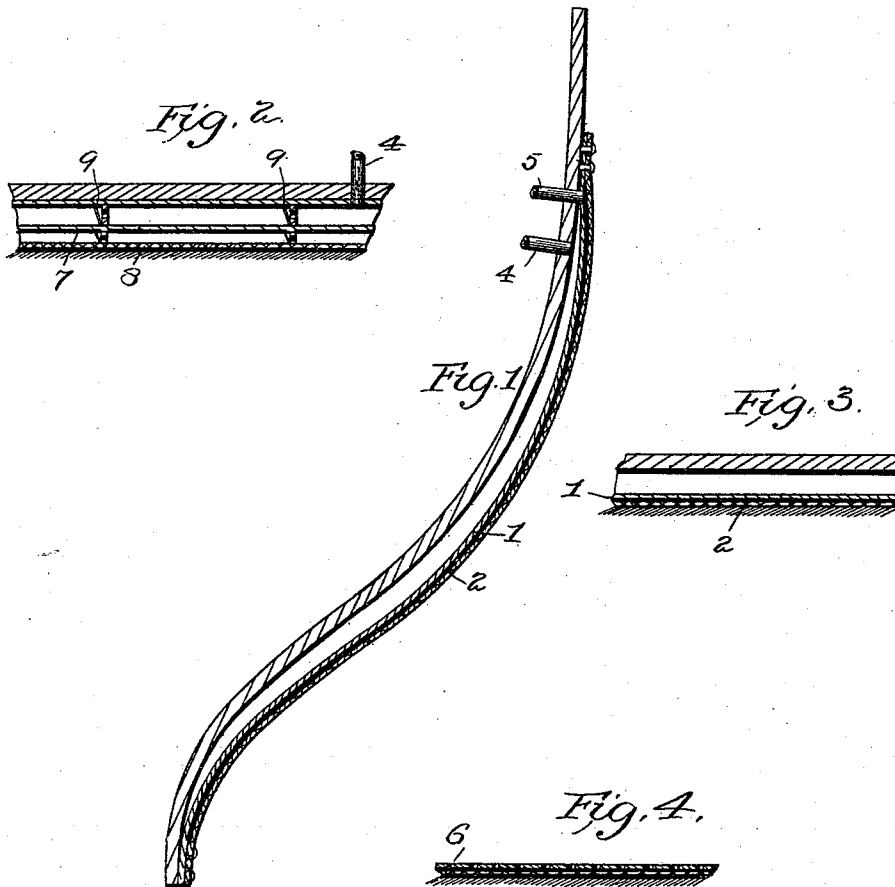


(No Model.)

F. D. MOTT.
COVERING FOR SHIPS' BOTTOMS.

No. 492,044.

Patented Feb. 21, 1893.



Attest
Walter M. Mott
F. L. Mottlet

Inventor
F. D. Mott
by *Richardson & Co.*
attys.

UNITED STATES PATENT OFFICE.

FRANCIS DELAMOTTE MOTT, OF LONDON, ENGLAND.

COVERING FOR SHIPS' BOTTOMS.

SPECIFICATION forming part of Letters Patent No. 492,044, dated February 21, 1893.

Application filed May 31, 1892. Serial No. 435,056. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS DELAMOTTE MOTT, merchant, a subject of the Queen of Great Britain and Ireland, residing at 165 Fenchurch Street, London, England, have invented a certain new and useful Improvement in an Elastic or Resilient Covering for Ships' Bottoms, of which the following is a specification.

10 This invention relates to an attachment to the bottoms of ships and has for its object the minimizing of the frictional grip of water upon the vessel, and of the effects of impact of waves and surges, particularly when the vessel is driven at high speed and in stormy weather, thus conducing to the greater velocity and steadiness of the vessel, avoidance of vibration, greater buoyancy and carrying capacity, and protection from leakage and damage to vessel by accidental concussions.

Figure 1 is a sectional view of one side of the hull of a vessel. Fig. 2 is a sectional detail view showing the compartment structure of the sheeting. Fig. 3 an enlarged detail view of the sheeting and its textile covering and Fig. 4 a detail view of a modification of the said textile covering.

This attachment consists of a clothing or sheeting 1 of prepared indiarubber or other suitable elastic material, fitting more or less closely around the sides of the vessel up to or a little above deep load line. This sheeting is only fixed to the sides of the vessel around the edges, and around any pipes which may project from the ship's bottom or sides, being fixed thereto in an air tight manner, leaving a certain interval between the sheeting or integument and the vessel's outer skin. Air or gas is pumped through a suitable pipe 4 into this interval between the sides of the vessel, which must be air tight, and the elastic sheeting or integument by means of pumping apparatus which keeps up the desired pressure, regulated either automatically or at will, always within the limits of pressure which can safely be borne by the elastic integument. In addition to this pneumatic cushion, a second integument or skin 2 may be used, covering the first, and formed of textile or leather like material, which may be provided with a plush like nap 3 resembling the coats of am-

phibious animals, lying in the direction of the stern of the vessel, for the purpose of reducing the friction of the water and retaining a portion of oil. Oil is pumped through a suitable pipe 5 in between the two skins and exudes from the outer one, lessening the friction between the water and the vessel and preventing the breaking of waves on the vessel. The desired degree of permeability of this outer coat may be obtained in manufacture by coating it on its inner side with indiarubber 6 as in Fig. 4 or other water and oil proof varnish, and then puncturing uniformly with minute pores, or in any other suitable manner. This covering must be thoroughly saturated with oil before floating the vessel. Each of these coverings may be put on as a whole or in sections 7, 8 as in Fig. 2 if in sections, these may be made to communicate with each other by valves 9 self closing in case of accident to any section, by the pressure of air in the contiguous undamaged sections, thus giving greater facilities for adjustment and repairing. With this arrangement, either with the first or both coverings, the vessel will travel more freely through the water, and will not present a rigid resistance to the impact of the waves, which will expend their force in compressing the air contained in the elastic cushion like coat; the retarding "grip" of the water on the vessel being lessened from the same cause. Vibration of the vessel is also reduced to a minimum and its stability increased.

The vessel will be capable of carrying a larger cargo as the displacement is greater and the pneumatic covering very light in proportion to its bulk or displacement. The bottom and sides will be protected from rust and other deteriorating influences; thus obviating the necessity for painting and leakage would be prevented excepting through collision or stranding.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a seagoing vessel, of a coat or integument formed of prepared indiarubber or other elastic material fixed along its edges and at other suitable parts to the sides and bottom of the vessel, leaving a space or interval between it and the outside

of vessel which space is filled with air or gas regulated to a suitable pressure, substantially as and for the purposes described.

2. The combination, with a coat or integument of indiarubber or other elastic material, fixed at suitable parts to the sides of the vessel and filled with compressed air or gas, of a second or outer coat or integument made of textile or other material and inclosing oil which can be regulated to permeate or exude through such second coat or integument more or less slowly, substantially as described and for the purposes specified.

3. The combination with the first coat or integument filled with compressed air or gas, of

the outer coat or integument containing oil which can slowly exude, and provided with a plush like nap, on its exterior surface, lying in the direction of the stern of the vessel, substantially as described and for the purposes set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FRANCIS DELAMOTTE MOTT.

In presence of—

M. S. ALLAN,

165 Fenchurch Street, E. C.

F. D. MOTT, Jr.,

165 Fenchurch St., London, E. C.