

Nov. 13, 1923.

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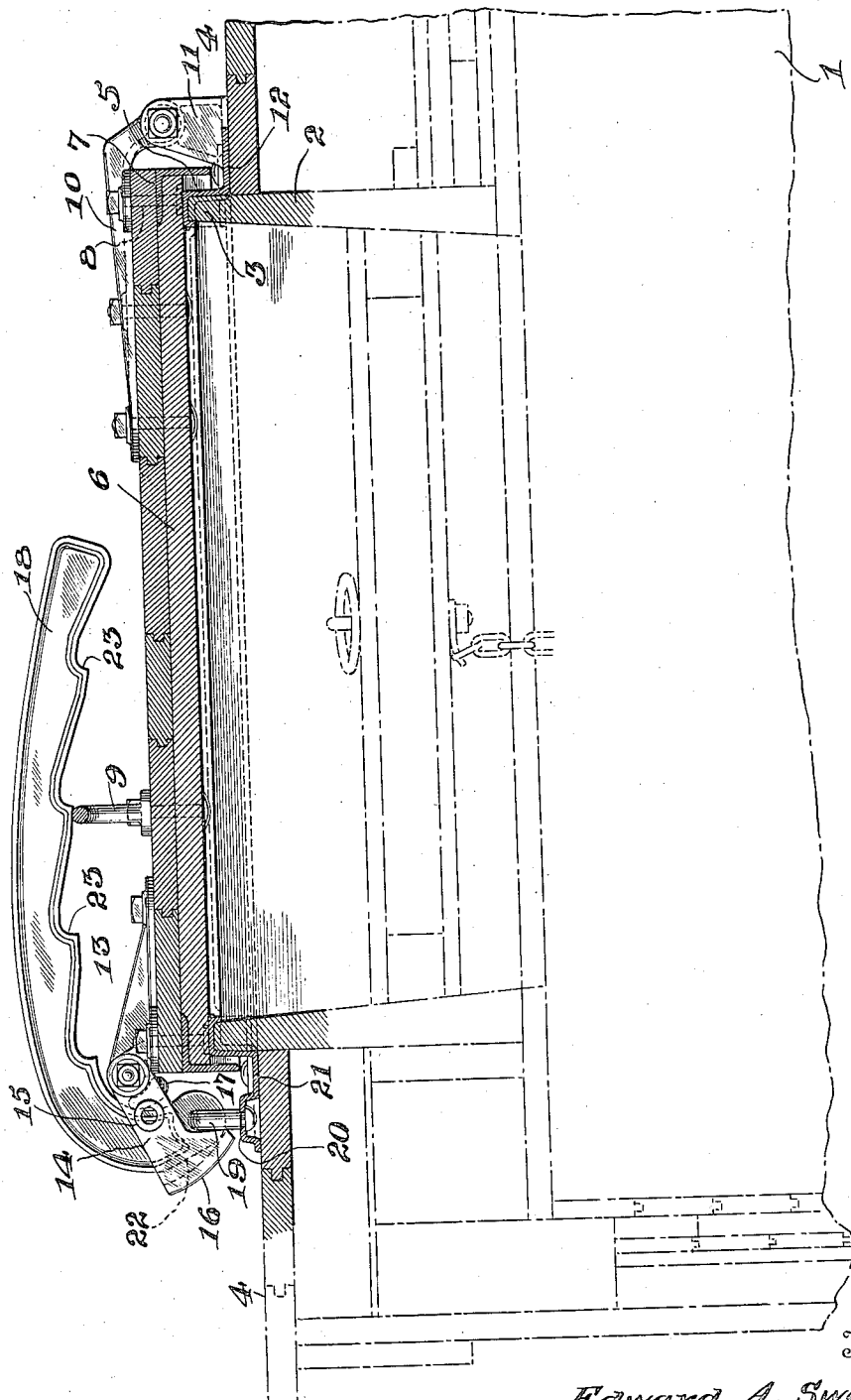
E. A. SWEeley

HATCH COVER AND MEANS FOR SUPPORTING AND LOCKING THE SAME

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3 Sheets-Sheet 1

Fig. 1.



