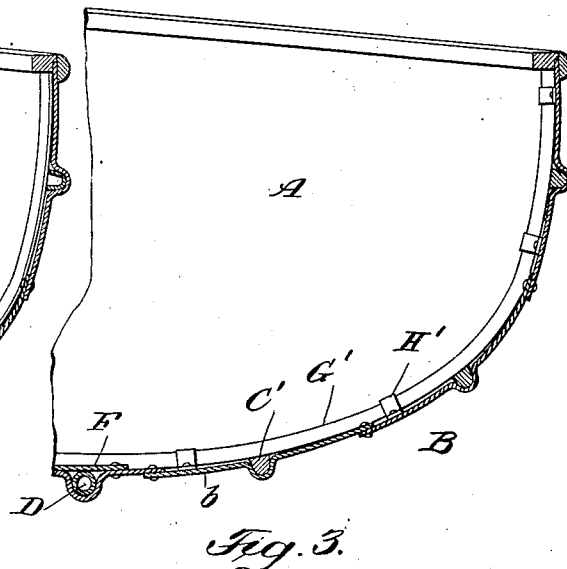
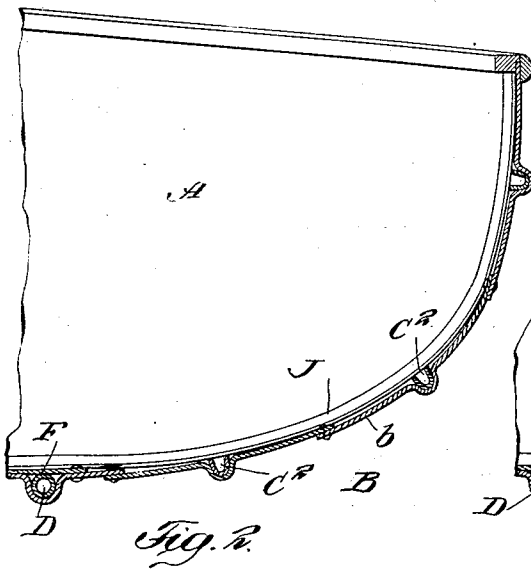
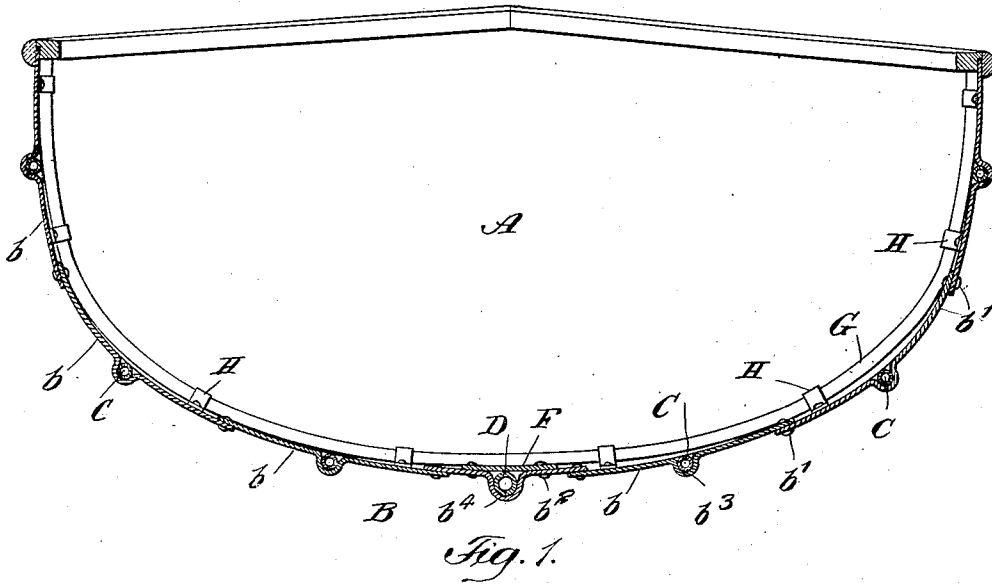


