

L. G. Mickles,
Ship Building.

No. 3060.

Patented. April 25, 1883.

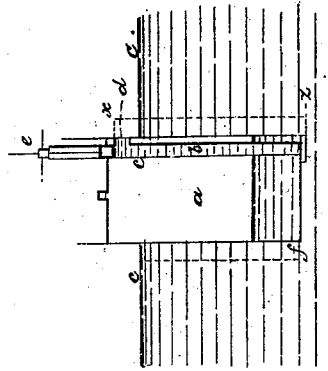
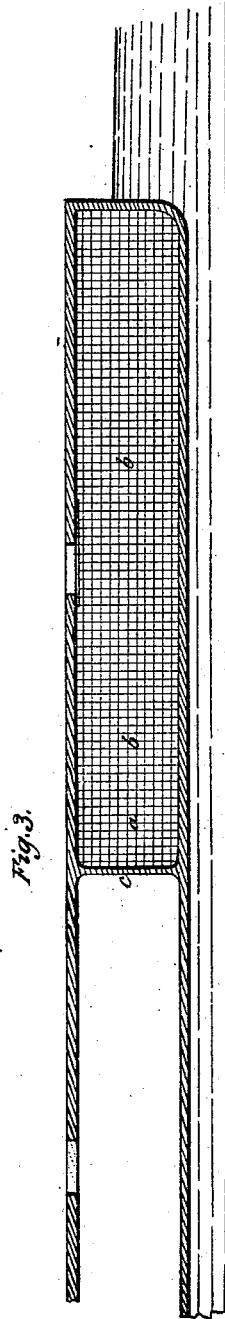


Fig. 1.

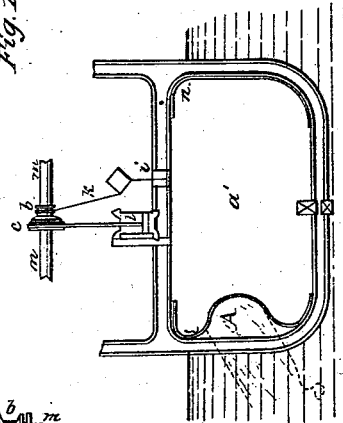
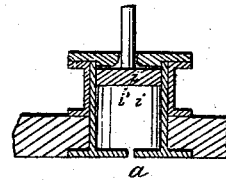
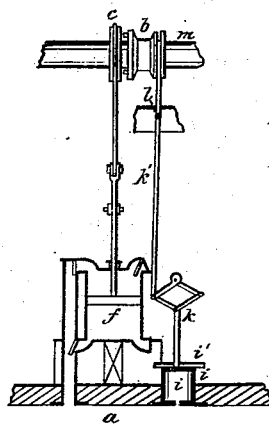


Fig. 2.



UNITED STATES PATENT OFFICE.

LOVEL G. MICKLES, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MODE OF PREVENTING STEAMBOATS FROM SINKING.

Specification forming part of Letters Patent No. 3,060, dated April 25, 1843.

To all whom it may concern:

Be it known that I, LOVEL G. MICKLES, of the city, county, and State of New York, have invented a new and useful improvement for preventing vessels from sinking and their cargoes from being damaged by water when snagged or otherwise injured under their water-line; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a vertical cross-section of the vessel with the air-pump affixed; Fig. 2, an enlarged view of the air-pump and safety or regulating valve; Fig. 3, a longitudinal vertical section of the vessel with a bulk-head across the center; Fig. 4, a section of vessel, showing the tube for discharging water.

The nature of my invention consists in furnishing an india-rubber lining for the sides of a vessel, which lining is protected by an elastic rope netting, and affixing an air-pump and regulating-valve to the deck thereof, which communicate with the space below. The vessel is also furnished with a tube for discharging water from the hold, as herein-after described.

