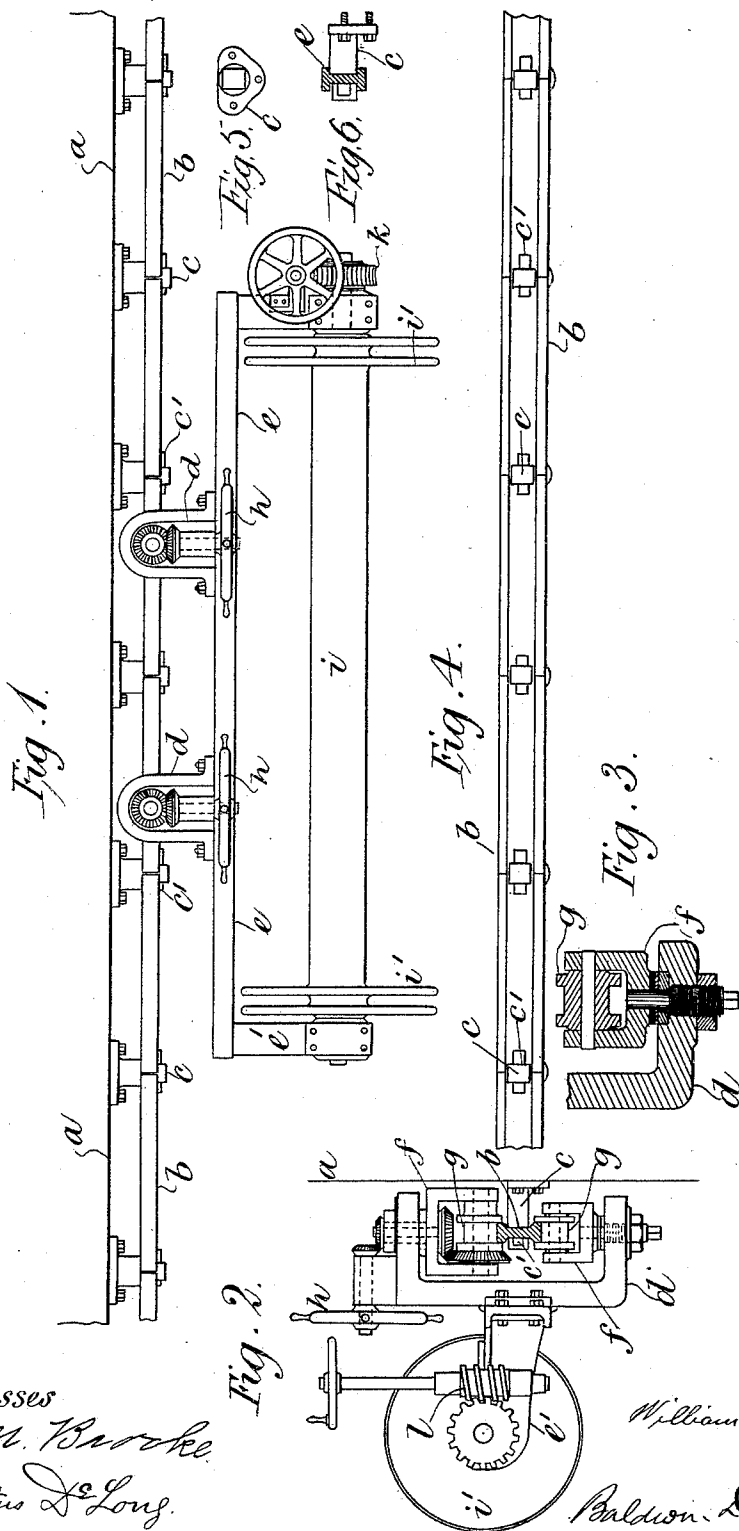


W. F. BEART.
LEAK STOPPER.

No. 485,121.

Patented Oct. 25, 1892.



Witnesses
C. M. Brooke
Baltus DeLong.

Inventor
William Frederick Beart.
By his Atty's.
Baldwin Davidson Wright.

(No Model.)