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3 Sheets-Sheet 2

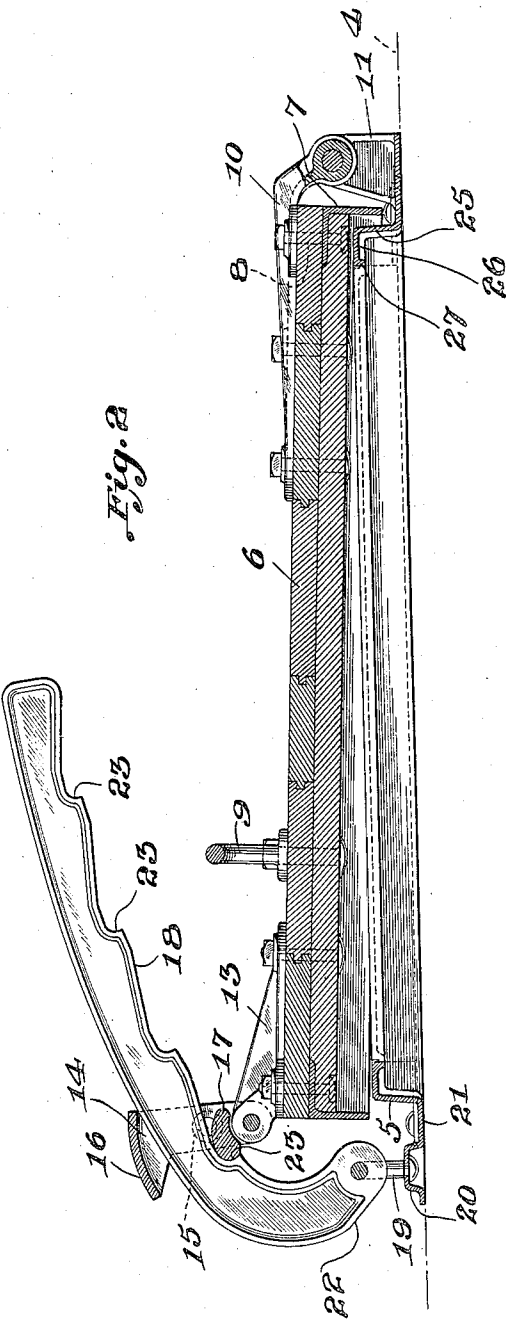


Fig. 5.

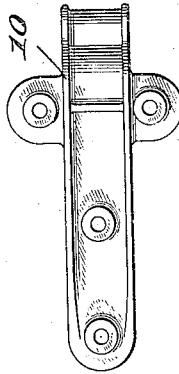


Fig. 4.

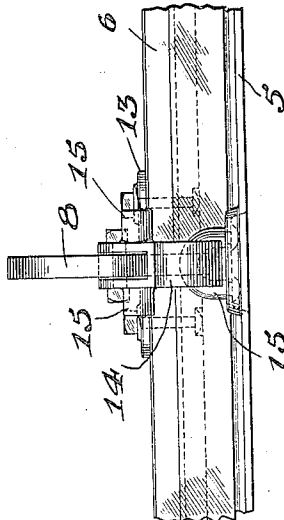
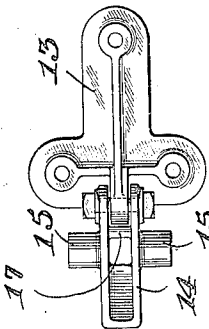


Fig. 3.



