Dec. 22, 1931. R. B. REITH 1,837,674

HATCH FOR SHIPS AND BOATS

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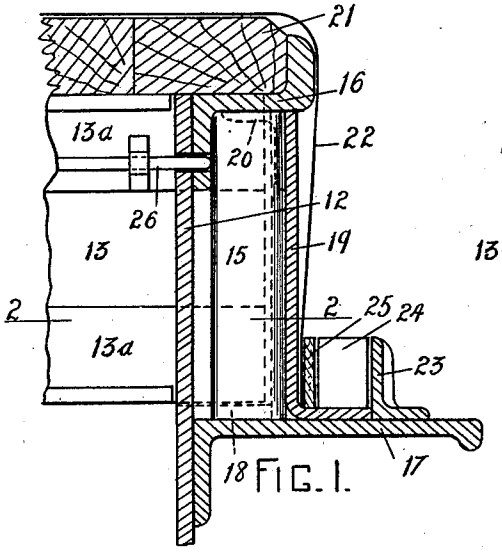


FIG. 1.

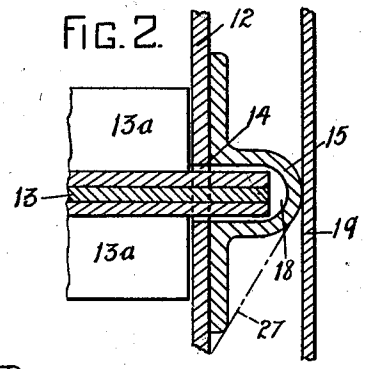


FIG. 2.

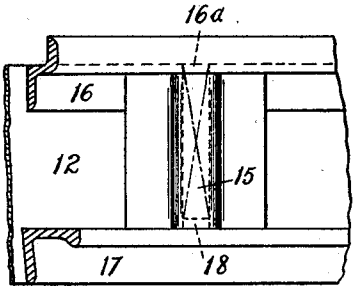


FIG. 3.

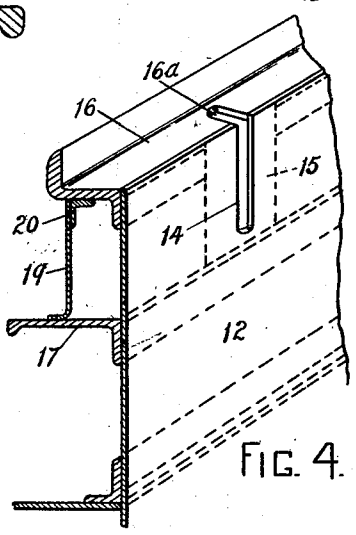


FIG. 4.

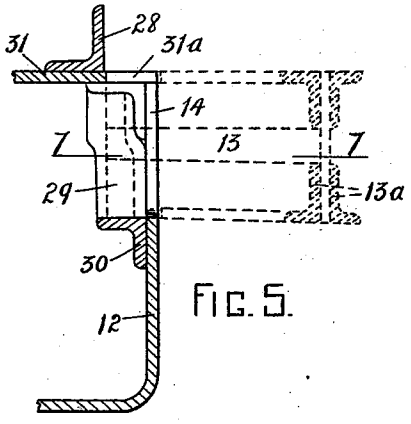


FIG. 5.

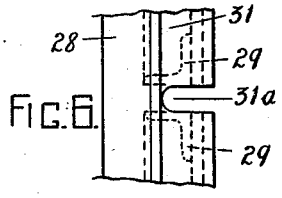


FIG. 6.

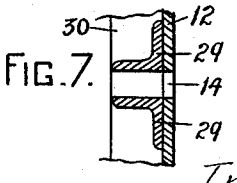


FIG. 7.

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HATCH FOR SHIPS AND BOATS

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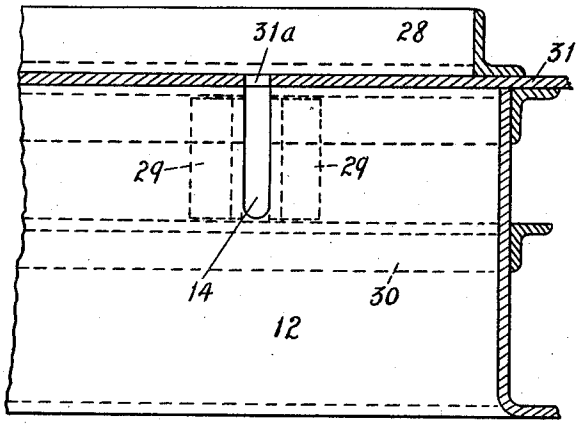


FIG. 8.

