March 1, 1932. A. G. MARANVILLE 1,848,018

BOAT CONSTRUCTION

Filed Aug. 2, 1929 2 Sheets-Sheet 1

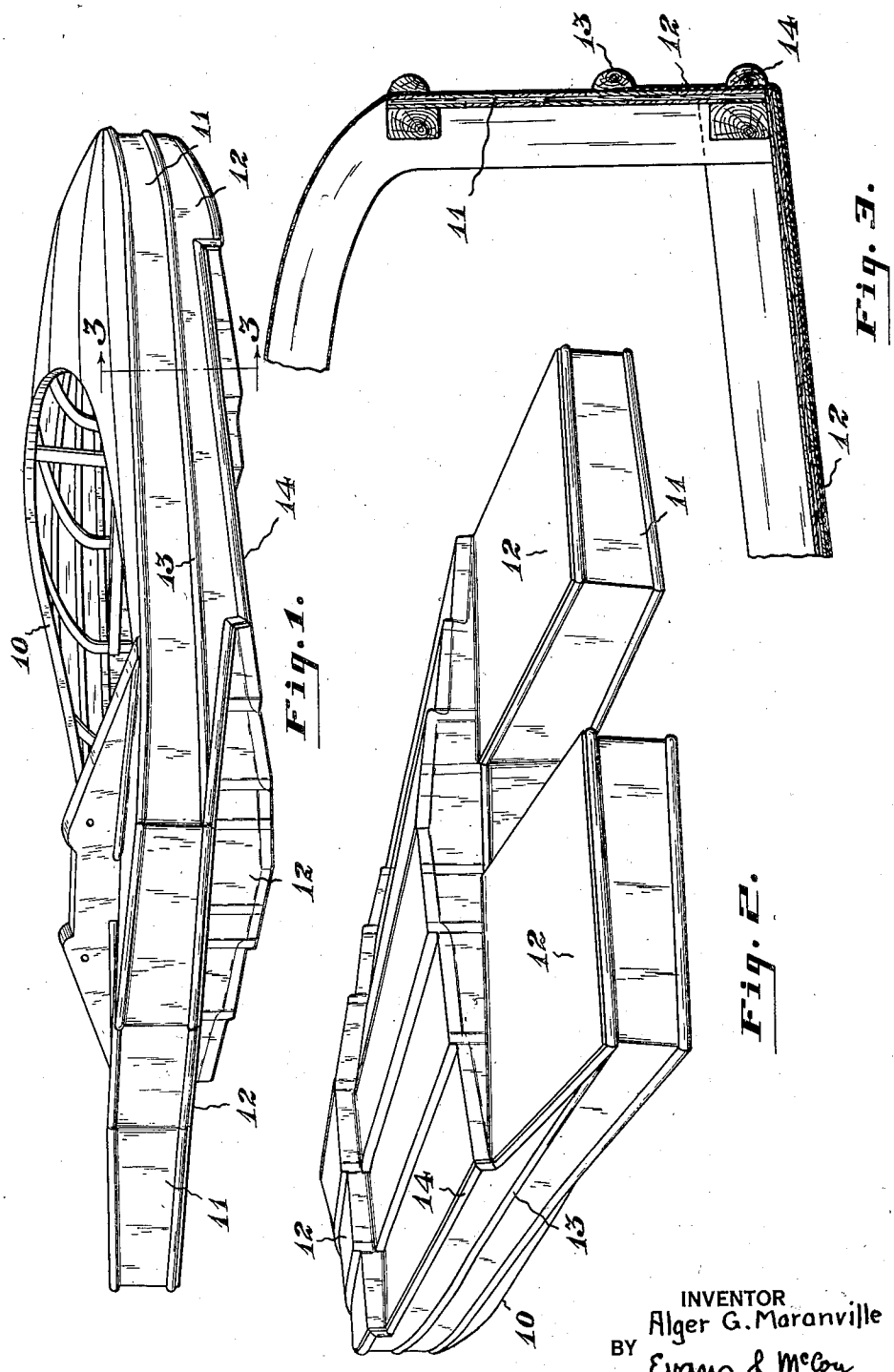

Fig. 1.