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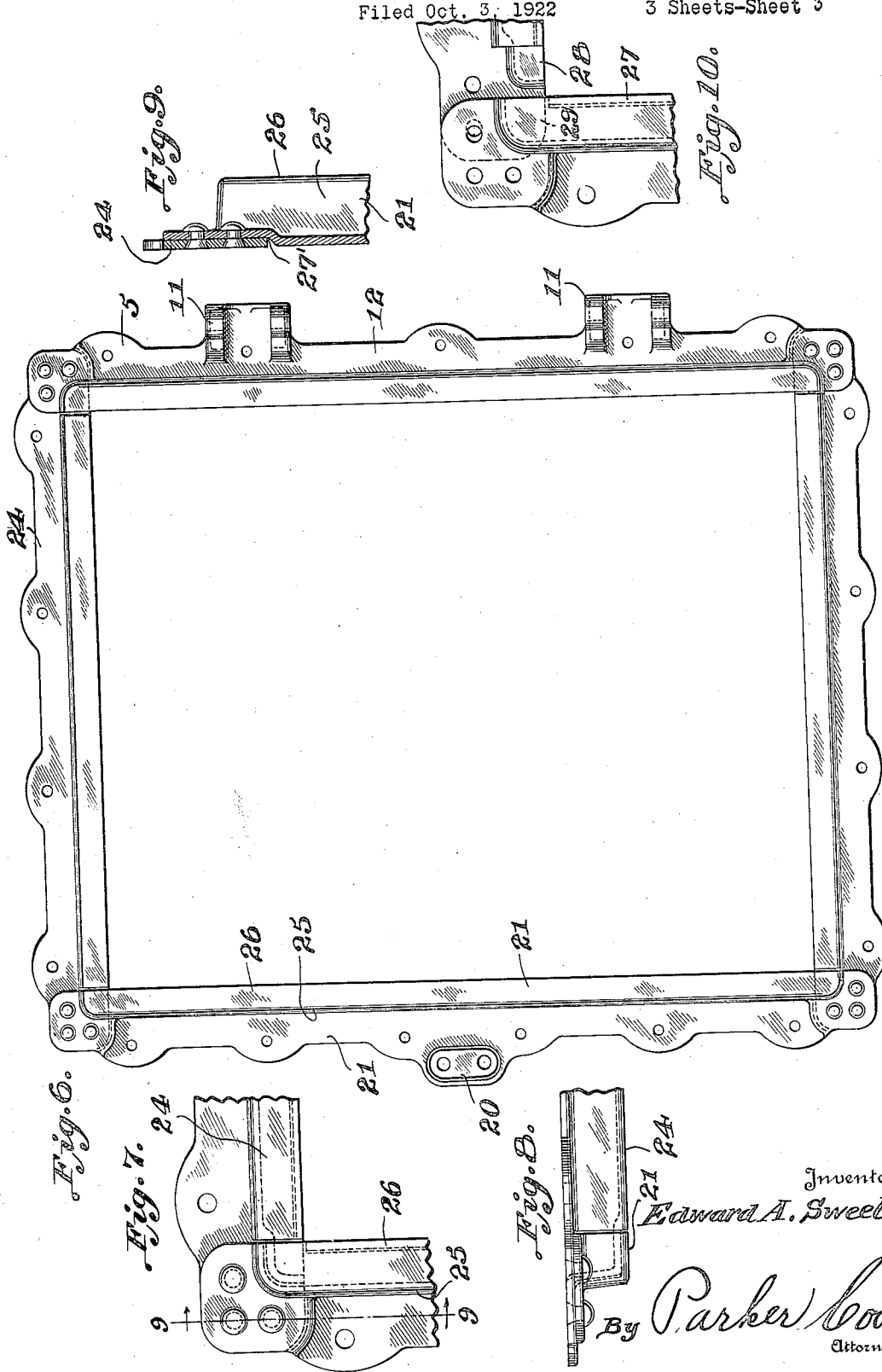
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HATCH COVER AND MEANS FOR SUPPORTING AND LOCKING THE SAME

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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HATCH COVER AND MEANS FOR SUPPORTING AND LOCKING THE SAME

Application filed October 3, 1922. Serial No. 592,060.

To all whom it may concern:

Be it known that EDWARD A. SWEeley, a citizen of the United States of America, residing at Alexandria, in the county of Arlington and State of Virginia, has invented certain new and useful Improvements in Hatch Covers and Means for Supporting and Locking the Same, of which the following is a specification.

My invention relates to new and useful improvements in hatch covers and means for supporting and locking the same, and is especially adapted for use on freight cars of the refrigerator type.

As is well known to those skilled in the art, refrigerator cars are provided at each end with hatches, through which the ice is passed into the car, and over which hatches are the covers together with means for locking and supporting the same in a partly open position, to provide proper ventilation for the car while in transit.

In most instances, these hatches have a small rim or upstanding wall over which the hatch covers are designed to fit and, due to the manner in which the ice is often handled, their walls become battered or partly destroyed so that the hatch cover does not fit tightly over the same when closed.

Furthermore, many different arrangements are provided for supporting the hatch covers in a partly open position but due to the motion and rocking and jolting of the cars, they become loose or inoperative, or in other words, do not function as designed.

