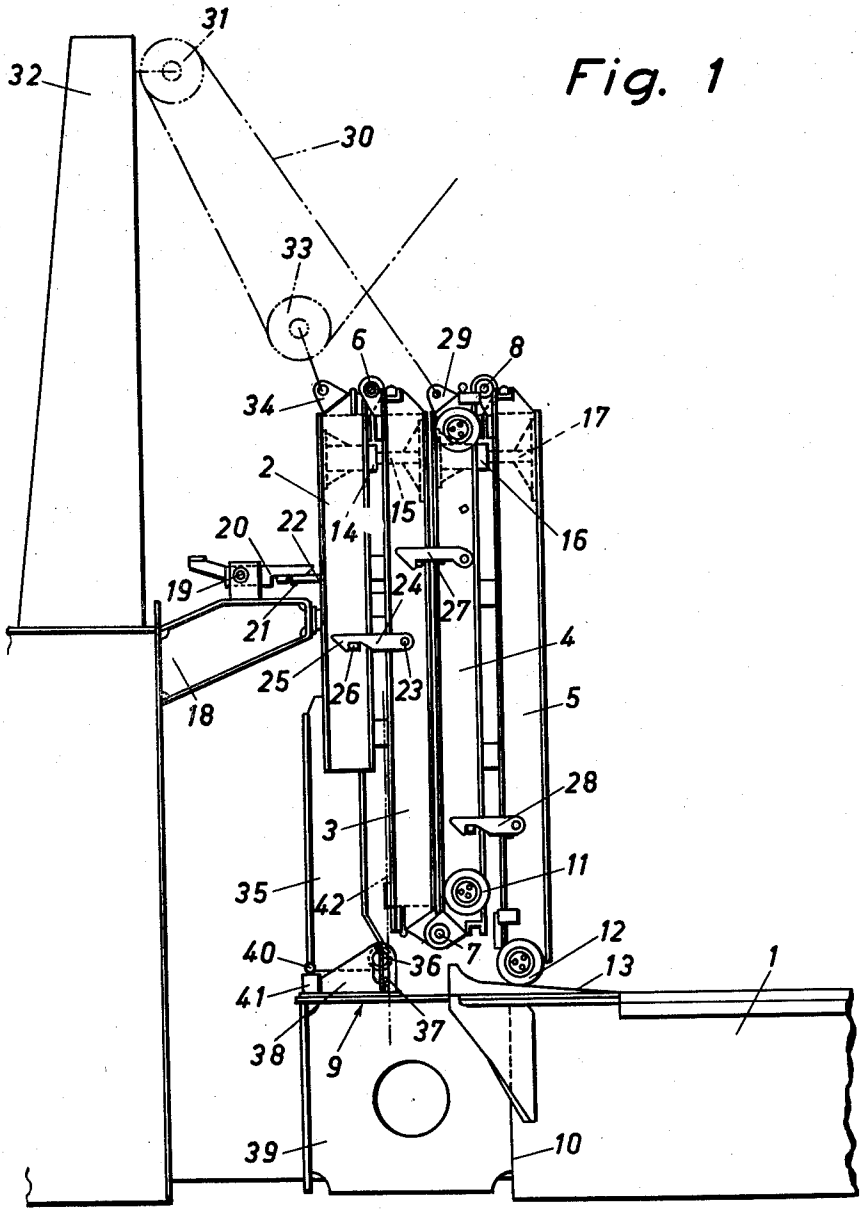
Oct. 29, 1963 C. E. I. DAHLIN 3,108,631

HATCH COVERS

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Fig. 1



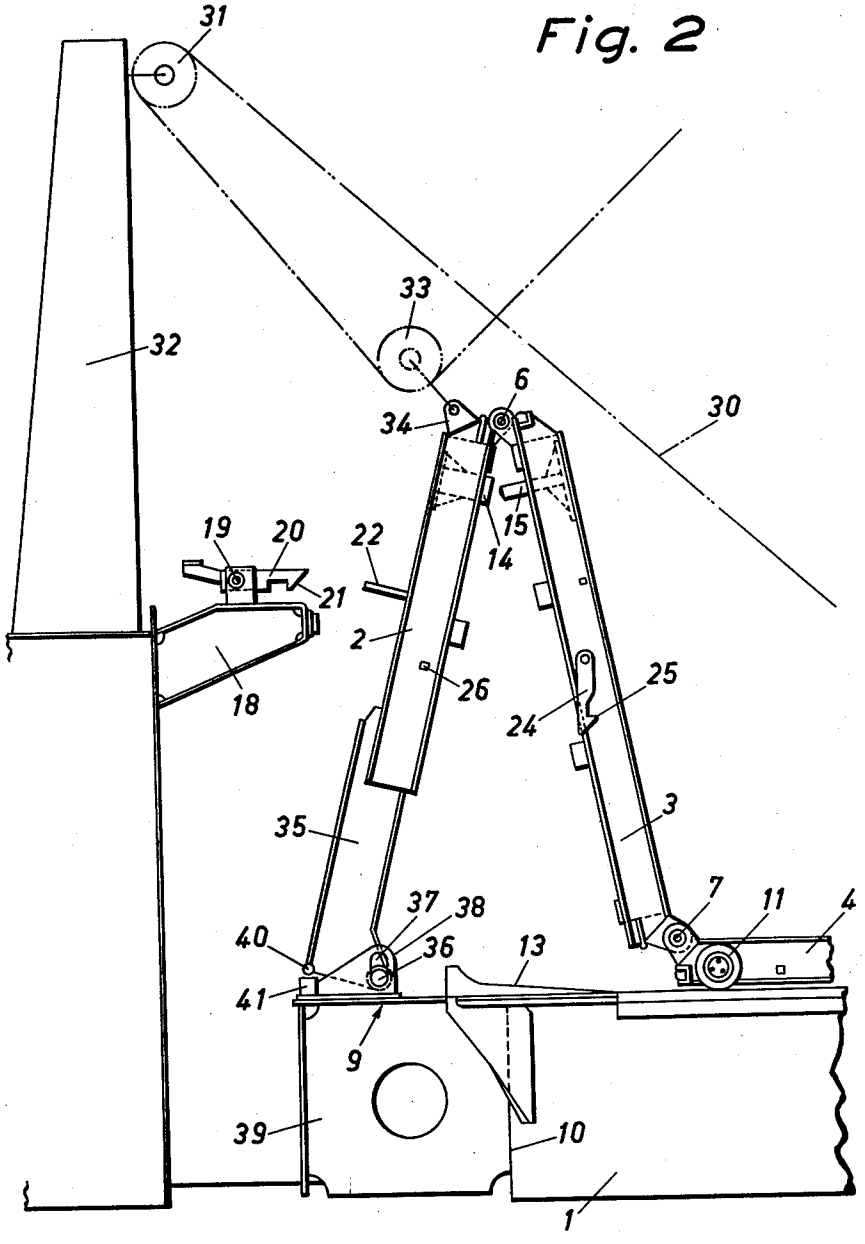
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Fig. 2



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3,108,631
HATCH COVERS

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6 Claims. (Cl. 160—193)

This invention has reference to hatch covers of the kind comprising at least two cover sections hinged to each other, one of said sections attached to the hatch coaming by a hinge shaft, this section denoted the first section, and the adjacent cover section, denoted the second section, foldable in such a way that their lower sides be turned towards each other. It is advisable to arrange a spring means between said two sections for swinging apart these sections at the covering of the hatch way, said means being compressed at the uncovering of the hatch way. The hatch cover is further provided with a catch for a releasable retaining of said first section in folded position of the cover and with catches for releasable retaining of said second section against said first section. The covering and uncovering can, when covers of this kind are used, be carried out by a single draw rope from a winch but it has turned out to be difficult in certain positions of the ship to obtain the necessary initial motion for the spreading of the sections at the covering of the hatch way. This is the case especially when the ship sails in ballast with high stem and low stern.

The aim of the present invention is to overcome this drawback. The main features of the invention is to be seen therein that the hinge shaft comprises coaxial and horizontal bolts or equivalent means on the first section, said bolts guided in notches extending essentially vertically in carrying fittings on the hatch coaming or vice versa and therein that the first section outside the hinge shaft is provided with supports capable of being brought to rest against abutments on one of the end borders of the hatch coaming before the first section is completely folded. Hereby the vertical line from the centre of gravity of the first and second sections, when these sections are in folded position, will extend at a considerable distance in front of the supports also when the ship inclines considerably astern. It is also obtained the advantage that it will be easy to adjust the hinge shaft at the mounting of the hatch covers in such a way that it will be easy to obtain a good tightening against the hatch coaming. The hinge shaft according to the invention also gives a rather low stowing height of the covers and the sight of the winch operator is thereby very little disturbed.

An example of a hatch cover in accordance with the invention will now be described with reference to the accompanying partly diagrammatic drawings, in which:

FIG. 1 is a vertical side elevation of a hatch cover comprising four cover sections in folded position, and

FIG. 2 is a similar view of the cover at the unfolding of the sections.

