

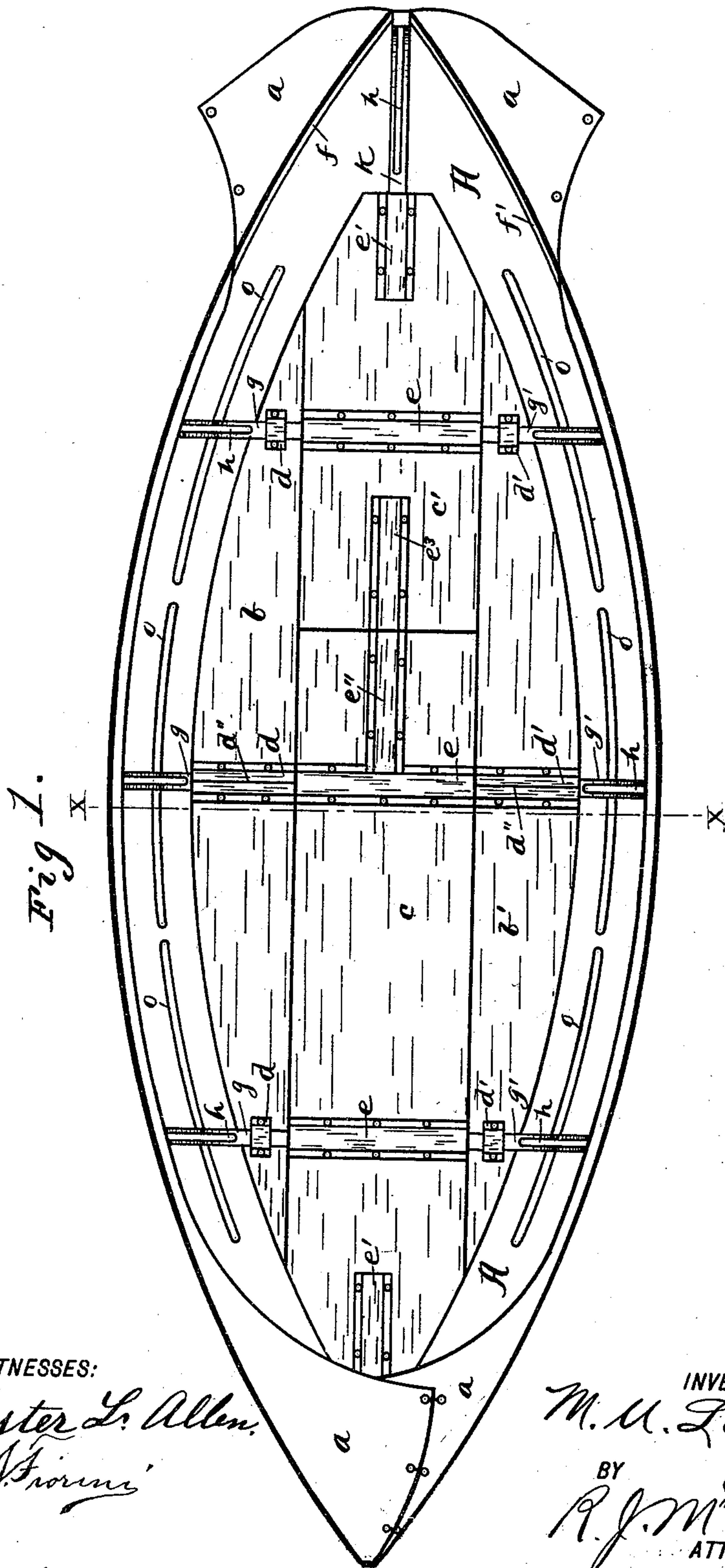
(No Model.)

2 Sheets—Sheet 1.

M. U. LOREE.  
FOLDING BOAT.

No. 544,676.

Patented Aug. 20, 1895.



WITNESSES:

Lester L. Allen.  
A. J. Fiorini.

INVENTOR

M. U. Loree.

BY

R. J. McCarty.  
ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

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Fig 2.

