Sept. 6, 1966 P. RICHTER ETAL 3,270,801

AUTOMATIC HOLDBACK DEVICE

Filed June 10, 1963 3 Sheets-Sheet 1

FIG. 1

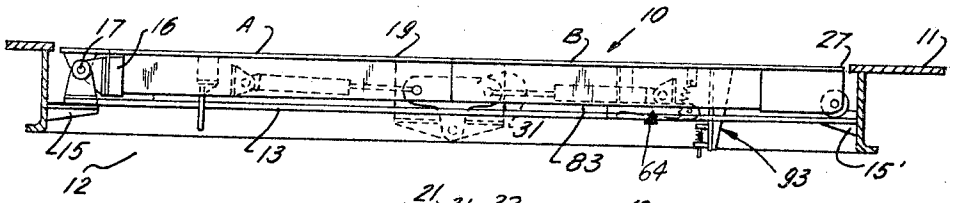


FIG. 2

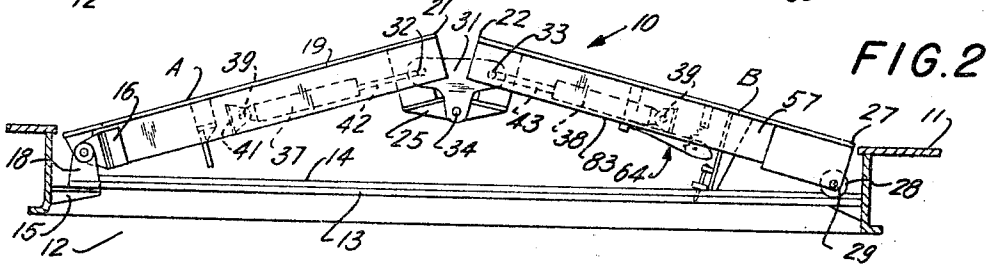
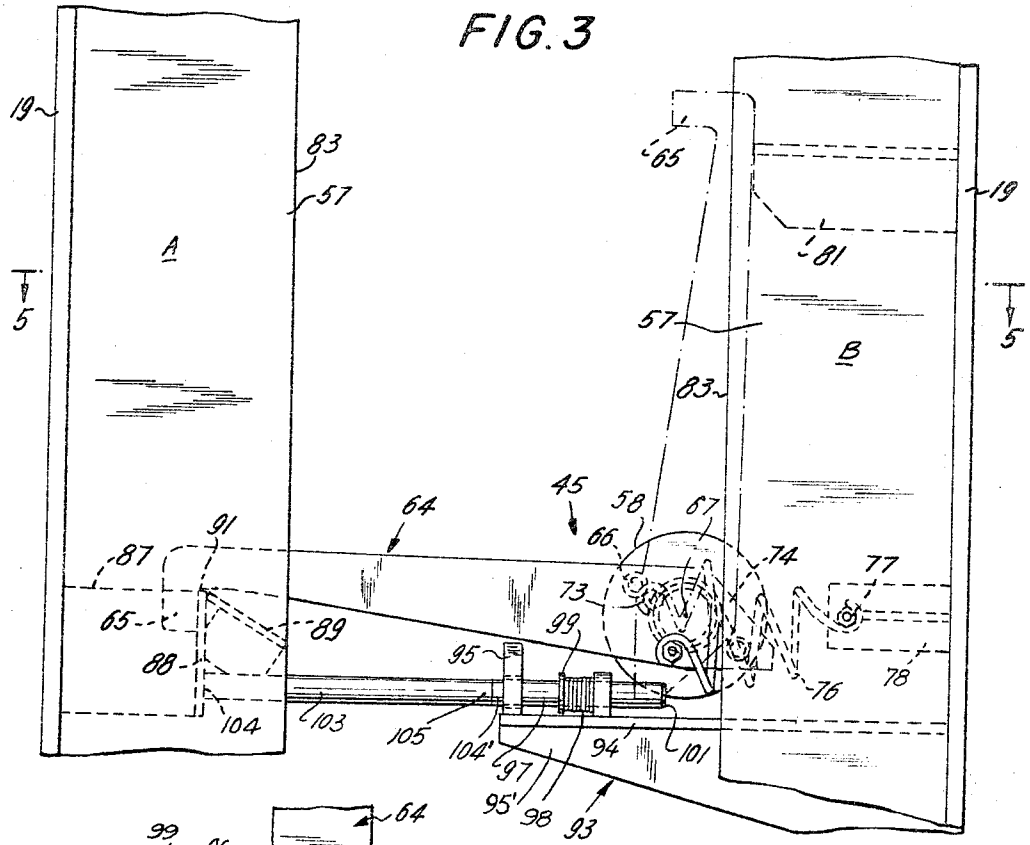


FIG. 3



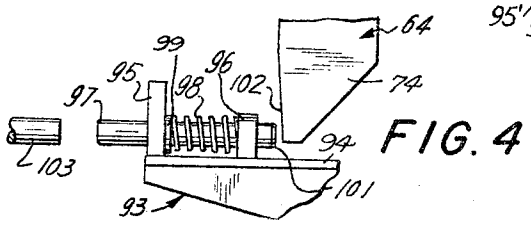


FIG. 4

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Sept. 6, 1966 P. RICHTER ETAL 3,270,801

