

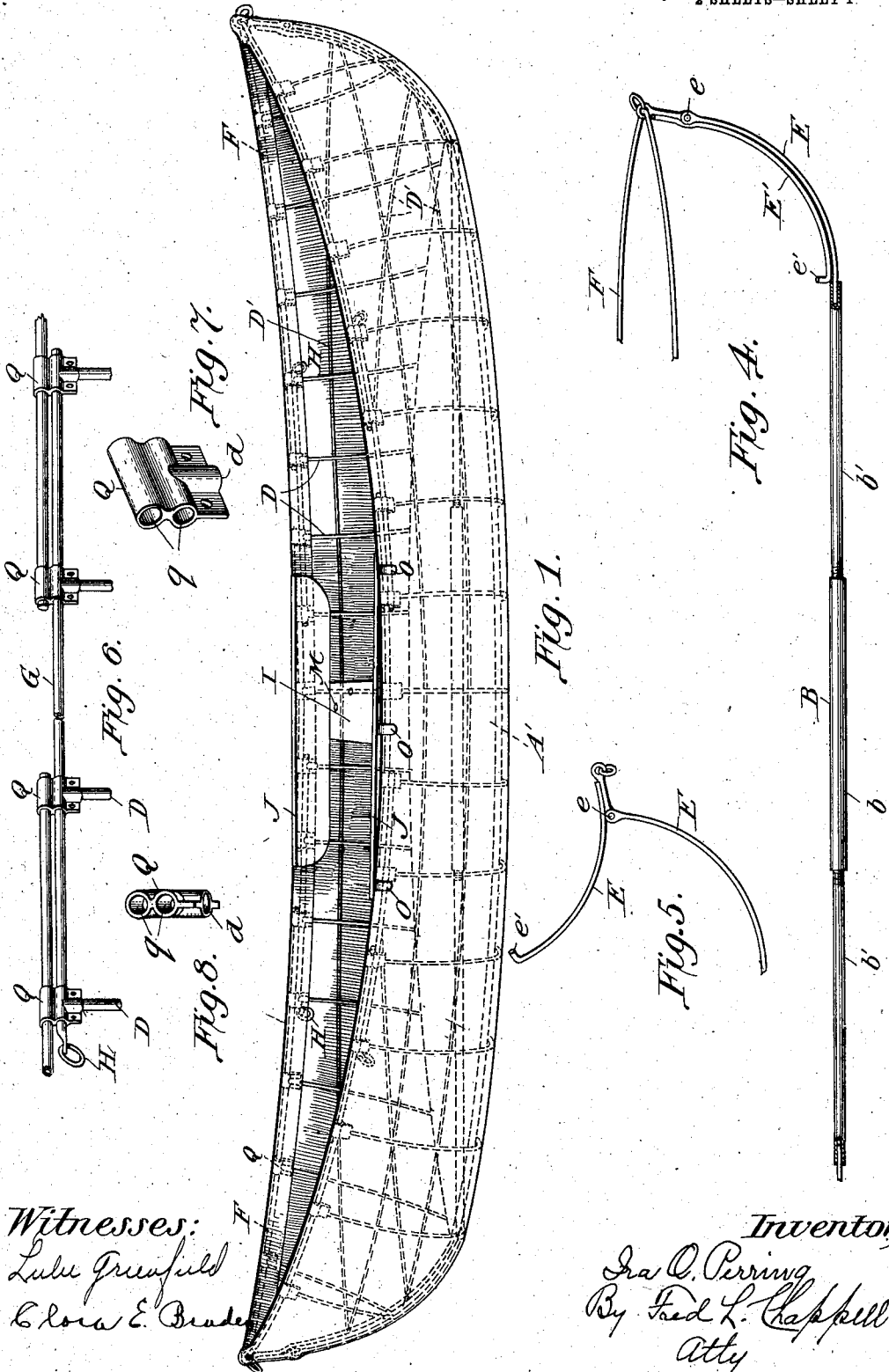
No. 833,846.