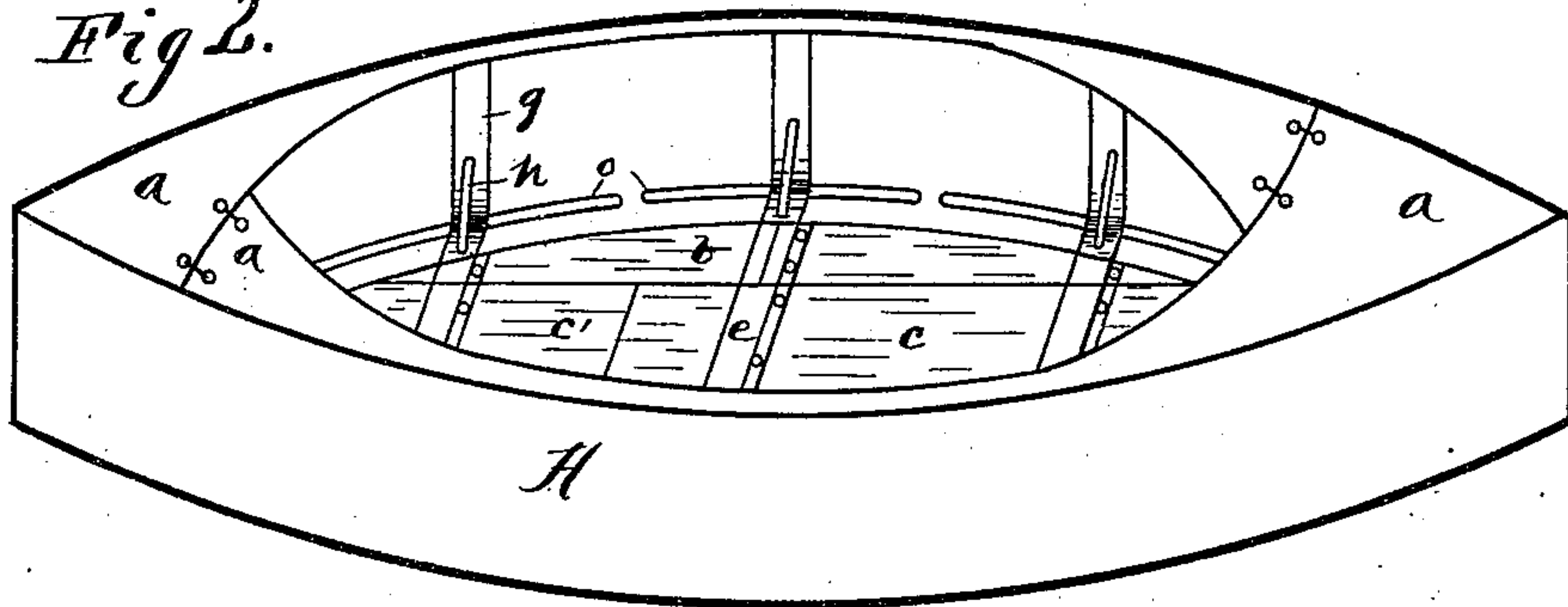


Fig 4.

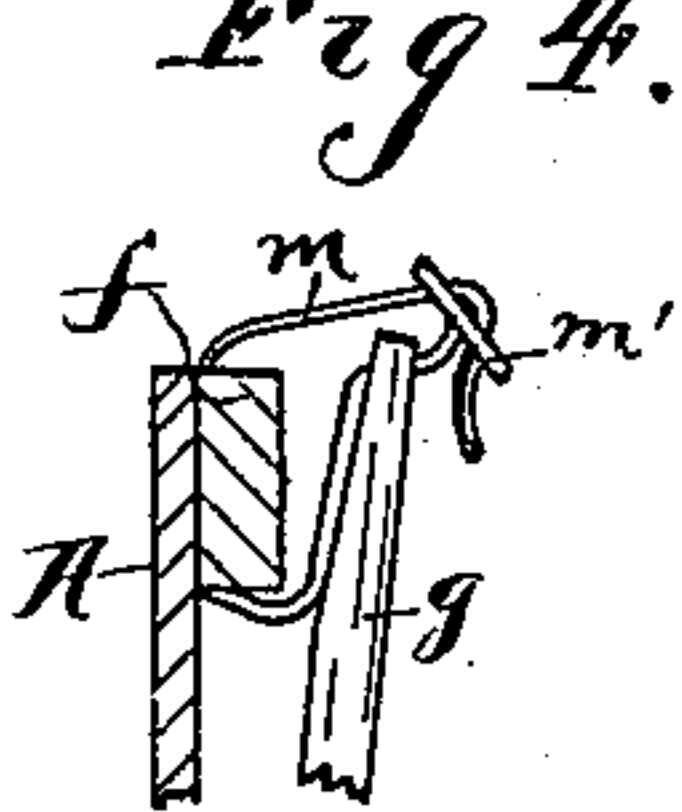


Fig 3.