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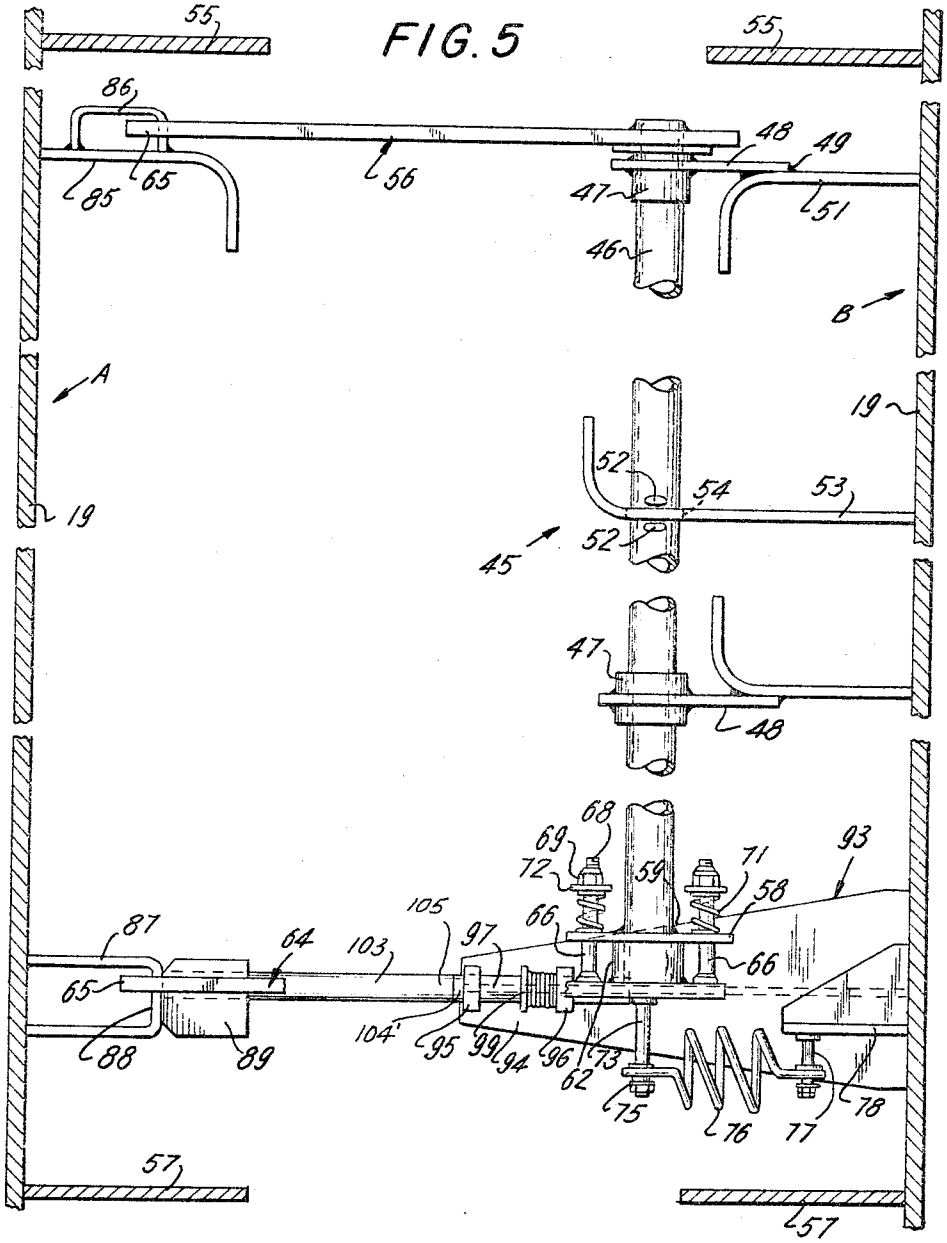
Filed June 10, 1963 3 Sheets-Sheet 2

