E. M. SANDERS.

FOLDING BOAT.

APPLICATION FILED OCT. 18, 1913.

1,093,357.

Patented Apr. 14, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

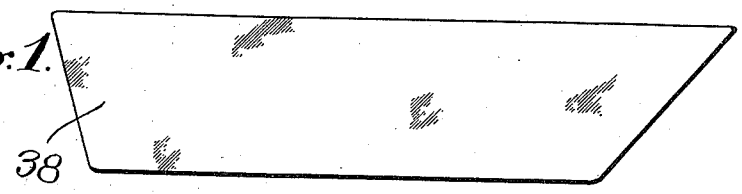


Fig. 2.

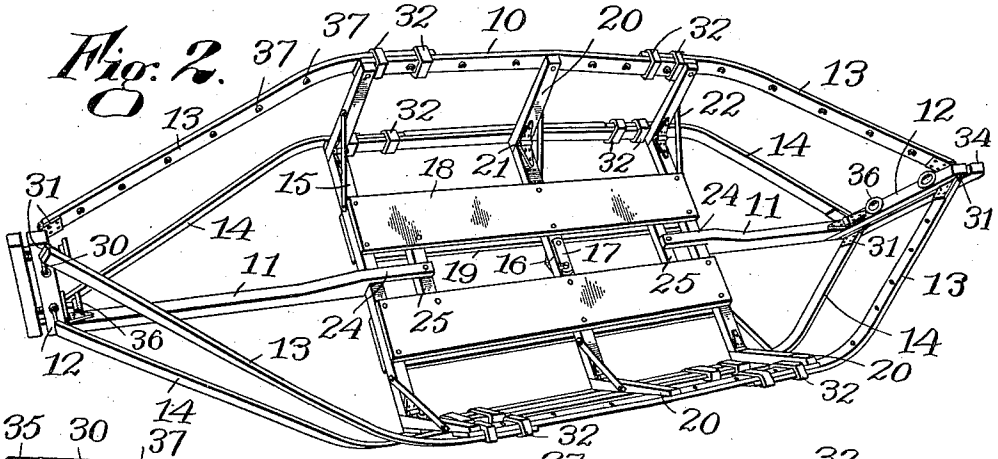


Fig. 3.

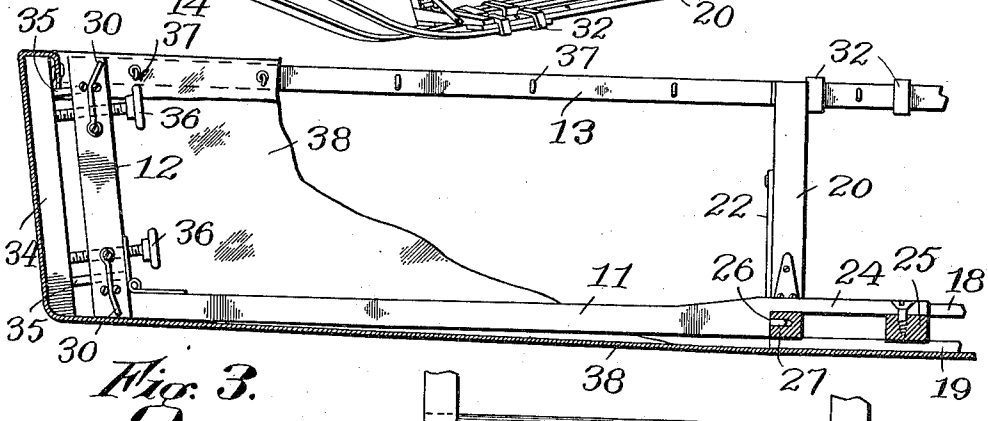
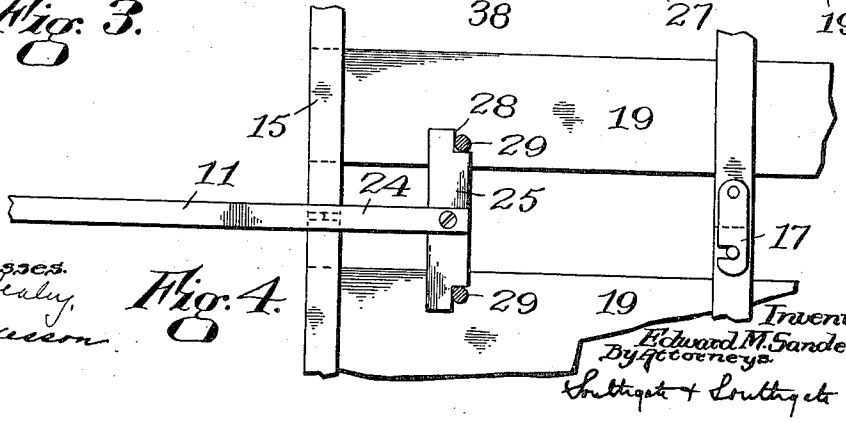


Fig. 4.



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2 SHEETS—SHEET 2.

