C. LAZAREVITCH.

Device for Preventing the Shifting of Grain in Vessels.

No. 219,278. Patented Sept. 2, 1879.

Fig. 1

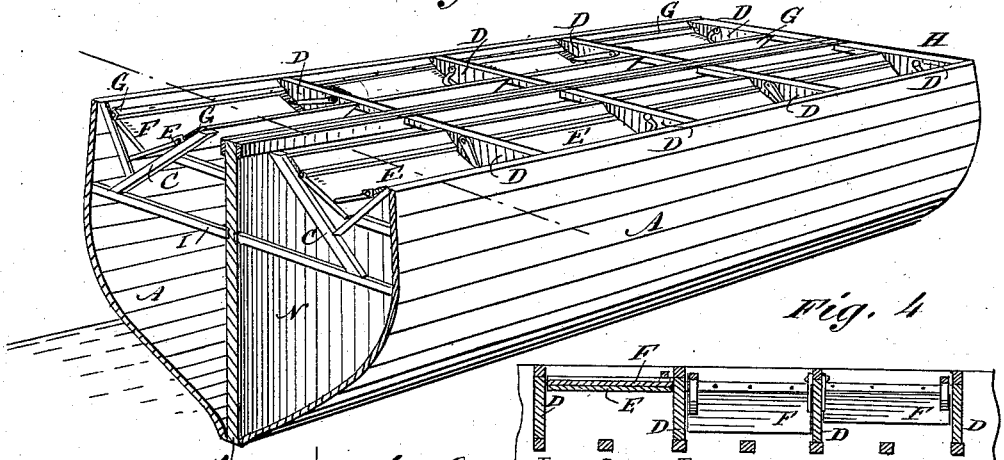


Fig. 4

Fig. 2

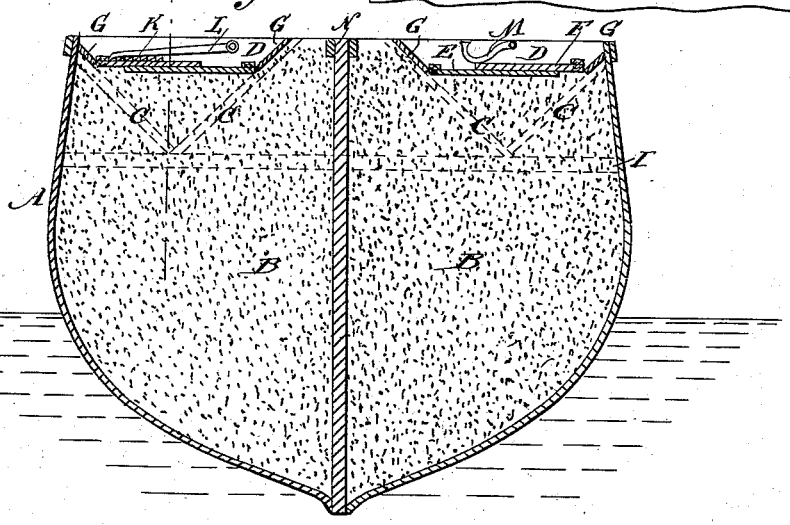
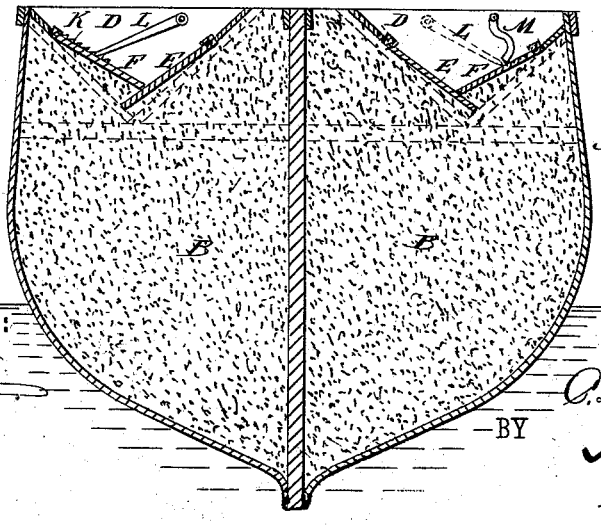


Fig. 3



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CONSTANTIN LAZAREVITCH, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN DEVICES FOR PREVENTING THE SHIFTING OF GRAIN IN VESSELS.