FIG. 5



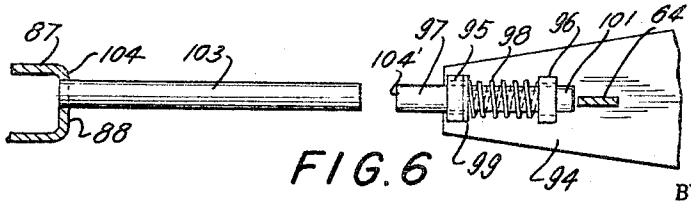


FIG. 6

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AUTOMATIC HOLDBACK DEVICE

Filed June 10, 1963 3 Sheets-Sheet 3

FIG. 7

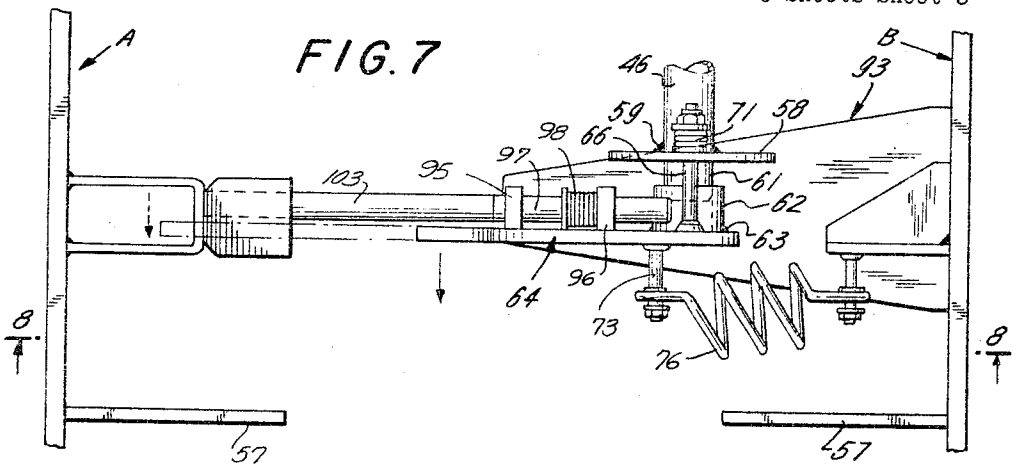
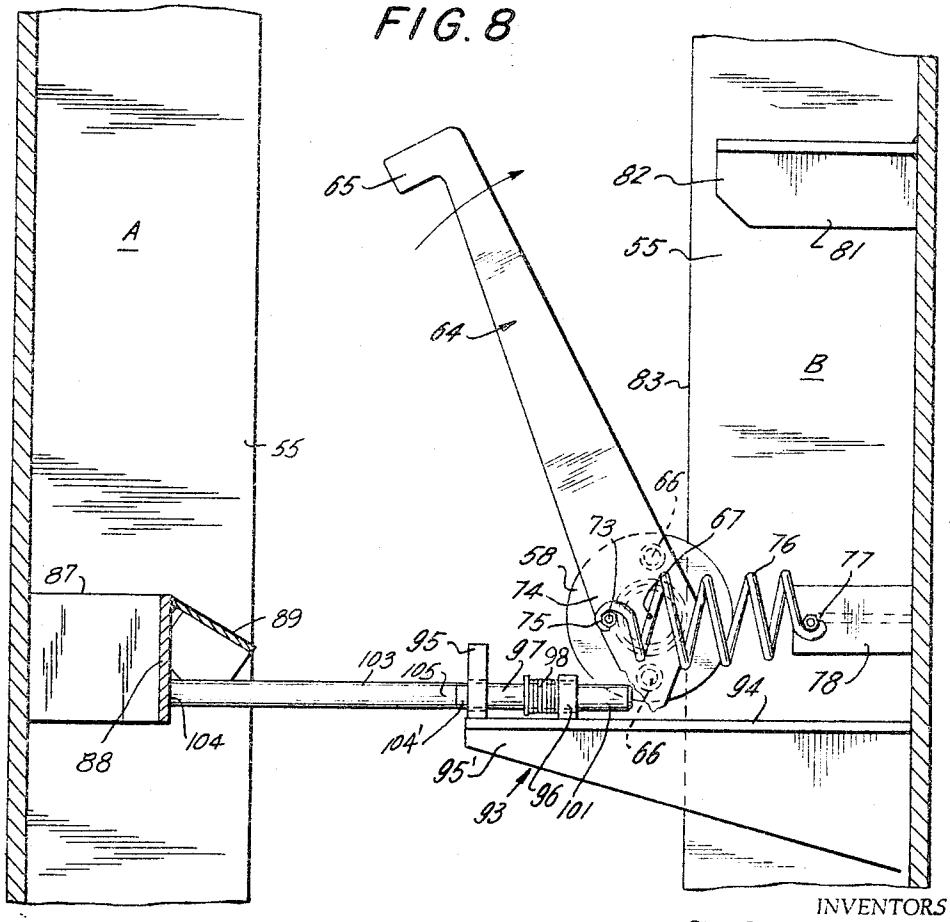


FIG. 8



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AUTOMATIC HOLDBACK DEVICE

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Filed June 10, 1963, Ser. No. 286,692
10 Claims. (Cl. 160—213)

This invention relates to the art of holdback devices for retaining a movable member in fixed position with respect to a second member and more particularly to a latching mechanism for retaining a pair of pivotally connected hatch cover panels in booked or open position.

As conducive to an understanding of the invention, it is noted that where, for example, a pair of hatch cover panels are provided, one of which is pivotally connected with respect to a hatchway and the other of which is pivotally connected to the associated panel and the panels are movable from horizontal position over the hatchway to close the latter, to substantially vertical or booked position at one end of the hatchway to open the latter, if, when the panels are in the booked or open position, they should accidentally start moving to the closed position, since the panels are unrestrained, due to their heavy weight they will rapidly close, with the result that crew members located in or around the hatchway and who may be loading or unloading cargo, are likely to be struck by the accidentally moving hatch panels with resultant injury.

More particularly, where the hatch cover panels are of the type that are pivoted to open position by means of a cable from a winch or the ship's boom, for example, and the cable is disconnected from the hatch covers after they have been moved to booked or open position so that the winch or ship's boom can be used for loading or for unloading cargo from the hatchway, if the ship should tilt due to the action of waves, for example, the hatch cover panels may move toward open position and unless some means are provided to prevent such accidental movement of the panels, the dangers above mentioned may occur.

Where the hatch cover panels are of the hydraulically actuated type, generally after the panels are in open or booked position, the closed hydraulic circuit will keep the panels in place.

However, if there should be a break in a hydraulic line, for example, through accidental contact during loading or unloading of the ship, the loss of fluid could permit undesired free movement of the panels to closed position with the dangers above mentioned.

It is also to be noted that accidental opening of the hatch cover planel may occur when such panels are hydraulically operated, by reason of the fact that a crew member may inadvertently open a control valve that will permit fluid under pressure to flow to the hydraulic actuators to cause closing of the panels while crew members are still working in and around the hatchway with resultant danger of injury thereto.

Where the latch is of a conventional type which is manually positioned to lock the covers together, it is necessary for a person to actuate the latch to its locking position each time the covers are opened. In addition to requiring manpower to perform this operation, there is always the possibility that any particular latch will not be positioned to lock the covers due to inadvertency or any other reasons.

