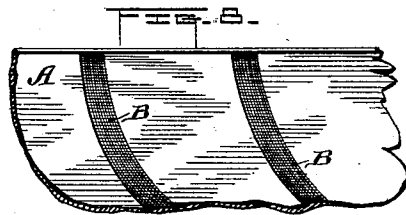
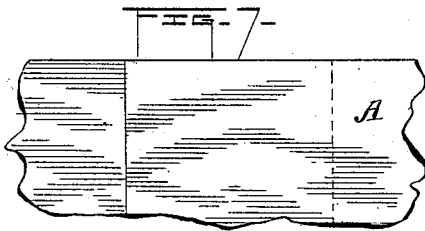
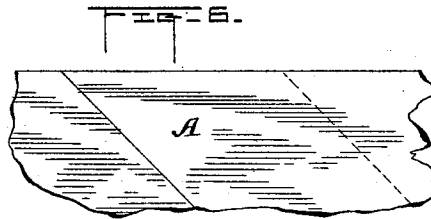
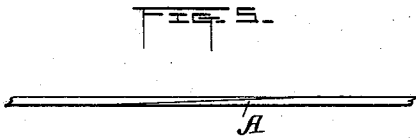
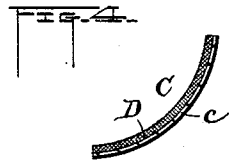
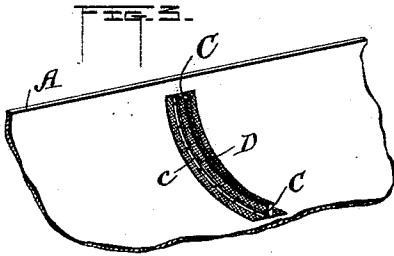
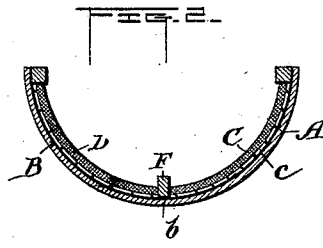
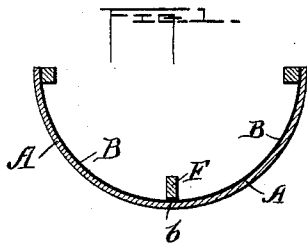


(No Model.)

M. F. DAVIS.  
ROWBOAT.

No. 521,536.

Patented June 19, 1894.



Witnesses:  
*Gloverance*  
*Keatman*

Inventor:  
*Michael F. Davis*  
By *L. Deane*  
his Attorney.

# UNITED STATES PATENT OFFICE.

MICHAEL F. DAVIS, OF PORTLAND, MAINE.

## ROW-BOAT.

SPECIFICATION forming part of Letters Patent No. 521,536, dated June 19, 1894.

Application filed June 28, 1890. Renewed September 4, 1893. Serial No. 484,796. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL F. DAVIS, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Row-Boats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Figure 1 is a cross section of a boat having my invention. Fig. 2 is a like view but having the stiffening piece added. Fig. 3 is a perspective view in detail of the inside of the boat shown in Fig. 2. Fig. 4 is a perspective view of one of the stiffening pieces and its covering. Figs. 5, 6, and 7 are respectively edge and plan views of the portions of the wooden planking united by means of cement or otherwise so as to form practically an integral piece. Fig. 8 is a perspective showing the lining in strips.

This invention belongs to the class generally known as row boats or shells and has for its object the improvement of the skin or body of the boat whereby a lighter and stronger boat can be made than any I have before known.

In general my invention consists in lining the inner face of the skin of the boat preferably with some textile fabric, water proofed or not, and in internally bracing the boat, and securing the bracing strip by textile or other attachment and uniting the longitudinal pieces of which the skin is composed whereby two or more pieces can be made practically integral, and in various kindred details, all as will now be more fully set forth and explained.

In the construction of boats of the class above referred to, it has been necessary to use ribs and to secure the wood to said ribs by means of nails or rivets but by my invention I dispense with ribs, nails and rivets and simply secure the skin piece or pieces in place by textile or equivalent means of attachment.

In the accompanying drawings A denotes the outside skin or body of the boat. Prior to use in making the boat this wood is lined, on its inner face, by cementing or in any other way of permanent attachment with any suitable textile or equivalent material B. In the process of doing this, whether by joining the

two materials by cement or in whatever way the union is made, the result is practically an integral element for boat building and this lining also serves so far to strengthen the wood that the wood can be made much thinner than is otherwise now possible, safety in use and strength of structure being considered. Also when the wood is checked or fractured the lining will prevent leakage. By my invention, therefore, I produce a lighter, stronger, easier made and more durable boat than has been heretofore made.

