E. L. SONS.

LEAK STOPPER.

APPLICATION FILED FEB. 12, 1917.

1,253,293.

Patented Jan. 15, 1918.

2 SHEETS—SHEET 1.

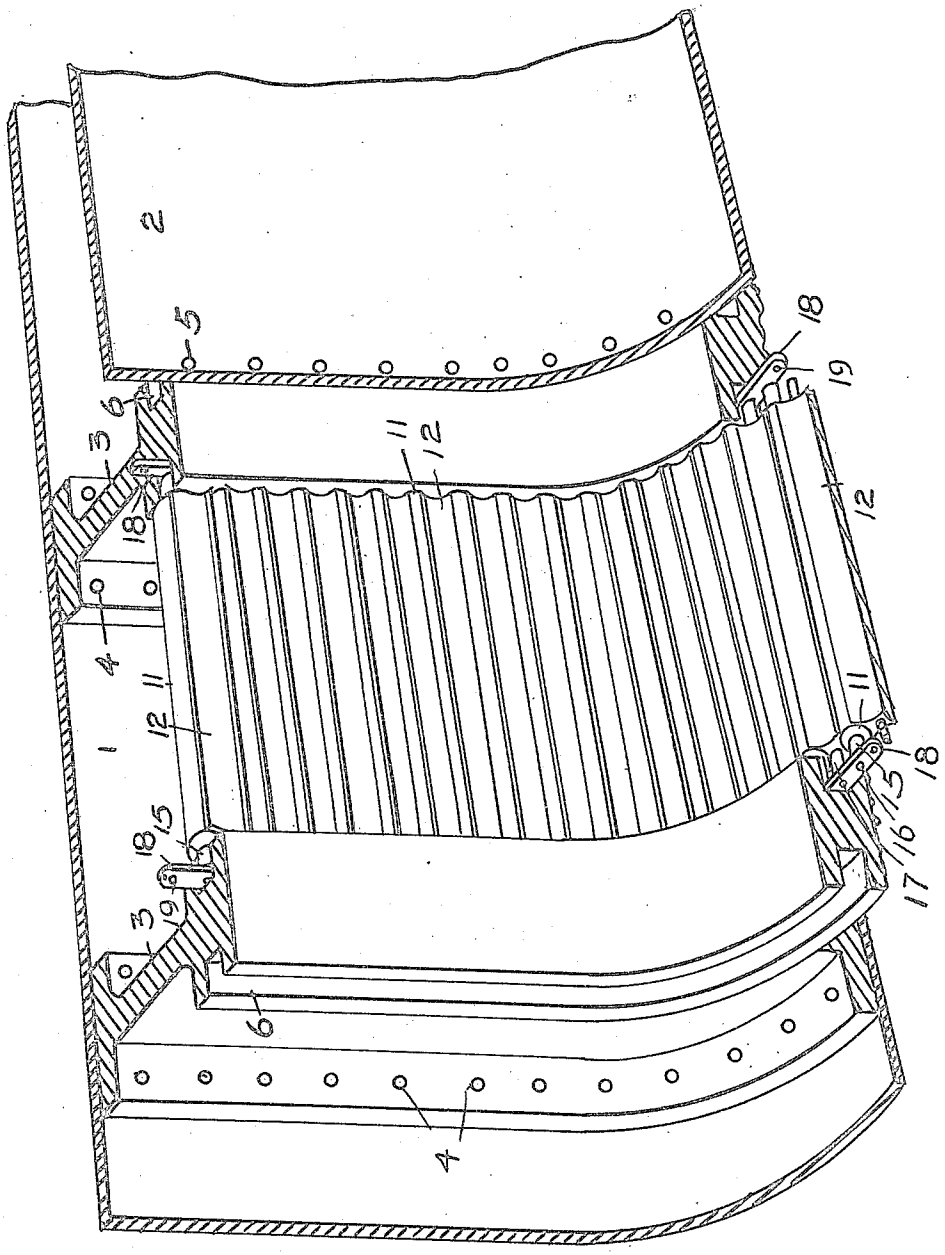


Fig. 1.

WITNESS

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2 SHEETS—SHEET 2.

Fig. 2.

