

July 4, 1933.

E. MILLER

1,916,486

COLLAPSIBLE BOAT

Filed July 27, 1932

3 Sheets-Sheet 1

Fig. 1.

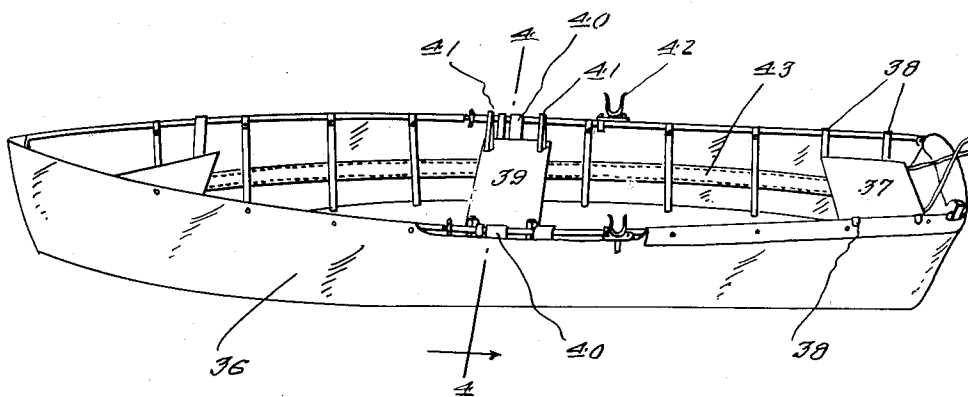
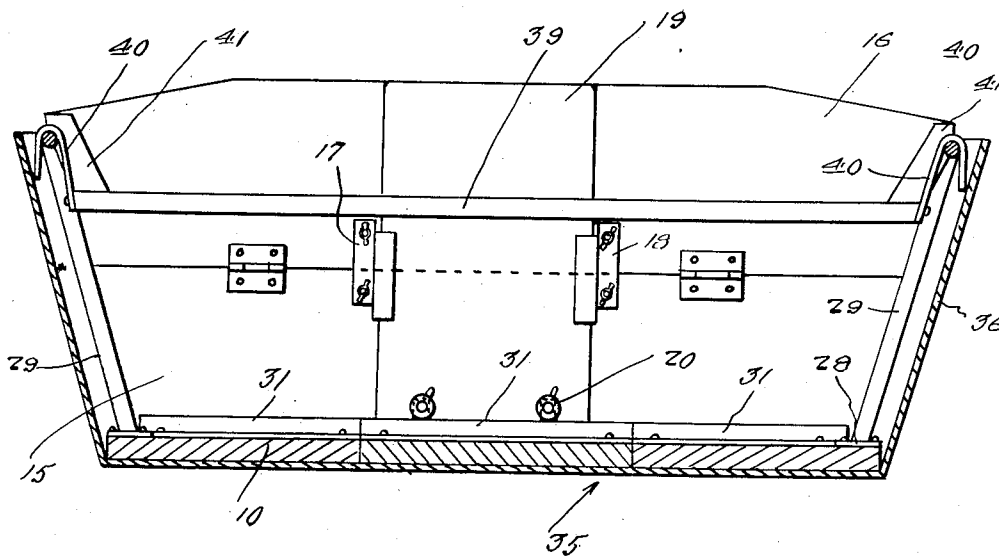


Fig. 4.



Inventor

Ernest Miller

By *Clarence A. O'Brien*
Attorney

July 4, 1933.

