May 25, 1954

E. S. CISCO

2,679,418

HATCH COVER LOCK

Filed Dec. 30, 1950

Fig. 1

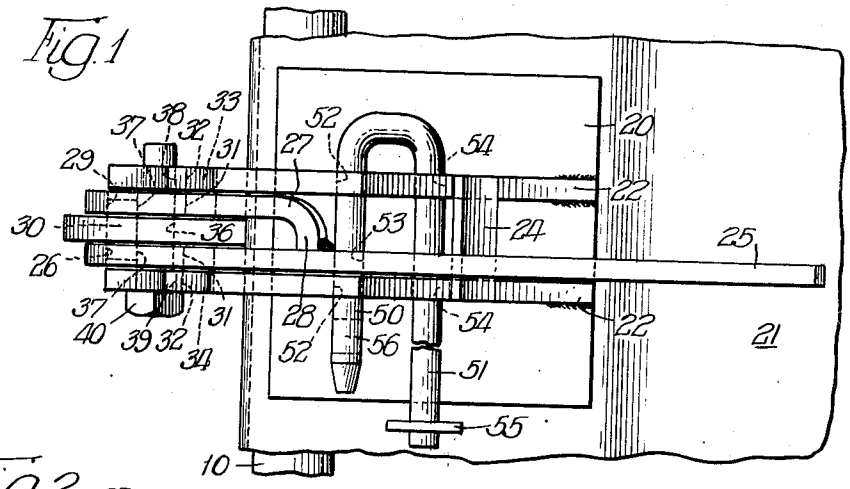


Fig. 2

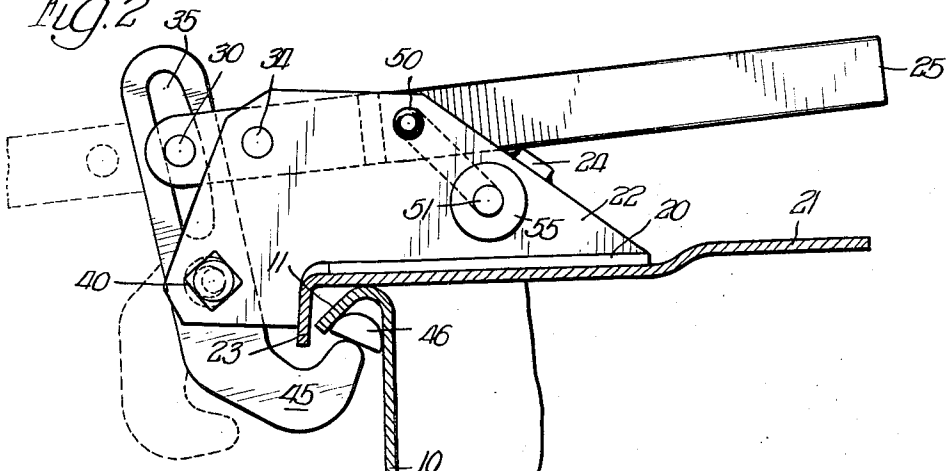
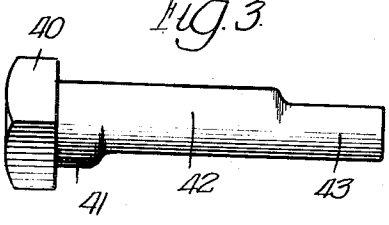
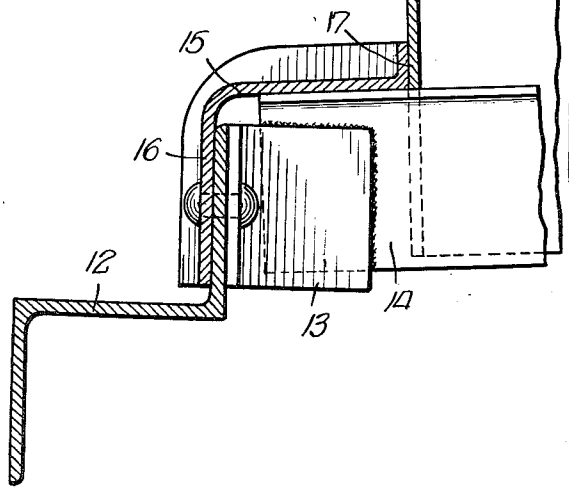


