No. 617,902. Patented Jan. 17, 1899.

J. L. MAURICE & F. CHAPLET.

MEANS FOR STOPPING SHOT HOLES IN WATER TIGHT COMPARTMENTS OF SHIPS.

(Application filed Mar. 8, 1898.)

(No Model.)

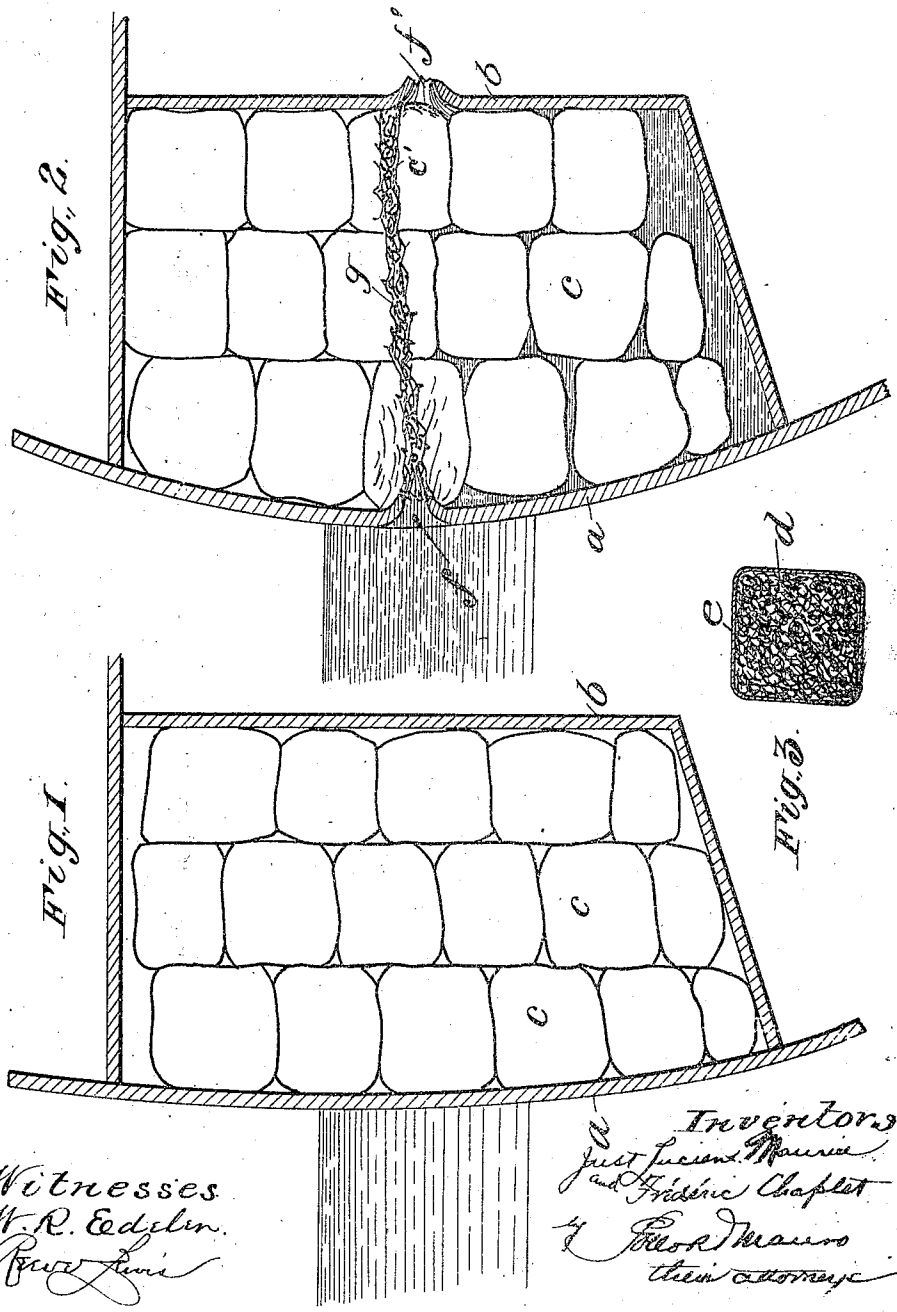


Fig. 3.

Witnesses
W. R. Edelin.
Bruce Lewis

Inventors
Just Lucien Maurice
and Frédéric Chaplet
by Edson Brothers
their attorneys

UNITED STATES PATENT OFFICE.

JUST LUCIEN MAURICE, OF PARIS, AND FRÉDÉRIC CHAPLET, OF LAVAL, FRANCE.

MEANS FOR STOPPING SHOT-HOLES IN WATER-TIGHT COMPARTMENTS OF SHIPS.

SPECIFICATION forming part of Letters Patent No. 617,902, dated January 17, 1899.

Application filed March 8, 1898. Serial No. 673,080. (No model.)

