Sept. 29, 1931. R. MacGREGOR 1,824,910

STEEL HATCH COVER FOR SHIPS

Filed Oct. 22, 1930 2 Sheets-Sheet 1

Fig. 1.

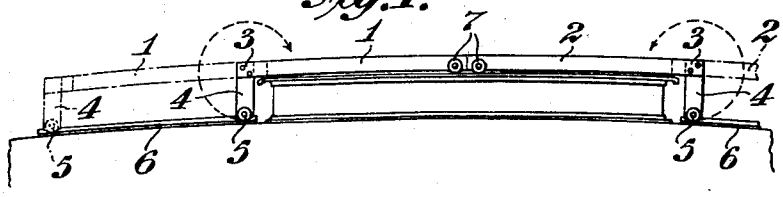


Fig. 2.

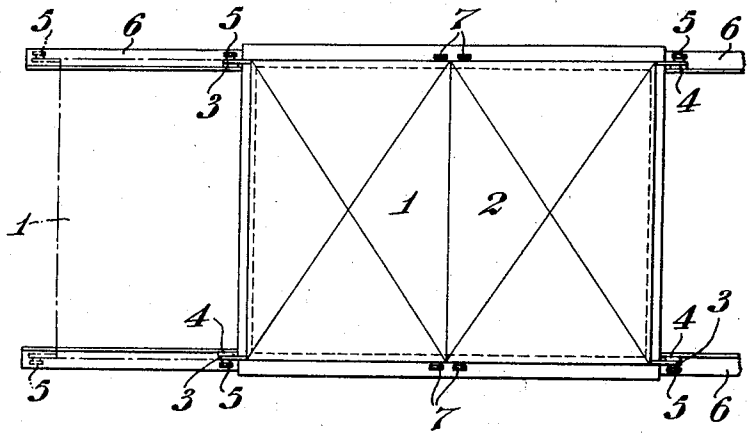


Fig. 3.

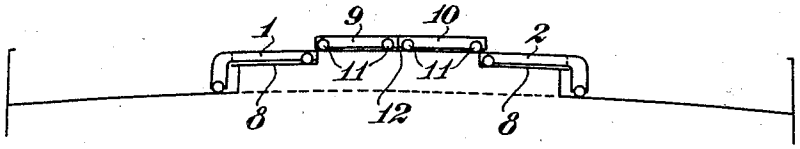


Fig. 4.

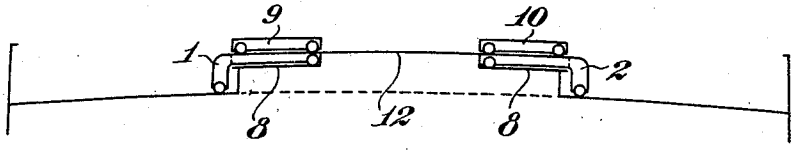
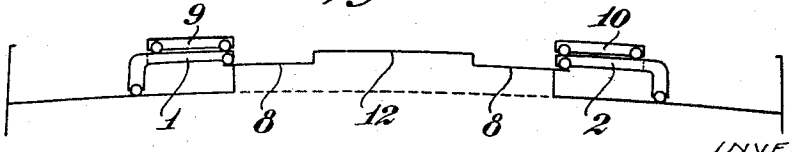


Fig. 5.



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Sept. 29, 1931. R. MacGREGOR 1,824,910

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Filed Oct. 22, 1930 2 Sheets-Sheet 2

Fig. 6.

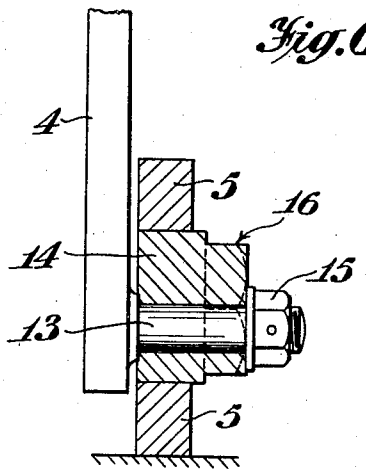
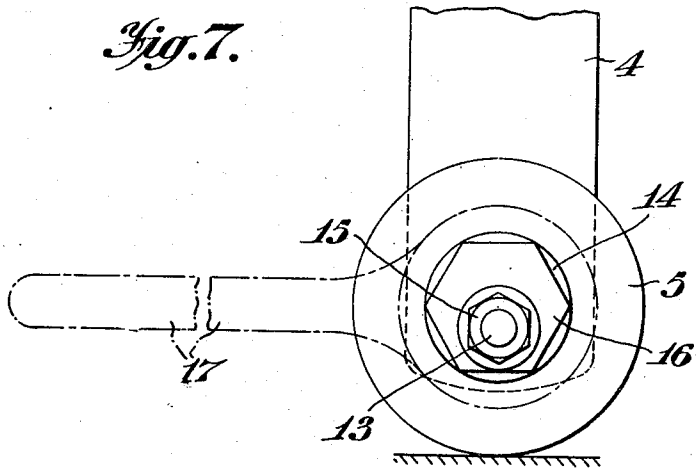


