

No. 736,623.

PATENTED AUG. 18, 1903.

I. O. PERRING.
FOLDING BOAT.

APPLICATION FILED OCT. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

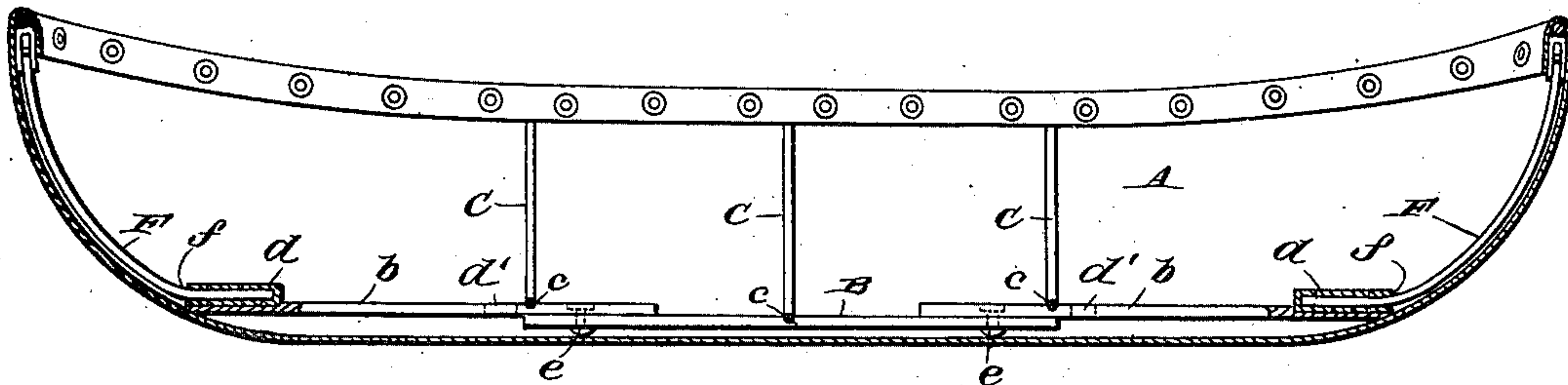


Fig. 2.