Again, in a number of devices now in use, pins or short rods are used with a supporting rod which in time wear loose, making it then impossible to support the cover at the desired position.

One of the objects, therefore, of the present invention is to provide a frame formed of metal which will tightly fit over the upstanding wall around the hatch so that the same will not become battered or partly destroyed by the continued insertion of ice, and will, at all times, form a relatively tight fit for the hatch cover.

Still another object of the device is to provide a hatch cover in which is a wall to fit over the above frame and on which cover is to be located a part of the supporting and

locking device for the said hatch cover; further to provide another portion of the supporting and locking device which is to be attached to the forward end of the hatch frame; these two latter parts co-operating to form the hatch supporting and locking device which will allow the hatch to either be locked or unlocked, or supported in any one of a number of positions.

Still another object of the invention is to provide a hatch cover and a supporting device therefor wherein a link is secured to the hatch frame through which, in turn, will pass the main supporting arm and which may be moved to support the hatch cover in any one of a number of positions after the link on the hatch frame has first been thrown.

Still another object of the invention is to provide a hatch cover and a locking and supporting device therefor comprising a link pivotally mounted on the hatch cover and a supporting arm pivotally secured on the hatch frame, which supporting arm may be withdrawn from the link when the door is fully opened so that the arm may be swung to the right or left and lie flat on the car roof.

Still another object of the invention is to provide a hatch cover and a locking and supporting device therefor, together with a hatch frame; the supporting device being quickly and easily operated to hold the hatch cover in its desired position, which is attained by simply throwing the link, raising the door to its desired height, and letting it settle slightly until the supporting arm locks within the link.

With these and other objects in view, the invention consists in certain new and novel features of construction and combination of parts as will be hereinafter more fully described and set out in the claims.

Referring now to the drawings showing a preferred embodiment of my invention, Fig. 1 is a view of my improved hatch cover and supporting and locking device therefor, the cover being shown in section and the supporting and locking device being shown in elevation; the cover being in its closed and locked position, Fig. 2 is a similar view, but showing the

hatch cover in a partly raised and supported position; the locking and supporting link being shown in section.

Fig. 3 is a top plan view of the locking and supporting link,

Fig. 4 is a fragmentary front elevation of the locking link and the supporting arm,

Fig. 5 is a top plan view of one of the hinges of the hatch cover,

Fig. 6 is a top plan view of the hatch frame in its assembled position,

Fig. 7 is an enlarged detail of one of the corners of the frame,

Fig. 8 is a side elevation of the corner of the frame, the latter being tilted for the sake of clearness of illustration,

Fig. 9 is a fragmentary section taken on line 9—9 of Fig. 7 looking in the direction of the arrows, and

Fig. 10 is an enlarged detail of the corner similar to Fig. 7, but before the two parts are in their final set position.

Referring now to Fig. 1, and to the invention in general, there is shown by dot and dash, a front portion of a refrigerator car 1, provided with the usual hatch 2, having the wall 3 extending above the car roof 4. Tightly fitting over this wall 3 is the main frame 5 which will be referred to more in detail as the specification proceeds. The hatch cover 6 is shown made up of the two layers of wood, which extend in the opposite direction, and extending completely around the four sides thereof and slightly below the bottom surface of the same are the angle irons 7 which form an enclosing rim, which rim is bolted in place by passing the bolts 8 through one leg of the angles.

In the two views, Figs. 1 and 2, the distance between the outer edge of the frame 5 and the inner surface of the rim 7 is slightly exaggerated for the sake of clearness and it is to be understood that the hatch cover will fit snugly over the frame 5, enough space, of course, being allowed between the last two mentioned surfaces, so that the cover will not bind when opened or closed.

A handle 9 is secured to the hatch cover and may be of any standard form or size.

Secured to the rear of the hatch cover and near each side thereof are the hinge leaves 10 which may be bolted to the cover, and are pivotally secured in the brackets 11 formed on the rear strip 12 of the frame 5 shortly to be described.

To the forward end of the hatch cover, and centrally thereof, is secured the bracket 13, on which is pivotally mounted the locking and supporting link 14 which is provided with the outstanding lugs 15 which serve as handles. The rear wall 16 of this link is curved as may be clearly seen in Figs. 2 and 3 and is further provided near

its upper end with the cross-web 17 which extends slightly below the bottom of the sides of the link as may also be seen in the two figures referred to.