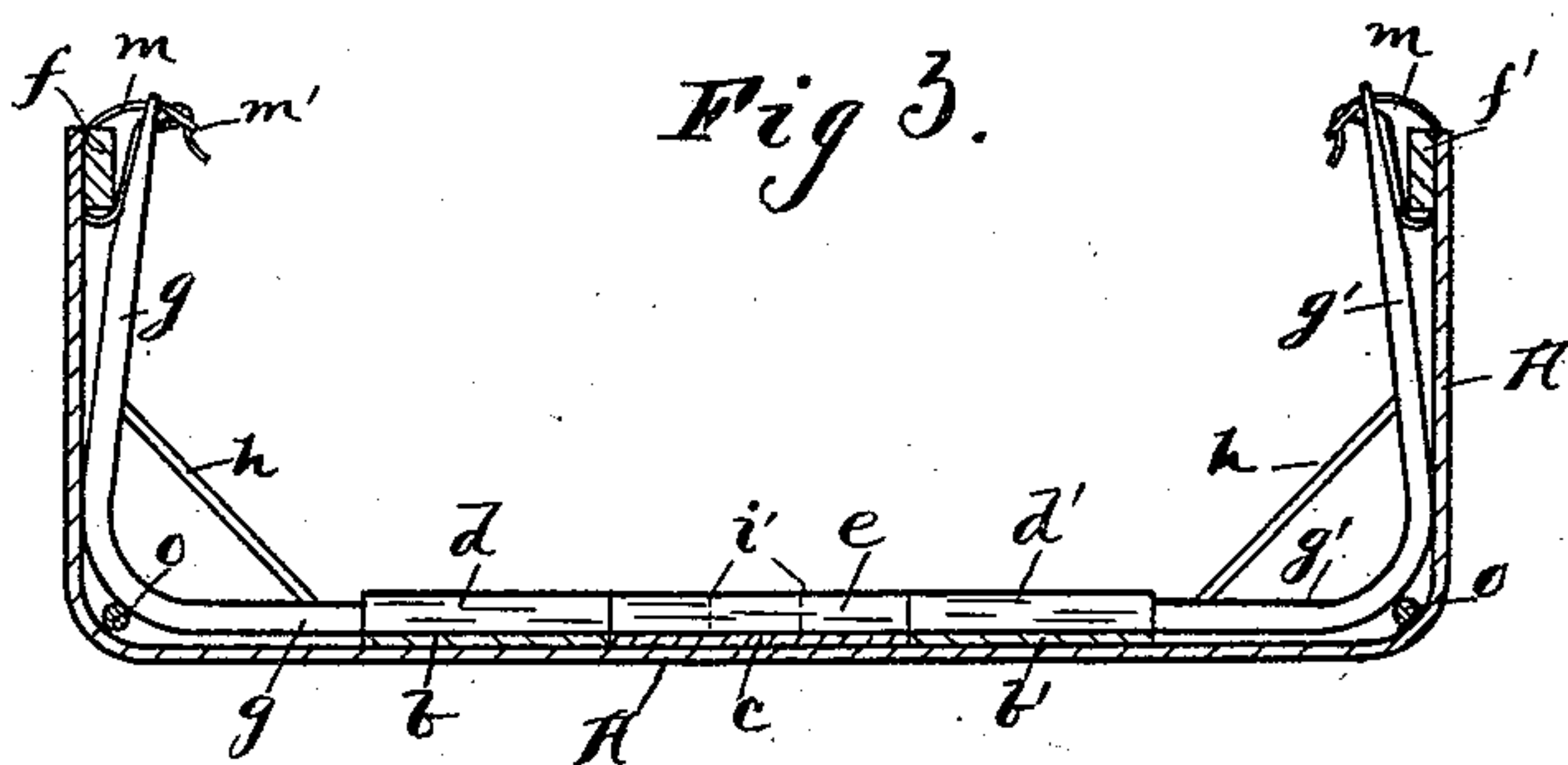


Fig 5.