At suitable distances along the inside of the boat, at right angles to the length, are placed the strips C, preferably of wood, one of which is shown in detail. These are covered or lined with textile or equivalent material D as in Fig. 4. These strips are placed in pairs, that is, one on each side, their upper ends reaching about to the gunwale and the lower touching the keelson F as shown in Fig. 2, or they may be placed alternately along the boat. In order to secure them in place the free end of the covering D is cemented or in any like or suitable way is secured upon the lining of the wooden skin or planking. There may be as many of the strips as are needed to secure and retain the proper shape of the boat. The covering of the strips may, in the first instance, be held in place by cleat or beading c fastened on each side or directly cemented.

One essential feature in this invention is, therefore, the combining with the thin veneer a lining so that this veneer each made of one or several pieces is rendered tough and strong. By means of this a long shell, or boat, can be made very light and much tougher and stronger than by any other material I know of.

The material with which the inside of the skin is lined and with which the strips are covered need not always be a fabric, for I can use paper and various other materials which will answer the general ends I have now in view.

Under some circumstances the pieces C might be used without lining the inner face of the skin, the attachment being made directly upon the inner face of the wood. At the point where the wood or skin covers under the keelson F I propose to place several layers b of the lining fabric or other material

to guard and protect the skin from harm from blows or impact at this point. If such additional lining was not interposed between the skin, which is very thin, and the rigid keelson  
 5 a very slight blow might crush or injure the skin along the line of the keelson—or strips of wood may be interposed between the keelson and planking. It might be of value under some circumstances merely to put narrow  
 10 strips of lining transversely across the inner face of the wooden shell, as in Fig. 8.

In order that I may use pieces of wood shorter than the entire length of the boat, I secure together two or more pieces of ordinary length, end to end, by cement or otherwise as is illustrated in Figs. 5 and 6 and for this purpose I may use any cement or water proof gum. Several short pieces of wood can thus be united to form a single strip or plank  
 20 of any desired length for boat building and the union made so strong as to produce a strip or plank practically integral throughout its length. As illustrated in the drawings, the several short pieces are cut or planed  
 25 away at an angle at the ends and then at these cut away ends are placed one on the other, cement or other adhesive material being placed between, and finally they are planed down to a uniform thickness. As in  
 30 the construction of the boat now described I do not use ribs, nails or rivets to hold the wood or skin in place, the strips or planks as above described, can be planed down very thin and so enable me to make the boat much  
 35 lighter than has hitherto been done. I propose to manufacture, as an independent article, the lined wooden pines or strips of which the skin of the boat is made.

While I have shown and preferably use a  
 40 cover for the strips C and by its free edges secure it in place, it is possible to use the said strips without such cover.

One of the advantages of dispensing with ribs in the construction of the boat is that  
 45 the planking is free to retain its true shape under all conditions of atmospheric and aqueous influence. When ribs are used the inevitable difference in expansion and contrac-

tion between the rib and planking causes the latter to warp and pucker longitudinally and  
 50 transversely. But by my invention this is avoided and the true shape of the planking always preserved.

It is absolutely essential for a racing boat that this fabric should not be put on the outside of the boat because this would add to the weight of the boat since it would have to be saturated or filled with water-repellent substance. Even if so saturated or filled, there would be also an appreciable gain of weight in it when introduced into water. Likewise such an exterior covering would tend to roughen the outer face of the boat and essentially interfere with the speed of the boat through the water.  
 65

What I claim is—

1. In the manufacture of row boats, a wooden skin lined on the inside only with fabric or light material, in the manner and for the purposes set forth.  
 70

2. In a row boat, the combination of a wooden skin lined, as described, with stiffening pieces covered as set forth and each secured by means of its said cover to the inside face of the skin.  
 75

3. In a row boat, the body or skin A lined internally at B with suitable material and combined with the strip C, covered with the material D, and secured to the inside face of the boat by the margins of said covering, all as set forth.  
 80

4. In a row boat, the skin A lined on the inner face as set forth, and having between it and the keelson several layers of the lining, substantially as and for the purpose set forth.  
 85

5. In combination with the wooden skin of the boat, the covered strengthening strips C, secured by cement, or otherwise, to and upon the inside of said skin by means of the free ends of the cover.  
 90

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL F. DAVIS.

Witnesses

JOSEPH ROY,  
 CASSELL SEVERANCE.