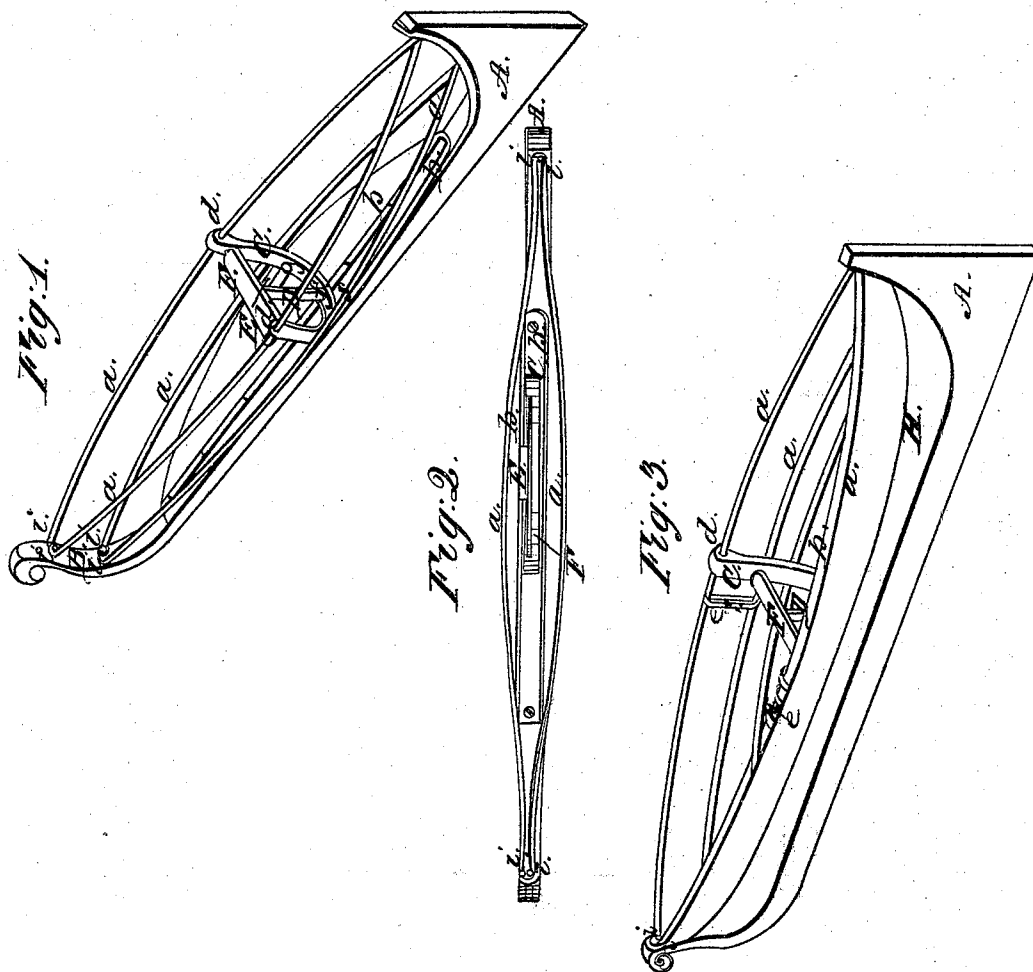


*C. F. Lichtner*  
*Life Boat & Raft.*

*N<sup>o</sup> 39,661.*

*Patented Aug. 25, 1863.*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

C. F. LICHTNER, OF CHICAGO, ILLINOIS.

## IMPROVED COLLAPSIBLE BOAT.

Specification forming part of Letters Patent No. **39,661**, dated August 25, 1863.

*To all whom it may concern:*

Be it known that I, C. F. LICHTNER, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Collapsible Boats; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

The nature of my invention consists in constructing a boat of some suitable flexible water-proof material, stretched or extended upon and over a suitable frame, which is so arranged that it can be folded up or adjusted when not in use, so as to occupy a very small space, and so as to be readily and easily carried from one place to another.

To enable others skilled in the art to understand and construct my invention, I will now proceed to describe the same with particularity.

In the aforesaid drawings, which are hereto annexed, Figure 1 represents a perspective view of the frame-work or skeleton of my improved collapsible boat. Fig. 2 represents a plan or top view of the same when folded up, as hereinafter described; and Fig. 3 is a perspective view of my invention complete, with the flexible covering attached.