Fig. 3





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Patented May 25, 1954

2,679,418

UNITED STATES PATENT OFFICE

2,679,418

HATCH COVER LOCK

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Application December 30, 1950, Serial No. 203,746

5 Claims. (Cl. 292—256.5)

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This invention relates to an improved hatch cover construction and is designed particularly for application to the hatch covers of railway cars of the covered bulk commodity hopper type, and with slight modification in design to fit the particular hatch frames, the principle of the cover lock could readily be applicable to refrigerator car hatch covers and ship hatch covers.

The principal object of the invention is to provide a hatch cover lock which is applicable to and therefore entirely carried by the hatch cover, and, consequently, may be, if desired, assembled with the hatch cover, so that when the hatch cover is then hinged to the hatch frame, the lock is immediately ready for use. The present practice is to provide the hatch covers and the hatch cover locks separately, which results in additional assembly cost by the builder of the equipment.

Another object of the invention is to provide means whereby after the cover lock is applied to the hatch cover, a movable part of the lock may be adjusted to suit the particular hatch frame conditions and then fixed in that adjusted position.

Other objects and advantages of the invention will appear in the following description of the invention.

Referring now to the accompanying drawings forming part of this application and wherein like reference characters indicate like parts.

Fig. 1 is a top plan view of the improved hatch cover lock illustrating a portion of the hatch cover to which the lock is applied and a portion of the hatch frame.

Fig. 2 is a side elevation of the cover lock and section of the hatch frame and associated parts of the car.

Fig. 3 is a side elevation of the cam pin.

In the drawings a portion of the hatch frame is indicated at 10. Hatch frames are usually rectangular in form and project above and below the car roof or the ship's deck and are provided with an outwardly turned and downwardly inclined flanged upper margin, as indicated at 11, which margin extends entirely around the hatch frame.

A side plate of the car is indicated at 12, which extends from end to end of the car and is usually a Z-bar, the outer flange of which extends downwardly and the inner flange upwardly, as shown. To the inner flange of the side plate is attached a pair of spaced angle brackets, one of which is shown at 13, and to an inwardly extending flange of said brackets is secured an end of the transverse angle carlines 14, which carlines are spaced apart so as to occur on opposite sides of the sides of the hatch frames. Said hatch frames are secured to said carlines to form a substantial support therefor in the roof structure. An eaves roof sheet is shown at 15, having a down-turned outer flange 16 which overlaps and is secured to the inner flange of the side plate, and which eaves sheet curves inwardly so as to rest upon the end portions of the carlines 14, and then terminates in an upwardly turned flange 17 secured flatwise to the outer end of the hatch frame. The ends of said eaves sheet are welded to the edges of the adjacent roof sheets.

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The lock bracket comprises a rectangular base plate 20 which is welded or otherwise secured to the hatch cover, a portion of which cover is shown at 21. The portion of the hatch cover shown is the margin opposite to the side which is hinged to the hatch frame, and on which hinges the cover swings in opening or closing. To the base plate 20 is secured a pair of spaced, parallel, bracket walls 22, secured on edge to said base plate, and shaped so as to overlap a downturned flange 23 at the free margin of said hatch cover. Flange 23 in turn overlaps the flanged margin 11 of the hatch frame 10. A flat rectangular bar 24 is welded to the top of the spaced walls 22 to assist in holding the walls in spaced parallel relation, and to form a stop for the operating handle 25 of the latch. Handle 25 is a flat bar having a hole 26 at one end. A J-shaped flat bar 27, provided with a laterally turned end 28, is provided, with the end of portion 28 welded to the side of handle 25. Portions 27 and the adjacent end of handle 25 are thus spaced apart in parallel relation so as to conveniently fit between walls 22. A hole 29, axially alined with hole 26, is provided through the free end of portion 27, to accommodate a pin 30 which is plug welded within holes 26 and 29 and spans the space therebetween. Spaced inwardly of said holes 26 and 29 a short distance, similar alined holes 31—31 and 32—32 are provided, respectively, through portion 27 and handle 25, and through walls 22, so that stub pins 33 and 34 may be installed therein in any manner so as to provide a pivotal connection for the composite operating handle.