It is accordingly amoung the objects of the invention to provide a holdback device which is relatively simple in construction and which will automatically lock and dependably retain the hatch cover panels in closed or booked position, yet which cannot be released without affirmative manual operation by a crew member, thereby avoiding the possibility of premature and undesired movement of the hatch cover panels to open position.

According to the invention, the holdback device comprises a latch arm on one of the panels which is automatically moved into engagement with a complementary retaining member on the other panel wthen the panels attain booked position.

More specifically, the latch arm is normally spring urged to unlocked position and a control member carried by the other panel operatively reacts against the latch arm when the panels approach booked position to pivot the latch arm toward locked position and the resilient means associated with the latch arm will urge the latter to locked position when the latch arm has been rotated a predetermined amount by such control member.

An abutment member is associated with the latch arm and will prevent pivotal movement of the latter from locked to unlocked position unless the latch arm is manually displaced away from the locking member and then manually rotated a predetermined distance toward unlocked position, after which resilient means will urge the latch arm into unlocked position.

In the accompanying drawings in which is shown one or more of various possible embodiments of the several features of the invention,

FIG. 1 is a side elevational view of a hatch cover assembly in which the latching mechanism is incorporated, showing the hatch cover assembly in closed position,

FIG. 2 is a view similar to FIG. 1 showing the hatch cover assembly moving toward booked position,

FIG. 3 is a fragmentary side elevational view of the hatch cover assembly in booked and locked position,

FIG. 4 is a fragmentary detail view of the latch arm and associated locking member with the latch arm in unlocked position.

FIG. 5 is a view taken along line 5—5 of FIG. 3,

FIG. 6 is a fragmentary detail view showing the control mechanism for the latching assembly,

FIG. 7 is a fragmentary detail view similar to FIG. 5 showing the latching mechanism with the panels booked but the latching mechanism in pulled out and unlocked position, and

FIG. 8 is a view taken along line 8—8 of FIG. 7.

Referring now to the drawings, in the illustrative embodiment herein shown, the latching mechanism is incorporated into a hatch cover assembly **10** of the general type shown in Reissue Patent No. 24,238 dated November 13, 1956.

More specifically, as shown in FIGS. 1 and 2, the deck **11** of the ship has a substantially rectangular opening therein defining a hatchway **12**, which, as shown, has a ledge **13** extending the length of the hatchway on each side thereof and spaced below the level of the deck **11**.

Each of the ledges **13** supports an elongated track **14** as is clearly shown in FIG. 2, and each end of the hatchway has a support beam **15**, **15'** extending transversely thereacross. The ledges **13** serve to support the hatch cover assembly **10**.

The hatch cover assembly **10** illustratively comprises a pair of substantially rectangular panels A and B, of sufficient length so that they may extend transversely across the hatchway, the panels being of such width that when in the closed position, shown in FIG. 1, they will extend from substantially one end of the hatchway **12** to the other to close the latter.

Extending outwardly from the outer side edge of panel A are mounting arms **16**, the free end of each of which is pivotally connected as at **17** to the top of an associated upright standard **18** affixed to the ledge **15**, the height of such standard **18** illustratively being such that the pivot point **17** will be below the level of the deck **11** as is clearly shown in FIG. 1 and the thickness of each

of the panels being such that when the panels are in closed position, their top surfaces formed by plate **19** will be substantially flush with the deck **11**.

The adjacent inner edges **21**, **22** of the panels A and B at their lower edges, in the illustrative embodiment shown, are connected as by means of common hinges **25** so that the pairs of panels A and B may be folded about such hinges **25** respectively from closed position, in which the panels extend horizontally over the hatchway, to open or booked position in which the panels are in side by side vertical relation at one end of the hatchway.

To facilitate movement of the panels from closed to open position and vice versa, in the manner hereinafter to be described, the panel B at each end adjacent its outer edge **27** mounts a flanged roller **28** rotatably mounted on a shaft **29**, the rollers **28** being adapted to ride along the tracks **14** on the flanges **13**.

The panels are desirably moved between closed to open position by hydraulic actuators, illustratively of the type shown in Reissue Patent No. 24,238, dated November 13, 1956.

To this end, referring to FIG. 2, for example, a plurality of reaction members are provided, each preferably comprising a plate **31** which may be substantially triangular in shape having openings **32**, **33** and **34** at each of its corners and desirably positioned in a vertical plane with a pin, which defines the axis of hinge **25**, extending freely through the bottom opening **34**.

Reacting against each of the plates **31** is a pair of opposed hydraulic actuators **37** and **38** mounted respectively in the panels A and B. The rear ends of each of the actuators **37**, **38** is preferably pivotally mounted as at **39** to an associated beam **41**. The outer ends of the reciprocable plungers **42**, **43** of the actuators **37**, **38**, respectively, are pivotally connected to an associated reaction plate **31** by means of pins extending through the outer ends of the plungers and the openings **32**, **33**, respectively. The hydraulic actuator units **37**, **38** are illustratively of the double acting type and each has a control port at its respective ends on each side of the piston (not shown) slidably mounted therein to effect movement of the latter in the direction desired.

As the operation of the hydraulic actuators above described is clearly set forth in Reissue Patent No. 24,238 and per se forms no part of this invention, it will not be further described.

According to the invention, the latching mechanism **45** comprises a rod **46** which extends substantially the length of panel B parallel to the top plate **19** thereof as is clearly shown in FIG. 5.