A. P. LUNDIN & E. L. M. SIVARD.
METALLIC BOAT CONSTRUCTION.
APPLICATION FILED MAR. 25, 1911.

1,050,480.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



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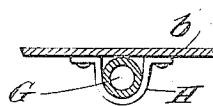
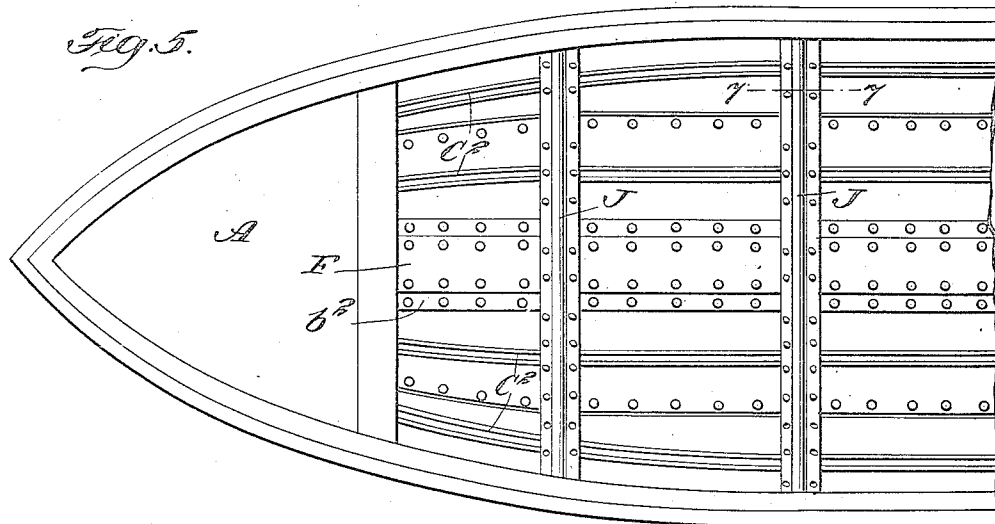
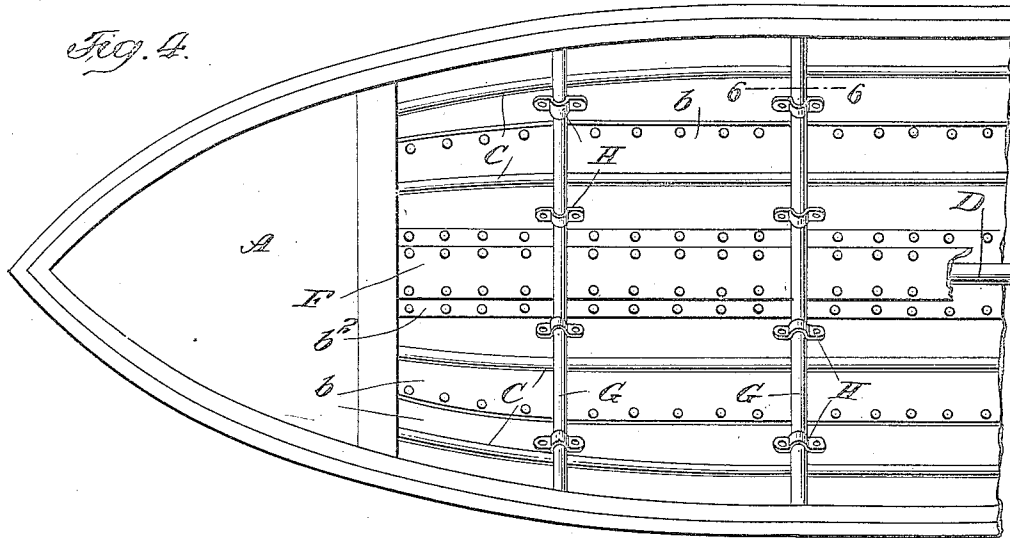


Fig. 6.

