

R. P. PICTET.
CONSTRUCTION OF SHIPS.

Patented Jan. 3, 1882.

Fig. 1

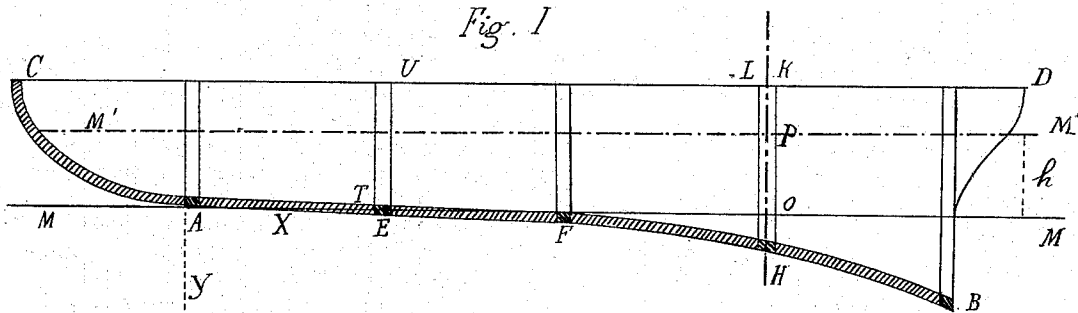


Fig. II

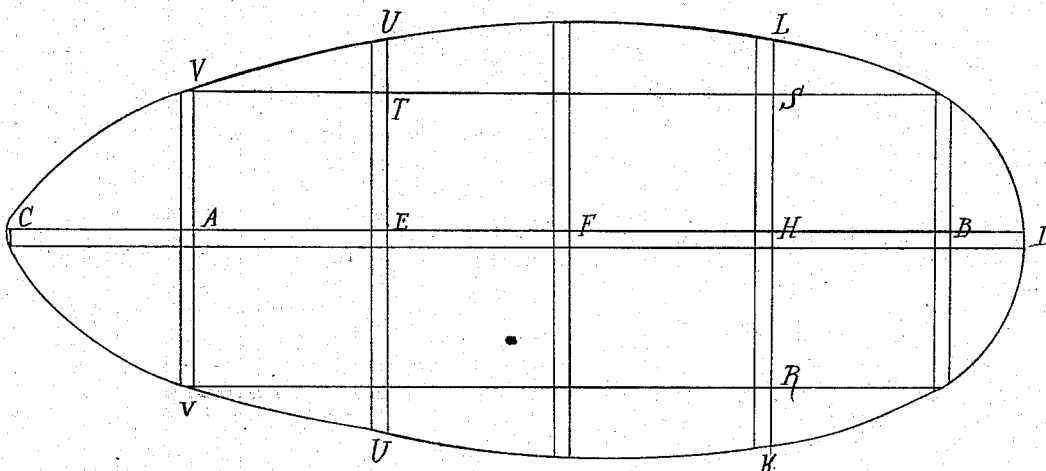
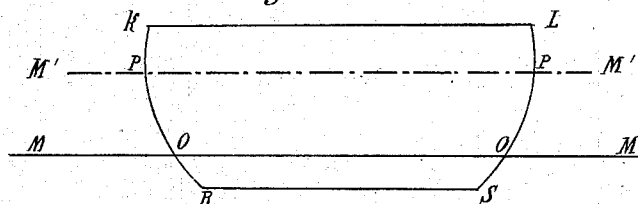


Fig. III



Witnesses.

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RAOUL PIERRE PICTET, OF GENEVA, SWITZERLAND.

CONSTRUCTION OF SHIPS.

SPECIFICATION forming part of Letters Patent No. 251,793, dated January 3, 1882.

Application filed October 12, 1881. (No model.) Patented in France June 2, 1881.

To all whom it may concern:

Be it known that I, RAOUL PIERRE PICTET, a citizen of Switzerland, residing at Geneva, in the Republic of Switzerland, have invented new and useful Improvements in the Construction of Boats, of which the following is a specification.

In the construction of vessels the form now given to the hull or body is based upon the Archimedean principle, which is a principle of statical mechanics. Such vessels all displace a volume of water the weight of which is equal to the weight of the vessel, and the volume or mass submerged is but slightly affected by the speed at which the vessel may be propelled.