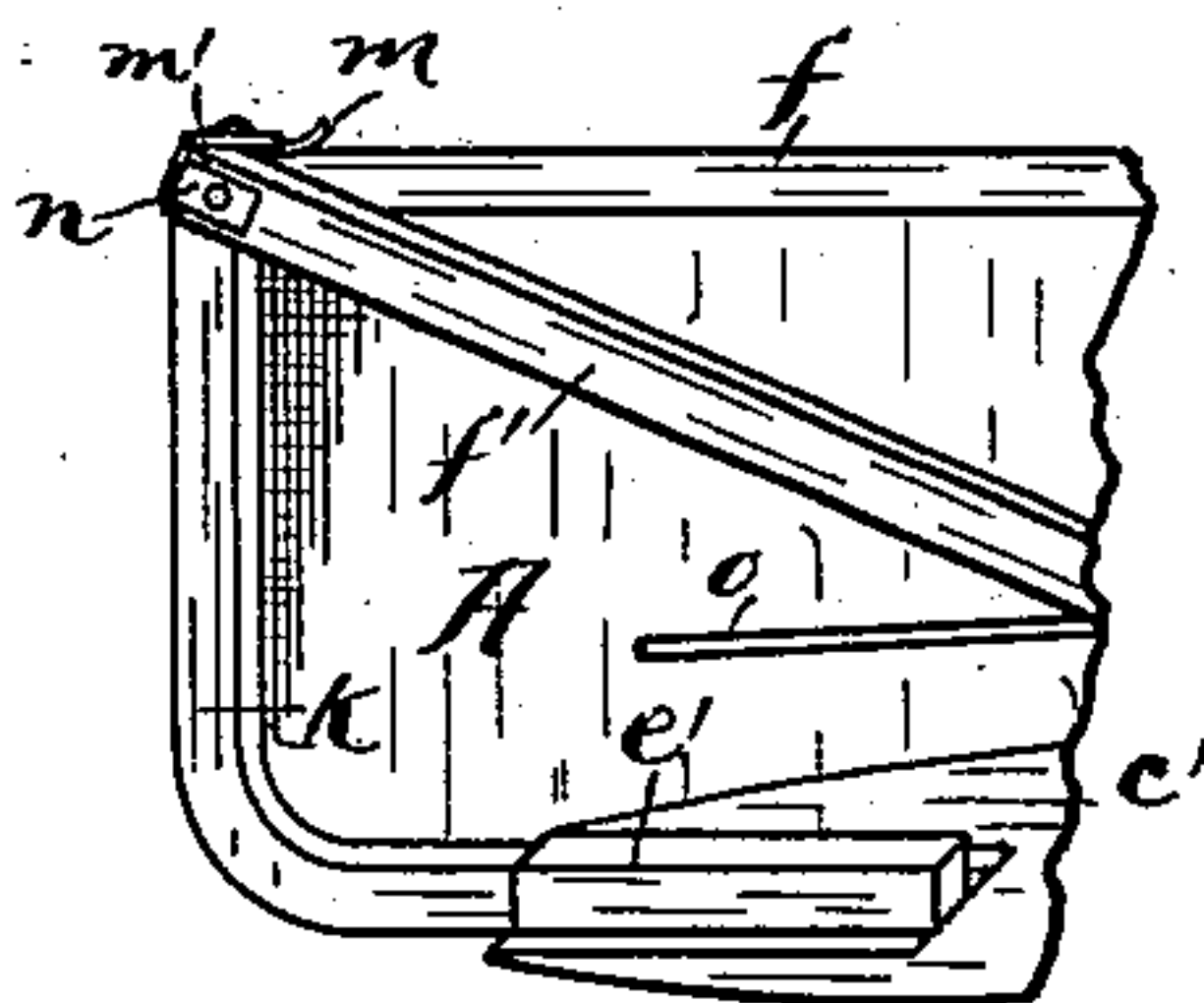


Fig 6.



Fig 7.