Fig. 7.



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UNITED STATES PATENT OFFICE

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STEEL HATCH COVER FOR SHIPS

Application filed October 22, 1930, Serial No. 490,349, and in Great Britain November 8, 1929.

This invention relates to ships' hatch covers for hatches of the class wherein the coaming walls upstand from the deck, and concerns covers of the kind arranged to slide on to and from the hatch. It is known in connection with such covers to provide rollers thereon arranged to roll along the hatch coaming, and such preferably also are embodied in the present invention.

Hithereto, unless the hatch covers when slid off the hatch were lowered on to the deck or stood up on end, with consequent difficulty of handling and use of hoisting apparatus in the case of large covers, it has been necessary to provide supporting means mounted upon the deck outside of the hatch area, to receive and support the covers when slid off.

The present invention however has in view to provide a hatch cover with means incorporated therewith for supporting the cover from the deck when slid off the hatch, so that when the cover is slid back into position no cumbersome supporting means is left upon the deck which would be likely to cause obstruction.

The present invention therefore consists, broadly speaking, in the provision of downwardly extending supporting means on an end of the cover, arranged to travel upon the deck and support the cover during the sliding movements thereof.

In order that my invention may be readily understood I will now describe the same with reference to the accompanying drawings which illustrate a practical construction of the hatch cover in accordance therewith, and wherein:—

Figure 1 is a side view thereof showing the hatch and deck structure in the locality thereof and

Figure 2 is a plan view thereof.

Figures 3, 4 and 5 are diagrammatic side views of a modification of the construction shown in Figures 1 and 2.

Figures 6 and 7 are sectional and front views of the rollers employed showing the eccentric mounting thereof as hereinafter described.

In Figure 1 the dotted lines indicate the positions of the covers when moved clear of the hatch.

Referring to Figures 1 and 2 of the drawings the complete cover comprises a pair of cover plates 1, 2 each adapted to cover one-half of the hatch opening and to be drawn off in opposite directions, said plates abutting one another when the hatch is closed.

Each of the said cover plates at its outer end is formed or furnished with a pair of extension arms 3, conveniently in line with the side or end outer frames of the cover as shown, and to each of said arms is secured a vertical downwardly extending leg 4 which, at its lower end is furnished with a roller 5.

Track rails 6 are affixed upon the deck, upon which the rollers 5 of the legs 4 are adapted to travel.

Each cover plate, near its inner end is furnished with a pair of rollers 7 adapted to roll along the top surfaces of the hatch coaming or upon external flanges affixed thereto, and by the combination of the rollers 5 and 7 the covers are supported at both ends by a rolling contact, ensuring easy movement.

The extension arms 8 of the covers conveniently may consist of integral portions of the frames thereof.

In the modification illustrated in Figures 3, 4 and 5, a stepped form of hatch coaming is provided and a pair of cover members 1 and 2 with means for supporting them from the deck as above described, are adapted to travel along the lower portions 8 of the stepped coaming so as to cover outer portions of the hatch area.

Other cover plates 9, 10 also are provided, these being of simple form and furnished with rollers 11 which are adapted to travel along the upper portions 12 of the coaming, so that said plates 9 and 10 serve, in conjunction with one another, to cover the space between the inner edges of the two plates 1 and 2, as shown in Figure 3.