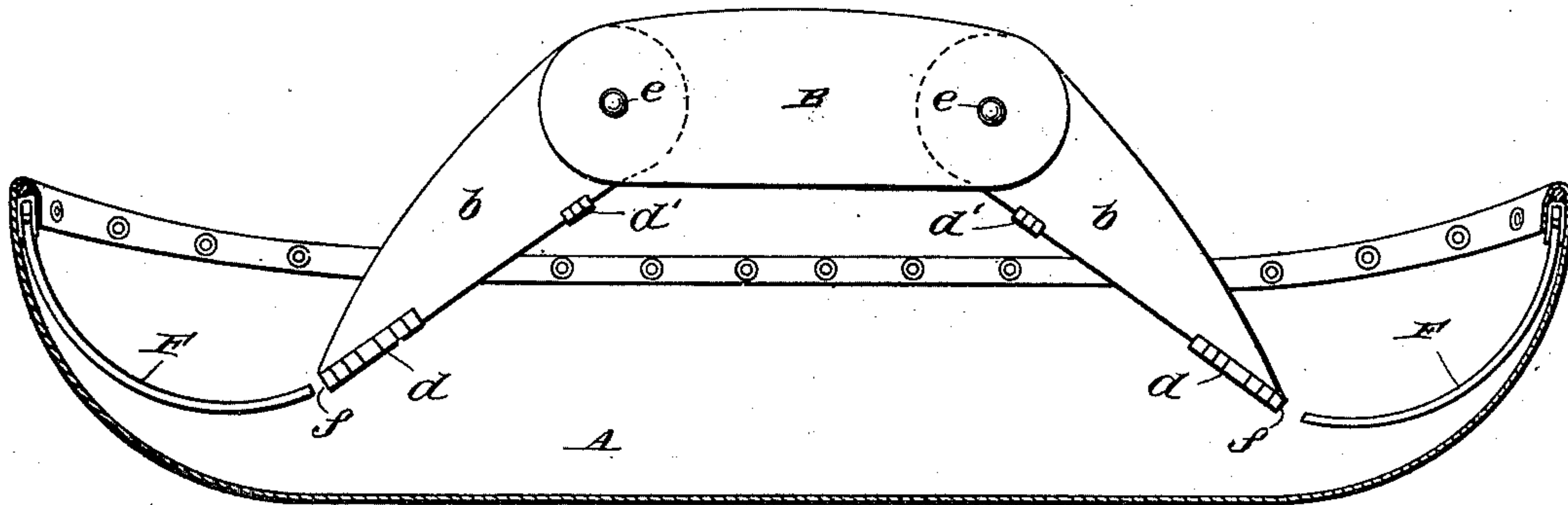
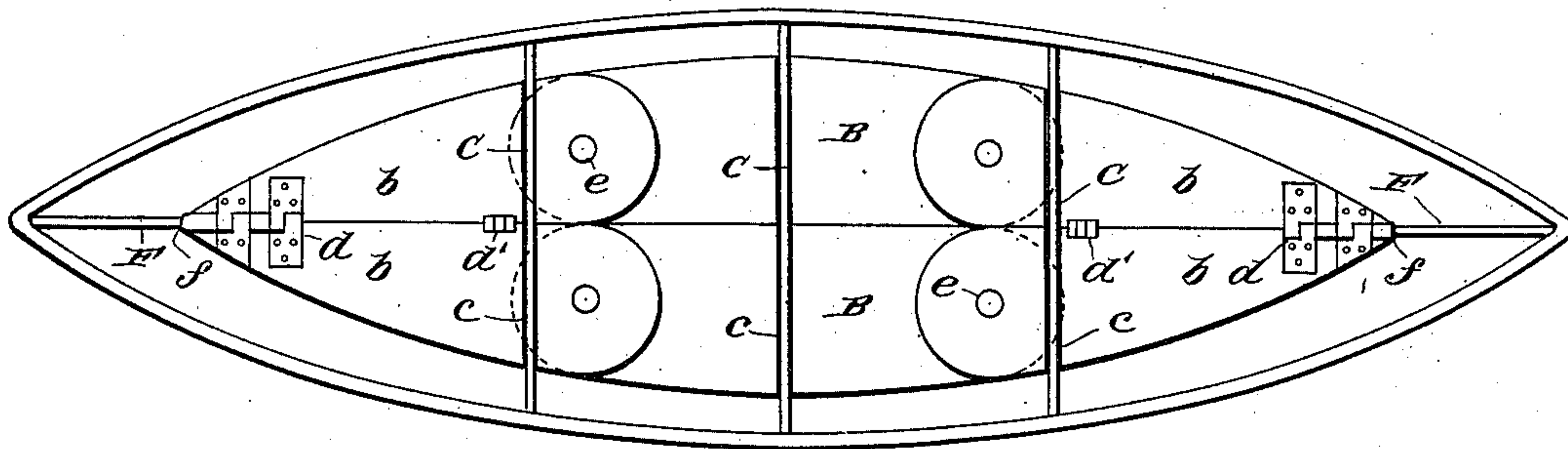


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 6.