Specification forming part of Letters Patent No. **219,278**, dated September 2, 1879; application filed June 25, 1879.

To all whom it may concern:

Be it known that I, CONSTANTIN LAZAREVITCH, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Device for Preventing the Shifting of Grain Cargoes, of which the following is a specification.

Figure 1 is a perspective view, showing the device applied to a vessel. Fig. 2 is an end elevation of the same, showing the position of the device when the vessel is just loaded with grain, on line *x x*, Fig. 1. Fig. 3 is an end elevation of the same, showing the position of the device after the grain has settled down. Fig. 4 represents a decreased longitudinal section of several of the triangular sections.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a device to be applied to vessels laden with grain, to prevent the shifting of the cargo and the attendant dangers and disasters.

Vessels carrying grain in bulk have their holds provided with a ceiling or lining to keep the grain dry, and having, running lengthwise through the center of the hold, partitions called "shifting-boards," which divide the cargo into two portions, for the better protection of the vessel; yet these boards do not always prevent the grain from shifting so that the vessel may be thrown on her beam-ends.

The invention consists in arranging on each side of the hold of a vessel, and securing to the cross and deck beams, a series of triangular or Y shaped box-frames, with bases uppermost, closed at the ends with strong partitions, and reaching from the deck above to supporting joists or timbers below, and in hinging to the upper longitudinal pieces of each frame two broad tables of wood or metal, or both, corresponding in length and width with the sections, so arranged that one shall overlap the other at whatever angle they may be inclined; and it further consists in pivoting on each end partition two pawls, which engage on the uppermost table, and serve to hold both of them down. The lower tables face the center of the vessel, and those on the starboard side follow the motion of the grain toward the center or shifting board as the vessel inclines to port, while the lower tables on the port side follow the grain as the vessel inclines to starboard, and the upper tables slide on top of the lower ones, keeping them constantly pressed against the moving grain, thus gradually forcing the same to the central part of the vessel and holding it there; and these upper tables, it will be seen, serve as stops to prevent the lower tables from being thrown back by the pressure of the cargo on a contrary motion of the vessel.

The end partitions, which completely cover the ends of the frames, prevent the grain from getting inside the boxes or frames, and consequently it will be seen that the vacant spaces created between the cargo and deck by the settling of the former are all transferred, as it were, to the triangular boxes at the sides, so that the two sides or wings of the vessel become lighter and the dead-weight of the grain is forced to the center; hence much rolling is prevented and danger and disaster averted.

In the drawings, A represents a vessel loaded with grain, B, in bulk; C, the triangular or Y shaped frame; D, the end partitions; E, the lower table, and F the upper table, both of which are hinged to the longitudinal strips or timbers G. H are the deck-beams; I, the supporting timbers or beams; K, the rack on the upper table; L, the pawl engaging in this rack; M, the pawl engaging also in the upper table, and N the shifting-board.

The pawl M is curved, and provided with a spur on the outer bend of the curve, and its operation is confined to holding the upper table during the early part of its downward movement, and until the pawl L can operate for this purpose. I do not, however, confine myself to the use of two pawls, since it is evident that one could be arranged to do the required work without departing from my invention.

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

1. The triangular or Y shaped frames C, in combination with the end partitions, D, substantially as and for the purpose described.

2. The combination of the frame C, end partitions, D, and hinged tables E and F, substantially as herein shown, and for the purpose described.

3. The combination of the two moving overlapping tables E and F, for following the motion of the grain in a grain-laden vessel, and forcing and holding it toward the center of the vessel, substantially as herein shown and described.

4. The combination of the hinged tables E and F, rack K, and pawls L and M, substantially as herein shown, and for the purposes set forth.

5. For application and use on a vessel laden with grain in bulk, the within-described device, consisting of the triangular or Y shaped frame C, end partitions, D, lower table, E, upper table, F, longitudinal strips or timbers G, supporting-timbers I, rack K, and pawls L and M, constructed and arranged substantially as herein shown and described.

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Witnesses:
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