(No Model.)

A. J. HAGGEN.

SECTIONAL FOLDING BOAT.

No. 588,986. Patented Aug. 31, 1897.

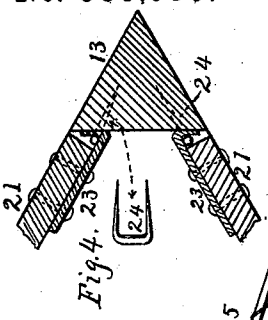


Fig. 4.

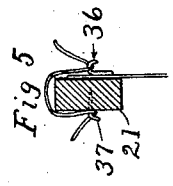


Fig. 5

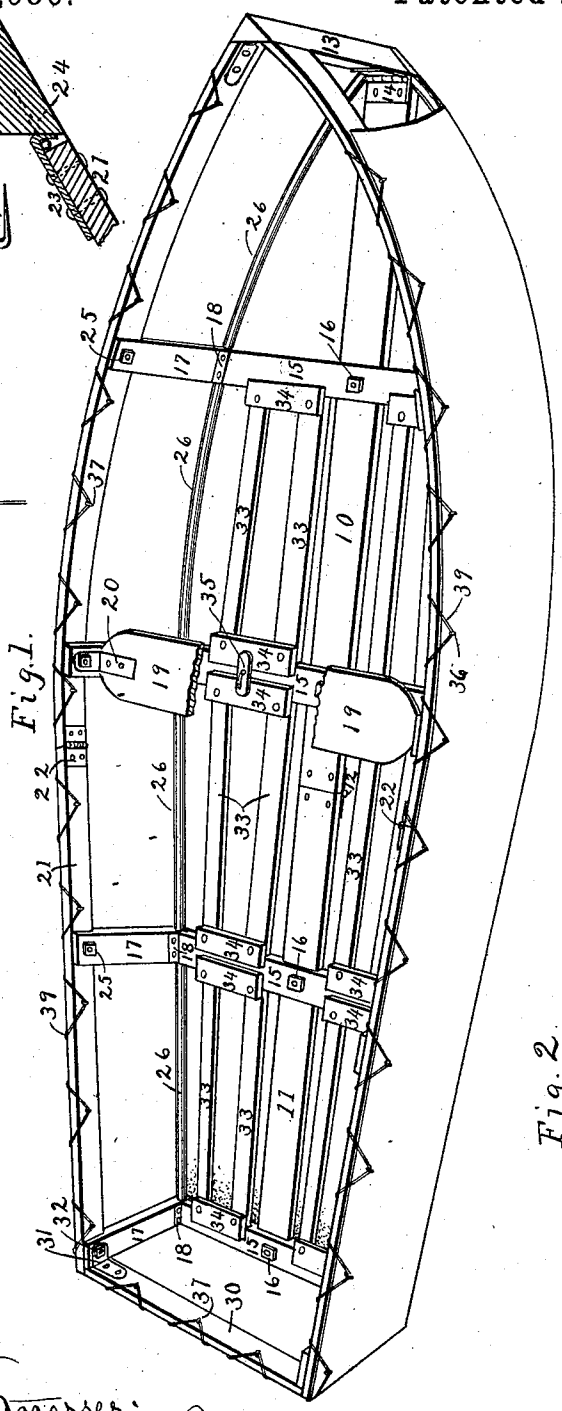


Fig. 1.

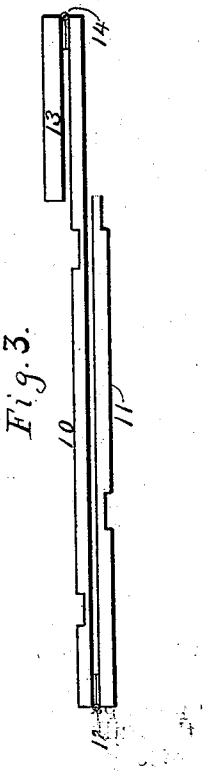


Fig. 3.