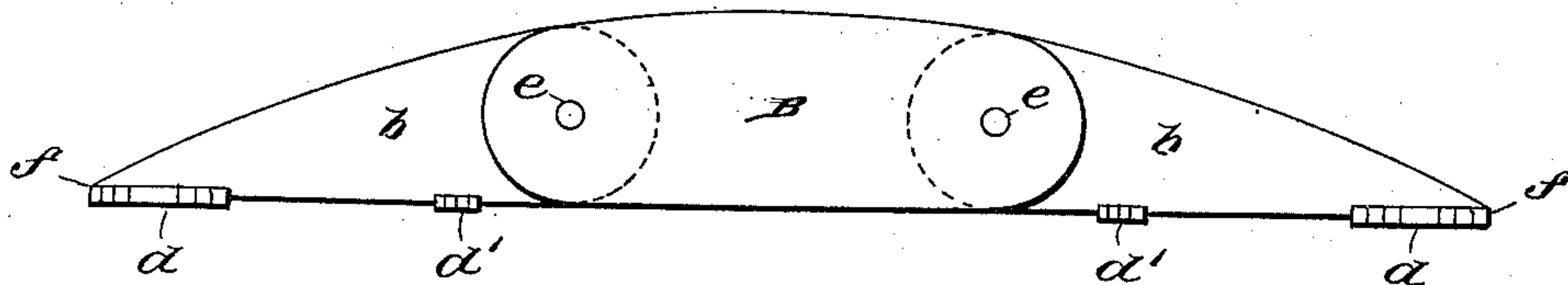


Fig. 7.

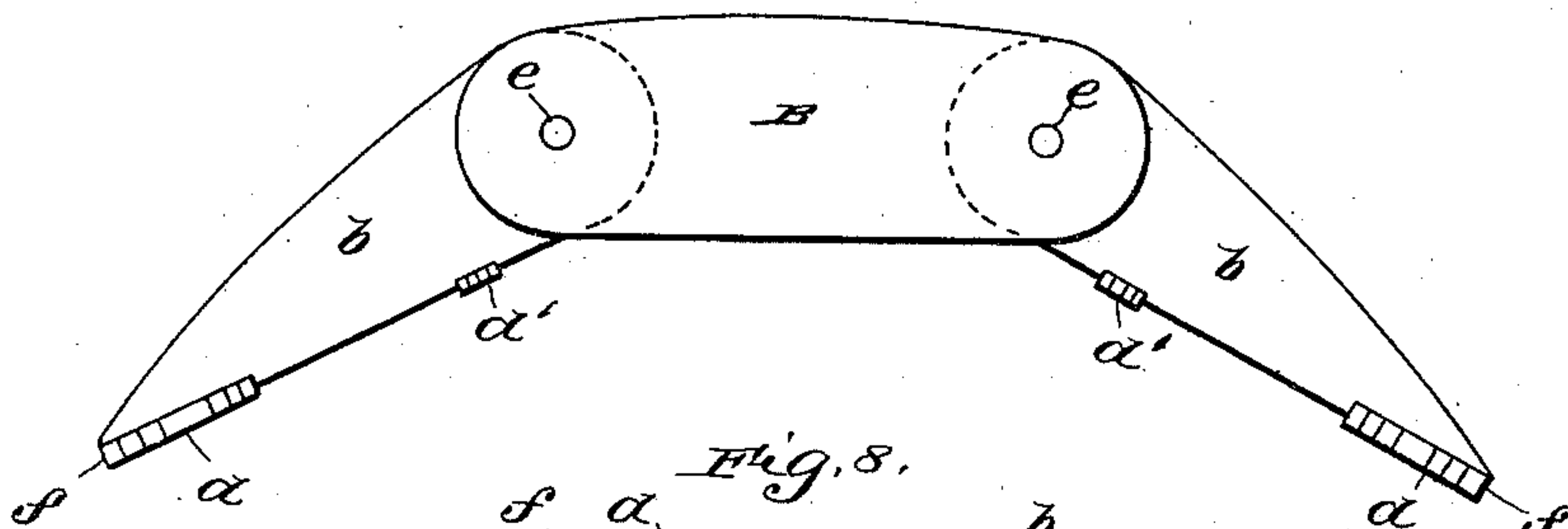


Fig. 8.

