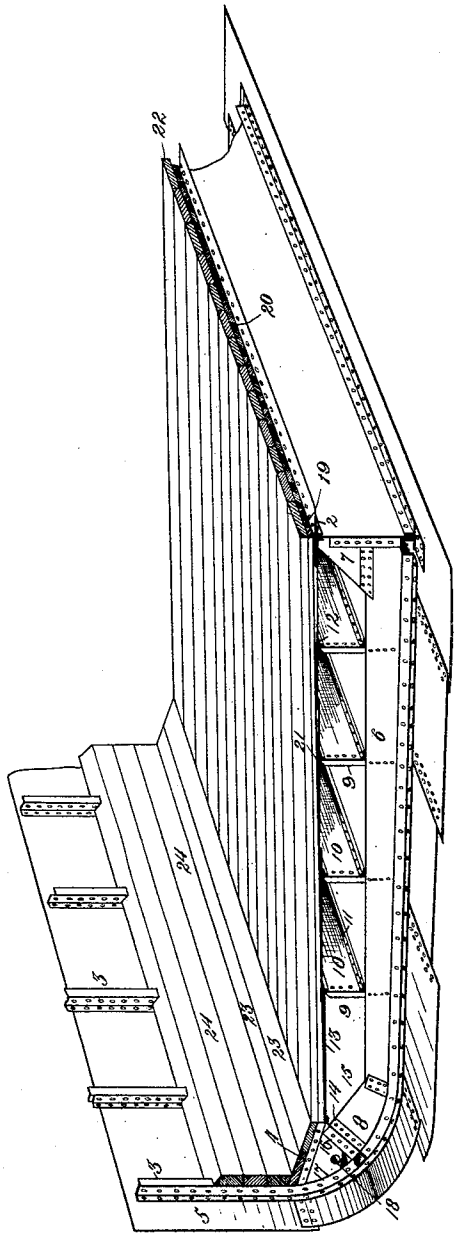
(No Model.)

A. McDOUGALL.

COVERING FOR FALSE BOTTOMS OF VESSELS.

No. 480,823. Patented Aug. 16, 1892.



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COVERING FOR FALSE BOTTOMS OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 480,823, dated August 16, 1892.

Application filed September 17, 1891. Serial No. 406,014. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER McDOUGALL, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in False Bottoms for Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to new and useful improvements in inner or false bottoms of vessels, particularly those vessels invented by me and illustrated and described in several Letters Patent of the United States, such improvements being designed to effectively protect such inner or false bottoms from the action of heavy cargoes in being thrown thereon and at the same time to offer certain uninterrupted passages extending not only from side to side, but also before and aft, in order that any water which may have found its way onto said inner or false bottoms by leakage or otherwise may be conveyed off to the bilges or gutters at the side, and from thence to the well, from which it may be pumped, or directly to the well through the longitudinal passages. By means of my present invention I offer a very simple and effective covering for the inner or false bottoms of the vessel, which may be easily placed into position or taken up when worn. By means of my present invention the weight of the cargo will be evenly distributed over the entire surface of the false bottom and not only at certain points, as is now the case. By the use of my improved construction of such inner or false bottoms there can be no possibility of coal-dust or iron-ore dust or other similar substances working into and clogging the bilges.

For a better comprehension of my invention attention is directed to the accompanying drawing, forming a part of this specification, in which the figure is a perspective view of a portion of the bottom and frames of one of my improved vessels.

In the above view corresponding parts are designated by identical figures of reference.

Although my present invention does not relate, broadly, to the particular framework shown in the drawing it depends to a certain extent thereon. A brief explanation of this framework will be given.

1 is the keelson, provided with angle-irons 2 2 at its top and bottom on each side.

3 3 are the ribs of the vessel, which are made of two angle-irons bolted together, so as to practically constitute a well-known Z-iron. The lower portion of each rib continues around on the line of the bottom of the vessel and is secured to one of the lower angle-irons of the keelson. The upper portion of each rib is bent over to form a short angle-piece 4, as shown in Fig. 1.

5 5 are the outside plates of the vessel, which are riveted or bolted to each rib 3.

6 6 are a number of strengthening-plates, which are bolted to the lower portion of each rib 3, and each one of which is provided with a separate swell-piece at one end, which fits up against the upper angle-iron 2, before referred to, and with an inclined piece 8 at the other end, which is secured to the lower portion of each rib. (See the figure.)

