(No Model.) 2 Sheets—Sheet 1.

A. K. WOODWARD.

COVER FOR WATER PORTS OF VESSELS.

No. 303,354. Patented Aug. 12, 1884.

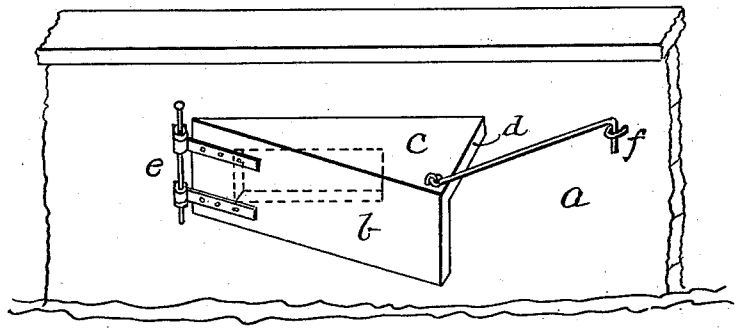


Fig. 1.

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Frederick McLaughlin

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

(No Model.) 2 Sheets—Sheet 2.

A. K. WOODWARD.

COVER FOR WATER PORTS OF VESSELS.

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Fig. 2.

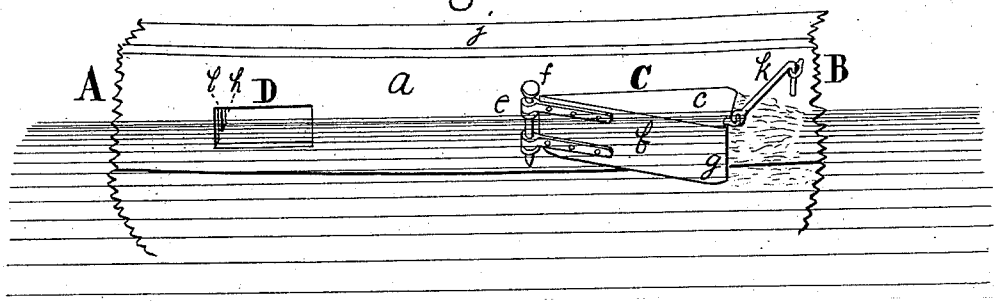


Fig. 3.

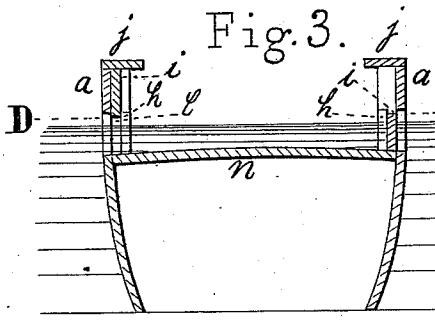


Fig. 4.

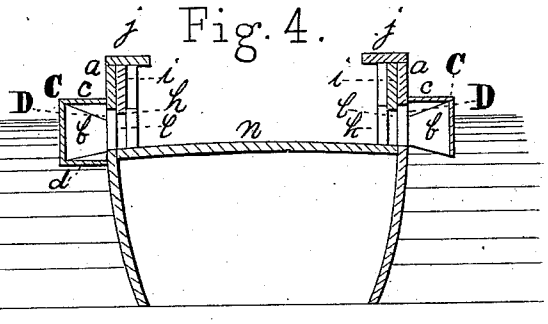


Fig. 5.

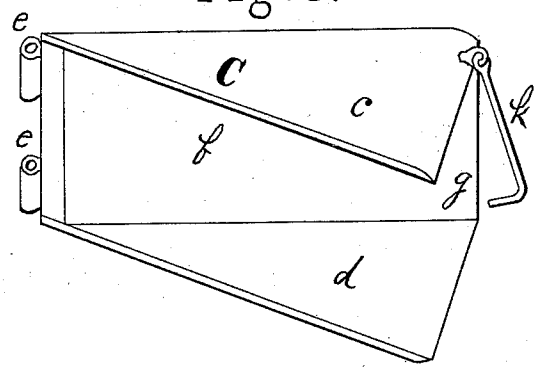
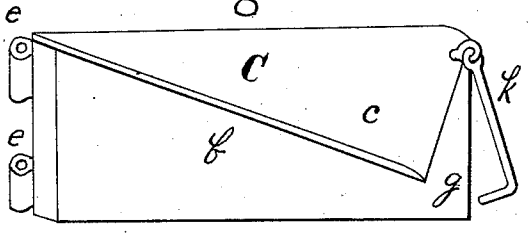


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALVAH K. WOODWARD, OF ELLSWORTH, ASSIGNOR OF ONE-HALF TO HENRY LORD, OF BANGOR, MAINE.

COVER FOR WATER-PORTS OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 303,354, dated August 12, 1884.

Application filed January 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALVAH K. WOODWARD, of Ellsworth, in the county of Hancock and State of Maine, have invented certain new and useful Improvements in Attachments or Covers for Water-Ports of Vessels; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 shows a perspective of my invention, the port shown in dotted lines. Fig. 2 is a side elevation of a portion of a vessel showing an open water-port, D, and a water-port protected by my improved cover C. Fig. 3 is a vertical cross-section through the water-ports of the deck and waist of a ship, and showing the water-ports as usually protected or closed on the inside, the port D being open and the port D′ being closed in the usual manner. Fig. 4 is a vertical cross-section through the water-ports of the deck and waist of a vessel, showing the water-ports as usually arranged, and having my improved water-port covers. Fig. 5 is a view of the inside of one of my improved covers constructed with a bottom, *d*. Fig. 6 is a view of the inside of one of my improved covers formed without any bottom piece.