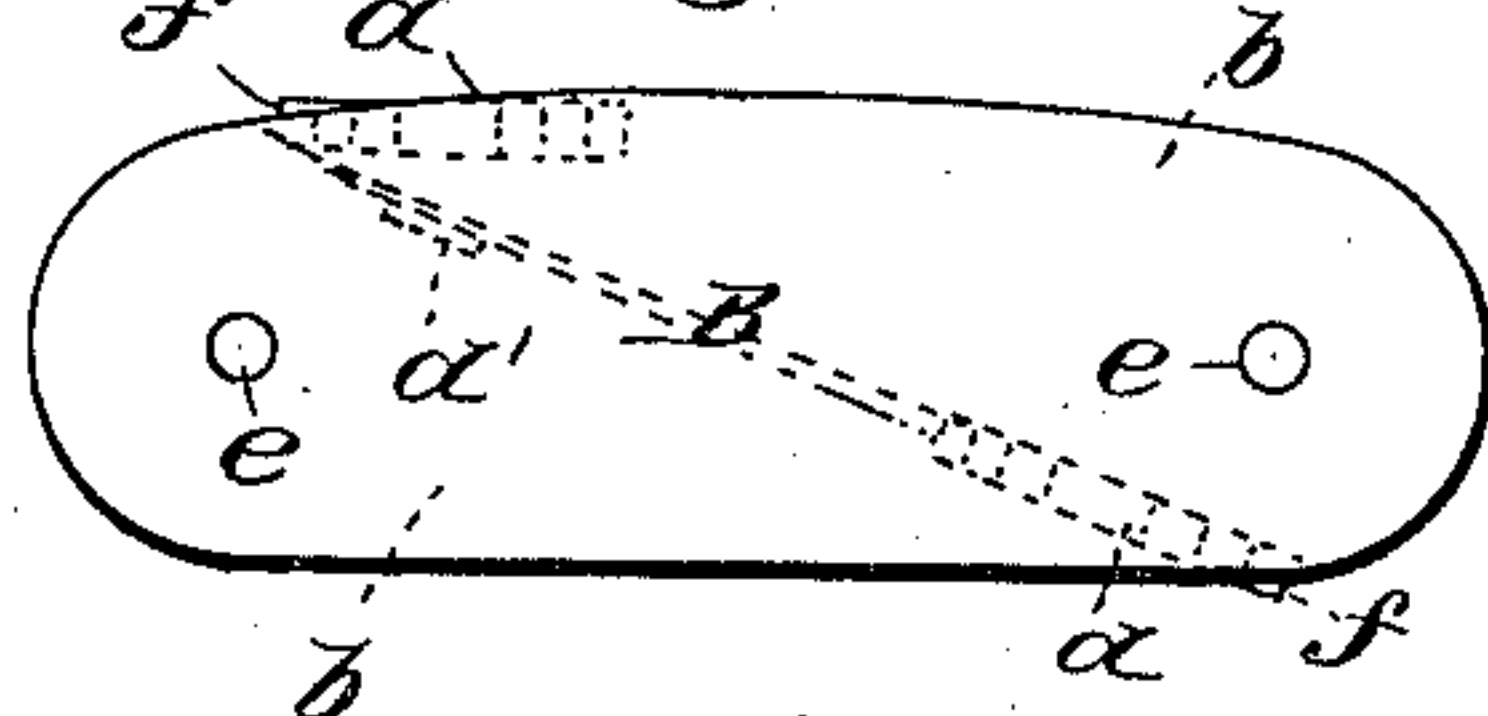


Fig. 5.

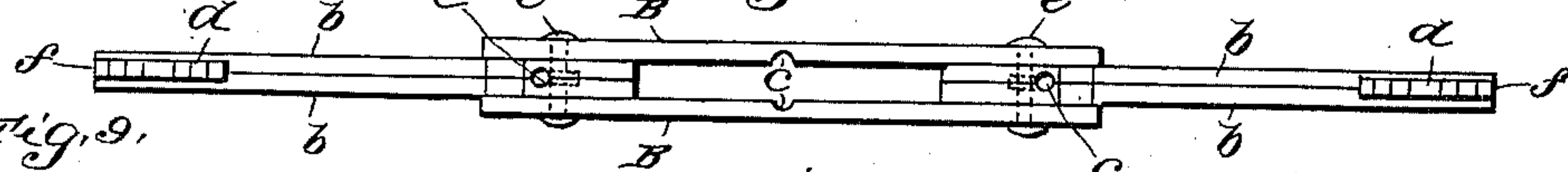


Fig. 9.

