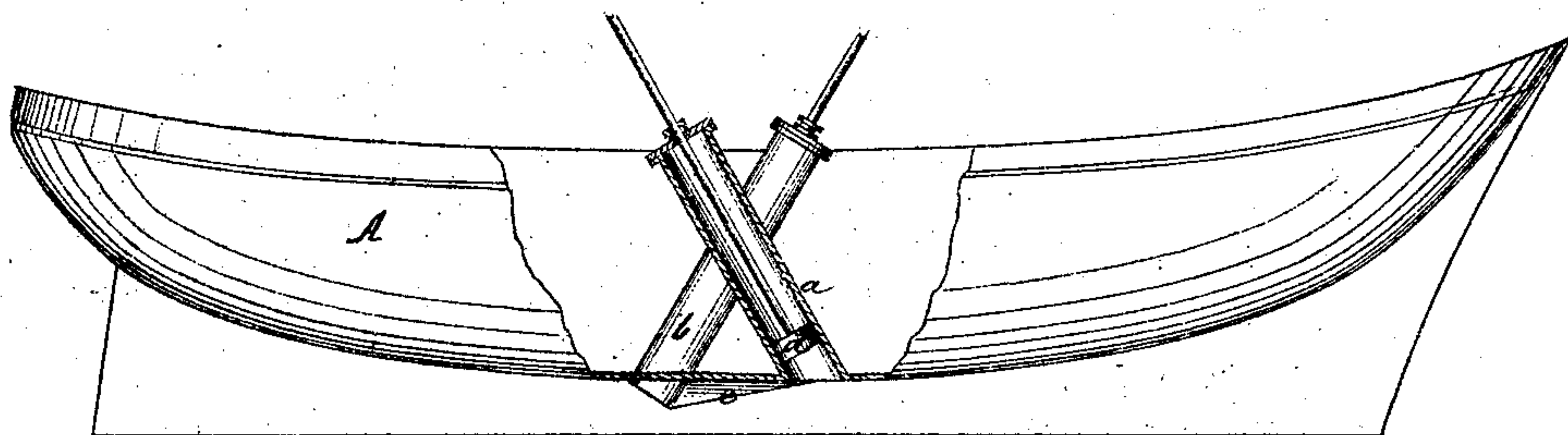
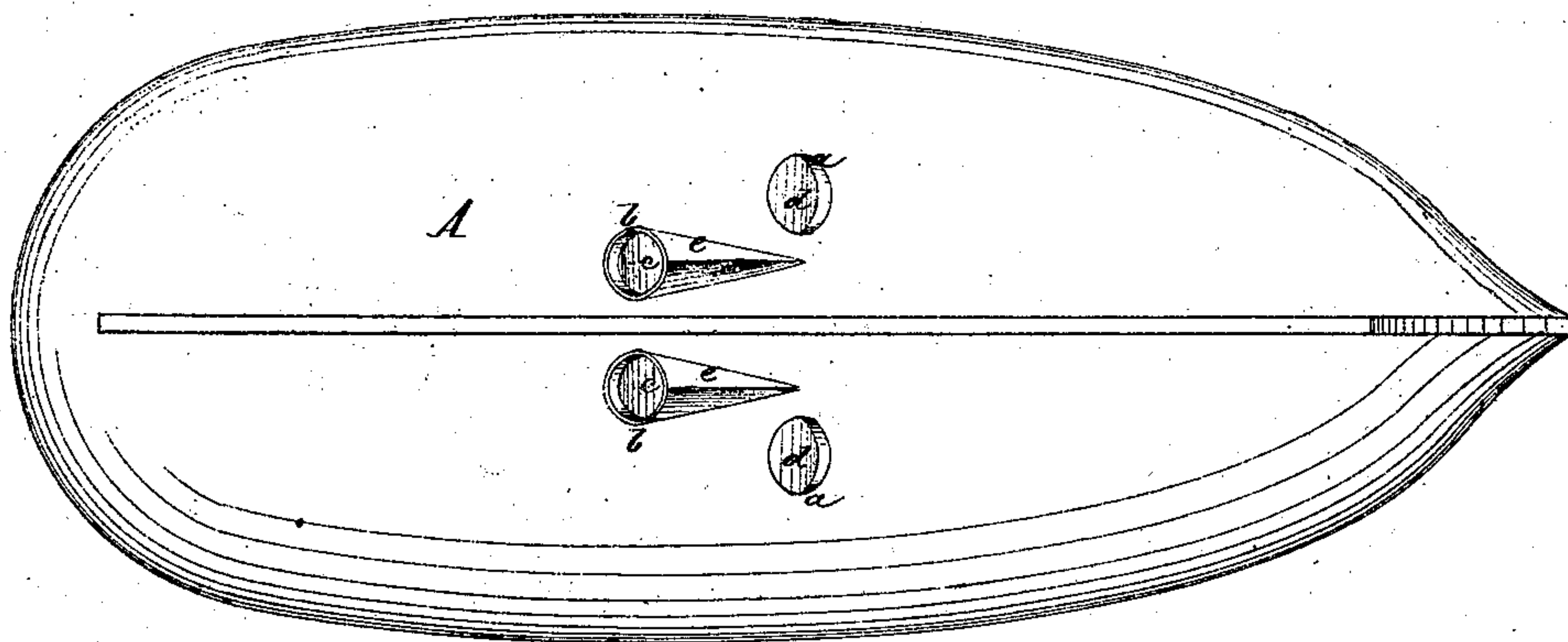