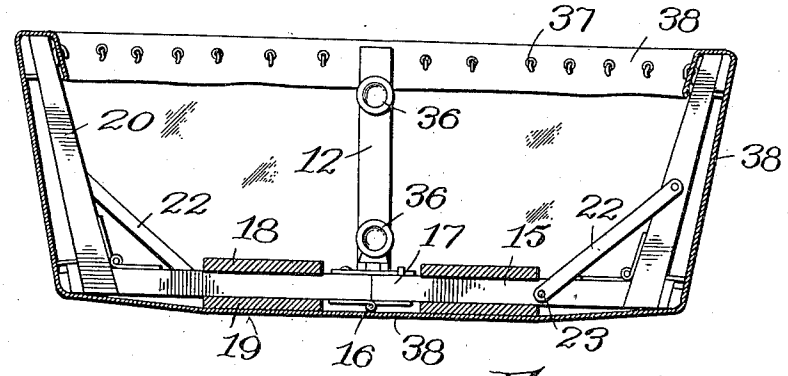


Fig. 5.

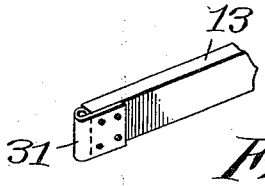


Fig. 6.

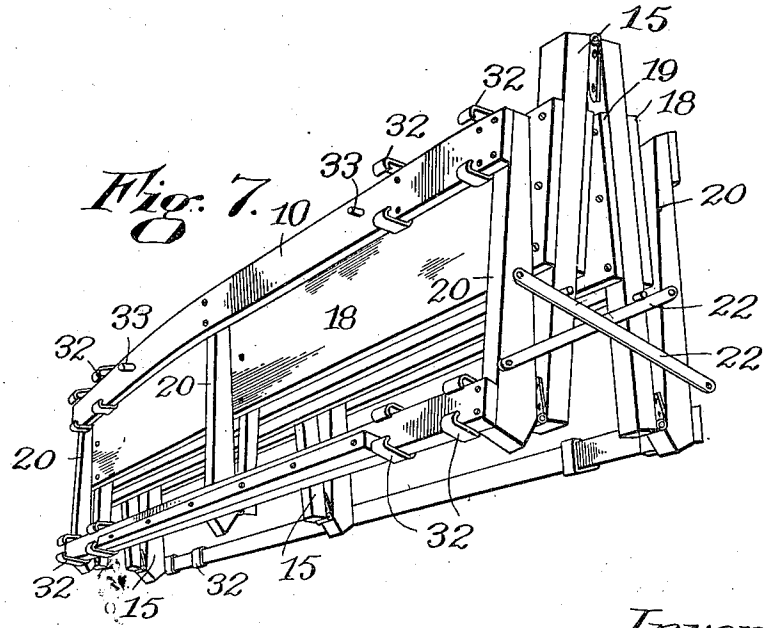


Fig. 7.

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FOLDING BOAT.

1,093,357. Specification of Letters Patent. Patented Apr. 14, 1914.

Application filed October 18, 1913. Serial No. 796,056.

To all whom it may concern:

Be it known that I, EDWARD M. SANDERS, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented a new and useful Folding Boat, of which the following is a specification.

This invention relates to a folding boat, and particularly to a boat of this type especially adapted to be easily transported and assembled for occasional use.

It is the principal object of my invention to provide an improved sectional frame-work for such a boat which may be packed in a small space when not in use, and which shall possess unusual strength and rigidity when assembled.

Further objects of my invention relate to the provision of improved fastening means for joining the several parts and to the provision of novel means for tightly stretching the canvas cover after the boat is assembled.

With these and other objects in view my invention comprises certain devices, arrangements, and combinations of parts which will be hereinafter described and more particularly set forth in the appended claims.

A preferred form of my invention is shown in the drawings, in which—

Figure 1 is a side elevation of my folding boat; Fig. 2 is a perspective view of the frame-work of the boat; Fig. 3 is a partial longitudinal sectional view showing the construction of the keel sections and the bow and stern-posts; Fig. 4 is a detail view showing the method of detachably securing the keel sections to the central frame, the upper flooring being omitted; Fig. 5 is a transverse sectional view taken along the central rib; Fig. 6 is a detail showing a part of the means for securing the side rails to the post; and Fig. 7 shows the central frame in folded position.

Referring to Fig. 2 it will be seen that the frame work of my boat comprises essentially a folding central frame 10, keel sections 11 detachably secured thereto, bow and stern-posts 12 hinged to the keel sections, and upper and lower side rails 13 and 14 detachably secured to the central frame and to the bow and stern-posts respectively. The central frame comprises a plurality of bottom ribs 15 (Figs. 2 and 5) joined at their middle points by hinges 16 which permit them to be folded upwardly when desired, as shown in Fig. 7. The central bottom rib is also provided with a latch 17 (Figs. 2 and 4) which prevents the bottom ribs from folding upwardly when the boat is in use. Secured to the bottom ribs are sectional upper floor-boards 18 and lower floor-boards 19. The side sections 20 of the central frame are hinged to the bottom ribs at 21 and are held in open position by braces 22 (Fig. 5) pivoted to the side sections and adapted to engage dowels 23. When the boat is to be taken apart the braces 22 are disengaged from the dowels, and the side sections fold inwardly against the two parts of the bottom section, as clearly shown in Fig. 7.