Cooperating with this link and adapted to pass therethrough, is the main supporting arm 18 which is loosely mounted at its lower end on the yoke 19 which yoke, in turn, is secured to a base 20 formed on the forward strip 21 of the main frame 3.

This main supporting arm is curved downwardly and inwardly at its lower end as at 22 and is provided on its under surface with a plurality of notches 23.

When the hatch cover is in its closed position as shown in Fig. 1, the arm 18 will extend through the main supporting link 14 and the rear wall 16 of the link will impinge against the portion 22 of the arm 18 and will prevent the hatch cover from being raised, as the arm 18 cannot be raised due to the arrangement of the pivotal axis until the link has been thrown to an upright position as shown in Fig. 2; thus tightly locking the hatch cover in its lowermost position until such time as the link is thrown.

After this link has once been raised to its upright position by grasping the handle 9, the hatch cover may be lifted so that the web 17 will fall in any one of the notches 23 and the upper end or rear wall 16 of the link 14 bind on the upper surface of the arm 18, and thus supporting the hatch cover in any one of the four desired positions.

To close the hatch cover, of course, it is simply necessary to slightly elevate the arm 18 and allow the arm to slide through the link rather than let the cross-web 17 slip within one of the notches.

Should it be desired to throw the hatch cover all the way open, the arm 18 will be slipped without the link 13 so that the arm 18 may be then moved about its pivotal point on the yoke 19 and be allowed to lie flat on the roof of the car and out of the way.

Referring now more in detail to the main frame 5, it will be seen that it consists of the rear strip 12 and the front strip 21 together with the two side pieces 24 all of which pieces are designed to be riveted together at the four corners. Each of said pieces is also provided with an upstanding flange wall 25, the top wall 26, and the relatively small downwardly extending wall 27. These flanges are designed to register to fit tightly over the wall of the hatch 3, the corners of the front and rear pieces being slightly offset as at 27' so that the end pieces may fit thereunder to form an unbroken surface where the frame is riveted in the car roof.

A tongue 28 is shown in Figs. 7 and 10

to fit within the groove 29 so that when the frame is assembled it will provide in effect a unitary structure.

The operation of the device should be clearly understood from the above description but to reiterate slightly, to operate the hatch cover it is simply necessary to first throw the swinging link 14 forwardly after which the hatch cover may be elevated quickly and readily to any desired position by simply grasping the handle 9, raising the hatch, and letting it settle until the cross-web 17 slips into any one of the desired notches.

From the foregoing it will be seen that I have provided, first; a frame which tightly fits and protects the wooden wall of the hatch. Secondly; that I have provided a hatch cover having a downwardly extending rim which nicely fits the metal frame, just described. Thirdly; I have provided a simple and efficient means for locking the hatch cover in its closed position, and fourth; the locking means acts as a supporting means for the hatch cover when it is desired to support the same in one of a number of positions.

Furthermore, no pins or rods are used which are not secured either to the frame or to the cover so that it is impossible for any of the parts to be lost to thus prevent the device from properly functioning.

It will also be seen that the locking and supporting device is exceedingly simple in construction and may be quickly and easily operated and consists of but two parts.

Many slight changes might be made without in any way departing from the spirit and scope of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In combination with a hatch frame, a hatch cover pivotally mounted on said frame, means pivotally secured to the hatch cover, supporting means pivotally secured to the hatch frame and the two said means frictionally cooperating to lock the hatch cover on said frame and to permit said hatch cover to be supported in one of a number of positions when both of said means are operated.

2. In combination with a hatch frame, a hatch cover pivotally mounted on said frame, a supporting link pivoted to one of said members and a supporting arm pivotally secured to the other of said members, and said link frictionally engaging said arm when in one position tightly locking the hatch cover on said hatch frame, and allowing the hatch cover to be supported in a partly open position when said link and said arm are operated.

3. In combination with a hatch frame, a hatch cover pivotally mounted on said

frame, a supporting link pivotally mounted on said hatch cover and a supporting arm pivotally mounted to said hatch frame and extending through said link, said link wedging said arm against movement when said link is in its lowermost position to thereby lock the said hatch cover on said hatch frame and said link also operating with said arm when thrown to support said hatch cover in a partly open position.