Fig. 2.

Fig. 3.

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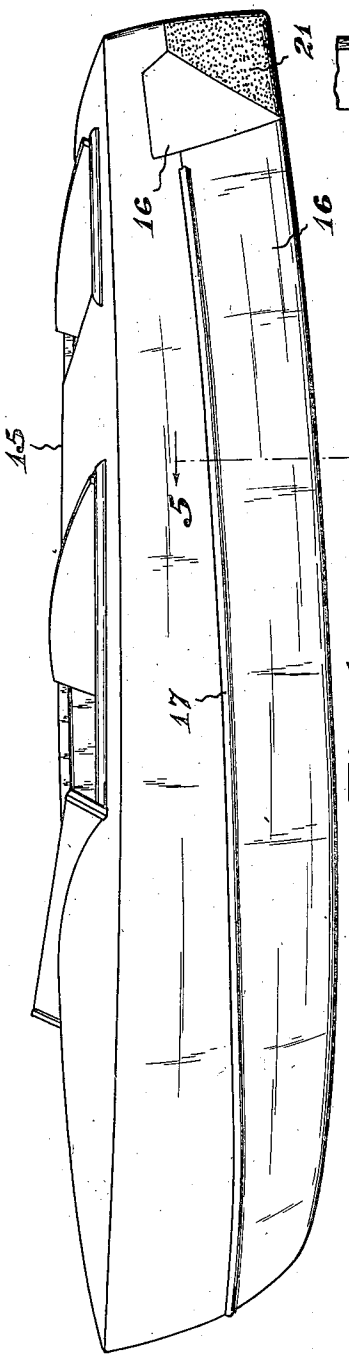

Fig. 4.

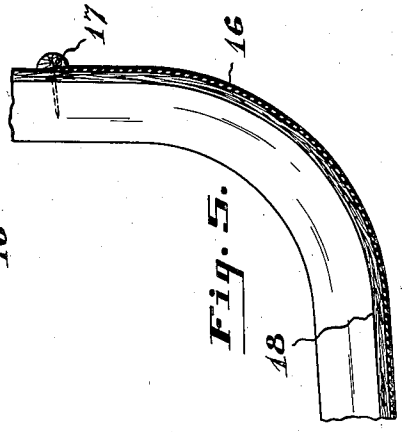

Fig. 5.

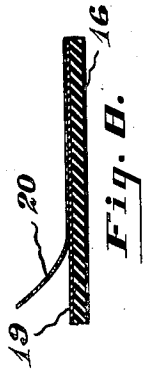

Fig. 8.

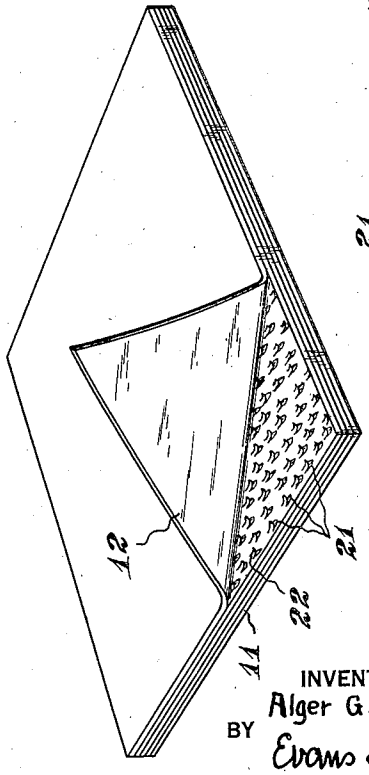

Fig. 6.

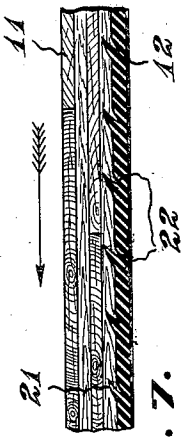

Fig. 7.

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UNITED STATES PATENT OFFICE

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BOAT CONSTRUCTION

Application filed August 2, 1929. Serial No. 382,906.