A, in the annexed drawings, represents the keel of my improved boat, over and upon which the flexible covering (marked H) is spread. An inner keel or bar, (marked B,) of the same width as the outer keel, A, and lying close upon it, is then laid over the said water-proof flexible material, and the two keels A and B are then fastened firmly together, thereby holding the said flexible covering in place. The keel, as constructed, curves up at each end so as to give the proper form and configuration to the bow and stern of the boat, and to the said upright parts of the said keel are attached the longitudinal ribs, (marked *a*,) which extend the entire length of the boat, and are curved in such a manner as to give the proper shape to the boat, when the same is arranged so as to be ready for use. The said longitudinal ribs *a* are fastened to the said upright parts of the keel by means of the pivots, (marked *i i* in the drawings,) and are adjustable upon said pivots, being kept expanded, as shown in Figs. 1 and 3, by some suitable

device, or falling down vertically when folded up, as shown in Fig. 2. The number of the pairs of the said ribs *a* depends upon the size of the boat to be constructed, as any number can readily be arranged in the same manner, if it is desired. The flexible covering H having been attached to the keel, as aforesaid, is cut and fashioned to the proper shape to fit the expanded frame or skeleton, as shown in Fig. 1, and the edges of said flexible covering are then drawn up and fastened by some suitable mode to the upper pair of the aforesaid longitudinal ribs *a*, but said covering is not fixed to the other lower longitudinal ribs. The said ribs are connected together by means of the cords or chains *e e*, so that said ribs are all raised and kept in their proper position by raising and adjusting the upper ones, as is hereinafter shown and described.

To each side of the inner keel, B, there are attached, by means of hinges, the wings *b b*, which are arranged so as to be folded together in a vertical position over and parallel to said keel. These wings, when the boat is expanded, lie nearly in a horizontal position, and form the bottom or floor of the boat.

The above-described longitudinal ribs are strengthened and kept in place by a series of U-shaped transverse ribs, (marked C,) which are provided with the pivots at *f*, which pivots are inserted in a suitable socket in the keel, so that the said transverse ribs may revolve laterally and lie in the same vertical plane with the keel. At the upper ends of the said transverse ribs are provided the catches or supports *d*, in which the upper longitudinal ribs rest and are kept in place when the same are expanded for use. The said transverse ribs are so arranged that by a suitable connection they may all be made to revolve simultaneously by revolving any one of said ribs. The wings *b b* are provided with the slide-catches *g g*, into which the transverse ribs slide, and are held in place when the boat is expanded for use, as aforesaid. The number of said transverse ribs is optional, and depends mainly upon the length of the boat. The seats F are arranged within the transverse ribs, as shown in the drawings, each end of said seats being provided with a journal or pivot, supported upon bearings in said transverse ribs, so that the said seats may revolve and lie in a vertical plane within the said

transverse ribs, and therefore within the same vertical plane with the keel, when said ribs are so arranged as aforesaid. Projecting up under the seats, and attached to the lower part of said transverse ribs, is the standard, (marked D,) the upper end of said standard being provided with a pivot, upon which a cross-bar (marked E) is placed, upon which cross-bar the middle of the seat F rests. When this cross-bar is arranged transversely with respect to the seat, the seat is firmly kept in a horizontal position, so as to be strong and secure. When, however, it is desired to fold up the boat, the said cross-bar E is revolved upon the pivot on the upper end of the standard D, so as to lie parallel to the seat, or lengthwise thereof. Then said seat can readily be turned up edgewise within said transverse ribs, as has been hereinbefore fully described and shown. If desired, there may be spring-catches, or other devices, arranged at the ends of the longitudinal ribs aforesaid, to hold the said ribs in position while the transverse ribs are being adjusted, so as to support said longitudinal ribs in the grooves or rests *d d*, and also to hold them firmly together when they are folded up. There may also be suitable attachments, connecting the said transverse ribs and the wings *b b*, whereby the turning of said ribs, as aforesaid, shall fold the said wings together or expand them, as may be desired.

If the boat be designed for hard service, a metallic sheathing may be applied to the bottom thereof, on the outside, to protect the same from injury.

It will be seen that, by the aforesaid arrangement of parts, each part may be folded

or adjusted so that they may lie in the same direction and in the same vertical plane with the keel of the boat, so as to occupy a very small space, and to be easily carried or transported from place to place.

The frame or skeleton of the boat may be made of metal or of wood, as may be preferred, while the covering may be of any suitable water-proof material, as oiled cloth or rubber cloth, the main point being that it shall be of flexible, water-proof material, and of sufficient strength to serve the purpose for which it is used.

Having thus fully described my improved boat, I will now specify what I claim as my invention and desire to secure by Letters Patent—

1. Providing the inner keel, B, with the adjustable or folding wings *b b*, arranged and operating substantially as and for the purposes herein delineated and described.

2. The combination of the flexible covering H, the keel A, the longitudinal ribs *a*, and transverse ribs C, with the folding wings *b b*, arranged and operating substantially as and for the purposes herein specified and shown.

3. The combination and arrangement of the folding wings *b b* with the inner keel, B, the transverse ribs C, the standard D, cross-bar E, and seat F, constructed and operating substantially as and for the purposes herein shown and set forth.

C. F. LICHTNER.

Witnesses:

W. E. MARRS,  
JOHN F. GRAY.