In the drawings 1 denotes the coaming around the hatch way which is at least partly covered by a cover comprising four sections 2, 3, 4, 5. The cover sections, of which the section 2 will in the following be denoted the first section, the section 3 the second section, the section 4 the third section and the section 5 the fourth section, are connected to each other by means of hinges 6, 7 and 8. The first section 2 is attached to the hatch coaming 1 by means of a hinge shaft 9 situated at some distance from and beyond the after border 10 of the hatch way. The sections 4 and 5 are provided with running rollers 11, 12 capable of rolling on the upper side of the hatch coaming 1 at the covering and uncovering of the hatch way. Roll surfaces

13 inclining ahead are arranged on the end of the hatch coaming 1 in the vicinity of the hinge shaft 9. Said surfaces 13 facilitate the uncovering of the hatch way thereby that the rollers 12 can roll down them.

The under side of the first section 2—i.e in its covering position—carries a cylindrical spring housing 14 provided with a strong helical spring. The second section 3 carries on its under side a piston 15 situated relatively to the spring housing 14 in such a way that when the sections 2 and 3 are folded (FIG. 1), the piston with its free (left) end enters the free (right) open end of the spring housing and thereby compresses the spring housed therein. Also the cover section 4 is provided with a similar spring housing 16 and the cover section 5 with a piston engaging said housing 16 in the folded position of the covers 4 and 5 (FIG. 1).

A catch 20 with a hook 21 is journalled about a horizontal bolt 19 of a stationary bracket 18 on the ship. At the folding of the section 2 the catching hook 21 enters a catch fitting 22 on the upper side of said section and retains thereby the first section in its swung up position. A similar catch 24 is journalled about a bolt 23 on the edge surfaces of the second section 3 (or at least on one edge surface of this section). The catch 24 engages with its hook 25 an abutment 26 on the edge surface of the first section 2 when the second section 3 is completely swung up whereby also this section is retained in vertical position. Also the third and fourth cover sections 4, 5 are provided with catches 27 and 28, respectively, acting in the same way.

The third section 4 is on its edge adjacent the hinge 8 provided with an eye 29 or other suitable device for releasable engagement with a hook or shackle (not shown) on one end of a draw rope 30 running over a delinking pulley 31 on the upper end of the mast 32, over another delinking pulley 33 on a block which is releasably attached to an eye 34 on the first section in the vicinity of the hinge 6 and further to a winch (not shown).

The hinge shaft 9 comprises a number of horizontal bolts 36 arranged coaxially on the outer ends of arms 35 extending rearwardly from the first section 2. The bolts 36 are arranged on the lower edges of the arms 35 (when the cover section 2 is in horizontal position) and extend through substantially vertical notches in carrying fittings 38 on blocks 39 extending rearwardly from the coaming 1. Beyond (according to FIG. 1 to the left of) the hinge shaft 9 the arms 35 are provided with supports 40 situated above an abutment 41 on the blocks 39 in such a way that at the swinging up of the section 2 the supports 40 are brought to rest against the abutments 41 (vide FIG. 2) before the section 2 is completely swung up. At the end of the raising movement of the section 2 the bolts 36 slide upwards in the notches 37. As seen in FIG. 1 the vertical line 42 from the common centre of gravity of the two sections 2 and 3 extends at a considerable distance in front of the supports 40 when the ship is in an essentially horizontal position. Also in case the ship has a considerable trim, e.g. astern (i.e. inclines obliquely downwards to the left according to FIG. 1), the vertical line 42 would still pass in front of the supports 40. It is thereby always ensured a fast and easy covering of the hatch way.

The hatch cover shown on the drawings is brought to cover the hatch way in the following manner. A slight hauling of the rope 30 causes the catches 20, 24, 27, and 28 to be released and the different sections are then coupled from each other and from the bracket 18. When thereupon the winch drum is let to run idle while being braked, the section 2 with the section 3 swings—due to the fact that the vertical line 42 from their common centre of gravity passes in front of (according to FIG. 1 to the right of) the supports 40—slowly in clockwise direction

to the position shown in FIG. 2 simultaneously as the section 3 is swung somewhat out by the axial pressure exerted against the piston 15 by the spring in the spring housing 14. However, the sections 5 and 4 have previously been unfolded by the action of the spring in the spring housing 16 which has pressed against the free end of the piston 17 and thereby that the section 5 with its rollers 12 abuts against the inclining surfaces 13.

It is obvious that also an uncovering of the hatch way can be carried out simply and easily by means of the draw rope 30, the different catches 20, 24, 27, 28 then automatically locking the cover sections 2, 3, 4, and 5 when these are completely swung up.

In case the first section 2 has not got the correct position over the hatch coaming 1 at the assemblage of the hatch cover, it is easy to adjust its position by elongating the notches 37 at their ends. It is also possible to increase or decrease the height of the abutments 41 and/or the supports 40.