The rod **46** is rotatably mounted in spaced bearing collars **47** secured to support arms **48** which in turn are secured as by welding at **49** to suitable brackets **51** affixed to the inner surface of top plate **19** and extending inwardly therefrom at right angles thereto. To prevent axial displacement of the rod **46** in its bearing collars **47**, the rod **46** has a pair of closely spaced cotter pins **52** extending therethrough, the heads of which straddle a bracket **53** also secured to the inner surface of plate **19** and extending inwardly therefrom, said bracket **53** having an opening **54** through which the rod **46** extends.

One of the ends of rod **46**, adjacent skirt plate **55** of the panel B at one end thereof, has rigidly secured thereto one end of a latch arm **56**, which extends at right angles to rod **46** inwardly of skirt plate **55**.

The other end of rod **46** adjacent skirt plate **57** of panel B at the other end thereof, has a disc **58** secured thereto as by welding at **59**, as shown in FIGS. 5 and 7, said disc **58** having a nipple **61** rigidly secured thereto, as shown in FIG. 7, and extending outwardly therefrom axially aligned with rod **46**.

Encompassing the nipple **61** and rotatable thereon is a collar **62** which, as is clearly shown in FIG. 7, is secured as by welding at **63** to the inner surface of a second latch arm **64** which also extends at right angles to rod **46** inwardly of skirt plate **57**.

As is clearly shown in FIGS. 3 and 5, the latch arms **56** and **64** may be identical and are of the same length, each having a hook conformation **65** at its free ends.

Secured to the inner surface of latch arm **64** and extending inwardly therefrom is a pair of studs **66** positioned on each side respectively of the pivotal axis **67** of collar **62** and latch arms **56**, **64** on a line extending diametrically through such pivotal axis **67**. The studs **66** extend through suitable diametrically aligned openings in the disc **58** and are threaded at their free ends **68** to receive a correspondingly threaded nut **69**. A coil spring **71** encompasses each of the studs **66** and is compressed between the disc **58** and a washer **72** encompassing each of the studs and urged against the associated nut **69**.

As a result of such resilient mount for the collar **62** and the latch arm **64** secured thereto, the latch arm **64** will be restrained from relative rotation with respect to rod **46**, but may be moved outwardly against the tension of coil springs **71**, the latter normally retaining the inner end of collar **62** against the outer surface of disc **58** as shown in FIG. 5.

The latch arms **56**, **64** are so arranged on the rod **46** that not only are they parallel to each other, but they will also be in the same plane with respect to each other.

Means are provided resiliently to urge the latch arms **56**, **64** either to unlocked position in which they extend substantially parallel to top plate **19** as shown in broken lines in FIG. 3, or to locked position in which they extend substantially at right angles to top plate **19** as shown in full lines in FIG. 3.

To this end, as shown in FIGS. 3 and 5, for example, a stud **73** is secured at one end to the outer surface of latch arm **64** at the rear end **74** thereof and extends outwardly therefrom at right angles thereto. The stud **73** as shown in FIG. 8 is secured to the latch arm **64** at a point laterally displaced from the pivotal axis **67** thereof and on a line extending at right angles to the diametric line between studs **66**. The free end **75** of stud **73** has one end of a coil spring **76** secured thereto, the other end of the coil spring being secured to a stud **77** extending outwardly from a bracket **78** secured to the inner surface of plate **19** of panel B.

As a result of the arrangement above described, referring to FIG. 3, when the stud **73** is in a plane above that of a line extending between pivotal axis **67** and stud **77**, the latch arm **64** and hence the rod **46** and latch arm **56** secured thereto will be rotated by the coil spring **76** in a clockwise direction and when the stud **73** is in a plane below such line, the latch arm **64**, rod **46** and latch arm **56** will be rotated in a counterclockwise direction.

The movement of the latch arms **56** and **64** in a clockwise direction is limited by a stop or abutment **81** which may comprise a bracket secured to the inner surface of plate **19** of panel B and extending at right angles thereto. As illustratively shown in the drawings, the free end **82** of bracket **81**, which limits the movement of the latch arms **56**, **64** extends to substantially the lower edges **83** of skirt plates **55**, **57** so that in unlocked position the latch arms are substantially parallel to the top plate **19** and the pivotal axes **67** of the latch arms and the rod **46** are laterally displaced outwardly from the lower edges **83** of said skirt plates **55**, **57** of panel B.

The hook ends **65** of the latch arms are designed to engage suitable receivers or rings carried by the panel A to retain the panels in locked position when the panels are booked as shown in FIGS. 3, 5 and 8, for example.

To this end, the panel A has a bracket **85** secured to the inner surface of top plate **19** thereof and extending at right angles thereto substantially parallel to skirt plate **55**. Secured to the side of bracket **85** adjacent skirt plate **55** is a U-shaped member defining a ring **86** adapted to be engaged by the hook end **65** of latch arm **56**. A U-shaped member defining a receiver or ring **87** is se-

cured to the inner surface of plate 19 of panel A adjacent skirt plate 57 and extends at right angles to said skirt plates, said ring 87 being adapted to be engaged by the hook end 65 of latch arm 64.

In order to insure that the hook ends 65 of latch arms 56, 64 will engage the rings 86, 87, the crosspiece 88 of ring 87 has a guide ledge 89 secured to the upper edge 91 thereof and inclined downwardly as shown, the function of said guide ledge being hereinafter described.