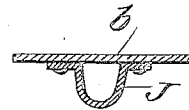


Fig. 7.

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UNITED STATES PATENT OFFICE.

ANDREAS P. LUNDIN AND EINAR L. M. SIVARD, OF NEW YORK, N. Y., ASSIGNORS, BY MESNE ASSIGNMENTS, TO ASTOR TRUST COMPANY, TRUSTEE, A CORPORATION OF NEW YORK.

METALLIC BOAT CONSTRUCTION.

1,050,480.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed March 25, 1911. Serial No. 616,955.

To all whom it may concern:

Be it known that we, ANDREAS P. LUNDIN and EINAR L. M. SIVARD, the said LUNDIN a citizen of the United States and the said

5 SIVARD a subject of the King of Sweden, both residing in New York, N. Y., have invented certain new and useful Improvements in Metallic Boat Construction, of which the following is a specification.

10 This invention relates to improvements in metallic boat construction.

In metallic boat construction, and particularly in small boats, it is a great desideratum to have the greatest strength and

15 rigidity with a minimum of weight. According to our invention, we procure an extremely light, strong, rigid and durable construction by the employment of simple and economical means comprising

20 one or more grooves or seats sunk or depressed outwardly or below the inner surface of the metallic plating and a suitable stiffening member, preferably comprising a

25 piece of pipe, seated within each groove or seat. Such stiffening members seated in such grooves which preferably extend longitudinally the entire length of the plating, add greatly to the strength, rigidity and

30 durability of the construction without in any way interfering with the inner trim or transverse framing of the boat, and enables us to employ plating of lighter weight to secure any given degree of strength, rigidity or

35 Another feature of our invention is the employment of a transverse framing composed of U-shaped metal ribs having integral lateral flanges secured directly to the metal plating.

40 Still another feature of our invention is the novel manner in which the keel of the boat is formed.

In the accompanying drawings, in which similar reference characters designate corresponding parts throughout the several

45 views, Figure 1 is a cross-section of a boat embodying our invention; Fig. 2 is a fragmentary sectional view of a boat embodying our invention and illustrating a modified form of stiffening member; Fig. 3 is a similar fragmentary section showing another

50 modified form of stiffening member; Fig. 4 is a plan view partially broken away showing our longitudinal stiffening members used in

55 combination with a novel form of transverse

ribs; Fig. 5 is a similar plan view showing our longitudinal stiffening members in combination with another novel form of transverse ribs; Fig. 6 is a section on the line 6—6 of Fig. 4; and Fig. 7 is a section on

60 the line 7—7 of Fig. 5.

Referring now to these drawings, A designates the boat as a whole and B designates the outer metallic plating, comprising a plurality or series of plates *b b* secured

65 together by rivets *b'* or in any other suitable manner.

The plates *b b* are provided with longitudinally-extending grooves *b³*, preferably

70 of semi-circular conformation, formed in the plates intermediate the vertical edges thereof so that when such plates are secured in position, the grooves will extend the entire length of the plating or shell at both sides

75 of the longitudinal center line or keel of the boat. As illustrated, a reinforcing or stiffening member is fitted snugly within each groove. Such grooves are sunk below the inner surface of the plating, may be

80 readily rolled in the metal of the plates before the same are secured in position on the boat and form a seat for the stiffening members hereinabove referred to. The stiffening

85 members may be of any suitable form or material, but preferably comprise a pipe C, as shown in Figs. 1 and 4 bent to conform to the curvature of the shell or plating and laid in the groove so that the outer surface or periphery thereof engages or abuts

90 against the inner wall of the groove. In Figs. 2 and 5 we have shown a stiffening member comprising a bar of metal, U-shaped in cross-section, and in Fig. 3, we have illustrated such member comprising a

95 wooden molding of the form shown in cross-section in said figure. The stiffening member of whatever form preferably extends upwardly or outwardly from the bottom of the groove flush with the inner surface of the metal plating, so that the same

100 will be securely retained in position by the transverse framing. These grooves, in addition to stiffening the construction will also serve as guards or fenders and will prevent the indentation of the metal plating.