4. In combination with a hatch frame, a hatch cover mounted on said frame, a supporting link pivotally mounted on said hatch cover, and a supporting arm pivotally mounted to said hatch frame and passing through said link, said link impinging against the lower end of said arm when said link is in its lowermost position thereby locking the arm and hatch cover against movement, said arm provided with a series of notches and means extending across the link for fitting within said notches when said link is thrown upwardly to support the hatch cover in a partly open position.

5. In combination with a hatch frame, a hatch cover hinged to said frame, a bracket secured to said hatch cover, and a supporting link pivotally mounted at its one end on said bracket and extending beyond the hatch cover, a yoke secured to said frame and a pivotally mounted supporting arm on said yoke and passing within said link, and curvature of the rear wall of the link and the lower end of said arm being such that said arm is locked against movement when the link is in its lower position, said link having a cross-web therein and said arm provided with a series of notches to engage said cross-web when said link is thrown upwardly to support the hatch in one of a number of positions.

6. In combination with a hatch frame, a hatch cover, the said hatch cover pivotally secured to said frame, a swinging link pivotally secured to the said hatch cover, an arm pivotally secured to the front of the hatch frame and passing through said link and said arm being bent at its lowermost end, the axis of the link and the arm being such that said arm cannot be operated when said link is in its lowermost position; the said arm being provided with a series of notches, and the said link being provided with a cross-web, said arm being capable of being raised when the link is thrown upwardly and said cross-web to be engaged by one of said notches on said arm, depending upon the elevation at which the hatch cover is to be supported.

7. In combination with a hatch frame, a hatch cover, a locking and supporting means secured to said frame and said hatch cover, comprising a swinging link attached to the hatch cover and an arm fastened to the hatch frame, said link locking the arm

against movement when said link is in its lowermost position and said link allowing said arm to be raised when said link is thrown, means formed on the arm and on the link for supporting the hatch cover in a partly raised position, and the link and the arm so arranged that the arm may be withdrawn from said link and allowed to lie flat within the main frame.

10 8. In combination with a pivotal hatch cover, a pivotal link secured to said cover, an arm adapted to be pivotally mounted in front of the hatch cover and said arm passing through said link the said arm being 15 curved at its lower end and the axis of the link and the arm being such that the rear wall of the link will impinge against the lower portion of said arm to lock the arm against movement when said link is in its 20 lower position, and the said arm being movable when said link is thrown upwardly, said arm provided with a series of notches and a member in said link for engaging any one of said notches when said hatch 25 cover is raised to thereby support the hatch cover in a partly open position.

9. In combination with a hatch frame, a hatch cover pivotally mounted on said frame, a supporting arm pivotally secured 30 beyond the hatch cover, a pivotal supporting link attached to the hatch cover, the thickness of the arm being greater than its width and the link formed so that its side walls will abut on the opposite sides of said arm when said arm is within the 35 said link, said link jamming said arm downwardly when the hatch is closed to thereby lock the hatch in its closed position, and the upper and lower portions of said 40 link cooperating with said arm to support

the hatch in one of a number of partly upright positions.

10. In combination with a hatch frame, a hatch cover pivotally mounted to the same, a supporting arm pivotally secured to the 45 frame and extending up and over the hatch cover, a pivotal supporting link secured to the hatch cover and the said arm passing through said link, the under side of said arm provided with a series of notches and 50 the link provided with means at its lower end for engaging said notches and the upper cross wall of said link impinging against the upper surface of said arm when said link is in an upright position, said arm 55 and link arranged to allow the hatch to be lifted and to be dropped back slightly and the link thereby engaging the arm on its upper and lower surfaces, thus supporting the hatch in a partly open position. 60

11. In combination with a hatch frame, a hatch cover pivotally secured to the frame, a supporting arm pivotally secured to the frame, a link pivotally secured to the cover 65 and said arm passing within said link, the said link when in its lowermost position holding the arm in its lowermost position to thereby lock the hatch, the pivotal point of the link and arm so positioned that the said hatch may be freely raised when the 70 link is swung to a nearly upright position and the inner upper and lower surfaces of said link engaging respectively the upper and lower surfaces of said arm when said hatch is slightly dropped to thereby sup- 75 port the hatch in a partly open position. In testimony whereof I affix my signature.

EDWARD A. SWEETLEY.