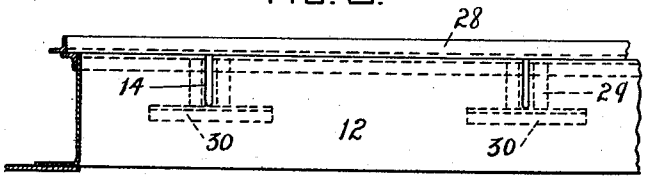


FIG. 9.

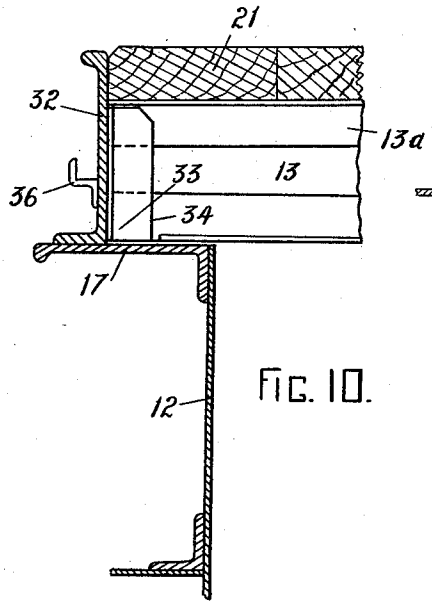


FIG. 10.

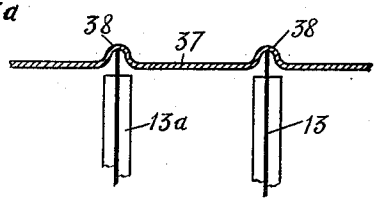


FIG. 11.

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Patented Dec. 22, 1931 1,837,674

UNITED STATES PATENT OFFICE

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HATCH FOR SHIPS AND BOATS

Application filed September 3, 1930, Serial No. 479,499, and in Great Britain December 11, 1929.

This invention relates to hatches for ships and boats of the kind in which hatch bridles or webs extend at intervals across the hatch between the coamings, and are easily removable from the hatch by lifting them vertically out of housings for the ends of the hatch webs.

In the usual existing arrangements, the ends of the bridles or webs are received between lugs or shoes which are secured to the inside of the hatch coamings and which thus form projections extending into the hatchway. Any such projections reduce the available shipping space through the hatchway and should be avoided by reason of the liability of such projections damaging cargo or being damaged themselves by cargo which is being loaded or unloaded through the hatchway.

The present invention has for its object to provide an improved construction of hatch in which the hatch webs are completely housed at their ends over their full depth, and are easily removable from the hatch, while at the same time eliminating the use of any projections on the inside of the hatchway. For this purpose the hatch webs are made of extended length so that they are longer than the width of the hatchway over the full depth of the ends of the hatch web, and each end is completely housed over its full depth in a housing, recess or channel which is outside or extends laterally outwards from the hatchway.

In order that the invention may be more clearly understood, reference is hereinafter made to the accompanying drawings illustrating various examples of the manner in which my invention may be carried into effect.

Fig. 1 is a cross-sectional view through one side of a weather-deck hatch. Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1. Fig. 3 is a fragmentary outside elevation looking towards the web housing, with the fore-and-aft cover plate removed. Fig. 4 is a fragmentary perspective view looking on the inside of the hatch with the web removed.

Fig. 5 is a vertical sectional view through one side of a 'tween-deck hatch. Fig. 6 is a plan view thereof and Fig. 7 a cross-sectional view on the line 7—7 of Fig. 5. Figs. 8 and 9 are fragmentary inside elevations of the 'tween-deck hatch side to different scales of size.

Fig. 10 is a vertical sectional view showing an alternate construction of web housing for a weather-deck hatch.

Fig. 11 is a horizontal sectional view showing how the coaming may be joggled to receive the webs.