9 9 are short angle-iron pieces, which are bolted to the plates 6 6 and which form supports for the plates 10 10, which extend the length of the vessel at right angles to the rib 3 3. The plates are further strengthened by means of small angle-irons 11 at their lower ends. Each plate 10 is provided at its upper end with an angle-iron 12, to which the metallic floor 13 is bolted. This floor constitutes the inner or false bottom of the vessel before referred to and is inclined slightly from the central part of the vessel down toward each side, and the space under it is known as the "water-bottom" of the vessel. This water-bottom is adapted to be filled when it is desired, so as to constitute a water ballast for the vessel when light, and it also catches and retains all bilge-water or leakage. Inclined plates 8 are provided at their upper end with an angle-iron 14, to which the long plate 15 is bolted and which extends the entire length of the main portion of the vessel. It will be seen that there will be formed a trough-shaped passage-way between this plate 15 and the outside plating of the vessel, which I have called the "bilge" or "gutters."

16 16 are a number of angle-irons bolted on

top of the plates 15 directly over the angle irons 14, as shown in Fig. 1, and 17 is a gusset-plate between the upper portion 4 of the rib and the angle-iron 16. Each gusset-plate 17 is provided with a hole or passage therein to allow the water to work from one end of the vessel to the other.

It will be seen that if the false bottom 13 were left unprotected it would soon become injured by the falling of heavy cargoes—such as coal and iron-ore—thereon and would no longer be air-tight, so if the vessel should spring a leak in her bottom the false bottom 13 would not keep the vessel afloat, but would allow the water to enter the main portion of the hull. Heretofore these false bottoms have been provided with an inner covering of wooden planks, which have been laid upon blocks or angle-irons or Z-irons placed three or four feet apart. Such a construction was not only expensive, but the weight of the cargo rested entirely upon these supports and tended to weaken the false bottom at these points.

In my present invention I take a number of planks 19 19, which are laid on the false bottom 13 and extend from one side of the vessel to the other. These planks are to be made of some soft wood—such as pine—which will readily give to any unevenness in the floor and to the rivet-heads thereon, and these planks 19 should be placed about two inches apart and parallel with each other, so as to form passages 20 20 between them. The planks 19 are provided with one or more breaks 21 therein, which offer a passage-way fore and aft for the water. On top of the planks 19 are laid other planks 22, which are made of heavy wood—such as oak—in order to better withstand the impact of any hard substances which may fall thereon. The joints between the planks 22 occur directly over the planks 19, as shown in the figure. The planks 22 are laid close together so as to constitute a solid floor, and, if need be, may be nailed or otherwise secured to the planks 20, although this is not absolutely necessary. If need be, two layers of planks 19 may be used with passages between them so arranged that the passages between the upper layer will occur in alternation with the passages of the lower layer and, indeed, three or more layers of planks 19 may be used to increase the drainage. In all instances, however, the top floor 22 is to be used. It is preferable to lay this top floor from one side of the vessel to the other so that there can be no leakage into the main portion of the hull, but, if desired, the planks 22 may be arranged longitudinally in the hull.

23 23 are heavy planks, which are laid upon the bent-in portion 4 of the ribs and which constitute top for the bilge or gutters.

24 24 are planks which are laid directly on the planks 23 23 and which are secured to the ribs 3.

The space formed between the planks 24 and the outer plating of the vessel is to be filled in with cement or some similar substance, so that no coal-dust or iron-ore dust or similar material can work its way into the gutters or bilges. It will be seen that by this manner of constructing false-bottom vessels the weight of the cargo will be distributed very evenly thereon at almost every point. In case water should find its way above the floor 22 it will leak through the same and will flow down the passages 20, which are inclined slightly into the gutters or bilges at the sides and from thence will pass through the openings 18 to a suitable well, which is generally located at the stern of the vessel, and from which the water may be pumped in any suitable way. In case there is a leakage in top of the water-bottom, the water will flow in the same manner through the passages to the bilges and will be removed by the pumps.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

An improved false bottom for vessels, consisting of a metallic floor 13, bilges or gutter son each side thereof, strengthening gusset-plates 17, perforated and arranged as described, planks 19 19, laid on said floor 13, having passages 20 20 between them, and breaks 21 extending fore and aft, planks 23 23 extending over said bilges or gutters, planks 24 above said planks 23 and secured to the ribs of the vessel and cement or similar material between said planks 24 and the outer plates of the vessel, substantially as described.

ALEXANDER McDOUGALL.

In presence of—
C. E. WACHTES,
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