PATENTED OCT. 23, 1906.

I. O. PERRING.
FOLDING OR COLLAPSIBLE BOAT.

APPLICATION FILED MAR. 7, 1904.

2 SHEETS—SHEET 1.



Witnesses:

Lulu Greenfield

Clara E. Bruden

Inventor,

Ira O. Perring
By Fred L. Chappell
Atty

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2 SHEETS—SHEET 2.

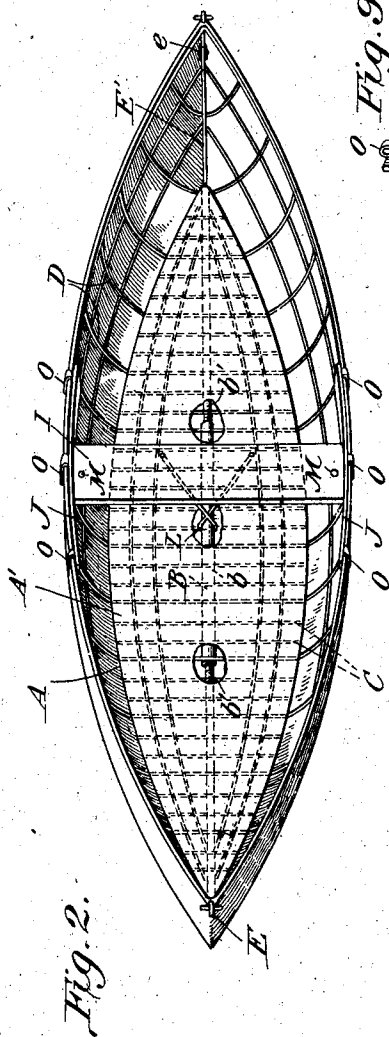
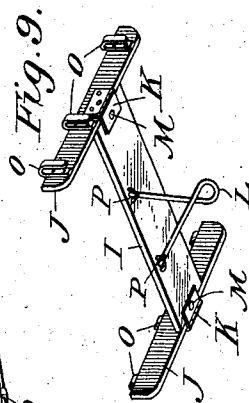
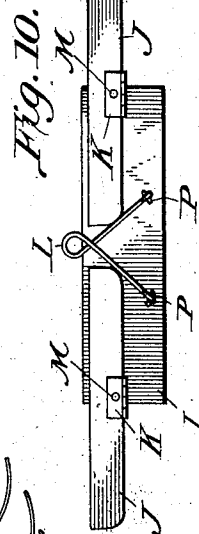
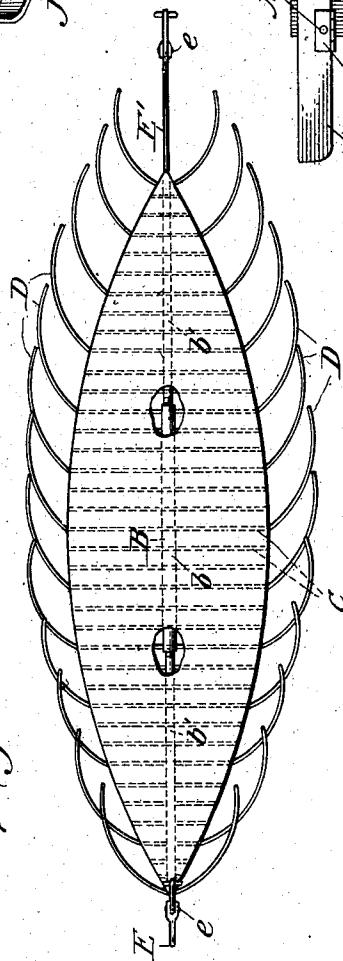


Fig. 3.



Witnesses:

Lulu G. Greenfield
Clara E. Braden.

Inventor,

Ira O. Perring
By Fred L. Chappell
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UNITED STATES PATENT OFFICE.