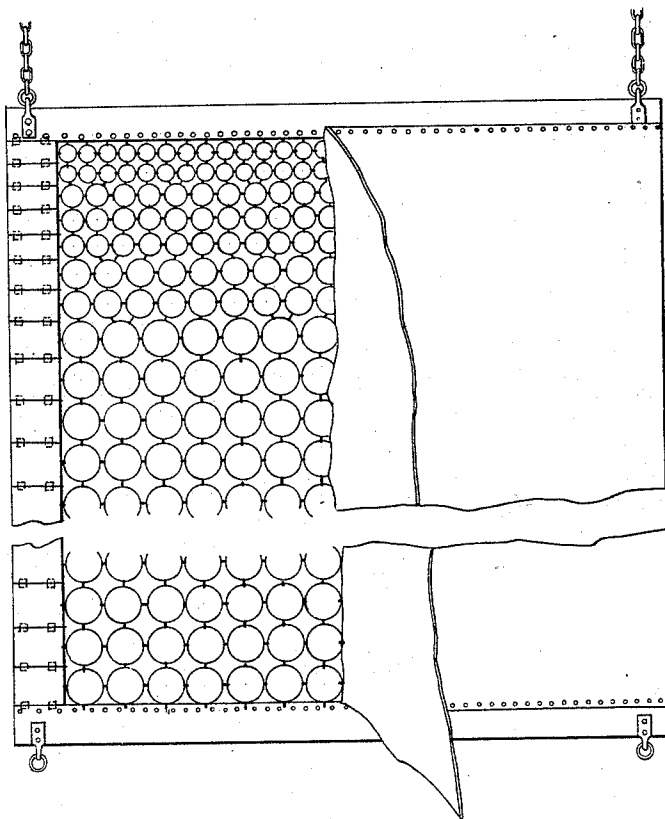
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Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM FREDERICK BEART, OF GODMANCHESTER, ENGLAND.

LEAK-STOPPER.

SPECIFICATION forming part of Letters Patent No. 485,121, dated October 25, 1892.

Application filed July 30, 1892. Serial No. 441,714. (No model.) Patented in England October 27, 1891, No. 18,507.

To all whom it may concern:

Be it known that I, WILLIAM FREDERICK BEART, gentleman, a subject of the Queen of Great Britain, now residing at Godmanchester, in the county of Huntingdon, England, but formerly at Ards House, Cashelmore, Letterkenny, in the county of Donegal, Ireland, have invented certain new and useful improvements in Apparatus for Stopping Leaks in Ships at Sea, (for which I have received Letters Patent in Great Britain, No. 18,507, dated October 27, 1891,) of which the following is a specification.

This invention has for its object improvements in apparatus for stopping leaks in ships at sea. For this purpose I provide a guideway along the outer side of the ship and a carriage capable of traveling along the guideway. The carriage is provided with brackets or arms projecting outward and carrying a roller on which a collision-mat is wound. The carriage is made to carry the mat to the place where it is required for use. Then by suitable appliances it is unwound from the roller and lowered in front of the damaged part, but well clear of it, so that it may not be prematurely drawn against the ship's side. Finally, by means of ropes or chains suitably applied the collision-mat is made to adapt itself closely to the damaged part. The mat I construct of steel netting covered with canvas and with an outer frame of iron plates. The side plates are jointed to enable the mat to wind around the roller.

In order that my said invention may be fully understood and readily carried into effect, I will proceed to describe the drawings hereunto annexed.

Figure 1 is a plan of apparatus in accordance with my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a section showing a portion of the carriage to a larger scale. Figs. 4, 5, and 6 show details of the guideway and its fixings. Fig. 7 shows an elevation of a portion of the collision-mat.

a a is the ship's side, and *b* is a guide-rail secured to it as high above the water-line as is convenient. The guide-rail is preferably in short lengths to admit of easy repair.