Fig. 6.

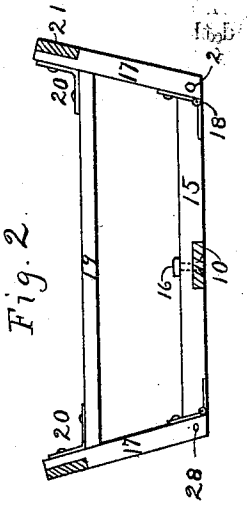


Fig. 2.

Witnesses:
J. A. Bramhall.
Geo. F. White

Inventor: Andrew J. Haggen,
By Thomas G. & J. Ralph Orrig,
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ANDREW J. HAGGEN, OF EAGLE GROVE, IOWA.

SECTIONAL FOLDING BOAT.

SPECIFICATION forming part of Letters Patent No. 588,986, dated August 31, 1897.

Application filed March 5, 1897. Serial No. 625,917. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. HAGGEN, a citizen of Norway, residing at Eagle Grove, in the county of Wright and State of Iowa, have invented a new and useful Sectional Folding Boat, of which the following is a specification.

The object of this invention is to provide a folding boat of simple, strong, and durable construction, that when set up will form a boat of comparatively light weight, firmly braced in every direction, and capable of carrying a comparatively great load, and, further, to provide a boat of this class which may be readily and quickly taken apart and the said parts packed together in a compact manner that will occupy a minimum of space; and my object is, further, to provide a boat of this kind in which the parts may be readily put together and the canvas covering easily and quickly placed thereon and tightly stretched.

My invention consists in certain details in construction, arrangement, and combination of the various parts of the frame and in the device for connecting the canvas covering with the frame and stretching it thereon, as hereinafter set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of the entire boat with parts broken away to show certain details of construction. Fig. 2 shows a transverse sectional view of the frame, taken near its central portion. Fig. 3 shows the keel and bow pieces of the frame in their folded position. Fig. 4 shows a horizontal sectional view of the bow and the front ends of the gunwales detachably connected therewith. Fig. 5 shows a transverse sectional view through the gunwale to illustrate the device for attaching a canvas covering thereto. Fig. 6 shows a perspective view of one of the under side pieces of the frame.

Referring to the accompanying drawings, the reference-numeral 10 is used to indicate the forward end of the keel, and 11 the rear end thereof. These parts are hinged near the central portion of the boat by means of the hinges 12, so that the part 11 may be folded parallel with the under side of the part 10, as shown in Fig. 3, but said part 11 cannot be bent upwardly relative to the part 10.

13 indicates the bow or cut-water, hinged to the forward end of the keel by means of the hinge 14, so arranged that it may fold backwardly on top of the part 10, but not forwardly.

I have provided a number of ribs to extend transversely of the boat, each constructed as follows:

15 indicates a straight cross-piece or rib detachably secured to the keel by means of a bolt 16.

The numerals 17 indicate upright parts of the rib, connected with the part 15 by means of hinges 18. These hinges are secured to the end surface of the part 15 and to the inner surfaces of the parts 17. By this arrangement the said parts 17 may straighten outwardly to lie in approximately the same plane as the part 15, but not inwardly. Fixed to the central one of these ribs is a seat (indicated by the reference-numeral 19) to extend from one end of the rib to the other and connected therewith by means of cleats 20, which are fixed to the ends of the seat and have their opposite ends bent parallel with the ends of the parts 17, so that they may be secured thereto by means of bolts.

The reference-numeral 21 is used to indicate the gunwale. This is provided with a hinge 22 near its central portion, and at its front end is a hook 23, designed to engage a staple 24, which is fixed to the rear face of the bow or cut-water 13, as clearly shown in Fig. 4. Each of the ribs is connected with this gunwale by means of the bolts 25. A similar gunwale is of course provided on each side. At the lower corners of the sides of the boat I have provided round rods 26, having pins 27 projecting outwardly from their ends and designed to enter the small openings 28, formed in the lower corners of the parts 17. The function of these parts 26 will be described hereinafter.