Referring to Figs. 1 to 4 of the drawings, the hatch coaming plate 12 is cut at each bridle or web 13 and the opening 14 in the coaming 12 is covered by a vertical channel 15, which may be a casting or forging or a rolled steel section. The channel 15 is secured to the outside of the coaming plate 12 by rivets, bolts, set-screws or in any other suitable manner so as to receive and house the end of the hatch web 13 which is made of extended length to enter the housing formed by the channel 15.

The rest bar 16 which supports the hatch cover 21 is cut at 16*a* to allow the web to be dropped into the channel 15.

In order to exclude the entry of water into the hatch through the channel 15 at the joint of the hatch with the longitudinal bulb-angle stiffener 17, the channel 15 is made with a solid bottom 18.

In order that the tarpaulin cover 22 may be brought down evenly at the hatch sides, the spaces between the channels 15 may be covered in by a fore-and-aft side cover plate 19 secured at the top to intermediate angle-iron lugs 20 which are secured to the rest bar 16 by tapped rivets or in any other suitable manner. The side cover plate 19 may be flanged outwards at the bottom and be secured to the stiffener 17 by tapped rivets or other suitable fastenings, or the cover plate 19 may be secured at the bottom to the stiffener 17 by angle lugs similar to the lugs 20.

In place of the cover plate 19, the spaces between the channels 15 may be filled in with a filling of wood or any other suitable material.

The tarpaulin cover 22 is secured between the cover plate 19 and a fixed cleat 23, for example by means of a wedge 24 and a fore-and-aft batten 25.

The web 13, which may be constructed in the usual manner from steel plate stiffened along its top and bottom edges by angle bars 13*a*, may be secured in place in any suitable manner, for example, by means of a slip bolt 26 adapted to engage a hole in the coaming 12.

Instead of the tarpaulin cover 22 being brought down evenly at the sides, the cover plate 19 may be omitted and the angles at each side of the channel 15 may be filled with a filling piece or inclined plate 27, as indicated in dotted lines in Fig. 2, in which case the tarpaulin cover will be battened down against the coaming 12 in the usual manner by the use of battens between each pair of channels 15 or by the use of a continuous batten joggled to fit around the channels 15.

It will be obvious that various other methods may be adopted for completely excluding the entry of water at the web housing formed by the channel 15 whilst at the same time enabling the webs to be dropped vertically into position. For example, the rest bar 16 might be joggled or cut and joined by channels in a similar manner to the coaming 12 and the hatch cover battens 21 might be of extended length over the web 13 so as to extend over the upper end of the channel 15 and thus prevent water from entering the channel 15 at the top thereof, or the upper end of the channel 15 might be sealed in any other manner after the hatch web is placed in position.

It will also be manifest that the coaming 12 need not be cut from its upper edge downwards, that is to say, the web housing or channel 15 need not extend to the rest bar 16 but may stop short thereof, in which case the hatch web will be fitted in position by inserting it obliquely between the coamings so as to first place one end of the web in position, whereupon the other end of the web can be moved into its housing. In this case the web must not be longer than the width of the hatchway plus the depth of one of the housings. When in place, the web can be secured by a bolt or bolts or any other fastenings.

Figs. 5–9 illustrate the construction shown in Figs. 1–4 modified to suit a 'tween-deck hatch. In this case the deck angle 28 is set out beyond the hatchway a distance equal to the depth of the web housing which is formed by a pair of parallel vertical angle iron bars 29 secured to the outside of the hatch coaming 12, which is cut as before. The hatch coaming 12 may be stiffened at the web housing by a short angle iron 30. The top of the hatch or rest bar 31 is notched out at 31*a* (Fig. 6) to allow the hatch web to be dropped into position.

The construction shown in Figs. 5–9 may be applied to any hatch below the weather-deck and to any shape of section which forms the hatch coaming, whether plain angle, bulb angle, channel or other section.

Fig. 10 shows a modified construction of weather-deck hatch in which the coaming is set back above the bulb angle stiffener 17 by providing a fore-and-aft bulb angle hatch top plate 32 secured to the stiffener 17. The corner space 33 between the top plate 32 and the coaming 12 may be filled in with a filling piece which may be a plate continuous with the coaming 12 and cut to receive the webs, or it may be a triangular filling piece of wood or other material. The web housing in this case is formed by two vertical angle iron bars 34 which receive the end of the web between them and which are secured to the inside of the top plate 32. The bulb plate 32 forms the hatch top and carries cleats 36 for battening down the tarpaulin cover.