c c are brackets carrying the guide-rail. They are firmly bolted to the ship's side. The body of the bracket is cylindrical; but it is

square at the outer end, and a keyway is formed through it. The ends of the rail-sections are forked to embrace the square portions of the brackets, and they are secured in their places by wedges *c'*. The guide-rail passes along the sides and around the stern of the ship, the rail-sections being curved where required. The frame of the carriage consists of the two wheel-brackets *d d* and the beam *e*, to which they are firmly fixed. Each wheel-bracket carries two swiveling pieces *f f*, having arms to support the axes of two flanged wheels *g g*, which brace the guide-rail between them. The pieces *f* are able to turn on pivots provided upon the wheel-brackets *d* to enable the wheels to pass around curves of small radius, such as occur especially at the stern of the ship. The lower pivot is adjustable up or down by means of a screw, so that the wheels may be made to grip the guide-rail as tightly as may be desired. The lower piece *f* is supported upon washers or disks resting on a collar upon the pivot. The intermediate washer or disk is of vulcanized india-rubber. In this way sufficient elasticity is given to the grip of the wheels.

The upper wheel *g* in each case is fast upon its axis, and on this there is also a beveled pinion. This pinion gears with another pinion upon an upright axis, which passes down through the center of the upper pivot and above is coupled by beveled gear with the hand-wheel *h*. By turning the two hand-wheels *h h* the carriage can be made to traverse along the guide-rail. The carriage can also be hauled along the guide-rail by means of a rope, if desired. The ends *e' e'* of the beam *e* project outward, and they carry a roller *i*, on which the collision-mat is wound. The roller is provided with flanges *i' i'*, and between these wire ropes for lowering the collision-mat are wound. *k* is a worm-wheel fixed upon the axis of the roller, and *l* is a worm in gear with it. The axis of the worm *l* is held in bearings upon the end *e'* of the beam *e*, and there is a hand-wheel upon the axis by turning which the collision-mat may be lowered or wound up. Short chains at the upper corners of the mat connect it with hooks upon the roller.

The apparatus will be kept ready for use,

resting on the guideway at the stern of the ship, and from this position it is run around to the place where it is required.

If in the use of the collision-mat it should
 5 require to be lowered farther than the chains attached to it admit, the lowering is stopped for a moment while the wire ropes wound in the compartments between the flanges *i'* are hooked onto the chains. These are at the
 10 same time unhooked from the roller. Before lowering the collision-mat its lower corners are attached to ropes passing beneath the bottom of the ship. The purpose which these ropes serve is to draw the lower end of the
 15 mat close in against the ship's side after the mat has been let down over the damaged part. While unwinding from the roller the mat must be allowed to hang well clear of the ship's side in order that it may not be drawn
 20 in prematurely by the rush of water.

When necessary, in order to draw the upper end of the collision-mat closely to the ship's side chains with hooks at their ends are passed down between the ship's side and
 25 the guide-rails, and these are hooked into the chains at the upper corners of the collision-mat and drawn tight by suitable means.

Fig. 7 shows a portion of a collision-mat such as I prefer to employ. It consists of a
 30 strong rectangular iron frame with its two sides in numerous pieces hinged together to admit of its being wound upon the roller. The space in the middle of the frame is filled in with interlocking steel-wire rings and may
 35 be in all respects similar to a torpedo-netting

such as is in general use. The surface is covered on both sides with very strong canvas securely sewed to the rings and frame.

In some cases it is convenient to employ two carriages simultaneously—one on either
 40 side of the ship—with the collision-mat suspended between them. The two carriages traveling together carry the mat to the place where it is required, and then one or both of the rollers winds up until the mat is drawn
 45 closer in to cover the damaged part.

What I claim is—

1. A ship provided with a guideway around it outside the bulwarks, in combination with a carriage supported on the guideway and
 50 traveling thereon and a collision-mat carried by the carriage.

2. A ship provided with a guideway around it, in combination with a carriage supported on the guideway and adapted to travel there-
 55 on outside the bulwarks, a roller on the carriage, and a collision-mat mounted on the roller.

3. A ship provided with a guideway around it outside the bulwarks, in combination with
 60 a carriage supported on the guideway and traveling thereon, a roller on the carriage, a collision-mat mounted on the roller, gearing for moving the carriage, and gearing for operating the roller.

WILLIAM FREDERICK BEART.

Witnesses:

W. J. NORWOOD,
 WALTER J. SKERTEN.