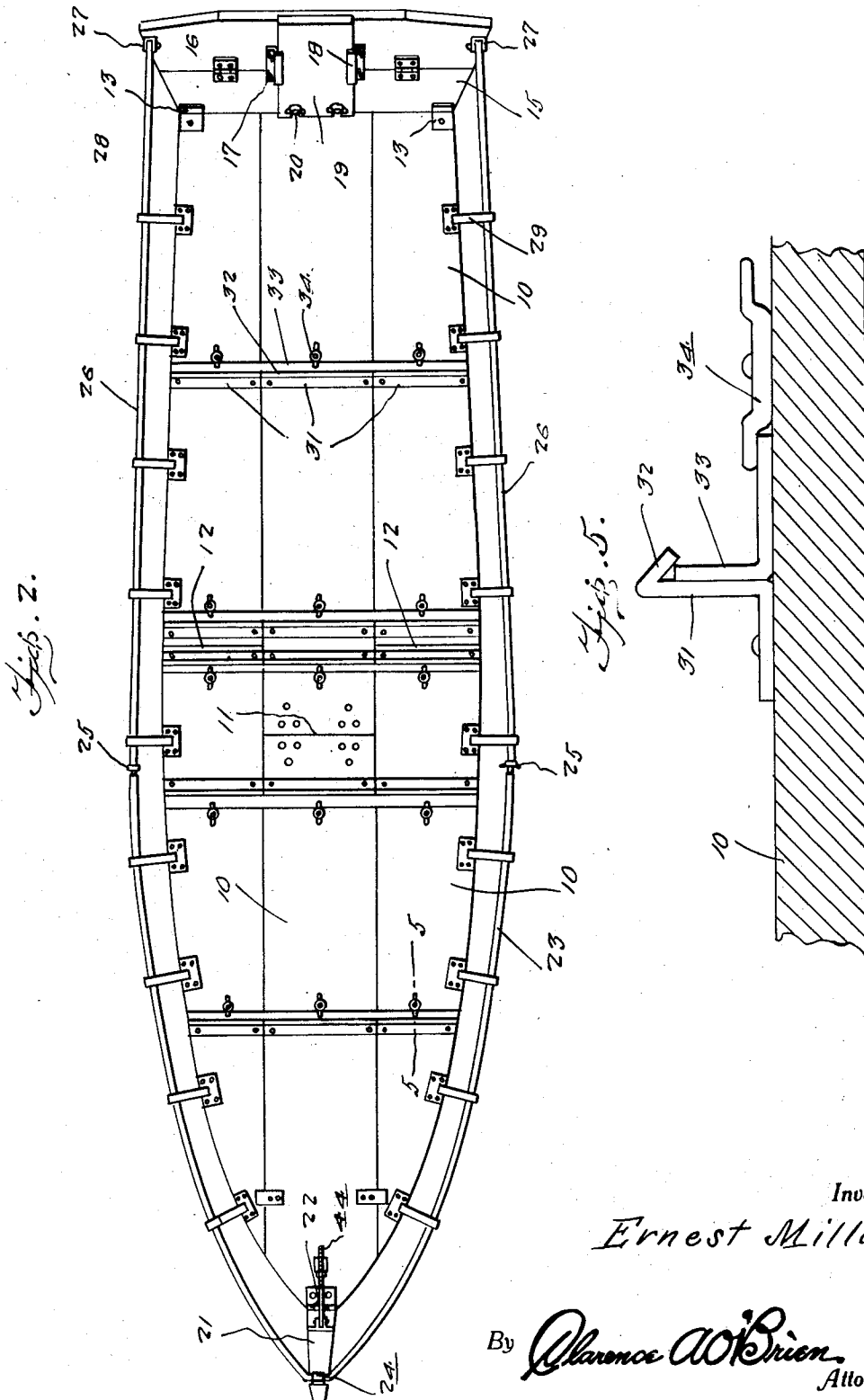
E. MILLER

1,916,486

COLLAPSIBLE BOAT

Filed July 27, 1932

3 Sheets-Sheet 2



July 4, 1933.