105

The keel of our improved boat construction is preferably formed, as shown, by depressing an enlarged groove *b⁴*, also preferably semi-circular in cross-section, in the keel plate which spans the longitudinal cen-

110

ter line of the boat. Into this enlarged groove is snugly fitted a pipe of larger diameter than that used for the stiffening members above referred to. Such pipe is
 5 securely held in position within the groove by means of an interior flat plate or plates F extending longitudinally above the groove, secured to the plating at both sides of the said groove in any suitable manner,
 10 as by rivets b^2 , and spanning the same so as to form a cover to keep dirt and water out of the groove. This interior plate, in addition to acting as a cover and holding the pipe in position, also binds the edges
 15 of the two walls or sides of the grooved keel plate firmly together across the enlarged keel groove and prevents the spreading thereof. It is obvious that these longitudinal grooves and the stiffening members seated therein will greatly reinforce and stiffen the outer shell without in any way interfering with the inner transverse framing of the boat.

A transverse framing of any suitable
 25 character may be employed in connection with the longitudinal grooves and stiffening members above described. In Fig. 3, we have shown the transverse framing comprised of a series of wooden ribs held in
 30 place by clips in all respects similar to patent to applicant, Sivard, No. 986,411, dated March 7, 1911. In the preferred embodiment of our present invention, however, we employ a framing composed, as shown in
 35 Figs. 5 and 7, of a series of transverse ribs each comprising a plate or bar J having an inverted U-shaped or semi-cylindrical central portion and integral laterally-projecting flanges, adapted to permit such ribs
 40 to be riveted directly to the plating. This construction adds still greater strength and rigidity to the structure. In Figs. 3 and 4, we have illustrated a form of transverse framing in which each of the transverse ribs
 45 comprise a piece of common pipe G held in place by means of stay pieces or clips H in a manner similar to that in which the wooden ribs are secured in place in said patent to Sivard above referred to.

50 Having described our invention, we claim:—

1. In metallic boat construction, the combination with an outer metallic plating having a semi-circular groove depressed below
 55 its inner surface at the longitudinal center

line of the boat, and a pipe within such groove, as and for the purpose specified.

2. In metallic boat construction, the combination with an outer metallic shell or plating having a longitudinally-extending
 60 groove semi-circular in cross-section, sunk below its inner surface at both sides of the longitudinal center line of the boat, pipes seated in each of said grooves, an enlarged
 65 semi-circular groove depressed below the inner surface of the plating at the longitudinal center line of the boat to form a keel seat, and a pipe within such groove, as and for the purpose specified.

3. In metallic boat construction the combination with an outer metallic plating, of
 70 transverse ribs comprising a metal bar having a U-shaped central portion and integral laterally-projecting flanges, substantially as set forth.

4. In metallic boat construction, the combination with an outer metallic shell or
 75 plating, provided with longitudinally disposed grooves on each side of the longitudinal center line of the boat, means for stiffening the walls of such grooves to resist
 80 pressure from the outside, and a transverse framing comprising a series of metal bars having an inverted U-shaped central portion and laterally extending integral flanges.

5. In metallic boat construction, the combination with an outer metallic shell or
 85 plating having a longitudinally-extending groove, semi-circular in cross-section, sunk below its inner surface at both sides of the
 90 longitudinal center line of the boat and pipes seated in each of said grooves.

6. In metallic boat construction, a metal keel plate spanning the longitudinal center
 95 line of the boat and provided with a keel groove, semi-circular in cross-section, depressed therein along such center line, a pipe seated within said groove and an interior
 100 plate connected to the keel plate at both sides of the groove for preventing the spreading of the sides of the groove.

In witness whereof, we have signed our names to the foregoing specification in the presence of two subscribing witnesses.

ANDREAS P. LUNDIN.
 EINAR L. M. SIVARD.

Witnesses:

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 ROSE V. FINN.