The plates 1 and 2, when in covering positions, have their top surfaces level with the top portions 12 of the coaming so that when the plates 9 and 10 are moved towards the

outsides of the hatch, their rollers will travel on the top surfaces of the plates 1 and 2 and by this initial operation of moving apart the two plates 9 and 10 a centre portion of the hatch is opened as shown in Figure 4 and if such space is sufficient for the particular loading or unloading operation required to be performed, then the outer plates 1 and 2 need not be disturbed. If it is, however, required to have the entire hatch area open, then the plates 1 and 2 with the plates 9 and 10 disposed on them, are slid along in outward direction to the positions shown in Figure 5. It will be understood therefore that there is a minimum amount of transverse space taken up on the deck in this case. Although the hatch covers are described as arranged to slide off in a direction athwartships they may also be arranged to slide off in a fore and aft direction. Further, in the case of a small hatch the cover may consist of a single plate only, having four rollers, two of which are provided on downwardly-extending supports at one end of the hatch so as to roll upon the deck and the others arranged to roll upon the hatch coaming.

If desired the downwardly-extending supports 4 may be attached to the cover plate or plates in such a manner as to be readily detachable therefrom, so that the plate or plates can then be lifted and placed flat on any suitable surface or upon one another without having awkward projections, this being advantageous in the case where the deck cargo prevents the plates being rolled aside. In this case, or as an alternative construction the legs 4 may be pivotally attached to the cover plate or plates so as to fold over thereonto into the area thereof as shown by dotted lines in Figure 1 to permit stowing of the plate or plates in this fashion.

Further the track rails 6 on the deck may be entirely dispensed with by providing an extra pair of rollers on the cover for travelling on the hatch coaming; in this case the cover is guided solely by the pairs of rollers travelling on said coaming rendering deck rails unnecessary for this purpose, the rollers 5 then simply rolling upon the deck.

In the case of either of the constructions illustrated, any suitable jointing means incorporating packing may be provided along the joint or joints between the covers, for instance a channel bar on one cover may house into zed or other suitably shaped bar on the other cover, vertical tapered pins being driven into corresponding apertures in the two bars and serving to draw same together on to packing inserted between them. This is only one example, however, of any suitable form of joint that may be employed and therefore is not illustrated in the accompanying drawings.

Each of the rollers 5, 7 and 11 provided, is mounted to rotate about a bush which itself is eccentrically mounted on a spindle, so that when the said bush is partially rotated by the operator, the complete hatch cover can be caused to drop and come to bear on the hatch coaming so that a tight joint is formed therewith, the rollers being entirely relieved of the weight of the cover until such time as it is desired to move the cover again, when the said bushes are turned back by the operator to raise the cover with respect to the axes of the rollers.

The construction whereby this object is achieved is illustrated in Figures 6 and 7 which refer to the mounting of the rollers 5, although it is to be understood that the same construction applies to the rollers 7 and 11 which travel on the hatch coaming, in which case the part indicated by reference 4 must be regarded as being the side of one of the plates 1, 2, 9 or 10.

The part 4 (in this case one of the depending legs) has formed therewith or secured thereto a spindle 13 upon which is mounted in eccentric fashion a bush 14 held in place by a nut 15 screwed on to the outer end of the spindle. The roller 5 is mounted to rotate about the bush 14, and said bush 14 has a projecting part 16 formed of a hexagonal shape or other non-circular formation which is adapted to receive a spanner or actuating lever 17, or said lever 17 may be formed integrally with said bush.

It will be followed that a partial rotation of the bush 14 by way of lever 17 in one particular direction, will lower the leg 4 and consequently the cover plate whereby the latter will seat firmly on the hatch coaming, whereas turning back of said lever will again raise the cover plate to enable it to be moved.

I claim:

1. In a ship's hatch, the combination of a stepped-topped hatch coaming, cover plates adapted to slide along lower step portions of said stepped top and having their upper surfaces flush with an upper portion of said stepped top, and other cover plates adapted to reside on said upper portion of the stepped top and to slide on to the covers on the lower steps so as to reside thereon in superimposed fashion.

2. In a sliding cover of the class set forth for a ship's hatch, having rollers adapted to travel along the coaming walls, and downwardly extending supports means on the end of each cover provided with a roller adapted to roll along the deck of the vessel, the combination with each roller of a bush forming a bearing for the roller, eccentrically mounted upon a spindle and adapted to be partially rotated to raise and lower the cover.

3. The combination with a ship's hatch embodying coaming walls upstanding from

the deck, of a slidable cover and wheeled supports extending down from the cover to engage the deck, said wheeled supports being formed on legs extending from the leading edge of the cover and lying at right angles to the direction of travel of said cover, said supports constituting the sole support on the deck for the cover in the open position, the transverse edges of the cover being provided with wheels to run on the coaming.

In testimony whereof I have signed my name to this specification at London, England this second day of October, 1930.

ROBERT MACGREGOR.