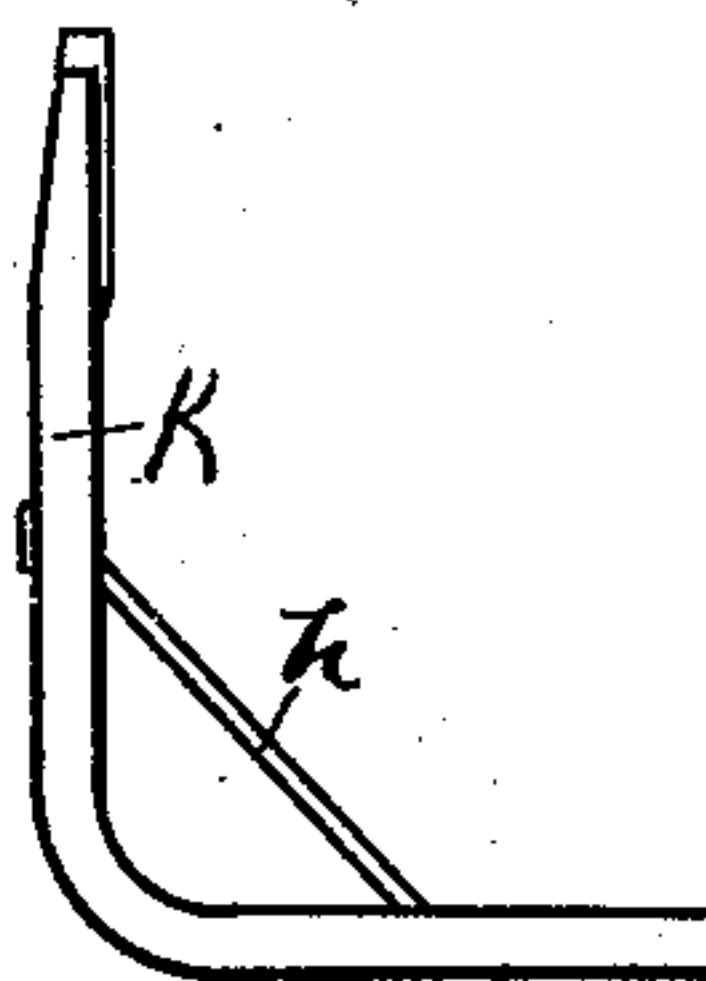


Fig 8.

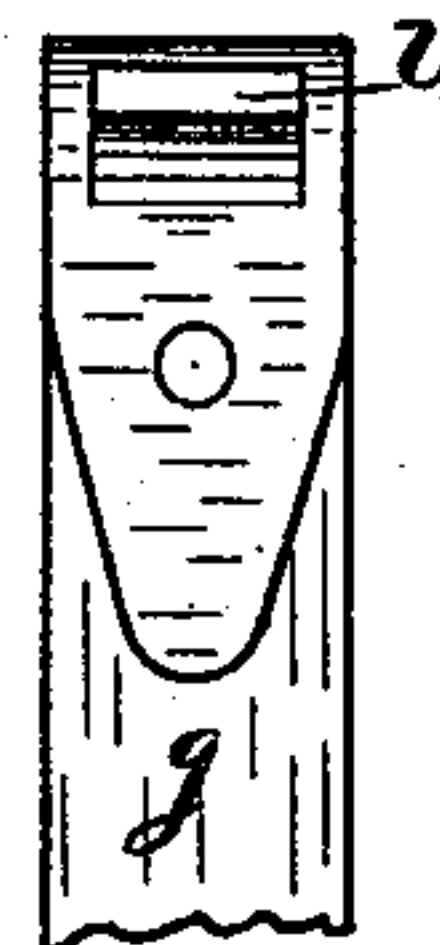


Fig 9.

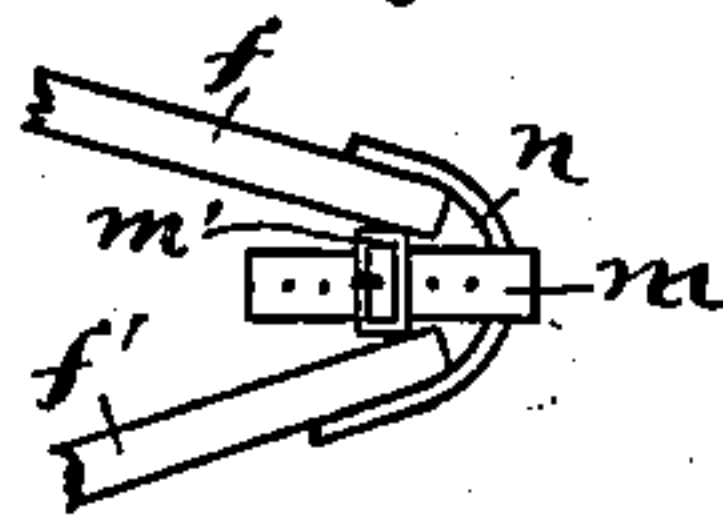


Fig 10.