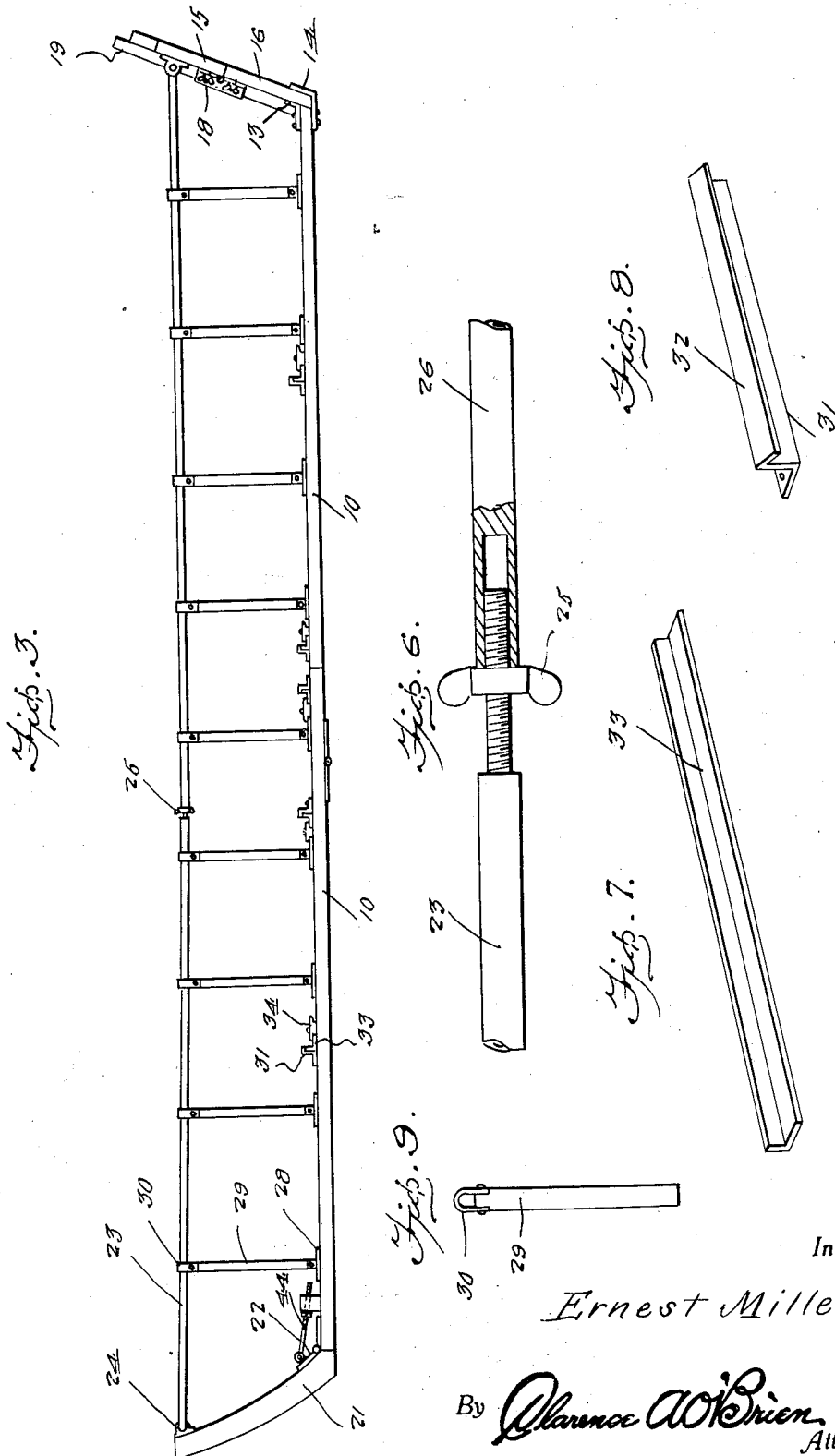
E. MILLER

1,916,486

COLLAPSIBLE BOAT

Filed July 27, 1932

3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

ERNEST MILLER, OF BREMERTON, WASHINGTON

COLLAPSIBLE BOAT

Application filed July 27, 1932. Serial No. 625,078.

This invention relates to an improved knock-down or collapsible boat of the flat bottom type having its stern constructed to accommodate an out-board motor.

5 Briefly stated, the improved boat is characterized by a sectional bottom composed of a plurality of separably connected planks, together with a skeleton frame work made up of sectional rails wherein the rail sections
10 are provided with longitudinally spaced ribs or stakes having their lower ends constructed for reception in sockets provided therefor in the bottom boards or planks.

15 In accordance with the principles of the inventive conception, I provide a detachable canvas covering made to provide a substantially water-proof covering for the bottom, while at the same time providing the requisite side and end walls.

20 My primary idea is to generally improve upon collapsible boats by providing one of unusual simplicity, dependability and efficiency constituting a novel contribution to the trade and the art due to the particular
25 selection and co-ordination of parts serving to make up the complete boat.