Means are provided to afford automatic latching of the latch arms 56, 64 with the associated rings 86, 87 when the hatch cover panels are moved to booked position.

To this end, as shown in the drawings, a bracket 93 comprising a top plate 94 with a supporting rib 95' on its undersurface is secured at one end to the inner surface of top plate 19 of panel B and extends at right angles thereto beyond the lower edges 83 of skirt plates 55, 57 and beyond the pivotal axis 67 of the rod 46. The top plate 94 of bracket 93 which is substantially vertically aligned with the latch arm 64, as shown in FIG. 5, and is positioned below the latter as shown in FIG. 8, has a pair of spaced bearing blocks 95, 96 on its top surface longitudinally aligned with latch arm 64. In addition to serving as a bearing block, block 95 serves as a stop to limit downward movement of latch arm 64 for reasons hereinafter described.

Extending through longitudinally aligned openings in blocks 95, 96 is an actuating rod 97 which is encompassed by a coil spring 98 compressed between block 96 and a snap ring 99 engaging an annular groove (not shown) in rod 97. Thus the rod 97 will normally be urged to retracted position limited by the abutment of snap ring 99 against block 95 as is shown in FIG. 4.

In such retracted position as shown in FIG. 4, the nose end 101 of the actuating rod 97 will be slightly spaced from and aligned with the edge 102 of the rear end 74 of the latch arm 64.

The actuating rod 97 is moved by a control rod 103 which, as shown in the drawings, is carried by panel A. The control rod 103 has one end 104 secured to the crosspiece 88 of ring 87 and extends at right angles thereto outwardly beyond the lower edge 83 of skirt plates 55, 57. The rod 103 is so positioned that when the panels A and B are moved to booked position as shown in FIGS. 3 and 5, for example, the rod 103 will be longitudinally aligned with the rear end 104' of actuating rod 97 so that it will abut against the latter to move the rod 97 to extended position for the purpose hereinafter set forth.

In operation of the latching mechanism, assuming that the hatch cover assembly 10 is in closed position, as shown in FIG. 1, in which the panels A and B are in substantially a horizontal plane, the latch arms 56, 64 will be retained in unlocked position by the tensed coil spring 76. In such position the nose end 101 of actuating rod 97 will be slightly spaced from and aligned with the rear end edge 102 of latch arm 64 as shown in FIG. 4.

When fluid under pressure is applied to the hydraulic actuators 37, 38 to effect opening of panels A and B, the panels A and B will start to pivot toward booked position as shown in FIG. 2. As the hydraulic operation of the hatch cover panels is clearly described in Reissue Patent No. 24,238 and per set forms no part of the present invention, it will not be further described.

As the panels A and B approach booked position, the end 105 of control rod 103 will abut against the rear end 104' of actuating rod 97 and with further movement of the panels to booked position, the control rod 103 will move the actuating rod 97 to extended position against the tension of coil spring 98.

As this occurs, the nose end 101 of actuating rod 97 will press against the rear end edge 102 of latch arm 64 causing the latter to pivot in a counterclockwise direction against the tension of coil spring 76 which is urging the latch arm in a clockwise direction. Such counterclockwise movement of latch arm 64 will also cause corresponding movement of the rod 46 secured thereto by studs 66 and disc 58 as well as the latch arm 56 secured to rod 46.

With further movement of the panels A and B to booked position and resultant pivotal movement of latch arm 46 in a counterclockwise direction, the stud 73 to which one end of coil spring 76 is connected will be moved to a plane below the plane of a line between the pivotal axis 67 of the rod 46 and the stud 77 to which the other end of the coil spring 76 is connected.

As a result, the coil spring 76 will now urge the latch arm 64 and rod 46 and latch arm 56 connected thereto in a counterlockwise direction, so that the latch arms 56 and 64 will snap downwardly moving the hook ends 65 thereof into engagement with receivers or rings 86, 87 carried by panels A, thereby locking the panels A and B together.

In the event the latch arms 56, 64 should snap downwardly before the hook ends 65 thereof can engage the rings 86, 87, in such case the hook end 65 of latch arm 64 will engage the guide ledge 89 either directly or indirectly since block 95 is positioned to stop latch arm 64 so that the hook end 65 of latch arm 64 will always be maintained at an elevation above the lower end of plate 89. With further movement of panels A and B to the final booked position, the hook end 65 of latch arm 64 will ride up guide ledge 89 and then the hook ends 65 of both latch arms 56, 64 will engage the associated rings 86, 87.

Although the locking action is automatic as above described, the unlocking action is manual and requires a positive operation by a crew member to prevent inadvertent unlocking.

To unlock the panels, referring to FIGS. 5, 7 and 8 for example, a crew member must reach in between the booked panels A and B and after grasping the latch arm 64, pull the latter axially outward, such movement being afforded by reason of the slidable connection of latch arm 64 to disc 58 through studs 66.

As a result of such axial movement, the latch arm 64 will be moved from the position shown in FIGS. 4 and 5 in which the edge 102 of the latch arm 64 is longitudinally aligned with actuating rod 97, to the position shown in FIG. 7 in which the end of the latch arm is laterally spaced from said rod 97.

With the latch arm 64 still grasped by the crew member and laterally displaced from the rod 97, the crew member then rotates the latch arm 64 in a clockwise direction as shown in FIG. 8 at least until the latch arm 64 is passed beyond the dead center position, that is when the stud 73 is above the plane of the line between the pivotal axis 67 and stud 77.