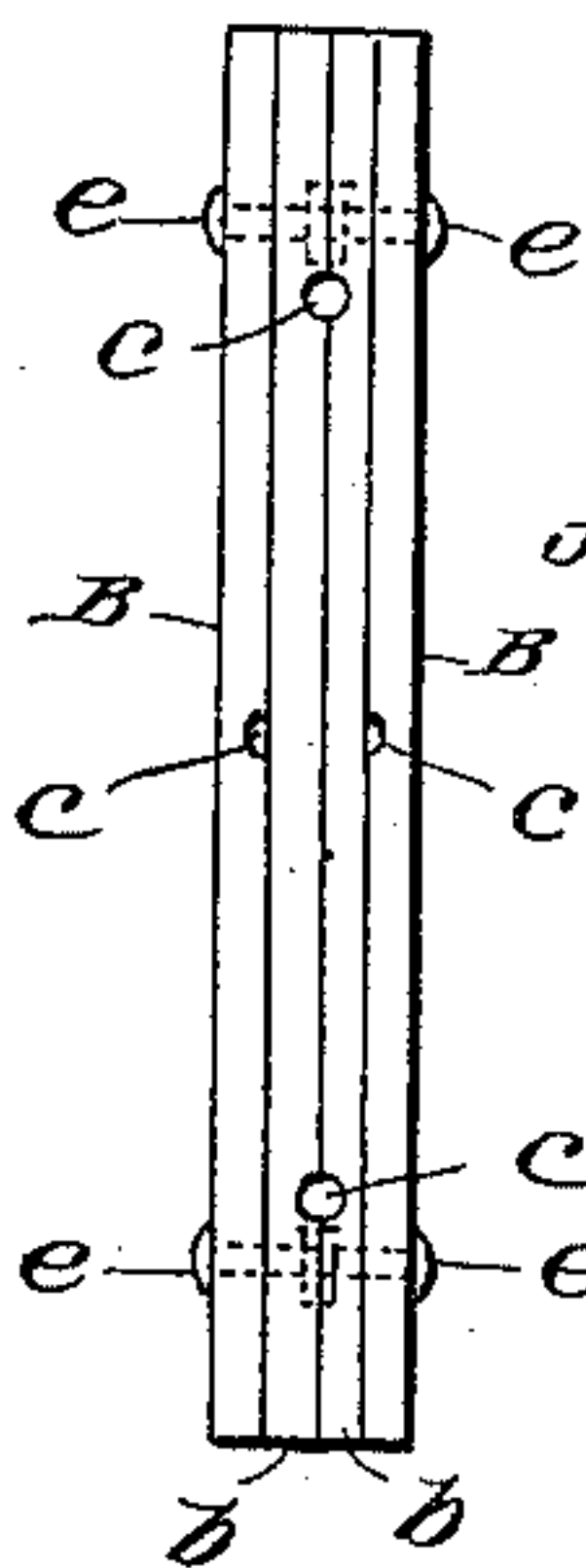
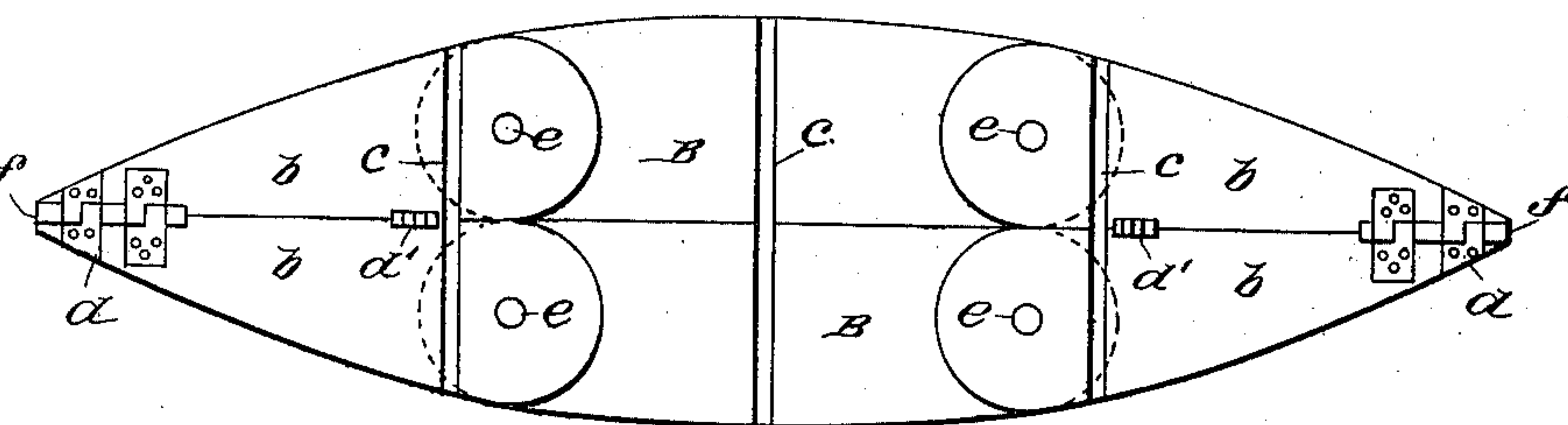