Other features and advantages of the invention will become more readily apparent from the following description and drawings. In the drawings:

30 Figure 1 is a perspective view of the complete boat as designed and constructed in accordance with the principles of the present invention.

35 Figure 2 is a top plan view thereof.

Figure 3 is a side elevation with the canvas covering removed.

40 Figure 4 is a central cross sectional view taken approximately on the plane of the line 4-4 of Figure 1.

Figure 5 is a detail section taken approximately on the plane of the line 5-5 of Figure 2.

45 Figure 6 is a detail view of the turnbuckle connection between the rail sections.

Figures 7 and 8 are detail perspective views.

50 Figure 9 is a detail view of one of the side ribs.

Referring now to the drawings by distin-

guishing reference numerals it will be observed, as before indicated, that the flat bottom is made up of a plurality of boards or planks 10 hingedly or otherwise connected together. The abutting inner ends are joint-
55 ed together at the points 11 and 12 in Figure 2.

Attached to the rear end of the bottom are complementary clips 13 and 14 constructed and arranged to accommodate the stern
60 which is composed of a pair of hingedly connected boards 15 and 16. These boards are provided with retaining cleats 17 and 18 for a removable reinforcing board 19 held against displacement by suitable fasteners
65 20.

In addition to serving as a reinforcing element this board serves as a suitable mounting for an outboard motor (not shown). The frontal keel forming member is denoted by
70 the numeral 21 and is hingedly attached in place as indicated at 22. The rail is composed of three distinguishable sections, the frontal section being denoted by the numeral 23 and being of general horseshoe shaped
75 form with its apex portion attached as at 24 to the keel strip 21.

The arm portions of this section 23 are joined by turnbuckles 25 to the complementary rail members 26 which are in turn hingedly
80 connected as at 27 to the stern. Around its marginal edge the bottom is formed with a plurality of longitudinally spaced sockets and co-acting facing and reinforcing plates 28, and these sockets are adapted to receive
85 the lower ends of adjacent ribs 29.

The ribs as shown in Figure 9 are formed with strap hangers 30 embracing and suspended from the adjacent rails and at the lower ends are provided with reinforcing
90 ferrules to fit down into the sockets. This arrangement facilitates dismantling of the rails and ribs and collapsing of the keel, stern, and sectional bottom.

I next call attention to the numerals 31
95 which designate transverse longitudinally spaced rigidly attached jointing keepers, each keeper being in the form of an angle iron whose vertical flange is provided with a down-turned confining lip 32 for reception
100

of the vertical flange of a companion cross-tie iron 33. This part 33 is a detachable member and is simply slipped beneath the lip of the aligned keepers 31 as shown in Figure 2 and held in place by suitable turnbut-
 5 tions 34 pivotally attached to the boards in a position to swing over the horizontal flange of the tie iron.

The numeral 35 designates the canvas covering which underlies the bottom board covering the joints between said boards and is shaped to provide the upstanding side walls 36 to terminate in a plane substantially even with the rails. The canvas may be fastened
 10 to the rails by separable fasteners or to the ribs whichever is preferred so that it may be removed when desired.

The numeral 37 in Figure 1 designates a rear seat board having suspension hooks 38 to engage over the adjacent rails 26. The numeral 39 designates a central seat having similar suspension hooks 40 and corner braces shaped and arranged to bear against the rails on opposite sides of the hooks, said
 15 braces serving as stays and being indicated by the numerals 41. The numerals 42 merely designate oar locks and the numeral 43 designates a multiple ply reinforcing member for the side walls of the canvas covering.

Attention is also called to the numeral 44 in Figures 2 and 3 which designates an adjusting bolt for heel member 21.

It is submitted that a collapsible or knock-down boat of the type herein illustrated and described constitutes a novel contribution to the trade and the art to which the invention relates. It is believed that it will supersede similar structures and that it has been unequalled in the art. It is practical, modern,
 20 economical, sturdy, and otherwise susceptible of fulfilling the requirements of a structure of this type.

Particularly is it useful and novel in that it may be erected or disassembled readily and without special tools. When collapsed it provides a compact and convenient structure for expeditious handling and transportation purposes.