In constructing my invention and applying it to use, a steam-vessel of the ordinary construction, except that the main deck should be near the level of the water and made stronger than usual, is used. If it is applied to a vessel where the deck is high above the water, an extra deck should be furnished, which shall be nearer the surface—say from twelve to twenty-four inches. A bulk-head is also put in at a proper distance from the bows, for the purposes required. The hull forward of this partition or bulk-head is to be lined with an elastic water-proof covering, which may cover the bottom or not, as desired; but it should be brought over the top, under the deck, at least eighteen inches, and it may be carried across, if preferred, to the center and join the lining of the opposite side. The upper edge of this lining is firmly secured to the deck underneath, and at its lower edge also, the intermediate parts being detached from the side, so that when the side of the vessel is pierced by a snag the inner lining will yield and prevent the water from enter-

ing beyond it into the hold at that point. This effect is shown in Fig. 1.

To protect the elastic lining *a*, a netting formed of ropes is put over it, which is shown at *b*, Fig. 3, *c* in the same figure being the bulk-head. This netting prevents the freight from wearing the lining, and also serves to strengthen it and prevent its being torn by coming in contact with the freight inside.

On the deck above named in Fig. 1, an air-pump *l* and regulating-valve *i* are shown. These are more clearly represented in Fig. 2. The air-pump in this figure is marked *f*, and is a double-acting one of the common construction, drawing in the external air and discharging it into the space under the deck. It is worked by an eccentric on the wheel-shaft *m*, and is connected and disengaged with the shaft in the following way: Besides the air-pump there is a short cylinder *i* in the deck of the vessel. The lower head of the cylinder has a small aperture communicating with the space below. A piston *i'* works up and down in this cylinder, air-tight. The piston-rod, which comes out through the upper head, is connected with a double toggle-joint at *k*, at one angle of which a lever *k'* is attached, so that as the piston rises the lever is pushed to one side. The fulcrum of this lever is at *l*, beyond which the end is forked and embraces a groove in a clutch-box *C* on the wheel-shaft *m*, which slides back and forth on the shaft and is turned by means of the common feather and groove. The bayonets on this clutch connect with the eccentric that works the air-pump before named when pushed up to it. The piston *i'* is weighted down in proportion to the draft of water of the vessel, and when at its lowest point, by means of its connection with the clutch, it connects the eccentric of the air-pump with the shaft. This causes air to be forced in under the deck till the vessel is brought to her proper elevation. The piston is then forced upward till the eccentric is disconnected from the shaft and the pump ceases its operation.

In Fig. 4, *a* is a section of the vessel into which a tube *b* descends nearly to the bottom and passes up through the deck above. Just below the deck a spout *d* leads through the side of the vessel. A piston works up and down in this tube by means of a screw on its

rod, on which a nut *e*, connected with the tube so as to swivel, works. This piston can be forced down and cover the spout *d* or raised above it at pleasure. When the spout is open, any water that may be in the bottom of the vessel is thrown out by the pressure of the air which is forced in above. Just below the spout in the tube there is a throttle-valve, which is heavier on one side than the other, so as to close itself after it has been opened by the current of water passing up. This prevents any water from running into the vessel from the outside through the spout should it come below the water-line.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Regulating the density of the air in the hold of the vessel by the connection of the safety or regulating valve and the air-pump in such a manner that when the air becomes

too rare the air-pump is set in motion and when too dense it is stopped, in the manner and substantially as herein described.

2. Lining the sides of the hold of the vessel with sheets of india-rubber, attached only at the top and bottom, that it may yield when a vessel is pierced by a snag and thus prevent a leak, in the manner described.

3. Protecting the india-rubber lining with rope net, as described.

4. Furnishing the air-tight hold of the vessel with a tube provided with a piston to close the aperture and a shuttle or throttle-valve, which is opened by the pressure of the water when forced out and closed by water entering the spout, as described.

LOVEL G. MICKLES.

Witnesses:

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CLEMT. T. COOTE.