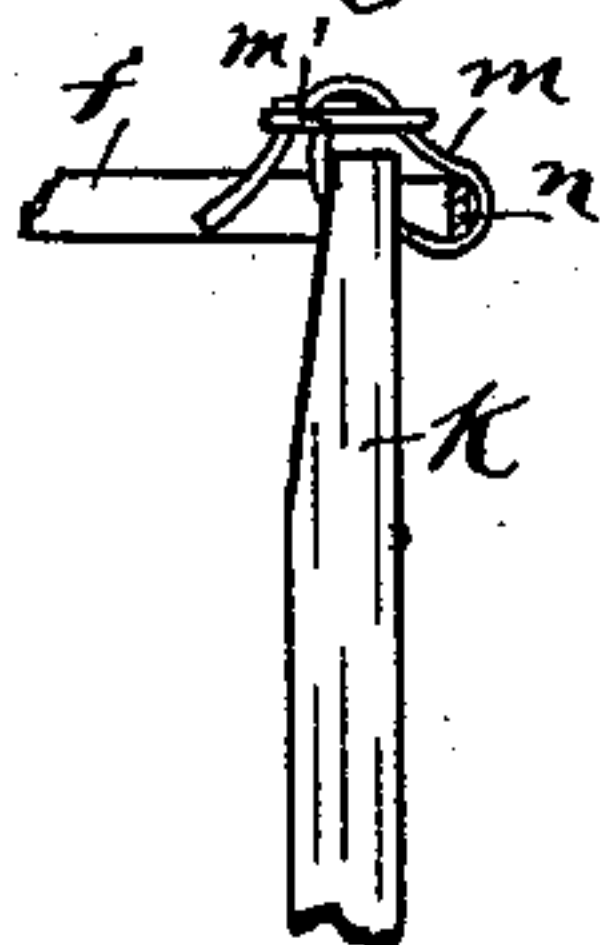


Fig 12.

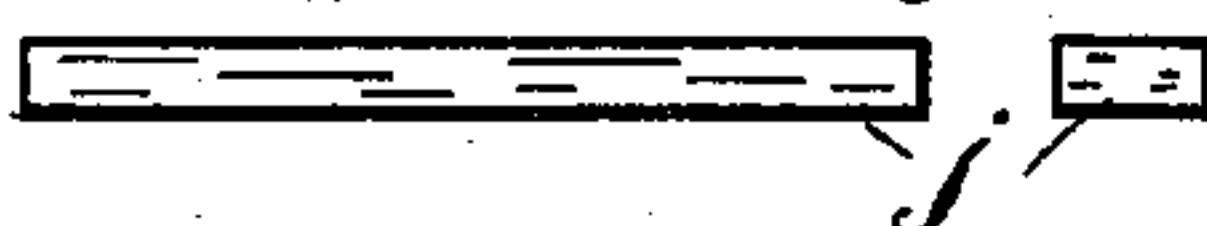
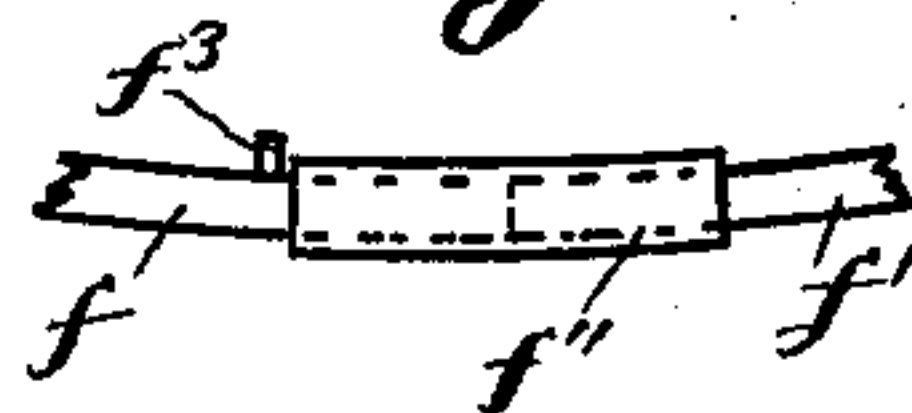


Fig 11.



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# UNITED STATES PATENT OFFICE.

MANFIERD U. LOREE, OF MIAMISBURG, ASSIGNOR OF TWO-THIRDS TO  
EUGENE A. OHMER AND WM. D. HUSTON, OF DAYTON, OHIO.