IRA O. PERRING, OF KALAMAZOO, MICHIGAN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO LIFE-SAVING FOLDING CANVAS BOAT COMPANY, OF KALAMAZOO, MICHIGAN, A CORPORATION.

FOLDING OR COLLAPSIBLE BOAT.

No. 833,846.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed March 7, 1904. Serial No. 196,982.

To all whom it may concern:

Be it known that I, IRA O. PERRING, a citizen of the United States, residing at the city of Kalamazoo, county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Folding or Collapsible Boats, of which the following is a specification.

This invention relates to improvements in folding or collapsible boats.

The objects of this invention are, first, to provide an improved folding or collapsible boat which is strong and durable and at the same time comparatively light in weight; second, to provide an improved folding or collapsible boat which may be quickly set up or knocked down and one which is capable of being folded into a compact package when knocked down for the purpose of transportation or storage; third, to provide an improved folding or collapsible boat which is capable of being folded into a very compact package when knocked down and one in which the number of parts when folded is reduced to a minimum; fourth, to provide in a folding or collapsible boat an improved gunwale which, although very strong and rigid when assembled, is comparatively light in weight; fifth, to provide in an improved folding boat an improved combined keel and bottom which is quickly set up and capable of being made into a very compact package when disassembled or knocked down; sixth, to provide an improved folding or collapsible boat which has an improved seat structure adapted to serve as a strengthening means for the boat when assembled; seventh, to provide in a folding or collapsible boat an improved folding oar and support therefor.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of my improved folding or collapsible boat viewing it

from one side. Fig. 2 is a perspective view of my improved folding or collapsible boat viewing it from one end. Fig. 3 is a detail perspective view of the flooring and keel. Fig. 4 is an enlarged detail side elevation view of the keel proper, showing the arrangement of the parts. Fig. 5 is a detail perspective view of one of the keel extensions E; portions F of the gunwale being shown attached thereto. Fig. 6 is an enlarged detail perspective view showing the structural details of my improved gunwale. Figs. 7 and 8 are enlarged perspective views of the brackets Q for joining the sections of the gunwale and securing the ribs thereto. Fig. 9 is an enlarged perspective view of the seat in an inverted position. Fig. 10 is a plan view of the structure shown in Fig. 9 folded. Fig. 11 is an enlarged detail perspective view showing my improved oar and the means of supporting the same. Fig. 12 is a side elevation view showing my improved oar.

In the drawings similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings, the body A' of the bottom A of my improved boat is made of canvas or like material.

A keel B, made up of sections of gas-pipe b and b' and extensions E, is provided. The sections b and b' are preferably screw-threaded together. The keel extensions E are adapted to fit into the ends of the sections b'. The keel extensions E are jointed at e, the purpose of which will be hereinafter explained. The keel-sections b b' are arranged centrally through the body A' in a suitable pocket. A series of cross-pieces C, of wire, are securely attached to the body A' of the bottom, preferably by inserting in suitable pockets. The cross-ribs D of the boat are also attached to the body A'. The keel-sections b and b' are removable, so that they may be removed when it is desired to fold the bottom. The end sections F of the gunwale are secured to suitable loops or eyes in the ends of the keel extensions E.

Sleeved upon the gunwale-sections F are brackets Q, having sockets q therein adapted to receive the central section G of the gunwale. These brackets Q are also provided with downwardly-opening sockets d to receive the upper ends of the cross-ribs D, as

clearly appears in Figs. 6, 7, and 8. The central section G of the gunwale is preferably arranged through at least two of the brackets Q at each side, so that it is firmly connected to the end sections F, forming, in effect, a continuous gunwale. Rings H are provided for the central gunwale-sections G to facilitate their removal. The keel extensions and the gunwale-sections and also the cross-ribs are preferably formed of wire or light iron rods.

A suitable skin or outer covering, preferably of canvas coated with suitable material to make the same impervious to water, is provided. This is sewed into the desired shape and is provided with suitable longitudinal ribs D', which will not be here described in detail, as they form no part of this invention.