The locking dog of the device comprises a J-shaped member, having an elongated opening 35 therethrough adjacent its upper end. This locking dog is installed in the space between portion 27 and handle 25 with pin 30 extending through opening 35. It will be noted that one side of opening 35 is slightly arcuate from end to end to compensate for the required movement

of pin 30 in traversing the opening 35 when handle 25 is moved. Spaced slightly below the slotted opening 35 is a hole 36, which is the same size as and in axial alinement with holes 37—37 through portions 27 and 25 of the operating handle. A relatively smaller hole 38 is provided through one wall 22 and a larger hole 39 is formed through the other wall 22, these holes 38 and 39, though of different size, are concentric with each other, but eccentric with holes 36 and 37—37.

A cam pin is provided for application in the just previously described holes 36, 37—37, 38 and 39 to provide an adjustable pivotal mounting of the J-shaped dog in the walls 22—22 of the bracket. This cam pin has a rectangular head 40 immediately adjacent which is a journal portion 41 which revolubly fits within hole 39. Adjacent portion 41 the cam pin is provided with an eccentric portion 42 which fits within holes 36 and 37—37. Finally, adjacent portion 42, is a smaller diametered portion 43 which fits within hole 38, and journal portions 43 and 41 are concentric. Therefore, by rotating the cam pin an adjustment of the locking dog within the bracket walls may be had when assembling the hatch cover onto the hatch frame, to insure the accurate operation of the cover lock.

The lower portion of the J-shaped locking dog comprises the hook portion 45, the end of which is designed to selectively fit up against the flat side of a short length of half round bar 46 welded between the flange 11 and side wall 10 of the hatch frame in the path of movement of the locking dog.

When the device is in locked position, as shown in Fig. 2, a common U-shaped seal pin is provided to insure the cover will remain in closed position until the seal pin is removed for access to the hatch opening. This seal pin comprises two parallel legs 50 and 51, the leg 50 fitting within alined holes 52—52 through walls 22—22 of the bracket and hole 53 through operating handle 25. The other, longer leg 51, fits within alined holes 54—54 through the side walls 22—22 below handle 25. After this seal pin is applied, as shown in Fig. 1, a washer 55 is spot welded to the outer end of leg 51 so as to insure retention of the seal pin on the device. The leg 51 is sufficiently longer than the shorter leg 50 so that when the seal pin is moved until the washer 55 engages the adjacent wall 22 the end of the shorter leg will have passed through hole 52 in adjacent wall 22 and through hole 53 in the handle 25, thus allowing the handle to be raised. A hole 56 is formed transversely through outer end of leg 50 through which a car seal may be applied when the car is loaded for shipment.

In operation, when the handle 25 is raised upwardly, pivoting on pin 34, pin 30 will move downwardly in slot 35 until pin 30 contacts the arcuate side of slot 35. Further movement of the handle will cause the locking dog to pivot on pin 40, causing the hooked end 45 to swing out from under the hatch frame flange 11 so that the hatch cover 21 may be raised. When the handle is in closed position, as shown in Fig. 2, it will be noted that pin 30 is just beyond dead center, so that when the handle is down it will stay there while the seal pin leg 50 is reinserted through holes 53 and 52 to lock the handle cover.

It will be appreciated that when the handle is down the hooked end 45 of the dog must be firmly up against the flat side of the half round 46 so that the hatch cover will be brought home against the upper side of flanged margin 11 of

the hatch frame. Due to manufacturing tolerances, which are quite liberal in the railway specialties manufacturing field, when the device is first applied to a hatch cover and the cover then applied to a hatch frame, it may be that the hooked end 45 will not seat against the half round 46 properly. In this event, the cam pin is rotated until the proper seating is attained, when the cam pin is tack welded to the adjacent wall 22 so that it will always stay in that adjusted position.