To obtain great speed the constructor has sought to give to the hull or body of the vessel that form which will most readily displace its own volume of water, and this has resulted in the adoption of fine lines in their construction.

Vessels designed to be propelled at a great speed, as now constructed, have a sharp bow and stern, the greatest sectional area being amidship. Under such circumstances the power employed for their propulsion increases in proportion to the speed.

The object of this invention is to facilitate the navigation of vessels and increase their speed without materially or relatively increasing the propelling power; and it consists, essentially, in combining with the principle of Archimedes the principle of hydro-dynamics by giving the hull or body of the vessel such a form as will tend to raise the same out of the water. The result of the combination of these two principles will be a diminution of the power applied to propel the vessel in proportion to the increase of its speed instead of an increase in the power applied in proportion to the increase of the speed.

In the accompanying drawings, Figure I is a vertical longitudinal section, Fig. II a plan view, and Fig. III an end elevation, of a vessel constructed according to my invention.

In carrying out the above-described combined principles I give to the keel of the vessel the parabolic curve A B, Fig. I, the concavity thereof, as shown, trending downward and rearward. This keel or bottom is represented by a flat or horizontal surface, R S, Fig. II, extending longitudinally of the vessel, and that in longitudinal section forms the parabolic curve

A B. A series of ribs or knees, A E F H B, Figs. I and II, impart to the bottom or keel of the vessel, to which they are securely attached, the necessary power of resistance. These ribs or knees correspond in form to the bottom and sides of the vessel—that is to say, they all have a rectilinear portion corresponding with R S and a curved portion, C V U K D L, which latter imparts to the sides of the vessel the required power of resistance.

It will be seen that a vessel constructed upon the principles above described will be composed of two essentially and geometrically different parts, namely: one part that is flat transversely and extends in a parabolic curve longitudinally of the vessel, and a second part formed by rounded or curved lines connecting the former with the planking. A vessel so constructed will float, when at rest, according to the Archimedean principle, the float-line being at M' M', for instance, Figs. I and III.

Supposing a propeller to be exerting its power at the stern B of the vessel, moving the same at a given speed in the direction of the curve B A, two concomitant effects will be produced thereby: First, the stationary water upon which the vessel moves will be caused to move also, and in a direction from the surface downward, this being due to the parabolic curve of the bottom of the vessel; second, the reaction of this mechanical action of the downward movement of the water upon the weight or body of the vessel will be exerted in an opposite direction, and the vessel will consequently displace a proportionally smaller volume of water. If the speed is increased, this downward movement of the water increases also, and will tend to gradually lift the boat out of the water and cause it to glide upon its surface. Under these conditions it is evident that the submerged midship or greatest transverse sectional area of the vessel will become a factor of speed. Hence the greatest total resistance opposed to the movement of the boat is itself a factor of speed.

When constructed as described a vessel will rise out of the water progressively, and that at a speed varying from zero to the greatest speed the power applied can produce, the water line being constantly and gradually displaced from the line M' M' to the limit M M, Figs. I and III.

I am aware that it has been proposed to build vessels the keels of which are constructed

on uniformly-inclined straight lines trending downward from stem to, or nearly to, the stern, for purposes herein described. It is evident, however, that the downward action of the water and its reaction in an opposite direction against the bottom or keel of the vessel is not the same as when said bottom or keel is built upon lines forming parabolic curves the greatest resistance of which is exerted at or near the stern of the vessel. In the former case the resistance is a practically uniform one along the whole length of the inclined surface, while in the latter case it is a gradually-increasing one.

It has also been proposed to effect the results herein claimed by providing the keel or bottom of a vessel with an outwardly-open chamber or recess, into which air is forced for the purpose of raising the vessel out of the water, and in this case the results are the same as in the case of a vessel having an inclined straight bottom.

Having now described my invention, what I claim is—

1. A vessel having a flat bottom of equal diameter, or practically so, throughout its length, said bottom being constructed to form a parabolic curve trending downward from stem to stern, substantially as and for the purpose specified.

2. A vessel having its greatest diameter amidships and a bottom of practically equal diameter throughout its length, constructed to form a parabolic curve trending downward from stem to stern, and having its greatest concavity at or near the stern, substantially as and for the purpose specified.

In witness that I claim the foregoing I have hereunto set my hand this 17th day of September, 1881.

RAOUL PIERRE PICTET.

Witnesses:

BROSE WATTEVILL,
LYELL T. ADAMS.