## FOLDING BOAT.

SPECIFICATION forming part of Letters Patent No. 544,676, dated August 20, 1895.

Application filed March 12, 1895. Serial No. 541,509. (No model.)

*To all whom it may concern:*

Be it known that I, MANFIERD U. LOREE, of Miamisburg, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Folding Boats; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention has reference to that class of boats known as "folding" boats.

One of the chief objections met with in the use of portable or folding boats is that there are too many fixtures or detachable parts, such as bolts, thumb-screws, washers, hooks, pins, &c., which are easily lost or misplaced at times when their use is most indispensable.

The object, therefore, of this invention is to provide a canvas boat that has few detachable parts and none of the bolts, thumb-screws, &c., enumerated above.

To this end the invention consists of parts and an arrangement thereof that will be fully described in the following specification, and set out in the claims.

Referring to the annexed drawings, which form a part of this application, Figure 1 is a top plan view of my improved folding boat, the canvas flaps at one end being thrown back. Fig. 2 is a perspective view of the same, showing the boat set up ready for use. Fig. 3 is a transverse section on the line  $x x$ , Fig. 1. Fig. 4 is a detail view showing inside elevation an upper end of one of the cross-ribs. One of the gunwales and part of the canvas appear in section and one of the securing-straps is also shown in said view. Fig. 5 is a detail view of an end of the boat, the canvas being removed from one side; Fig. 6, longitudinal and end elevations of one of the metallic socket-pieces; Fig. 7, a detached detail side elevation of one of the end ribs; Fig. 8, an enlarged detail front elevation of an upper portion of one of the cross-ribs; Fig. 9, a top plan view of an end of the boat, showing the attachment of the gunwales with their respective ribs; Fig. 10, a side elevation of Fig. 9, with one of the gunwales removed; Fig. 11, a detail view showing the means for securing a joint in the gunwales; Fig. 12, a detached

detail longitudinal and end elevations of the locking-bar for the central panels of the floor. 55

In the detailed description similar letters of reference indicate corresponding parts in the several views.

A designates the covering for the frame, having overlapping ends  $a$ , and which is preferably made of a single piece of canvas or duck, in which there are no seams through which a leakage of water might occur or the canvas become weakened. This canvas is made impervious to water and is prevented from becoming mildewed by the application of a waterproofing, preferably rubber paint, which renders it both smooth and flexible. 60 65

$b$  and  $b'$  designate side panels, each of which may consist of one or two pieces.  $c$  and  $c'$  are center panels, preferably constructed in two pieces. These panels, when placed side by side and secured as hereinafter described, constitute the flooring, as shown in Fig. 1. These panels are rigidly maintained in said position and prevented from warping under the influence of moisture and the heat of the sun by the following devices: 70 75

$d$  and  $d'$  designate transverse socket-pieces, which are riveted or otherwise securely attached to the upper side of said panels  $b$  and  $b'$ .  $e$  designates similar sockets rigidly attached to the center panels  $c$   $c'$ . When the flooring is in position, the ends of these sockets abut and form a continuous socket-opening from one side of the flooring to the other, as will be observed in Fig. 1.  $e'$ ,  $e''$ , and  $e^3$  designate similar sockets riveted to the respective ends of the center panels and extending longitudinally thereof. The two latter sockets—that is,  $e''$  and  $e^3$ —abut and form a continuous socket. The socket-pieces are preferably constructed of corrugated or galvanized iron of suitable strength and are rectangular in cross-section, as shown in Fig. 6. 80 85 90 95

When it is desirable to construct the side panels  $b$  and  $b'$  each in two pieces, the sockets  $d$  and  $d'$  may be divided longitudinally and one-half thereof be attached to each of the abutting ends of said panels, as is shown in Fig. 1.  $d''$  designates the dividing-line of said sockets. The attachment of the socket-pieces to the flooring, or rather to the panels, as described, is designed to be permanent. Therefore the possibility of these parts becoming lost or displaced is avoided. 100 105



The gunwales are constructed in four sections,  $f$  and  $f'$ , which are joined centrally on each side by metal ferrules  $f''$ , as shown in Fig. 11. On the joint ends of two sections of said gunwales there is a projection or lug  $f^3$  to regulate the position of the ferrules when they are placed on the joining ends. The ferrules are placed on said ends before the gunwales are put under tension, after which the pressure will prevent the ferrules from moving out of a serviceable position.