30 indicates a stern-piece extended transversely across the rear end of the frame, and having cleats 31 at its end fixed thereto, and arranged to overlap the upright parts of the rear ribs. These cleats are secured to the said ribs by means of the bolts 32. In this way this stern-piece 30 is prevented from moving forwardly because its rear ends overlap the rear surface of the rib, and the gun-

wales of the frame are prevented from being forced together by means of the cleats 31.

I have provided means for protecting the bottom of the boat and for holding articles placed in the boat from contact with the canvas bottom, as follows: 33 indicates a series of bars extended longitudinally between two of the ribs and connected at their ends by means of the cross-pieces 34, which cross-pieces are arranged to project over the top of the rib. This detachable bottom is held in place by means of the turn-buttons 35 and connected with the ribs and arranged to overlap the cross-pieces 34.

The canvas cover is made in substantially the same shape as the exterior of the boat-frame and is provided with a series of rings 36, fixed to its top edge on its outer surface.

37 indicates hooks fixed to the inner surfaces of the gunwales and stern-pieces, and 38 indicates a cord or rope having its one end fixed to the canvas covering and arranged to be hooked at various points, first to the gunwale and then to the canvas. The entire upper edge of the canvas is connected with the boat-frame in this manner, and the free end of the cord or rope is attached to the gunwale in any suitable manner.

In practical use, assuming that the boat is set up as shown in Fig. 1, and that it is desired to pack the same in the smallest possible compass, I proceed as follows: I first loosen the cord or rope around the entire top. Then the canvas may be readily detached from the boat and tied up into a small bundle. I then detach the stern-piece 30 and the seat or seats 19. Then the gunwales 21 are detached from the ribs and unhooked from the bow and then folded. Then the ribs are detached from the keel and the joints therein straightened out. When the ribs are removed from the keel, the corner-pieces of the frame 26 will, of course, be detached. Finally the keel is folded, as shown in Fig. 3, and all of the parts are then laid in parallel planes. The canvas and the frame thus folded may then be tied into a compact bundle.

When setting up the frame, we proceed in the reverse way from the way just described for taking it apart, and when the frame is completed the canvas is placed in position thereon and the rope run through the various hooks and rings, as shown and described. It is obvious that the construction of the frame, especially the round corner-pieces 26, will permit the canvas on the bottom to readily stretch and slide or roll over these parts 26. It is obvious, further, that this canvas may be stretched at any one point to take out wrinkles, and the entire canvas cover may be made to fit tightly and be thoroughly stretched at every point by means of the cord or rope.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

An improved collapsible boat, comprising a keel hinged near its central portion to fold downwardly, a bow or cut-water hinged to the front of the keel to fold rearwardly, staples on the upper end of the bow, a series of ribs detachably connected with the keel and hinged at their corners so that the ends may turn to a position parallel with the bottom, but may not fold over the bottom piece, corner-pieces round in cross-section, connected with the ribs at their corners, two gunwales fixed detachably to the upper end of the ribs, a hinged joint in each, near its central portion, a hook at the forward end of each, designed to engage the aforesaid staples, one or more seats detachably fixed between the ends of the ribs, a stern-piece fixed to the upper ends of the rear ribs, a series of bars designed to enter between the ribs, cross-pieces on the ends of said bars to overlap the top of the ribs, turn-buttons fixed to the ribs to overlap said cross-pieces, a canvas cover designed to overlap the said frame, a series of hooks on its outer top portion, a series of hooks on the interior of the gunwales and stern-piece, and a cord or rope fixed to the canvas to be engaged with said hooks, substantially in the manner set forth and for the purposes stated.

ANDREW J. HAGGEN.

Witnesses:
LEWIS HAGGEN,
AARON YEARONS.