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STEEL HATCH COVER

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STEEL HATCH COVER

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This invention relates to sectional steel covers for ships' hatches and has particular reference to the moving of the cover sections to one or other end of the hatch for the purpose of stowing them in upended positions clear of the hatch opening.

The object of the present invention is to provide a novel method of stowing the sections of a hatch cover and an improved construction of hatch covering whereby the novel method of stowing may be carried into effect.

With the foregoing object in view, the present invention provides a method of stowing the longitudinally aligned steel sections of a ship's hatch cover which consists in independently mounting the cover sections so as to be capable of movement in flat disposition toward a stowing end of a hatch, connecting that cover section which is remote from the stowing end of the hatch to a single haulage rope, and applying to said remote cover section through said rope a sustained pull so as to effect the movement simultaneously of all the flatly disposed cover sections toward the stowing end by reason of each section pushing forward any section in front of it and to permit each of the cover sections to tilt independently into a substantially vertical upended position clear of the hatch opening on reaching the stowing end of the hatch. In a preferred embodiment, each of the cover sections in front of that remote section to which the haulage rope is attached is arranged to tilt automatically to the upended position, the last section—namely that to which the haulage rope is attached—being brought to the upended position by reason of continued pulling on said rope, and the second and any following sections—receded from the stowing end of the hatch—are each adapted to act upon the immediately preceding section during the course of the upending movement of said preceding section to displace forwardly the section acted upon so as to permit the following section to tilt to the upended position on reaching the stowing end of the hatch. Arrangements may also be made to facilitate return of the cover sections to their hatch closing positions.

By way of example, the accompanying drawings illustrate, somewhat diagrammatically, a construction of hatch covering means for carrying into practice the method of stowing outlined above. In the following description reference will be made to the accompanying drawings, in which:

Figures 1 to 6 are perspective view in diagrammatic form showing the general arrangement of the hatch structure and hatch covers in various different positions in which:

- Figure 1 depicts all the covers in their hatch-closing position,
- Figures 2, 3 and 4 show three stages during the process of stowing the cover sections,
- Figure 5 shows all the cover sections in their stowed positions,
- Figure 6 shows one stage in the process of returning the cover sections to their hatch-closing positions, and
- Figure 7 illustrates a preferred form of cross joint for use on cover sections which are to be stowed according to the method herein described.

Figure 8 is a plan showing one corner of a hatchway and the cover stowage structure on one side which extends therefrom;

Figure 9 is a cross section on the line IX—IX of Figure 8 but showing a portion of a cover in place; and

Figure 10 is a cross section on the line X—X of Figure 8 also showing a portion of a cover.

The term "hatchway" is used herein to indicate in a general way the structure within which the "hatch opening" is formed. In the embodiment illustrated the hatchway is of the kind provided with a coaming which upstands from the deck, and particularly the weather deck of a ship, the cover sections being stowed in a space above deck level at one end of the hatchway.

In the embodiment illustrated a pair of parallel runways 1, 1 are provided which extend along the full length of the tops of the longitudinal sides 2 of the deck coaming 3. On said runways 1, 1 are adapted to roll the transporting wheels of a number of longitudinally aligned cover sections 4 and 5, four of these sections, i.e., those marked 4a, 4b, 4c and 4d being of approximately equal fore-and-aft length and shorter than the fifth section 5. The sections 4, 5 are moveable independently of one another during the process of stowing. The adjacent sections are provided with intersection cross joints, and so-called contour joints are provided between the sides of the cover sections and the sides of the coaming. These jointings which when in use render the closed cover weathertight, may be of any suitable form. Cleats for securing adjacent cover sections together and other known devices for clamping the closed cover in position may be employed, but are not illustrated. Each cover section is provided with a pair of fore or leading wheels 6 and a pair of trailing wheels 7 which are used for transporting purposes, these wheels 6, 7 being of a known kind.
in which the wheel spindles are journalled in eccentric bushes which can be manipulated so as to throw the wheels out of action, in which case the cover sections bed down on the contour jointing, or alternatively the wheels can be set so as to take the weight and make the cover sections clear of the contour jointing. At or near the centre of length of the cover sections 4a ... 4d a pair of transversely aligned pivots are provided in the form of grooved rollers 8, the displacements of these rollers being such that if the sections 4 are supported on these rollers alone the sections are in a balanced or substantially balanced condition. On the section 5 a dummy extension 9 is provided instead of a roller 8 for the purpose hereinafter described. At the end of the coaming 3 where the cover sections are to be stowed in upended positions a pair of parallel tracks 10, 10 are provided. These tracks 10, 10 extend parallel to the runways 1, 1, to which they are attached at the stowing end of the hatchway and continue beyond the coaming 3 so as to provide a space flanked by the tracks 10, 10 within which the sections 4a ... 4d and 5 are stowed. They are supported at their outer ends on the deck or by a fixed deck structure. The pivot-forming rollers 8 project laterally beyond the fore wheels 6 so that said wheels 6 are still rolling on runways 1, 1 when the rollers 8 are rolling on tracks 10, 10. The trailing wheels 7, however, are longitudinally aligned with rollers 8, so that said wheels 7 as they ride up ramps 11, 11 provided at the rear ends of tracks 10, 10 "break" the cross joints between adjacent sections because the wheels 7 rise to the dotted position depicted in broken lines in Figure 10 while the wheels 6 remain at the lower level. At the stowing end of the coaming 3 inclined ramps 12, 12 are provided to co-operate with the fore wheels 6 for the purpose hereinafter described. A haulage rope 13 is adapted to be attached to an anchorage 14 on the cover section most remote from the stowing end of the coaming 3, namely on cover section 5, and the rope 13 is pulled upon by a winch (not shown) in the direction of the stowing end of the coaming 3. Adjacent sections of the assembly 4a ... 4d and 5 are interconnected by means of chains 15 (or ropes) which are conveniently attached to eyes in triangular plates hung in free pendulum fashion on the extremities of the spindles of rollers 8 and on the dummy extension 9. When the cover sections 4a ... 4d are in the stowed positions they are supported on the tracks 10, 10 by rollers 8, but for the purpose hereinafter described the section 5 is provided at its fore end and on each side with a pivot 17 adapted to co-operate with supporting sockets 18 on the inside of tracks 10, 10.

