(No Model.)

J. H. L. TUCK.

LEAK STOPPING MATTRESS.

No. 353,718. Patented Dec. 7, 1886.

Fig. 1.

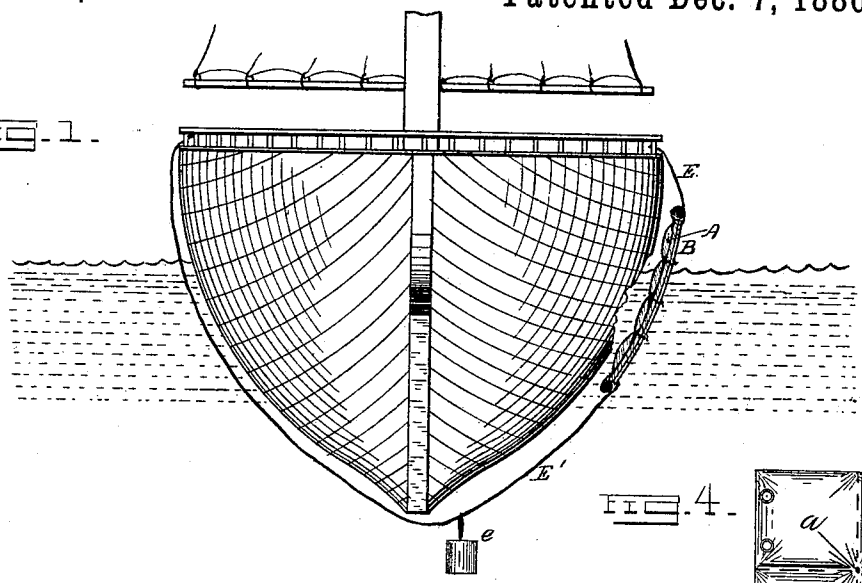


Fig. 4.

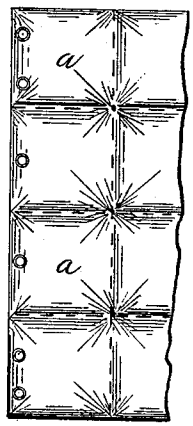


Fig. 2.

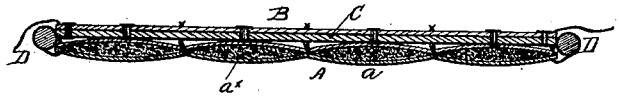
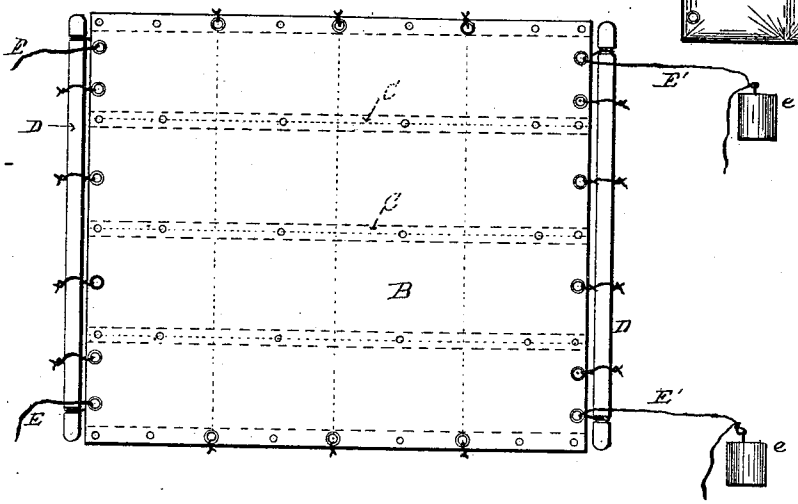


Fig. 3.



Witnesses
C. F. Dorner
W. E. Stearns

Inventor
Josiah H. L. Tuck
By his Attorney W. M. Kalb

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSIAH H. L. TUCK, OF SAN FRANCISCO, CALIFORNIA.

LEAK-STOPPING MATTRESS.

SPECIFICATION forming part of Letters Patent No. 353,718, dated December 7, 1886.

Application filed March 23, 1886. Serial No. 196,300. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH H. L. TUCK, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Leak-Stopping Mattresses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to devices for stopping leaks in ships occasioned by collisions or other accidents.

In constructing my invention I provide a mattress or analogous quilted structure with divided compartments stuffed with some suitable material, preferably of a character to swell up rapidly when wetted. This mattress I attach to a separately-formed frame or canvas, with cleats upon it at suitable intervals to prevent the mattress from being sucked or driven into the hole, and with end cross-stays to prevent collapsing from the sides. These end stays are removable, so as to be readily taken from the ends to permit the device to be rolled up. The mattress is united to the back or canvas frame along the ends and secured to the cleats at suitable intervals by eyelets and cords, or in any other convenient manner.

In using my device the cross end stays are properly placed, and cords attached to the device at both ends are employed to let it down over the side of the vessel, and the said cords on the lower end of the device are hauled around over the stern of the vessel and up over the opposite side, weights being applied in the length of the said cords to keep them down and cause them to come into place under the vessel.

The accompanying drawings illustrate what I consider the best means for carrying my invention into practice.