The present invention has been described in detail above for purposes of illustration only and is not intended to be limited by this description or otherwise except as defined in the appended claims. The invention is also applicable on hatch covers comprising two or more cover sections. The spring housings 14, 16 may be replaced by hydraulic means for unfolding the cover sections. The bolts 36 can be arranged on the carrying fitting 38 and the notches 37 instead be arranged in the arms 35.

What I claim is:

1. In a hatch cover comprising a hatch coaming and at least two cover sections pivotally hinged to each other, one of said cover sections being attached to the hatch coaming and denoted the first section and the next section, being denoted the second section, swingable in such a way that their under sides be turned towards each other, catches for releasably retaining the said first section in its raised position, catches for releasably retaining the said second section against said first section, bolts arranged in conjunction with said first section and forming the hinge shaft between said first section and said hatch coaming, notches extending substantially vertically in carrying fittings on one end border of said hatch coaming for guiding said bolts, said first section having, outside said hinge shaft, supports capable of being brought to rest against abutments on said end border of said hatch coaming before said first section is completely raised.

2. In a hatch cover comprising a hatch coaming and at least two cover sections pivotally hinged to each other, one of said cover sections being attached to the hatch coaming and denoted the first section and the next section, denoted the second section, being swingable in such a way that their under sides be turned towards each other, catches for releasably retaining the said first section in its raised position, catches for releasably retaining the said second section against said first section, bolts arranged through carrying fittings on one end border of said hatch coaming, said bolts forming a hinge shaft between said first section and said coaming, notches in the edge borders of said first section guiding said bolts, said first section having, outside said hinge shaft, supports capable of being brought to rest against abutments on said end border of said hatch coaming before said first section is completely raised.

3. In a hatch cover comprising a hatch coaming and at least two cover sections pivotally hinged to each other, one of said cover sections being attached to the hatch coaming and denoted the first section and the next section, denoted the second section, being swingable in such a way that their under sides be turned towards each other, catches for releasably retaining the said first section in its raised position, catches for releasably retaining the said

second section against said first section, bolts arranged on the outer ends of arms extending rearwardly from said first section and forming the hinge shaft between said first section and said hatch coaming, notches extending substantially vertically in carrying fittings on one end border of said hatch coaming for guiding said bolts, said first section having, outside said hinge shaft, supports arranged on the outer ends of said arms capable of being brought to rest against abutments on said end border of said hatch coaming before said first section is completely raised.

4. In a hatch cover comprising a hatch coaming and at least two cover sections pivotally hinged to each other, one of said cover sections being attached to the hatch coaming and denoted the first section and the next section, denoted the second section, being swingable in such a way that their under sides be turned towards each other, catches for releasably retaining the said first section in its raised position, catches for releasably retaining the said second section against said first section, bolts arranged through carrying fittings on one end border of said hatch coaming, said bolts forming a hinge shaft between said first section and said coaming, notches arranged in arms extending rearwardly from said first section, guiding said bolts, said first section having, outside said hinge shaft, supports capable of being brought to rest against abutments on said end border of said hatch coaming before said first section is completely raised.

5. In a hatch cover comprising a hatch coaming and at least two cover sections pivotally hinged to each other, one of said cover sections being attached to the hatch coaming and denoted the first section and the next section, denoted the second section, being swingable in such a way that their under sides be turned towards each other, catches for releasably retaining the said first section in its raised position, catches for releasably retaining the said second section against said first section, bolts arranged in conjunction with said first section and forming the hinge shaft between said first section and said hatch coaming, notches, extending substantially vertically in carrying fittings on one end border of said hatch coaming for guiding said bolts, said first section having, outside said hinge shaft, supports capable of being brought to rest against abutments on said end border of said hatch coaming, before said first section is completely raised, a means arranged between said first and said second sections for swinging said sections apart at the covering of the hatch way, said means, at the uncovering operation, being compressed.

6. In a hatch cover comprising a hatch coaming and at least two cover sections pivotally hinged to each other, one of said cover sections being attached to the hatch coaming and denoted the first section and the next section, denoted the second section, being swingable in such a way that their under sides be turned towards each other, catches for releasably retaining the said first section in its raised position, catches for releasably retaining the said second section against said first section, bolts arranged through carrying fittings on one end border of said hatch coaming, said bolts forming a hinge shaft between said first section and said coaming, notches in the edge borders of said first section guiding said bolts, said first section having, outside said hinge shaft, supports capable of being brought to rest against abutments on said end border of said hatch coaming before said first section is completely raised, a means arranged between said first and said second sections for swinging said sections apart at the covering of the hatch way, said means at the uncovering operation being compressed.

No references cited.