To all whom it may concern:

Be it known that we, JUST LUCIEN MAURICE, a resident of Paris, and FRÉDÉRIC CHAPLET, a resident of Laval, France, citizens of the Republic of France, have invented a new and useful improvement in or Relating to Means for Stopping Leaks or Holes in Water-Tight Compartments or Chambers, which is fully set forth in the following specification.

This invention relates to improved means for stopping leaks or holes in water-tight compartments or chambers, and is especially applicable to the water-tight compartments of ships, so as to fill a breach caused by a projectile accident, &c.

The invention relates to the construction and use of cubes, balls, or forms of any desired shape the outer surface or envelop of which is impermeable and the density of which is much lower than that of water, whereby, whatever be their shape, they are capable of floating in water. These buoyant bodies are placed in the water-tight compartment. The substance of which these "floats" are composed is compressible and slightly elastic and plastic, so that under pressure they are adapted to press against the hole and to close it. If a shell bursts in a water-tight compartment, the effect of its explosion is minimized by these compressible and elastic bodies. These bodies may be formed in many ways—as, for instance, in the following way:

1. *The inner filling.*—The inner filling may be constituted by a mixture of asbestos fibers, of which the lightest and most elastic are chosen, and of good quality horsehair. This mixture, which we call "uninflammable felt," is practically uninflammable and does not decompose and at the same time is elastic.

2. *The outer cover or envelop.*—The cover may consist, say, of asbestos cloth rendered impermeable or of any ordinary canvas or cloth rendered practically uninflammable and impermeable—as, for instance, hemp or linen canvas as prepared and used for manufacturing buckets for fire-brigades.

The bodies, according to the present invention, may be of any shape and dimensions; but, having regard to the usual sizes of water-tight compartments and the diameter of shells, it is advisable to use bodies of practically cubical shape with a side of about thirty-three centimeters. The density of the floats is about one hundred to one hundred and twenty kilograms per cubic meter, according to the material and the manner in which it is arranged.

In case a ship's armor or side becomes pierced by a shell the floats act as follows: Water enters the breach either directly or owing to the rolling of the ship or to the movement of the waves. A portion of this water passes directly into the ship beyond the inner wall of the cellular portion if the pressure of water is strong and sudden; but the greater portion will enter the water-tight compartment. This water at once raises the floats, which, like a movable valve, rise and form a screen or packing between the two holes made by the shell. The upward pressure of water on the floats, the upper row of which is stopped by the top of the chamber, expands them in the direction of their width, thereby pressing them against the walls, and thus practically closing both the inner and the outer holes in a sufficiently water-tight manner.

In the accompanying drawings we have illustrated our invention as applied to the water-tight compartment of a ship or vessel.

Figure 1 is a sectional view through said water-tight compartment, the buoyant obturating bodies being shown in elevation. Fig. 2 is a similar view showing the action of the buoyant bodies in closing a leak or breach, such as caused by a projectile; and Fig. 3 is a detailed sectional view through one of the buoyant obturating bodies.

In said drawings, *a* represents the hull or outer wall of the vessel, and *b* the inner wall of one of the water-tight compartments thereof.

c c are the buoyant obturating bodies, constructed, as above described, of an inner filling of asbestos fiber and horsehair *d* and an outer cover or envelop *e* of asbestos cloth or the like. The bodies are preferably arranged in vertical rows, as shown in the drawings, and do not completely fill the compartment.

In Fig. 2, *f f'* are openings through the walls of the water-tight compartment, and *g* is a passage through the bodies *c c*, caused, for ex-

ample, by a projectile. Water entering the compartment through the opening *f* tends to float the bodies *c*, those in the lower part of the compartment exerting an upward pressure against those above sufficient to compress them and to cause them to exert an outward pressure against the walls of the compartment. The upward movement of the bodies *c* in the compartment also has the effect of throwing the passage *g* through said bodies out of alinement with the openings *f f'*, a portion of one of the bodies *c'* in Fig. 2 being forced into the inner opening *f'*, tightly closing the same and preventing water from passing into the other parts of the ship.

We claim—

1. An obturating body for use in the water-tight compartment of a ship or vessel, said body consisting of an inner filling of asbestos fiber and horsehair and an outer envelop or covering of asbestos cloth, substantially as described.

2. The combination with the water-tight compartment of a ship or vessel, of a plurality of elastic compressible buoyant bodies in said compartment, but not completely filling the same, whereby water entering the compartment tends to float the bodies and compresses them into close contact with the top and side walls of the same, thereby stopping leaks or holes therethrough, substantially as described.

3. The combination with the water-tight compartment of a ship or vessel, of a plurality of elastic compressible buoyant bodies arranged one above another in vertical rows in said compartment, but not completely filling the same, whereby water entering the compartment tends to float the bodies and compresses them into close contact with the top and side walls of the same, thereby stopping leaks or holes therethrough, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

JUST LUCIEN MAURICE.
FRÉDÉRIC CHAPLET.

Witnesses:
EDWARD P. MACLEAN,
ANTOINE ROUNANNORF.