I claim:

1. In a railway car having a roof, a hatch frame extending above the roof and provided with an outwardly and downwardly turned marginal flange, and a cover hinged along one side to said frame; a bracket comprising spaced walls secured edgewise to said cover, said walls overlapping a side of said cover, a handle pivotally mounted between the walls of the bracket, a locking dog pivotally mounted between the walls of the bracket, said dog having an elongated opening therethrough adjacent its upper end, said dog having a hook portion at its lower end adapted to selectively engage under the flanged margin of said frame to hold the cover closed, a pin secured to said handle and passing through said elongated opening, whereby when said handle is raised said pin will slide in said elongated opening and swing said dog on its pivot until the hooked end thereof is out of engagement with said flanged margin when the cover may be raised, the pivotal mounting of said dog comprising a cam pin having concentric ends mounted in said walls and an eccentric central portion mounted in said locking dog whereby rotation of said cam pin may adjust the engagement of the hooked end of the dog with said flange.

2. The combination with a cover for a railway car hatch frame having upstanding walls terminating in an outwardly and downwardly turned flange, of a lock to hold said cover closed against said flange, said lock comprising a bracket secured to said cover adjacent one side thereof, an operating handle pivoted adjacent one end to said bracket, a locking dog pivoted intermediate its ends to said bracket, said locking dog having a sliding pivotal connection at one end to the outer end of said handle, the other end of said locking dog being hook shaped so as to optionally engage the underside of said flange upon movement of said handle in one direction, the pivotal mounting of said dog comprising a cam pin having eccentric portions, one portion mounted in said bracket and the other portion mounted in said dog whereby rotation of said cam pin may adjust the engagement of the hooked end of the dog with said flange.

3. A lock for the cover of a hatch frame having upstanding walls terminating in an outwardly and downwardly turned flange, said lock comprising spaced walls secured on edge to said cover and overhanging an edge thereof, an operating handle pivoted adjacent one end to said walls, a locking dog adjustably pivotally mounted to the overhanging portion of said walls and slidably pivotally connected to said operating handle, said locking dog having a hooked end arranged so as to engage said flange upon movement of said handle in one direction and to disengage said flange upon movement of said handle in the opposite direction, the pivotal mounting of said dog comprising a cam pin having concentric ends mounted in said walls and an eccentric central portion mounted in said locking dog whereby

rotation of said cam pin may adjust the engagement of the hooked end of the dog with said flange.

4. A lock for the cover of a hatch frame having upstanding walls terminating in an outwardly and downwardly turned flange, said lock comprising spaced walls secured on edge to said cover, an operating handle pivoted adjacent one end to said walls, a locking dog adjustably pivotally mounted to said walls and slidably pivotally connected to said operating handle, said locking dog being shaped and arranged so as to engage said flange upon movement of said handle in one direction and to disengage said flange upon movement of said handle in the opposite direction, the mounting of said dog to said walls including a rotatable cam pin having concentric ends mounted in said walls and an eccentric central portion mounted in said locking dog whereby rotation of said cam pin may adjust the engagement of the locking dog with said flange.

5. A lock for the cover of a hatch frame having upstanding walls terminating in an outwardly and downwardly turned flange, said lock comprising a bracket secured to said cover, an operating handle pivoted adjacent one end of said

bracket, a locking dog pivotally mounted to said bracket and slidably pivotally connected to said operating handle, said locking dog having a hooked end arranged so as to engage said flange upon movement of said handle in one direction and to disengage said flange upon movement of said handle in the opposite direction, the pivotal mounting of said dog comprising a cam pin having concentric ends mounted in said walls and an eccentric central portion mounted in said locking dog whereby rotation of said cam pin may adjust the engagement of the hooked end of the dog with said flange.

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