The canvas covering is securely and permanently attached to the gunwales in any suitable manner, and when these parts are separated from the remaining parts of the boat the canvas covering may be folded upon itself at the center by displacing the ferrules  $f''$ .

$g$  and  $g'$  designate a series of ribs, rectangular in cross-section and reinforced by metallic braces  $h$ . Upon one end of each of these ribs there is rigidly secured a metallic loop having an opening  $i$ . The other end of each of said ribs is inserted in its respective sockets  $d$ ,  $d'$ , and  $e$  and over the longitudinally-abutting edges of the panels, as shown at the dotted lines  $i'$  in Fig. 3.

$j$  designates a locking-bar which is adapted to enter the sockets  $e''$  and  $e^3$  to interlock the abutting ends of the panels  $c$  and  $c'$ .

The stem and stern ribs  $k$  are similar in construction to the cross-ribs, and when inserted in their respective sockets  $e'$  the frame is ready to receive the canvas covering.

It takes but a few moments to put the frame together. All that is necessary is to lay the flooring out in its proper position, which brings the sockets on a line with each other. The ribs are then inserted therein, and the parts become a rigid skeleton frame that may be handled without danger of the parts becoming detached. The frame is made secure to the canvas covering, or rather to the gunwales, by means of straps  $m$ , constructed of leather or other flexible material and passed through the opening  $i$  in the loop and around the gunwales between said gunwales and the canvas, as shown in Fig. 4. The straps have a buckle  $m'$  at one end to which they are secured after the ribs and gunwales have been sufficiently tightened. At the stem and stern the gunwales are connected by a strap  $n$ , over and around which is placed a strap  $m$ , and thus are the ends of the gunwales securely attached to the end ribs, similar to the attachment with the side ribs.

$o$  designates a series of detachable wooden stays lying lengthwise of the boat and secured between the side ribs  $g$  and  $g'$  and the canvas. These stays are inserted between the canvas and the ribs at a point immediately below the gunwales and are then pressed down to about the position shown in Fig. 3. They serve to stretch the canvas and are kept in position by pressure.

I desire to call special attention to the advantages of the metallic socket-pieces and the

means for securing the ribs to the gunwales, as by the use of these features I am enabled to dispense with the use of many little fixtures that serve to annoy one in handling this class of boats. These socket-pieces are comparatively light in weight and are the most substantial means in connection with the ribs for joining the panels of the floor, and they have the further advantage of being durable to the utmost extent. The bracing of the feet against them when rowing, or standing upon them, will not injure their usefulness.

The ends  $a$  of the canvas when laced provide a shady place in the ends of the boat for bait, water, lunch, &c.

Constructed in accordance with the foregoing specification a ten-foot boat may not exceed fifty pounds in weight, and when folded for transportation the parts may be reduced to a package not larger than six feet in length and seven inches in width.

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

1. In a folding boat, the combination with the canvas covering, and the gunwales, of a flooring composed of a plurality of panels, a plurality of detachable ribs extending across the upper sides of said panels over the abutting edges thereof, loops on the upper ends of said ribs, straps inclosed in said loops and adapted to bring the gunwales and ribs in rigid contact, a plurality of detachable stays ( $o$ ) between the canvas and the ribs, substantially as described.

2. In a canvas boat, the combination with the covering, of a flooring consisting of a plurality of panels, metallic socket pieces attached transversely and longitudinally thereon, said socket pieces being square in cross section, a plurality of ribs adapted to be inserted in said sockets and to project beyond the abutting edges of the panels, and straps for attaching the gunwales to said ribs, substantially as described.

3. The combination with the canvas covering, and the gunwales to which said covering is permanently attached, of a flooring consisting of a series of panels, a series of panels transverse socket pieces rigidly attached to said panels, a series of curved ribs adapted to be inserted in said sockets and extending toward the center of the floor beyond the abutting edges of the panels, socket pieces ( $e''$ ) and ( $e^3$ ) on the inner ends of the center panels, a bar ( $j$ ) to interlock said ends, socket pieces on the outer ends of said center panels, stern and stem ribs ( $k$ ) adapted to penetrate said sockets, and straps for securing the ribs and gunwales, substantially as described.

In testimony whereof I have hereunto set my hand this 6th day of March, 1895.

MANFIERD U. LOREE.

Witnesses:

R. J. MCCARTY,  
L. L. ALLEN.