It is thought that the description taken in connection with the drawings will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary. While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

I claim:

1. A boat of the class described comprising a sectional bottom, a sectional stern, a hingedly attached keel member, a rail comprising a frontal section hingedly attached to said keel member, and spaced parallel rear
 65 end members hingedly attached to said stern,

all of said rail members being separably joined together, longitudinally spaced ribs carried by said rail members and detachably connected with the marginal portion of said bottom.

2. A boat of the class described comprising a sectional bottom, a sectional stern, a hingedly attached keel member, a rail comprising a frontal section hingedly attached to said keel member and spaced parallel rear end members hingedly attached to said stern, all of said rail members being separably joined together, longitudinally spaced ribs carried by said rail members and detachably connected with the marginal portion of said bottom, together with a removable canvas covering, said covering serving to cover the underside of the bottom and shaped to define properly shaped side and end walls.

3. A boat of the class described comprising a sectional bottom, a sectional stern, a hingedly attached keel member, a rail comprising a frontal section hingedly attached to said keel member and spaced parallel rear end members hingedly attached to said stern, all of said rail members being separably joined together, longitudinally spaced ribs carried by said rail members and detachably connected with the marginal portion of said bottom, together with a removable canvas covering, said covering serving to cover the underside of the bottom and shaped to define properly shaped side and end walls, said stern being provided with cleats, a removable reinforcing and motor mounting board fitted in said cleats, and fastening and retaining means for said board.

4. A collapsible boat of the class described comprising a substantially flat bottom composed of a plurality of detachably connected planks, said planks being provided with longitudinally spaced transverse keeper irons, each iron having a down-turned retaining lip, a tie iron for each series of cleats, said tie iron spanning the upper faces of the planks and having its vertical flange engaged beneath said lip, turnbuttons on said planks for holding said tie iron in place.

5. A collapsible boat of the class described comprising a substantially flat bottom composed of a plurality of detachably connected planks, said planks being provided with longitudinally spaced transverse keeper irons, each iron having a down-turned retaining lip, a tie iron for each series of cleats, said tie iron spanning the upper faces of said planks and having its vertical flange engaged beneath said lip, turnbuttons on said planks for holding said tie iron in place, said bottom being formed with marginal retention sockets, a stern forming board attached to the rear end of the bottom, a keel forming member attached to the front end of the bottom, a sectional rail composed of detachably connected sections, said sections being connected

to the stern and keel members respectively, a plurality of longitudinally spaced ribs carried by said rail members and having their lower ends removably receivable in said retention sockets.

6. A collapsible boat of the class described comprising a substantially flat bottom composed of a plurality of detachably connected planks, said planks being provided with longitudinally spaced transverse keeper irons, each iron having a down-turned retaining lip, a tie iron for each series of cleats, said tie iron spanning the upper faces of said planks and having its vertical flange engaged beneath said lip, turnbuttons on said planks for holding said tie iron in place, said bottom being formed with marginal retention sockets, a stern forming board attached to the rear end of the bottom, a keel forming member attached to the front end of the bottom, a sectional rail composed of detachably connected sections, said sections being connected to the stern and keel members respectively, a plurality of longitudinally spaced ribs carried by said rail members and having their lower ends removably receivable in said retention sockets, a canvas covering for the bottom, said covering being shaped to provide side and end walls.

7. A collapsible boat of the class described

comprising a substantially flat bottom composed of a plurality of detachably connected planks, said planks being provided with longitudinally spaced transverse keeper irons, each iron having a down-turned retaining lip, a tie iron for each series of cleats, said tie iron spanning the upper faces of said planks and having its vertical flange engaged beneath said lip, turnbuttons on said planks for holding said tie iron in place, said bottom being formed with marginal retention sockets, a stern forming board attached to the rear end of the bottom, a keel forming member attached to the front end of the bottom, a sectional rail composed of detachably connected sections, said sections being connected to the stern and keel members respectively, a plurality of longitudinally spaced ribs carried by said rail members and having their lower ends removably receivable in said retention sockets, a canvas covering for the bottom, said covering being shaped to provide side and end walls, and a removable seat having suspension hooks and stay members, said suspension hooks and stay members being engageable with the adjacent portions of the aforesaid rail members.

In testimony whereof I affix my signature.

ERNEST MILLER.

35	100
40	105
45	110
50	115
55	120
60	125
65	130