As the rod 46 and latch arm 56 will rotate in unison with latch arm 64, the hook ends 65 of both latch arms will simultaneously be moved clear of the rings 86, 87 carried by panel A to release the latter.

When the stud 73 to which the spring 76 is secured passes above the plane of the line between the pivotal axis 67 and stud 77, the spring 76 will then urge the latch arms 56, 64 and rod 46 in a clockwise direction to position and retain the latch arms in unlocked position against bracket 81.

Thereupon, when the crew member releases latch arm 64, the compressed coil spring 71 around studs 66 will move latch arm 64 inwardly. However, since the actuating rod 97 is still in extended position by reason of the abutment of control rod 103 thereagainst, the nose end 101 of actuating rod 97 will be in the path of the axial inward movement of the edge 102 of latch arm 64 as shown in broken lines in FIG. 3 and hence such edge 102 will press against the side of the nose end 101 of the actuating arm 97.

Thereupon, the panels A and B may be pivoted to closed position by forcing fluid under pressure into hydraulic actuators in conventional manner and as the panel A pivots away from panel B, the control rod 103 will move away from actuating rod 97 so that coil spring 98 can

move the rod 97 to retracted position. As this occurs, the rod 97 will move clear of the edge 102 of the latch arm 64 and the coil spring 71 around studs 66 will then move latch arm 64 further inwardly until collar 62 abuts against disc 58. At this time the nose end 101 of actuating rod 97 will again be aligned with the end 102 of latch arm 64 as shown in FIG. 4 ready for the next automatic latching action.

It is to be noted that when the latch arm 64 is in locked position, as shown in FIG. 5, with the collar 62 against disc 58 and with the actuating rod 97 in extended position, if the crew member should attempt to rotate the latch arm 64 in a clockwise direction, only slight pivotal movement would occur before the edge 102 of the latch arm 64 would abut against the nose end 101 of the rod 97 and further pivotal movement of the latch arm 64 would be restrained. Since at this time the stud 73 would still be at a point below the line between pivotal axis 67 and stud 77, the spring 76 would still be urging the latch arm 64 to locked position. Hence, as soon as the crew member released the latch arm 64, the spring 76 would snap the latter back to locked position.

Accordingly, not only must the crew member rotate the latch arm 64, but he must also pull on the latch arm to move it axially outward, thus preventing accidental momentary release of the hook ends 65 of the latch arms from the rings 86, 87 from effectively permitting disengagement.

The latching mechanism above described thus provides automatic latching of the hatch cover panels in booked position thereby precluding the possibility of failure to latch due to human error, and by reason of the fact that the latching mechanism can only be released by an affirmative manual operation of the crew member, precludes inadvertent release of the latching mechanism and accidental closing of the panels with resultant possibility of danger to crew members working in and about the hatch cover.

By reason of the automatic latching of the hatch cover panels, there is no possibility that the panels may be inadvertently closed, such as by a crew member operating the automatic hydraulic system controlling the hatch cover panels or by reason of rupture of the hydraulic lines where the panels are hydraulically operated, and hence rapid closing of the hatch cover panels with dangers previously mentioned.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. A cover assembly for a hatchway comprising a pair of panels adapted to extend over said hatchway, said panels lying in side by side relation in substantially a horizontal plane when in closed position, means pivotally connecting the adjacent edges of said panels for folding movement thereof between closed and open position, a latch arm having a hook end, carried by one of said panels on the inner surface thereof and pivotally mounted on an axis extending parallel to the plane of the panel on which it is mounted, resilient means secured at one end in fixed position with respect to the panel on which the latch arm is mounted and on one side of the pivotal axis of said latch arm and at its other end to said latch arm at a point which in one pivotal position of said latch arm will be on one side of a line between the pivotal axis of the latch arm and the fixed end of the resilient means to urge said latch arm toward unlocked position and in a second pivotal position of said latch arm will be on the other side of said line to urge said latch arm toward locked position, a complementary retaining member carried by the other panel adapted to be engaged by the hook end of the latch arm when it is moved to locked position and control means carried in part by said other panel and operatively engaging said latch arm when said panels are moved into juxtaposition to effect pivoting movement of said latch arm against the force exerted by said resilient means for engagement of the hook end of the latch arm with the retaining member.

2. The combination set forth in claim 1 in which a rod is rotatably mounted on said first panel on the inner surface thereof between the end edges thereof and extends parallel to the plane of said panel, means to prevent axial displacement of said rod, said latch arm is mounted on one end of said rod and extending at right angles thereto, said control means comprising a slidably mounted actuating member on said first panel having a nose end normally in alignment with the rear end of said latch arm remote from the hook end thereof, and a rear end, means resiliently urging said actuating member to retracted position, said control means comprising a control element movable into engagement with the rear end of the actuating member upon movement of said other panel into juxtaposition with said first panel, whereby said actuating member will be moved to extended position with resultant abutment of its nose end against the rear end of the latch arm to pivot the latter toward locked position with the nose end of the actuating member remaining in alignment with the rear end of the latch arm.

3. The combination set forth in claim 2 in which means are provided mounting said latch arm on said rod to restrain relative rotary movement of said latch arm with respect to said rod but to permit slight axial movement of said latch arm with respect to said rod to move the rear end of said latch arm laterally away from the nose end of said actuating member whereby said latch arm may be pivoted manually toward unlocked position.