Figure 1 is an end view of a vessel, showing my invention in the operation of being applied. Fig. 2 is a section of the mattress and back, taken longitudinally through one of the cleats. Fig. 3 is a plan view showing the back of the device. Fig. 4 is a plan view of a portion of the mattress side of the device, showing a portion only of the device.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the quilted mattress, formed of two thicknesses of canvas or analogous material, quilted or stitched, as shown, to form separate compartments or portions, as shown at *a a*. The shape and size of these compartments are not essential; they may be square or diamond-shaped, or any other form, and of any size desired. They are filled with some material which will swell up rapidly upon being subjected to water, and their expansion will fill up the corners and jagged edges of the fracture and seal it against the ingress of water effectually, and will hold the fracture shut while repairs can be made from the inside. This mattress is secured to a back, B, which is formed of one or more thicknesses of canvas, to which is secured on the side next to the mattress a series of slats or cleats, C, run longitudinally of the mattress or back—that is, in such a position as to be vertical when the mattress is placed in position over a break. These cleats prevent the mattress from being sucked or forced into the hole.

The two parts—the mattress and the back—give security to the device and render it less liable to be injured and to fail in its purpose than if the mattress were used alone, or if the canvas were used alone.

The mattress is united to the cleats C C at suitable points by eyelets and cords, as shown at $c^{\times}$, which hold the two parts together, but with liberty to permit the mattress to be drawn into the rough edges of the fracture and to remain to all practical ends independent of the back, and flexible and pliable enough to securely seal or stop any leak or break. The mattress and back are united along the two opposite edges, which are horizontal when the device is in use, by sewing or otherwise.

The quilting of the mattress alone, without its being filled with the inflatable material, renders it more efficient as a leak-stopper, as the several compartments thus formed in it are less likely to become torn than if an unbroken surface were presented, and when these compartments are filled the tearing of one does not in any degree or manner affect the remain-

ing portions or compartments of the mattress, as the material will be securely held in the remaining compartments, and even when the compartments are not filled this quilting or forming the mattress in compartments or sections renders the mattress much more reliable and less open to the ingress of water or other material.

I provide cross-stays or end pieces, D, which are attached to the ends of the mattress by cords or ropes, which pass through eyelets or gaskets in the mattress and back and tie around the stay or end pieces, D. These cords or ropes are marked *d*, and are used upon the stay-pieces D at intermediate points, while longer ropes or cords, E E′, which are secured upon the stay-pieces at their ends, are run through eyelets or gaskets F, placed in the edges of the mattress and back, as shown, and then extended, to be taken hold of by hand when the stopper is to be placed in position over a break or fracture. The cords E′ on the lower end of the mattress are provided with weights, as shown at *e e*, which cause them to drop or sink into the water when the device is to be set in place.

As indicated in the opening paragraphs of this specification, I place or let the mattress over the side by means of the cords or ropes E, and then throw the cords or ropes E′ over the stern of the vessel and draw them around on the opposite side, as shown in Fig. 1. The fracture is covered by the mattress by hauling upon the ropes E or E′ and giving rope from the opposite direction, and when the mattress is properly over the break, as indicated in Fig. 1, the ropes are drawn taut and the mattress is closed over the break, covering and sealing it in a very complete and secure manner.

The entire flexibility of the mattress permits it to be, and insures that it will be, drawn into the break in a most complete and perfect manner, securely covering and sealing the break, while the back, with its cleat or strips, will hold the mattress against being sucked in.

The material which I prefer to use for filling the sections or compartments of the mattress, as shown at *a**, is flaxseed or oakum, or some other material which will swell up rapidly when wetted; but it is evident that other material not so inflatable may be used, if desired.

When the mattress is not in use, the cords *d* and one of each pair of long cords E and E′ are untied or released and the end pieces, D, turned lengthwise upon the mattress to lie parallel with the cleats C, and the whole may be rolled up into comparatively small compass and stowed away or kept in some convenient place on deck.

Having thus described my invention, what I desire to claim and secure by Letters Patent is—

1. In a leak-stopping device for use upon ships, the combination of a mattress or portion, A, a back or separately-formed flexible portion, B, united to portion A along two or more sides, the cleats or strips C, placed between the portions A and B, said cleats or strips being secured to portion B, and means, substantially as described, for lowering and securing the device in place over a leak or fracture, as set forth.

2. In a leak-stopping device for use upon ships, the combination of a mattress or portion, A, formed of two or more thicknesses of canvas or other analogous material quilted or united on lines which divide it into sections or compartments, said sections or compartments being filled with some material which will swell up rapidly when wetted, a back or separately-formed flexible portion, B, united to the portions A along two or more sides, the cleats or strips C, placed between the portions A and B, said cleats or strips being secured to portion B, and means, substantially as described, for lowering and securing the device in place over a leak or fracture, as set forth.

3. In a leak-stopping device for use upon ships, the combination of a mattress or portion, A, a back or separately-formed flexible portion, B, united to portion A along two or more sides, cleats or strips C, secured to portion B and lying between portions A and B, detachable end pieces, D, provided with cords or analogous means for ready attachment to the portions A and B, and a rope or ropes, E, secured to one end of the device for lowering it over the side of the vessel, and a rope or ropes, E′, provided with a weight or weights, *e*, and secured to the other end of the device, for passing under the vessel and being drawn from the opposite side thereof, all substantially as and for the purpose set forth.

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

JOSIAH H. L. TUCK.

Witnesses:
I. N. KALB,
M. A. BALLINGER.