Fig. 4.



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UNITED STATES PATENT OFFICE.

IRA O. PERRING, OF KALAMAZOO, MICHIGAN.

FOLDING BOAT.

SPECIFICATION forming part of Letters Patent No. 736,623, dated August 18, 1903.

Application filed October 2, 1902. Serial No. 125,627. (No model.)

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, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Folding Boats, of which the following is a specification.

This invention relates to improvements in folding or collapsible boats, sometimes styled "canvas" boats.

The objects of the 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 and economical to produce; second, to provide an improved folding or collapsible boat which may be quickly and easily set up or knocked down and which is capable of being folded into a compact package for the purpose of storage or transportation; third, to provide an improved folding or collapsible boat which is capable of being folded into a compact package and in which the number of parts when in the knockdown is reduced to a minimum.

Further objects will definitely appear in 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 fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central vertical longitudinal sectional view of my improved collapsible boat. Fig. 2 is a vertical central longitudinal sectional view showing the method of inserting the flooring or bottom of my improved boat in position when assembling the same. Fig. 3 is a plan view of my improved folding or collapsible boat. Fig. 4 is a plan view of the flooring or bottom of my improved boat when spread out for use. Fig. 5 is a plan view of the folding bottom or flooring of my improved boat when folded longitudinally. Fig. 6 is a side elevation view of the bottom or flooring of my improved boat when the same is folded longitudinally. Fig. 7 is a plan view of the bottom or the flooring of my improved boat

when adjusted for assembling the boat. Fig. 8 is a side elevation view of the bottom of my improved boat folded into its most compact form. Fig. 9 is a plan view of the folding bottom portion of my improved boat when folded into its most compact form, as appears in Fig. 8.

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

Referring to the drawings, A is the skin or covering, which is preferably of canvas coated with a suitable material to make the same impervious to water.

The bottom of my improved boat consists of central portions B B, having extensions b secured thereto by vertical pivots e. The extensions b are secured together by hinges d d, so that the parts B B, with the extensions b b secured thereto, may be folded longitudinally, as appears in Figs. 5 and 6. The extensions b b of the flooring-pieces B B are pivotally secured to the same by vertical pivots e, so that after folding the flooring portion longitudinally the extensions may be folded inwardly between the parts B, as is indicated in Figs. 8 and 9, which, it is apparent, is very compact. The pivots of the hinge members d of the flooring are formed of tubing, such as small gas-pipe, to receive the ends of the stem and stern ribs F of the boat. (See Fig. 1.) The gunwales are finished and braced in any desired or well-known way.