Instead of setting-back the hatch top by the provision of the bulb angle members 17 and 32 as in Fig. 10, the upper part of the hatch fore-and-aft may be constructed of reversed angle shape in section by bending the coaming plate outwards at right angles and then upwards or by riveting or otherwise securing a fore-and-aft plate of reversed angle section to the top of the coaming plate 12 in place of the bulb angle members 17 and 32, the angle bars 34 being secured to the upper vertical part of the coaming plate or reversed angle plate. In such case the horizontal portion of the coaming plate or reversed angle plate may form a rest for the hatch beams and may, if necessary, be supported upon struts fixed outside the hatch to support the underside of the horizontal portion of the coaming plate, or of the reversed angle plate secured thereto.

As shown in Fig. 11, the housings for the webs might be made integral with the coaming 37 by rolling recesses 38 in the coaming plate or otherwise joggling the coaming plate to form recesses to receive the ends of the hatch webs.

Claims:

1. In a hatch, a plurality of hatch webs which are longer, over the full depth of their ends, than the width of the hatchway, openings in the hatch coaming plates at each web, vertical channels covering said openings and secured to the outside of the coaming plates, and rest bars secured to the upper edge of said coaming plates and recessed above said openings to allow the hatch webs to be dropped vertically into the said channels.

2. In a hatch, a plurality of hatch webs which are longer, over the full depth of their ends, than the width of the hatchway, openings in the hatch coaming plates at each web, vertical channels covering said openings and

secured to the outside of the coaming plates, said channels being adapted to receive the full depth of the ends of the hatch webs, and a side cover plate covering in the spaces between said channels.

3. In a hatch, a plurality of hatch webs which are longer, over the full depth of their ends, than the width of the hatchway, openings in the hatch coaming plates at each web, vertical channels covering said openings and secured to the outside of the coaming plates, said channels being adapted to receive the full depth of the ends of the hatch webs, and a side cover plate covering in the spaces between said channels, said cover plate being secured to the hatch cover rest bars and to the usual transverse stiffener.

4. In a hatch, a plurality of hatch webs which are longer, over the full depth of their ends, than the width of the hatchway, openings in the hatch coaming plates at each web, vertical channels covering said openings and secured to the outside of the coaming plates, said channels being adapted to receive the full depth of the ends of the hatch webs, a filling piece filling the angles at each side of the channels, and battens between the channels for battening down the tarpaulin cover against the coamings.

5. In a hatch, a plurality of hatch webs which are longer, over the full depth of their ends, than the width of the hatchway, openings in the hatch coaming plates at each web, vertical channels covering said openings and secured to the outside of the coaming plates, said channels being adapted to receive the full depth of the ends of the hatch webs, a filling piece filling the angles at each side of the channels, and continuous battens joggled to fit around the channels for battening down the tarpaulin cover against the coamings.

6. A hatch for decks below the weather-deck comprising deck plates, coamings below the deck plates, said coamings being cut at each web, parallel vertical guides fixed to the outside of said coamings at each side of the openings therein, hatch webs which are longer, over the full depth of their ends, than the width of the hatchway, for engaging said guides, and openings formed in said deck plates to allow the hatch webs to be dropped vertically into position between said guides.

7. In a hatch, the means for removably housing the hatch webs consisting of an upper hatch part set back or outwards from the hatchway, hatch webs which are longer, over the full depth of their ends, than the width of the hatchway below the upper hatch part, and vertical housings secured at intervals to the inside of the upper hatch part for receiving the ends of said hatch webs, said vertical housings not extending into the hatchway proper defined by the lower hatch part.

8. A hatch having coaming plates formed at intervals with vertical housings integral with the coaming plates by rolling or otherwise forming recesses therein, said recesses extending towards the outside of the hatch coaming, and webs of extended length housed at their ends over their full depth in said recesses.

9. The combination with a hatch comprising coaming plates defining the shipping space of the hatchway, of landings on the outside of a pair of opposite coaming plates, a plurality of hatch webs longer than the width of said shipping space and passing at their ends through openings in said coaming plates, the ends of said hatch webs resting on said landings, and vertical channels secured to the outside of said coaming plates over said openings, said vertical channels comprising U-shaped portions having their sides in alignment with the edges of the coaming plate openings to form extended bearing surfaces for the ends of the hatch webs.

In testimony whereof I have affixed my signature.

ROBERT BUCHANAN REITH.