In the drawings similar letters refer to corresponding parts.

A is the forward end of Fig. 2. B is a rear or stern end of Fig. 2. C is an attachment or cover for water-ports of vessels. D D′ are water-ports as usually constructed. *a* is an elevation or side view of a portion of a waist of a vessel. *b* is the upright divergent slanting side of my cover. *c* is the triangular-shaped top. *d* is the triangular-shaped bottom. *e* is the forward or hinged end of my cover. *f* is a sliding or separable pin for the hinge-joint. *g* is the rear or backward enlarged end of my improved cover. *h h* are cleats fastened to the timbers of the waist of a vessel, which hold the inside port-covers in place when the ports are closed from the inside in the usual manner. *i i* are pieces of plank used as inside port-covers, and which slide down to close the ports. *l l* are the grooves formed by the cleats *h h*, in which the covers *i i* slide up and down. *m* is the rail. *n* is the deck.

My invention relates to an attachment or cover for the water-port or water-ports of vessels, and is designed to protect the port or ports from the inflow of water, and also to facilitate and promote the drainage or outward flow of any water which may have accumulated upon the deck of a vessel from shipping heavy seas, or in any other way.

The ordinary water-port, D, of a vessel is made extending from one timber of the waist to the next timber; and it consists simply of an aperture flush with the deck *n*, of sufficient size to discharge any usual amount of water to keep the deck clear. These ports are closed by planks *i i*, sliding up and down in grooves *l l*, formed by cleats *h h*, fastened onto the waist-timbers at a suitable distance from the outside planking to allow of the easy movement up and down of the planks *i i* in opening and closing the ports on the inside to prevent the inflow of water, no provision being made to increase or stimulate the outflow or to provide for a drainage-outflow when the vessel is deeply loaded or in stress of weather.

It is well-known that colliers habitually load very deep, and any stress of weather floods the decks, either by heavy seas washing over the deck or by taking in water at the water-ports when open. Now, when the seas are breaking over the rail, if the ordinary water-ports are closed the water shipped cannot run off, and if the ordinary ports are open the water floods the decks through the open ports. It is to remedy these two troubles that I have invented my improved port-cover and water-discharging attachment. I accomplish this object by forming a cover consisting of a top, *c*, and flat upright side *b*, and if desirable having in addition the bottom piece, *d*, but I find in practice no actual advantage in the additional bottom piece, *d*. The top *c* is triangular, and, being rigidly attached to the side *b*, holds it diverging outward and backward when fastened by hinges and hooks, or otherwise, to the side of the vessel. The forward end or thin end, *e*, is preferably hinged to the side of the vessel a little forward of the

port, and the top *c*, being triangular, holds the outside *b* at a divergent angle to the side of the vessel, forming a square discharge-opening at the rear end, *g*, of the cover. The upright divergent side *b* is wider than the water-port, and consequently when the cover C is applied to the port the side *b* extends below the opening of the port and thoroughly protects it from water breaking against the sides of the vessel. The cover C being fastened by hinges at the forward end, *e*, is held in place at the rear end by the hook *k*. As the vessel moves through the water, the divergent projecting side *b* of the cover C forces the water off from the side of the vessel, and as the vessel moves forward the water cannot fall immediately back against the vessel's sides when it passes the rear end, *g*, of the cover, but strikes the vessel considerably in the rear of the cover, if at all, thus leaving a trough or furrow in the water at the rear end, *g*, of the cover C, lower than the surrounding water, and at the same time, the side *b* of the cover being wider than the port and extending below it, keeps the water lower than the deck of the vessel, and thus there is a perfect drainage formed for any water which may have been shipped or accumulated on the deck. This trough, which affords and assists drainage from the decks, cannot fairly be called a "vacuum," because no air is exhausted from it, and it may be doubtful if any vacuum is formed even when the cover is entirely submerged in the water; but that it creates a wonderfully favorable chance for drainage is demonstrated by practical tests. It is not necessarily a fixture upon the vessel, but is removable at pleasure, and to operate need not be entirely submerged in the water, as if applied to the bottom or below the average water-line of the vessel. It is readily and easily detached from the vessel, and as readily and easily replaced. It is preferably hinged to the side of the vessel, but may be attached in any permanent or separable manner, either by hooks and eyebolts, or by gudgeons and sockets, the object being to fasten it securely in place and remove it easily. In using it the ordinary water-ports are fitted just the same as is customary, the ports are the same, the inside covers are used exactly as they have always been used when they are of service; but they do not help to relieve the deck of a vessel of water, my cover being an additional protection, becoming useful and operative when the ordinary inside covers are even worse than useless.

I do not claim anything used in an ordinary water-port; but

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

1. The attachment C for the water-ports of vessels, either permanently or separably attached, consisting of the flaring top *c* and outward and backward slanting front side, *b*, inclosing and protecting said ports, and by slanting outward and backward operating to form a trough or furrow in the water when the vessel is in motion, thereby creating a drainage from the deck of the vessel.

2. The attachment C, consisting of the top *c*, front side, *b*, with or without the bottom *d*, formed as shown and described, when hinged or otherwise attached to the side of a vessel to cover and protect the water-port and aid and facilitate in drawing surplus water from the deck.

3. The cover C, formed of the slanting front *b*, triangular-shaped top *c*, with or without the bottom *d*, having the hinges *e e* and hook *k*, when hinged, hooked, or separably attached as a cover to the water-port of a vessel.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of January, 1884.

ALVAH K. WOODWARD.

Witnesses:
JAMES C. CHILCOTT,
CHARLES S. HOLT.