Cross-grooves c are formed in the flooring to receive and retain the ribs C, which are preferably steel rods suitably conformed to the cross-section of the boat. The ends of the ribs C engage the gunwale at each side and are retained in position by the grooves c in the flooring, into which they are forced. This stretches the skin, and the ribs prevent the bottom from folding or becoming disarranged.

In assembling my improved boat the skin A is opened and the bow and stern ribs F placed in position. The bottom portion is then opened out and the stern and bow ribs F inserted into the sockets f. The bottom is then forced downwardly until it can be opened out flat, which stretches the skin longitudinally. The bottom is then opened out flat and the ribs C placed in position to engage

the gunwale of the boat and enter into the grooves *c*, which retain them in position, and the ribs retain the bottom open and in position. This thoroughly stretches the skin, and it is apparent that it is accomplished without the aid of any tools and also that the skin can be stretched very tight. The ribs *C* prevent the bottom from folding laterally upon itself.

While I provide in my improved boat a continuous flooring, the same is comparatively light and may be folded into a very compact package.

I have illustrated and described my improved collapsible boat in the form preferred by me on account of economy of manufacture and simplicity in use. I am aware, however, that it is capable of considerable variation in structural details without departing from my invention.

The form of the hinges *d* is most compact. Other means for providing a socket to receive the ends of the bow and stern ribs are obvious. Other variations in structural details will readily occur to those skilled in the art to which my invention appertains and will not, therefore, be particularly described.

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 central portions *B B* having extensions *b b* secured thereto by vertical pivots, the whole having cross-grooves *c*; hinges *d'* arranged toward the inner end of said extensions; hinges *d* having tubular pivots arranged toward the outer end of said extensions; stem and stern ribs adapted to be inserted in said tubular hinge-pivots; ribs *C* of suitable spring material adapted to be engaged and retained by said grooves when forced into position, whereby said skin is stretched and collapsing of the boat prevented.

2. In a folding boat, the combination of a suitable skin of canvas or other suitable material; a bottom consisting of central portions *B B* having extensions *b b* secured thereto by vertical pivots, the whole having cross-grooves *c*; hinges *d* having tubular pivots arranged toward the outer end of said extensions; stem and stern ribs adapted to be inserted in said tubular hinge-pivots; ribs of

suitable spring material adapted to be engaged and retained by said grooves when forced into position, whereby said skin is stretched and collapsing of the boat prevented.

3. In a folding boat, the combination of a suitable skin of canvas or other suitable material; a bottom consisting of central portions *B B* having extensions *b b* secured thereto by vertical pivots, the whole having cross-grooves *c*; hinges *d* having tubular pivots arranged toward the outer end of said extensions; stem and stern ribs adapted to be inserted in said tubular hinge-pivots; ribs *C* adapted to be engaged and retained by said grooves when they are forced into position, whereby said skin is stretched and collapsing of the boat prevented.

4. In a folding boat, the combination of a skin of canvas or other suitable material; a bottom consisting of central pieces having extensions secured thereto by vertical pivots; cross-grooves in said bottom; suitable horizontal hinge connections arranged on said extensions; suitable stem and stern ribs; sockets adapted to receive said stem and stern ribs arranged toward each end of said bottom; suitable ribs adapted to be received and retained by said grooves, whereby said skin is stretched and collapsing of the boat prevented.

5. In a folding boat, the combination of a suitable flexible skin; a bottom consisting of central sections; sections secured thereto by vertical pivots; horizontal hinge members for connecting said parts together arranged on said extensions; stem and stern ribs; means for detachably securing said stem and stern ribs to said bottom; and suitable detachable ribs, all coacting for the purpose specified.

6. A bottom for folding boats consisting of central sections; end sections secured thereto by vertical pivots; and horizontal hinges for said end extensions, for the purpose specified.

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

IRA O. PERRING. [L. S.]

Witnesses:

OTIS A. EARL,

ETHEL A. TELLER.