The present invention relates to boats and particularly to boats of relatively light construction, the invention having among its most important objects to increase the strength of the hull walls, to provide a smooth outer surface which offers a minimum of frictional resistance to the movement of the boat in the water and to provide a hull of relatively light construction which is capable of withstanding heavy impacts against submerged obstructions without springing a leak.

A further object of the invention is to provide a boat in which the hull is covered with a relatively soft and elastic layer of rubber which is in sheet form and adhesively secured to the outer surface of the hull so as to provide a continuous water-proof covering which may be subjected to considerable distortion before it is broken or punctured.

A further object is to provide a boat in which the hull sheathing is composed of plywood covered with an outer layer of relatively soft rubber which serves to impart the necessary strength to the sheathing, making the same water-proof and to protect the plywood against damage due to impact against submerged rocks or the like.

A further object is to provide means for effecting a firm union between the rubber covering and the surface to which it is adhesively secured.

With the above and other objects in view, the invention may be said to comprise the structure as illustrated in the accompanying drawings hereinafter described and particularly set forth in the appended claims, together with such variations and modifications thereof which will be apparent to one skilled in the art to which the invention appertains.

Reference should be had to the accompanying drawings forming a part of this specification in which:

Figure 1 is a perspective view of a speed boat embodying the invention.

Fig. 2 is a perspective view of the boat shown in Fig. 1 in inverted position.

Fig. 3 is a section taken on the line indicated at 3—3 in Fig. 1.

Fig. 4 is a side elevation of a motor launch showing a portion of the rubber covering turned back to show the surface to which the covering is applied.

Fig. 5 is a section taken on the line indicated at 5—5 in Fig. 4.

Fig. 6 is a detail view showing a piece of plywood such as employed in the construction of the hull with the rubber covering attached thereto and with a portion of the covering lifted to expose the jagged surface to which the rubber is adhesively secured.

Fig. 7 is a fragmentary section through the hull with the rubber covering in place thereon.

Fig. 8 is a fragmentary sectional view showing the rubber sheet prior to its attachment to the hull.

In the accompanying drawings, the invention is shown applied to a speed boat and a motor launch, and it is to be understood that the invention is applicable to boats of various sizes and shapes.

As shown in Figs. 1 to 3, the bottom and side walls of the hull of the speed boat 10 is provided with a plywood sheathing 11 and the entire exterior surface of the bottom and of the sides to above the water line is covered with sheet rubber 12, which is adhesively secured throughout its entire extent to said surface by adhesion and which is additionally secured along the sides by moulding strips 13 and 14.

The moulding strip 13 is attached to the side of the boat somewhat above the water line and covers the edge of the sheet rubber and the strip 14 is secured to the side adjacent the bottom edge thereof.

In Fig. 4 of the drawings, the invention is shown applied to a motor launch 15 and in this instance, the sheet rubber 16 covers the bottom and extends up the sides to above the water line, the edge of the sheet rubber being covered and held against separation from the sheathing by means of a molding 17. The sheathing of the boat may be plywood, as shown in Fig. 3 or may be ordinary solid sheathing 18 of wood or other suitable material as shown in Fig. 5.

The rubber covering is manufactured in

sheet form and, as shown in Fig. 8, is provided with a thin layer 19 of unvulcanized rubber on the inner side thereof. This layer of unvulcanized rubber may be protected prior to the application of the covering to the surface of the hull by a layer 20 of cloth adhesively secured thereto.

As clearly shown in Figs. 6 and 7, the sheathing which may be of plywood or other suitable material has a jagged outer surface in order to provide a firmer adhesive union with the rubber covering. The entire surface to which the sheet rubber covering is applied is provided with closely spaced indentations 21, all of which extend inwardly at an acute angle to the surface.

The indentations are preferably made with a jagger having teeth similar to a saw-blade and attached to a vibrating head such as the head of a pneumatic hammer which is moved transversely across the surface while it is held in a position inclined at an acute angle to the surface so that upon each reciprocation of the head, a series of indentations are made in the surface. At each indentation 21, a portion of the material is forced outwardly to provide a jag 22 which projects outwardly from the surface at an acute angle thereto and preferably in the general direction of the prow of the boat as indicated by the arrow overlying Fig. 7.