The seat I of my improved folding or collapsible boat is of sufficient length to extend from side to side thereof. Supporting-pieces J, having outwardly-projecting hooks O thereon, are provided for the seat-board I. These supports are connected to the seat-board I by hinges K. The hinges K are secured to the board by vertically-arranged pivots M. Thus constructed the supports may be folded back upon the seat-board and swung around on the pivot M in alignment therewith, (see Figs. 9 and 10,) so that it is collapsed into a comparatively compact space.

Pivoted to the under side of the seat-board I by suitable screw-eyes P or the like is a standard brace L. The brace L is provided with a loop in its lower end through which the central sections b of the keel may be inserted. This securely retains the seat in place and supports a considerable portion of the weight upon the seat on the bottom of the boat, the hooks O engaging over the edge of the boat. The seat thus serves as a brace for the boat and becomes when the boat is assembled an integral part thereof.

Having described the structural details of my improved folding or collapsible boat, I will describe the mode of assembling the same. In assembling I first stretch the skin or covering and place the longitudinal ribbing therein. The central gunwale-section G is then inserted. The bottom A is then inserted. The ends of the cross-ribs D are engaged in the sockets d, carried by the gunwale. The seat is then placed in position and the keel-sections b b' inserted, the central section b of the keel being passed through the loop in the seat base L. The structure is then stretched by adjusting the keel-sections b b' and forcing down the keel extensions E, which, being jointed, apply considerable tension to the skin or covering of the boat. A hand-piece E' is provided for accomplishing this. (See Figs. 4 and 5.) When this hand-piece is forced against the skin of the boat,

the joints e of the keel extensions E are forced past the center, so that there is no danger of the same collapsing. To provide absolute security, the hooks e' on the end of the hand-pieces E' are engaged in suitable gromets in the ends of the body A' of the bottom. The oars are then arranged, and the structure is assembled ready for use.

My improved folding or collapsible boat is very attractive and has a neat and finished appearance. The same is also comparatively light and very rigid. It is also very durable in use and comparatively light in weight. I have illustrated and described the same in the form preferred by me on account of its structural simplicity and the economy with which it may be produced. I am aware, however, that it is capable of considerable modification in structural details without departing from my invention.

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

1. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto and a longitudinal pocket therein; a keel consisting of sections of gas-pipe adapted to be inserted into said longitudinal pocket; keel extensions having joints therein, adapted to be inserted into said keel-sections; levers or hand-pieces, having hooks on the ends thereof adapted to engage said body, secured to said keel extensions; a gunwale made up of end sections, said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale, said horizontal sockets being adapted to receive the said central sections of said gunwale; cross-ribs secured to the said bottom, adapted to be inserted in the vertical sockets of said brackets; a seat-board; seat-supports therefor having hooks thereon adapted to engage over said gunwales; hinges for said seat-supports; vertical pivots for securing said hinges to the said seat-board; and a central brace or support, having a loop in the lower end thereof adapted to receive said keel, pivotally secured to the under side of said seat-board; all coacting for the purpose specified.

2. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto and a longitudinal pocket therein; a keel consisting of sections of gas-pipe adapted to be inserted into said longitudinal pocket; keel extensions having joints therein, adapted to be inserted into said keel-sections; levers or hand-pieces, having hooks on the ends thereof adapted to engage said body, secured to said keel extensions; a gunwale made up of end sections and central sections, said end sections being se-

cured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale, said horizontal sockets being adapted to receive the said central sections of said gunwale; cross-ribs secured to the said bottom, adapted to be inserted in the vertical sockets of said brackets; a seat-board; seat-supports therefor having hooks thereon adapted to engage over said gunwales; hinges for said seat-supports; vertical pivots for securing said hinges to the said seat-board; all coacting for the purpose specified.

3. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto, and a longitudinal pocket therein; a keel consisting of sections of gas-pipe adapted to be inserted into said longitudinal pocket; keel extensions having joints therein, adapted to be inserted into said keel-sections; levers or hand-pieces, having hooks on the ends thereof adapted to engage said body, secured to said keel extensions; a gunwale made up of end sections and central sections, said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale; said horizontal sockets being adapted to receive the said central sections of said gunwale; and cross-ribs secured to the said bottom, adapted to be inserted into the vertical sockets of said brackets, all coacting for the purpose specified.

4. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto; a keel detachably secured to said bottom; keel extensions; a gunwale made up of end sections and central sections, said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale, said horizontal sockets being adapted to receive the said central sections of said gunwale; cross-ribs secured to the said bottom, adapted to be inserted into the vertical sockets of said brackets; a seat-board; seat-supports therefor having hooks thereon, adapted to engage over said gunwales; hinges for said seat-support; vertical pivots for securing said hinges to the said seat-board; a central brace or support, having a loop in the lower end thereof adapted to receive said keel, pivotally secured to the under side of said seat-board; all coacting for the purpose specified.

5. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto; a keel detachably secured to said bottom; keel extensions; a gunwale made up of end sections and central

sections; said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale, said horizontal sockets being adapted to receive the said central sections of said gunwale; cross-ribs secured to the said bottom, adapted to be inserted into the vertical sockets of said brackets; a seat-board; seat-supports therefor having hooks thereon adapted to engage over said gunwale; hinges for said seat-support; and vertical pivots for securing said hinges to the said seat-board, all coacting for the purpose specified.

6. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto; a keel detachably secured to said bottom; keel extensions; a gunwale made up of end sections and central sections, said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale, said horizontal sockets being adapted to receive the said central sections of said gunwale; and cross-ribs secured to the said bottom adapted to be inserted into the vertical sockets of said brackets, all coacting for the purpose specified.

7. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto and a longitudinal pocket therein; a keel adapted to be inserted into said longitudinal pocket; keel extensions having joints therein, detachably secured to said keel; levers or hand-pieces, having hooks on the ends thereof adapted to engage said body, secured to said keel extensions; a gunwale made up of end sections and central sections, said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale; said horizontal sockets being adapted to receive the said central sections of said gunwale; and cross-ribs secured to the said bottom, adapted to be inserted in the vertical sockets of said brackets, for the purpose specified.

8. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of a body of canvas or like material, having cross-rods secured thereto and a longitudinal pocket therein; a keel adapted to be inserted into said longitudinal pocket; keel extensions having joints therein, detachably secured to said keel; a gunwale made up of end sections and central sections, said end sections being secured to said keel extensions; brackets having horizontal and vertical sockets therein, sleeved upon said end sections of said gunwale, said horizontal sockets being adapted to receive the said central sections of said gunwale; and cross-ribs se-

cured to the said bottom, adapted to be inserted in the vertical sockets of said brackets, for the purpose specified.

9. In a folding boat, the combination of a
5 suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
cross-rods secured thereto and a longitudinal
pocket therein; a keel adapted to be inserted
10 into said longitudinal pocket; keel extensions
having joints therein, detachably secured
to said keel; levers or hand-pieces, having
hooks on the ends thereof adapted to engage
said body, secured to said keel extensions;
15 a gunwale made up of end sections and
central sections, said end sections being secured
to said keel extensions; and cross-ribs
secured to the said bottom, for the purpose
specified.

10. In a folding boat, the combination of a
20 suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
cross-rods secured thereto and a longitudinal
pocket therein; a keel adapted to be inserted
into said longitudinal pocket; keel extensions
25 having joints therein, detachably secured
to said keel; a gunwale made up of end
sections and central sections, said end sections
being secured to said keel extensions; and
cross-ribs secured to said bottom, for the
30 purpose specified.