Fig. 2.



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JOHN S. STITES, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND ABRAHAM S. STONEBRAKER, OF SAME PLACE.

IMPROVEMENT IN PROPULSION OF VESSELS.

Specification forming part of Letters Patent No. 116,236, dated June 20, 1871.

To all whom it may concern:

Be it known that I, JOHN S. STITES, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and Improved Propeller; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a sectional elevation of a vessel with my improvement attached, and Fig. 2 is a plan of the bottom of the same.

This invention relates to improvement in the class of propellers for vessels in which pistons working in cylinders are employed to effect the propulsion of the vessel by acting against the water. The invention consists in the arrangement of the same in such relation to the vessel that the operation whereby propulsion is effected shall tend also to lift or assist to buoy up the vessel.

Referring to the drawing, A is a vessel of any size or sort. *a b* are the cylinders aforesaid, the same being disposed in two series crosswise and midway of the ship, there being as many cylinders in each series as desired, those of one series being inclined backward and those of the other being inclined forward, all of said cylinders passing through the ship's bottom. *c d* are the pistons aforesaid that work within the cylinders, and are operated by steam or other power. The pistons *c* are those through whose operation the vessel is driven forward, and the pistons *d* move the vessel backward. The water rises within the cylinders, when allowed so to do, as high as it does outside the vessel, and the resistance it offers to the descent of the pistons is the cause of the vessel's motion. The lower ends of the cylinders B extend some distance through the ship's bottom, the object of this construction being to cause the column of water that flows before the piston out of each cylinder *b* to remain unbroken until the piston reaches the bottom of the cylinder, so that it may afford a resistance to the piston throughout the whole of its stroke. Cut-water *e* is secured to the vessel's bottom in front of the protruding parts of the cylinders. Although the extension of

the cylinders below the bottom of the ship causes the expenditure of the power of the pistons to be more economical than it otherwise would be, still this construction is objectionable, in that it exposes the ends of the cylinders and the pistons to injury; and, inasmuch as the cylinders *a* are but little used in comparison with the cylinders *b*, their lower ends are flush with the vessel's bottom.

The arrangement of the cylinders in the center of the vessel has the effect of causing the propulsive stroke of the pistons to lift or buoy up the vessel at the moment it is making its swiftest forward or backward movement. If this were done at one end of the ship, for instance the stern, its speed would be somewhat retarded, since, in proportion as the said end would be raised, the other would be lowered in the water, and thereby meet more resistance.

In war-ships, particularly in those unprovided with armor, my invention is especially valuable; since the means of propulsion, being in the center and bottom of the vessel, are entirely hid and protected from harm exteriorly.

Another important advantage is obtained in that it is next to an impossibility for a vessel provided with piston-cylinders arranged according to my invention to become fast on a sand-bar or other similar obstruction so as to require foreign aid to get her off—the more or less violent motion of the water beneath the vessel effecting a rapid removal of the earthy material, while every stroke of the pistons would lift, or tend to lift, the vessel off its bed.

I desire to be understood as laying no claim, broadly, to the method of propelling vessels by inclined cylinders and reciprocating pistons; but

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

Inclined cylinders, provided with reciprocating pistons, arranged in the central portion of a vessel and passing through the bottom of the same, as herein shown and described, for the purposes specified.

Witnesses: JOHN S. STITES.
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