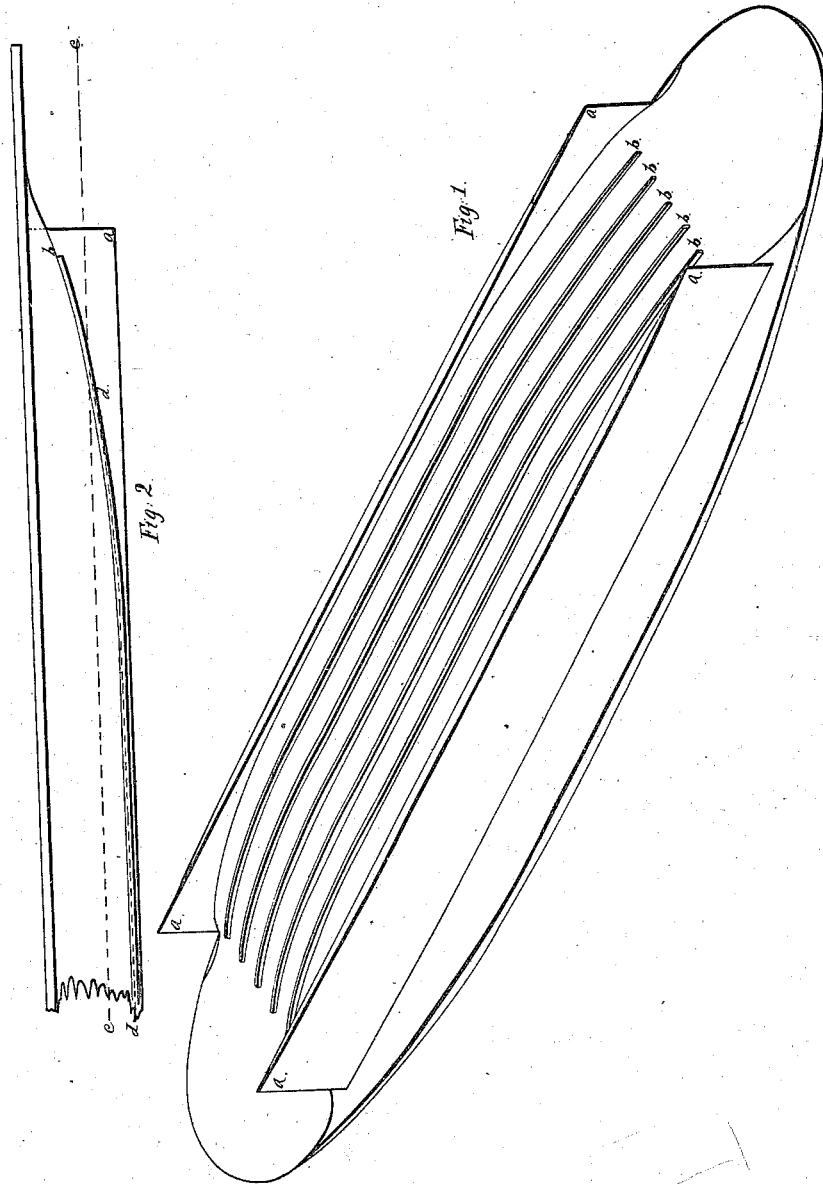


*S. Andrews.*

*Form.*

*Patented Jun 26, 1850*

*No 7,449.*



# UNITED STATES PATENT OFFICE.

SOLOMON ANDREWS, OF PERTH AMBOY, NEW JERSEY.

## MODEL FOR VESSELS.

Specification of Letters Patent No. 7,449, dated June 25, 1850.

*To all whom it may concern:*

Be it known that I, SOLOMON ANDREWS, of Perth Amboy, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in the Construction of Steamboats; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a section taken longitudinally.

The object of my invention is to obtain increased speed for boats, by an endeavor to overcome certain difficulties arising from the necessary displacement of the water to float them, and the increased resistance from friction and inertia of the water caused by increase of speed. This I obtain by giving to the boat such a shape as will diminish its draft as the speed is accelerated, and as a consequence of this construction I accomplish the injection of a small volume of air under the bottom, by the mere onward progression of the boat, and thereby still further reducing the friction of the water by diminishing the surface in actual contact. I am aware that attempts have been made to diminish the friction of water against the bottom of boats by interposing a stratum of air underneath the same. The introduction of such stratum of air has heretofore been accomplished by mechanical means employed inside of the boat to force the current down through pipes and also such applications of air have been to boats having broad flat bottoms with keels projecting below on either side, such keels however terminating at the place where the bows and sterns begin to be formed, so that at best the air can be made to act only over a portion of their bottoms, another difficulty arises from the fact that the least unevenness of keel at once discharges a greater or less proportion of the air at the sides instead of delivering it at the stern. In my plan I obviate these disadvantages. First I dispense with the power required to put the air under, accomplishing it by the onward progress of the boats, and I confine the air under the bottom by wide keels on the sides commencing at the extreme ends or scow shaped bow and continuing the same as far aft as needed. I also subdivide the space between into narrow

portions so that a very considerable rolling or unevenness of keel will not permit it to be discharged at the sides, thus its entire delivery at the stern is insured.

In Figure 1 is a perspective view of my boat turned bottom up, to more clearly show the several arrangements for confining the air &c. Fig. 2 is a longitudinal section of the same.

The model I prefer is of the scow form in consequence of its great buoyancy; on each side I project two keels as seen at (*a, a,*) which are continuous with the sides of the boat extending also the entire length from end to end. Intermediate between the keels, I fasten at short intervals a series of additional keels running also from end to end thus dividing the whole bottom into a series of sections as seen at (*b, b,*). The bow and stern ends I round up to the deck with a long incline, the bow having the least inclination of the two. Over the two a deck with guards for the wheel house &c. is put, each end of the deck however is projected a considerable distance beyond the termination of the sides, as clearly seen in the figures.

The operation of this boat is as follows: let the dotted line (*c*) represent the surface of the water. Then power being applied to urge the boat forward the air is pressed under the bows, the pressure gradually increasing until by buoying up the boat on the one hand, and pressing down the water on the other a stratum passes under the bottom, thence along the channels formed by the keels (*b*), until it is discharged at the stern, the course being seen at the dotted line (*d*). Hence the greater the speed of the boat, the more buoyant it becomes in consequence of the increased accumulation between the keels, thus diminishing the draft of water and lessening the resistance in like ratio. It will also be seen, that the escape of any portion of air at the sides is fully prevented by the action of the keels (*b*), as the careening of the boat will not produce such an accumulation of air on either side as to cause it to pass out at any other outlet, than at the termination at the stern.

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

The forming a vessel with a scow shaped

bow having on its sides two wide keels running the whole or a part of its entire length and so constructed that a portion of the inclined surface of the bottom shall always be  
5 above the water at the bow and this with or without the supplementary keels forming small channels by which construction air

enters at the bow in the manner set forth and is retained under the bottom of the vessel for certain purposes described herein. 10

SOLOMON ANDREWS.

Witnesses:

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EDWD. B. UNDERHILL.