Referring to Figs. 3 and 4, each sectional keel 11 is provided at its inner end with an upwardly offset portion 24 to which is pivotally secured a cross piece 25. Below the offset portion is a shoulder 26 into which is driven a dowel 27. The method of detachably securing the keel section to the central frame is best shown in Fig. 4, in which the dowel is shown as inserted in a hole extending transversely through one of the bottom ribs and the cross-piece has been turned, so that the ends extend between the upper and lower floor boards 18 and 19. At each end of the cross piece there is a notch 28 adapted to engage a pin 29 extending through the floor-boards, the pins thus securing the keel section against transverse movement. The bow and stern-posts 12 each comprise a substantially vertical member hinged to the outer end of a keel section (Fig. 3) and having mounted thereon a plurality of pins 30. These pins are formed with an eye at one end through which a screw is inserted and the intermediate portion of each pin is secured to the post by a pair of screws whose heads overlap the pin. The outer ends of the pins 30 extend upwardly or downwardly and are each bent at such an angle as to permit an eye 31 (Fig. 6) on the end of a side rail 13 or 14 to slide easily over the pin. The other or inner ends of the side rails are secured within guides 32 mounted upon the central side sections 20, stops 33 being provided to limit the endwise movement of the rails therein. Each bow and stern-post comprises two members, an inner member hinged to the keel section as previously described, and an outer member 34 (Figs. 2 and 3) supported upon the inner member and mounted to slide relatively thereto upon dowels 35. Adjusting screws 36 are threaded into the inner vertical members and serve to rela-

tively adjust the two members and to retain them in adjusted position. A series of hooks 37 is provided along the inner side of each upper rail and the canvas cover 38 is brought up outside of the rails and secured over the hooks on the inner side thereof. After the cover is in position the members 34 may be adjusted longitudinally of the boat by the screws 36 and thus serve to stretch the canvas tightly over the frame-work of the boat. When the canvas is thus stretched, it draws the side rails 13 and 14 toward each other, preventing their disengagement from the pins 30. It also forces each keel section 11 inward against the shoulder 26 and the pins 29 and prevents relative separation of the keel sections and the central frame.

When the boat is to be taken apart the strain on the cover is first relieved by retracting the screws 36 and the post members 34, after which the cover may be removed. The upper and lower side rails are next detached from the posts and from the central frame, permitting the bow and stern-posts to be folded upon the keel sections which are then detached from the central frame. After the latch 17 and the braces 22 are released, the central frame may be folded into the position shown in Fig. 7. It will be seen that the frame work of the boat has thus been reduced to a single folded section and a plurality of separate parts corresponding in length to the folded section, the whole being adapted to be packed in a small space and to be easily transported in any desired manner.

While a preferred form of my invention is shown in the drawings, it is evident that many changes and modifications therein can be made by those skilled in the art within the scope of my invention, and I do not wish to be limited to the details herein disclosed. But—

What I claim is:—

1. A folding boat having in combination a canvas cover, a central frame comprising side and bottom sections adapted to fold along a plurality of longitudinal lines, keel sections detachably secured to said central frame, bow and stern-posts mounted on the outer ends of said keel sections, and upper and lower rails at each side of each end of the boat detachably secured to one of the posts and to the central frame, said canvas being attached to said rails.

2. A folding boat having in combination a canvas cover, a folding central frame, keel sections detachably secured thereto, bow and stern-posts mounted on said keel sections, and upper and lower side rails at each side of each end of the boat, each upper side rail having an eye at one end sliding freely over an upwardly extending pin on one of the posts, each lower side rail having a similar eye sliding freely over a downwardly extending pin on one of the posts, and said cover when in place acting to draw the upper and lower rails toward each other and to prevent their detachment from the posts.

3. A folding boat having in combination a canvas cover, a folding central frame, keel sections, sectional upper and lower side rails, and bow and stern-posts, each comprising a substantially vertical member hinged to a keel section and detachably secured to the corresponding side rails, and a second substantially vertical member supported on the first member and adjustable relatively thereto in a direction longitudinal of the boat, by which adjustment the canvas cover may be tightly stretched on the frame.

4. A folding boat having in combination, a cover, a central folding frame, keel sections, detachably secured to the central frame, bow and stern posts mounted on said keel sections, and sectional side rails each secured to said central frame and to one of said posts.

5. A folding boat having in combination a canvas cover and a frame work comprising a central frame adapted to fold along longitudinal lines, keel sections detachably secured to the central frame, bow and stern posts hinged to said keel sections, and sectional upper and lower side rails detachably secured to said central frame and to said bow and stern posts.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

EDWARD M. SANDERS.

Witnesses:

E. LEROY LONGLEY,

WM. S. PUTNAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."