4. The combination set forth in claim 2 in which a disc is secured to one end of said rod, a nipple secured to said disc extends outwardly therefrom and is axially aligned with the rod, a collar is slidably mounted on said nipple and is secured to said latch arm axially aligned with said rod, guide means secured to said latch arm and extending through said disc to restrain rotary movement of said latch arm with respect to said disc, yet permitting axial movement of said latch arm with respect to said disc, and resilient means normally retaining said collar against said disc, whereby said latch arm may be moved laterally away from the nose end of said actuating member to permit manual pivotal movement of the latch arm toward unlocked position.

5. The combination set forth in claim 2 in which a second latch arm having a hook end is mounted on the other end of said rod and extends parallel to said first latch arm, and a second complementary member is also carried by said other panel to be engaged by the hook end of said second latch arm.

6. A latching mechanism for retaining a movable member in fixed position with respect to a second member, said latching mechanism comprising a pivoted latch arm having a hook end, carried by one of said members, a complementary retaining member carried by the other member adapted to be engaged by the hook end of the latch arm, control means carried in part by said other member and operatively engaging said latch arm when said members are moved into juxtaposition to effect pivoting movement of said latch arm for engagement of the hook end of the latch arm with said retaining member, and resilient means normally retaining said pivoted latch arm in unlocked position, one end of said resilient means being in fixed position with respect to the member carrying the latch arm, on one side of the pivotal axis of said latch arm and the other end of said resilient means being connected to said latch arm at a point, which in one pivotal position of said latch arm, will be on one side of a line between the pivotal axis of the latch arm and said fixed

end of said resilient means, to react against said latch arm, to urge the latter in one rotational direction toward unlocked position during one portion of the pivotal movement of the latch arm by said control means and in the second pivotal position of said latch arm, will be on the other side of said line, to urge said latch arm in an opposite rotational direction toward locked position, during another portion of the pivotal movement of said latch arm by said control means.

7. The combination set forth in claim 6 in which an inclined guide member is provided extending from said retaining member and adapted to be engaged by the hook end of said latch arm to be guided into said retaining member.

8. A latching mechanism for retaining a movable member in fixed position with respect to a second member, said latching mechanism comprising a pivoted latch arm having a hook end, carried by one of said members, resilient means normally retaining said pivoted latch arm in unlocked position, a complementary retaining member carried by the other member adapted to be engaged by the hook end of the latch arm, control means carried in part by said other member and operatively engaging said latch arm when said members are moved into juxtaposition to effect pivoting movement of said latch arm against the force exerted by said resilient means for engagement of the hook end of the latch arm with said retaining member, said control means comprising a slidably mounted actuating member having a nose end normally in alignment with the rear end of said latch arm remote from the hook end thereof, and a rear end, means resiliently urging said actuating member to retracted position, said control means additionally comprising an element movable into engagement with the rear end of the actuating member upon movement of said other member into juxtaposition with said first member, whereby said actuating member will be moved to extended position with resultant abutment of its nose end against the rear end of the latch arm to pivot the latter toward locked position and in which pivotal movement of said latch arm from said locked position will normally be restrained by the actuating member in its extended position and means to effect axial movement of the latch arm away from the nose end of the actuating member to permit pivoting of said latch arm out of engagement with said retaining member.

9. The combination set forth in claim 8 in which one end of said resilient means is in fixed position with respect to the other member carrying the latch arm one one side of the pivotal axis of said latch arm and the other end of said resilient means is connected to said latch arm at a point which in one pivotal position of said latch arm will be on one side of a line between the pivotal axis of the latch arm and said fixed end of the resilient means to urge said latch arm toward unlocked position and in a second pivotal position of said latch arm will be on the other side of said line to urge said latch arm toward locked position and in which pivotal movement of said latch arm from said second position to said first position is restrained by the actuating member in its extended position, when the rear end of the latch arm is aligned with the actuating member.

10. A latching mechanism for retaining a movable member in fixed position with respect to a second member, said latching mechanism comprising a pivoted latch arm having a hook end, carried by one of said members, resilient means normally retaining said pivoted latch arm in unlocked position, a complementary retaining member carried by the other member adapted to be engaged by the hook end of the latch arm, control means carried in part by said other member and operatively engaging said latch arm when said members are moved into juxtaposition to effect pivoting movement of said latch arm against the force exerted by said resilient means for engagement of the hook end of the latch arm with said retaining member, said control means comprising a slidably mounted actuating member having a nose end normally in alignment with the rear end of said latch arm remote from the hook end thereof, and a rear end, means resiliently urging said actuating member to retracted position, said control means additionally comprising an element movable into engagement with the rear end of the actuating member upon movement of said other member into juxtaposition with said first member, whereby said actuating member will be moved to extended position with resultant abutment of its nose end against the rear end of the latch arm to pivot the latter toward locked position, one end of said latch arm resilient means being in fixed position with respect to the member carrying the latch arm on one side of the pivotal axis of said latch arm and the other end of said resilient means is connected to said latch arm at a point which in one pivotal position of said latch arm will be on one side of a line between the pivotal axis of the latch arm and said fixed end of the resilient means to urge said latch arm toward unlocked position and in a second pivotal position of said latch arm will be on the other side of said line to urge said latch arm toward locked position, said actuating member in its extended position restraining pivotal movement of said latch arm from said second position to said first position when the rear end of the latch arm is aligned with the actuating member, means mounting said latch arm for axial movement away from said actuating member, whereby said latch arm may be manually pivoted to move the end of said resilient means connected to said latch arm to a point where it will be on the first side of said line between the pivotal axis of the latch arm and the fixed end of the resilient means for subsequent urging of said latch arm by said resilient means to unlocked position.

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