The closely spaced prongs or jags of wood 22 penetrate a short distance into the sheet rubber, greatly increasing the strength of the union between the rubber sheet and the surface to which it is applied. The rubber covering sheets are of relatively soft and elastic rubber and are manufactured with a thin layer of unvulcanized rubber to which the protecting cloth covering may be applied, the sheet rubber covering material being similar to sheet rubber tire patch material employed for repairing of pneumatic tires. In applying the covering to the hull of the boat, the surface of the hull, after it has been jagged, as above described, is coated with a rubber cement after which the cloth covering 20 is removed from the sheet rubber which is then applied to the hull and pressed into firm contact therewith so that after the cement has been set, the covering is firmly united throughout its entire extent with the surface of the hull.

Water acts as a lubricant for a rubber surface and a boat provided with a smooth rubber covering can glide through the water with a minimum of frictional resistance. The water also makes the rubber surface slippery so that when the boat strikes an obstruction such as submerged rock, the slippery surface tends to slide past the obstruction and there is much less danger of injury to the hull due to the impact.

Furthermore, the sheet rubber covering is exceedingly tough and is not readily punctured or broken by impact against a solid object. In fact, the impact may be sufficiently violent to break the sheathing to which the rubber is attached without breaking or puncturing the rubber covering which will still be effective to prevent entry of water.

The present invention enables the boats to be made of lighter construction and makes it practicable to employ a plywood sheathing for the hull without making the boat objectionably fragile.

Furthermore, it is to be understood that the particular form of apparatus shown and described, and the particular procedure set forth, are presented for purposes of explanation and illustration and that various modifications of said apparatus and procedure can be made without departing from my invention as defined in the appended claims.

What I claim is:

1. A boat having the outer surface of its hull covered with relatively soft and highly elastic sheet of vulcanized rubber which has a thin layer of unvulcanized rubber upon its inner face adhesively secured by means of a rubber cement to the surface of the hull.

2. A boat having its hull provided with an outer surface having closely spaced, short, sharp, outwardly projecting jags, and a covering of relatively soft and highly elastic sheet rubber adhesively secured to the jagged surface with the jags projecting into and embedded in the body of the rubber sheet.

3. A boat having its hull provided with a plywood sheathing, said sheathing having an outer surface having closely spaced, short, sharp, outwardly projecting jags, and a covering of relatively soft and highly elastic sheet rubber adhesively secured to said jagged outer surface with the jags projecting into and embedded in the body of the rubber sheet.

4. A boat having its hull provided with a sheathing of wood, said sheathing having throughout the outer surface thereof short, sharp jags which project outwardly at an acute angle to the surface, and a covering of relatively soft and highly elastic vulcanized sheet rubber adhesively secured to the jagged surface with the jags projecting into and embedded in the body of the rubber sheet.

5. A boat having its hull provided with an outer surface having closely spaced, short, sharp, outwardly projecting jags and a covering of relatively soft and highly elastic vulcanized sheet rubber which has a thin layer of unvulcanized rubber on the inner surface thereof adhesively secured to the jagged surface by means of a rubber cement with the jags projecting into and embedded in the body of the rubber sheet.

6. A boat having its hull provided with a sheathing of wood which is covered on the bottom and on the sides to above the water line with a layer of sheet rubber adhesively secured thereto, and a molding secured to the

sides of the hull and covering the edge of the sheet rubber.

7. A boat hull comprising a sheathing of wood, a layer of unvulcanized rubber adhesively secured to said sheathing and covering the bottom and sides of said sheathing to above the water line, a layer of vulcanized rubber overlying said layer of unvulcanized rubber and adhesively secured thereto to form a composite layer of sheet rubber secured externally of said boat hull, and molding strips secured to the hull and overlying edge portions of the composite layer of sheet rubber.

8. A boat having its hull provided with a sheathing, said sheathing having its outer surface formed with jags which project outwardly and in the general direction of the prow of the boat, and a covering of relatively soft and highly elastic sheet rubber adhesively secured to the jagged surface with the jags projecting into and embedded in the body of the rubber sheet.

In testimony whereof I affix my signature.

ALGER G. MARANVILLE.