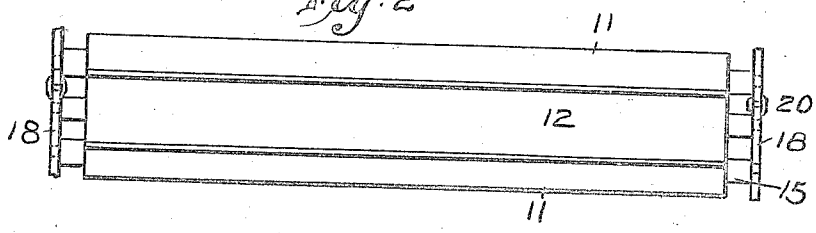


Fig. 3

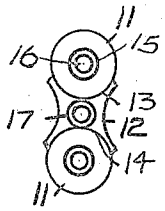


Fig. 4

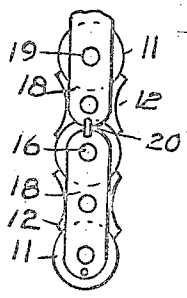


Fig. 5

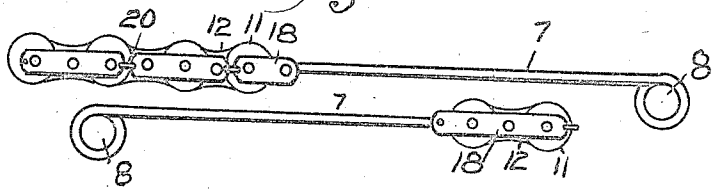
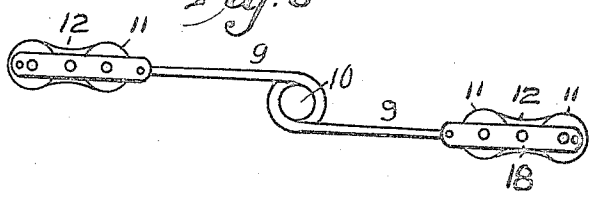


Fig. 6



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ERNEST L. SONS, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO SAMUEL A. BOYD, OF PITTSBURGH, PENNSYLVANIA.

LEAK-STOPPER.

1,253,293. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed February 12, 1917. Serial No. 148,287.

To all whom it may concern:

Be it known that I, ERNEST L. SONS, a citizen of the United States of America, residing at Pittsburgh, county of Allegheny, and State of Pennsylvania, have invented certain new and useful Improvements in Leak-Stoppers, of which the following is a specification.

This invention relates to leak stoppers for marine vessels and has for its object to provide means, in a manner as hereinafter set forth, capable of being shifted to a position between the inner and the outer hull of the vessel for closing an opening in the inner hull, caused by a collision, thereby arresting a flow of water into the hull.

A further object of the invention is to provide a plurality of shiftable elements capable of being interposed between the outer and inner hull of a ship for the purpose of reinforcing said inner hull to prevent damage thereto by collision.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a perspective view of a portion of the inner and outer hull of a vessel showing the adaptation of a leak stopper associated with the inner hull.

Fig. 2 is a front elevation of a portion of a leak stopper.

Fig. 3 is an end view of a portion of said leak stopper with the coupling between the rolls removed.

Fig. 4 is an end view of a portion of said leak stopper with the coupling means between the rolls in position.

Figs. 5 and 6 are diagrammatical views illustrating the manner of shifting the leak stoppers.

Referring to the drawings in detail 1 denotes the outer and 2 the inner hull of a vessel and interposed therebetween are spaced bracing elements 3 in the form of T-irons. The elements 3 are secured to the inner face of the outer hull 1 and the outer face of the inner hull 2, by securing devices as at 4, 5.

The brace members 3 conform in contour to the shape of the hull in vertical section and each lateral flange of each brace member, at the inner end of said brace member, is formed with a lengthwise groove 6, extending from end to end of the brace member and capable of being shifted in a pair of opposed grooves 6 is a leak stopper constituting a combined reinforcing and sealing element for the inner hull 2.

A leak stopper is arranged between each pair of brace members 3 and when not in such position they are arranged in guide grooves, not shown, formed in the bottom of the deck. The stoppers are not, when in operative position, of a height equal to the height of the hull, but are about one-half to two-thirds of the height of the hull.