11. In a folding boat, the combination of a
suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
cross-rods secured thereto; a keel detachably
35 secured to said bottom; keel extensions
detachably secured to said keel; a gunwale
made up of end sections and central sections,
said end sections being secured to said keel
extensions; brackets having horizontal and
40 vertical sockets therein sleeved upon said
end sections of said gunwale, said horizontal
sockets being adapted to receive the said
central sections of said gunwale; and cross-
ribs adapted to be inserted into the vertical
45 sockets of said brackets, for the purpose
specified.

12. In a folding boat, the combination of a
suitable flexible skin; a bottom consisting of
a body of canvas or like material, having cross-
50 rods secured thereto; a keel detachably
secured to said bottom; a gunwale made up of
end sections and central sections, said end
sections being secured to said keel extensions;
brackets having horizontal and vertical
55 sockets therein sleeved upon said end sections
of said gunwale, said horizontal sockets
being adapted to receive the said central sections
of said gunwale; and cross-ribs adapted to
be inserted into the vertical sockets of said
60 said brackets, for the purpose specified.

13. In a folding boat, the combination of a
suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
cross-rods secured thereto and a longitudinal
65 pocket therein; a keel adapted to be in-

serted into said longitudinal pocket; keel
extensions having joints therein detachably
secured to said keel; and levers or hand-
pieces, having hooks on the ends thereof
adapted to engage said body, secured to said
70 keel-sections, for the purpose specified.

14. In a folding boat, the combination of a
suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
cross-rods secured thereto and a longitudinal
75 pocket therein; a keel adapted to be inserted
into said longitudinal pocket; and keel extensions
having joints therein detachably secured to
said keel; for the purpose specified.

15. In a folding boat, the combination of a
suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
cross-rods secured thereto and a longitudinal
85 pocket therein; and a keel adapted to be
inserted into said longitudinal pocket, for the
purpose specified.

16. In a folding boat, the combination of a
suitable flexible skin; a bottom consisting of
a body of canvas or like material, having
90 cross-rods secured thereto; a keel detachably
secured to said body; keel extensions
having joints therein detachably secured to
said keel; and levers or hand-pieces having
hooks on the ends thereof adapted to engage
95 said body, secured to said keel-sections, for
the purpose specified.

17. In a folding boat, the combination of a
suitable flexible skin; a removable bottom
consisting of a body of canvas or like material,
100 having cross-rods secured thereto; a keel
detachably secured to said body; and keel
extensions having hinge-joints therein
detachably secured to said keel, for the purpose
specified.

18. In a folding boat, the combination of a
suitable flexible skin; cross-ribs; a removable
bottom consisting of a body of canvas,
or like material, to which said cross-ribs are
105 secured, cross-rods arranged between said
cross-ribs, and a keel detachably secured to
said body, for the purpose specified.

19. In a folding boat, the combination of a
suitable flexible skin; cross-ribs; a removable
bottom consisting of a body of canvas,
115 or like material, to which said cross-ribs are
secured, and cross-rods arranged between
said cross-ribs, for the purpose specified.

20. In a folding boat, a suitable flexible
skin; a keel; and keel extensions made up
of sections hinged together, for the purpose
specified.

21. In a folding boat, the combination of a
suitable flexible skin; a gunwale made up of
end sections and central sections; brackets
having horizontal and vertical sockets therein,
sleeved upon said end sections of said
gunwale, said horizontal sockets being adapted
to receive the said central sections of said
gunwale; and cross-ribs adapted to be in-

serted into the vertical sockets of said brackets, for the purpose specified.

22. In a folding boat, the combination of a gunwale made up of sections, and brackets
5 having parallel sockets therein adapted to receive said sections whereby they are detachably secured together, for the purpose specified.

23. In a folding boat, the combination of a
10 seat-board; seat-supports therefor having

engaging hooks thereon; hinges secured to said seat-supports; and vertical pivots for securing said hinges to said seat-board, for the purpose specified.

In witness whereof I have hereunto set my
hand in the presence of two witnesses. 15

IRA O. PERRING.

Witnesses:

ETHEL A. TELLER,
OTIS A. EARL.