The process of stowing the cover sections will be readily understood from a consideration of Figures 1 to 5 of the drawings.

Figure 2 shows all the cover sections still in their hatch-closing positions but with the wheels 6, 7 manipulated to set them hard down upon the runways 1, 1 thus bodily raising the sectional covers clear of the contour jointing as in Figure 9; the haulage rope 13 is attached to section 5, all accessories such as cleats and clamps which temporarily secured the sections together and to the coaming having been previously removed or released, so that all the sections are independent of one another and all resting by their wheels 6, 7 on the runways 1, 1.

Figure 3 shows how on causing a winch to wind...
ber packing 24 housed in the vertically-opening channel 26 on section 4b. In this way a thoroughly watertight joint is made. Alternatively, the eccentrically bushed transporting wheels of the sections can be adjusted to a position, such as that shown in Figure 7, in which there is comparatively light compression of the packing 24, before the flange 22 beds into packing 20, thereby providing a joint which is tight enough to exclude rain. The channel 23 constitutes a drain for any water which passes the packing 24.

We claim:

1. A ship's hatch and cover construction wherein cover sections may be slidably moved to be stowed at one end of a hatch coaming having longitudinal and lateral sides upstanding from the ship's deck adjacent a fixed deck structure, comprising, in combination, a runway extending along each of the opposite longitudinal top edges of the coaming, a plurality of cover sections having inner and outer edges adapted to assume coplanar covering positions over the hatch opening of the coaming, a fore wheel and a trailing wheel on opposite outer edges of each cover section adapted to roll along its related runway, each trailing wheel being spaced laterally from the edge of the cover a greater distance than the fore wheel, a pivot roller on opposite outer edges of each section and maintained on an axis above and between the axes of said fore and trailing wheels and also laterally spaced from the edge of the cover in vertical alignment with said trailing wheel, a flexible member connecting the pivot roller of each section with the pivot roller of the next section, whereby each section is joined with the next section, said flexible member hanging free when the sections are stowed and adapted to be pulled taut so as to transmit a pull from one section to the next during the return of the sections from their upended stowed positions to their aligned hatch closing positions, a pair of horizontal parallel stowing tracks projecting from the stowing end of the hatch coaming and supported by the coaming between the coaming and said fixed deck structure, said tracks constituting substantially a continuation of said runways and laterally spaced apart a distance to receive and support the pivot rollers and trailing wheels, downwardly inclined ramps at the ends of the runways adjacent and below the tracks to afford guide means for said fore wheels, means adjacent said tracks supporting said ramps, haulage means connected to the section most remote from the stowing position, whereby, when said section most remote from the stowing position is pulled all preceding sections move toward the stowing position, and the cover sections when moved on the tracks can freely pivot by their respective pivot rollers on the tracks and tilt downwardly at their leading edge between the tracks on their fore wheels to successively assume upended stowed positions, and a pivot pin on each outer side edge of said section most remote from the stowing position and forwardly of its fore wheels.

2. A ship's hatch cover construction according to claim 1, wherein, the tracks at the said stowing ends of the runway have their treads disposed at a higher level than the runways, and upwardly inclined ramps positioned adjacent said downwardly inclined ramps constituting extensions of the tracks to thereby lift the hatch as it slides on the downwardly inclined ramps, whereby the section is lifted to break a water-tight cross joint between that section and the following section.

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