The stoppers are to be arranged, when in an operative position, at each side of the hull and when not in operative position stored in the guide groove of the floor of the deck; the stoppers employed on one side of the vessel are arranged below the stoppers employed on the other side of the vessel. Each of the stoppers has connected to its upper end a pair of elevating cables 7, which are adapted to wind upon the longitudinal shaft arranged in the guide groove in the deck referred to. When the shaft 8 is operated in one direction all of the stoppers are elevated and housed in the recess in the floor of the deck. A shaft 8 is employed in connection with one side of the hull and a shaft 8 employed for the stoppers in connection with the other side of the hull.

Each of the stoppers has its lower end provided with a pair of flexible cables 9 for lowering the stoppers and said cables 9, of the elements employed for both sides of the ship, wind on a single shaft 10 which is arranged at the keel.

Each of the stoppers consists of a plurality of rolls 11 and a plurality of filler members 12. The rolls 11 are alternately disposed with respect to the filler members 12 and each of the latter has curved seats 13, 14, against which seat a pair of rolls 11.

Each of the rolls 11, at each end has a pintle 15, provided with a reduced end 16. The enlarged portions of the pintle 15 travel against the side walls of the groove 6. Each

of the filler members has its end provided with a shaft 17 of the same diameter as the reduced portion of the pintle 15.

The rolls 11 and filler members forming each stopper are connected together by coupling plates 18 having openings 19 for the reception of the reduced end 16 of the pintle 15 and the shaft 17 of the filler members 12. The coupling plates 18 are loosely connected together by loops or eyes 20.

The elevating cables 7 and lowering cables 9 are connected to the end coupling plates of each stopper.

When the stoppers are shifted against the outer face of the hull 2 it is obvious that they will act as a reinforcing means and furthermore if an opening has been formed in the inner hull 2 by a collision, then by lowering the elements they will act as a sealing means and interrupt the passage of water into the hull.

What I claim is:—

1. An attachment for marine vessels comprising the combination of members interposed between the inner and outer hulls of the vessel, each of said members in the form of I-beam and each having the flange at the inner end thereof grooved, of a combined reinforcing and sealing member capable of being shifted against the outer face of the inner hull and extending into a pair of opposed grooves.

2. An attachment for marine vessels comprising the combination of members interposed between the inner and outer hulls of the vessel, each of said members in the form of I-beam and each having the flange at the inner end thereof grooved, of a combined reinforcing and sealing member capable of being shifted against the outer face of the inner hull and extending into a pair of opposed grooves, said element consisting of alternately disposed rolls and filling members, means for coupling said filler members and rolls together, said coupling means sliding in the opposed grooves, means for elevating and lowering said element.

3. An attachment for marine vessels comprising a combination with an inner and outer hull and spaced bracing members between said hulls, the inner ends of said bracing members provided with opposed grooves, of a combined reinforcing and sealing member capable of shifting in said grooves, to a position at the front of the inner hull, and means for elevating and lowering said element.

4. An attachment for marine vessels comprising a combination with an inner and outer hull and spaced bracing members between said hulls, the inner ends of said bracing members provided with opposed grooves, of a combined reinforcing and sealing member capable of shifting in said grooves to a position at the front of the inner hull, and means for elevating and lowering said element, said element consisting of alternately disposed rolls and filling members coupled together at their ends.

5. An attachment for marine vessels comprising a combined reinforcing and sealing element adapted to be positioned between the outer and the inner hulls of the vessel, said element consisting of alternately disposed rolls and filler members, said filler members having seats against which bear said rolls, and means connected to the ends of said rolls and filling members for connecting them together.

6. An attachment for marine vessels comprising a combined reinforcing and sealing member for the hull of a vessel, said element consisting of alternately disposed rolls and filler members coupled together at their ends.

7. An attachment for marine vessels comprising the combination with pairs of opposed grooves arranged within the hull, of a combined reinforcing and sealing element slidably mounted in each pair of opposed grooves, means connected with one end of said element for elevating it from within the grooves, and means connected to the lower end of the element for lowering it to a position within the grooves.

8. An attachment for marine vessels comprising the combination with pairs of opposed grooves arranged within the hull, of a combined reinforcing and sealing element slidably mounted in each pair of opposed grooves, means connected with one end of said element for elevating it from within the grooves, and means connected to the lower end of the element for lowering it to a position within the grooves, each of said elements consisting of alternately disposed rolls and filler members coupled together at their ends.

In testimony whereof I affix my signature in the presence of two witnesses.

ERNEST L. SONS.

Witnesses:
S. A. Boyd,
B. E. Jenkins.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."