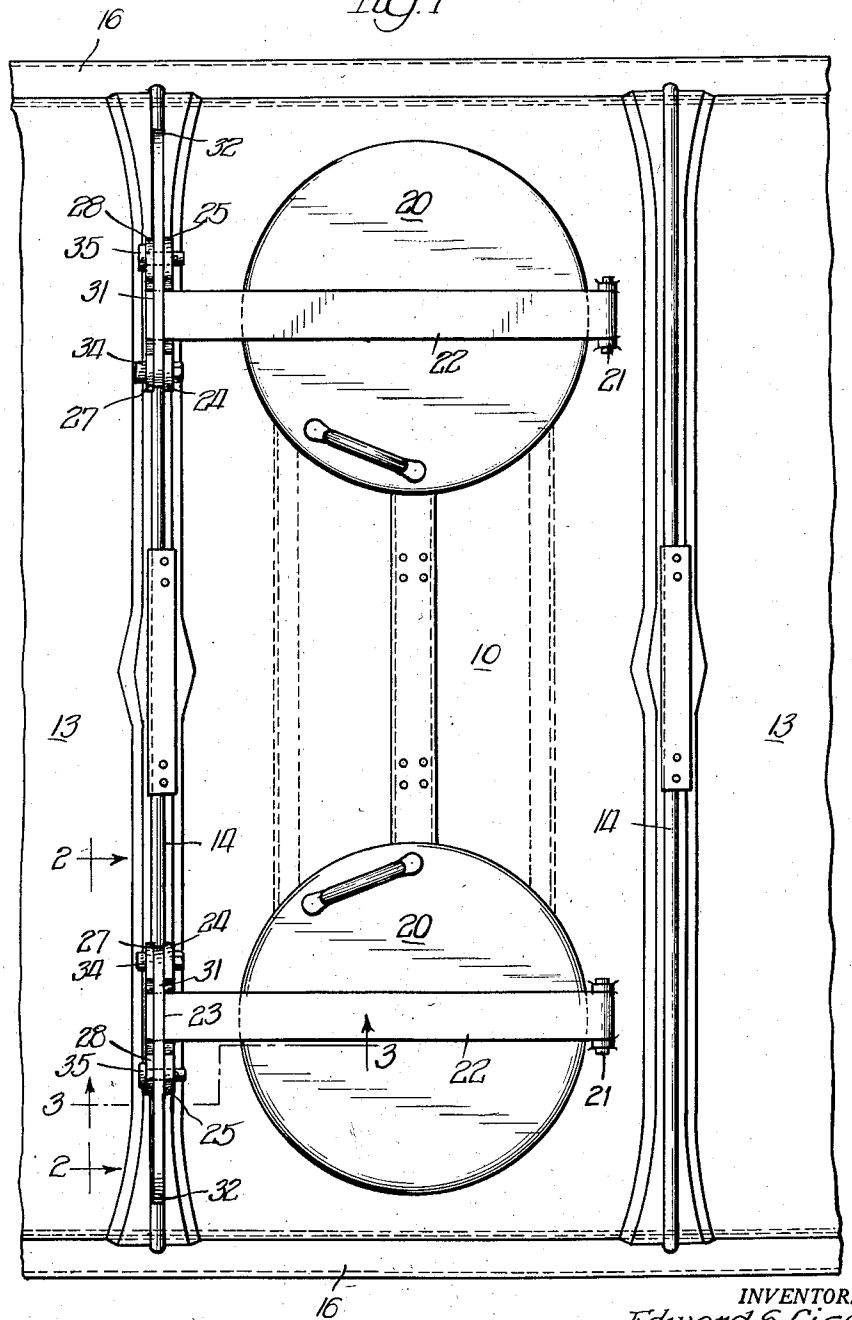
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HATCH COVER LOCK

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Fig. 1



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Fig. 2.

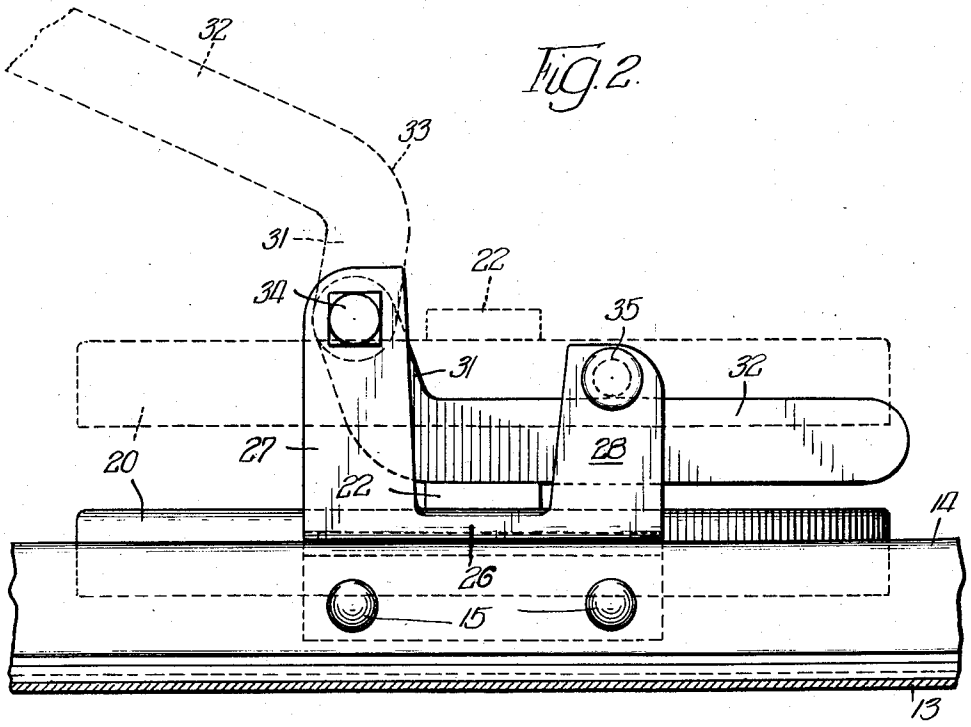


Fig. 3.

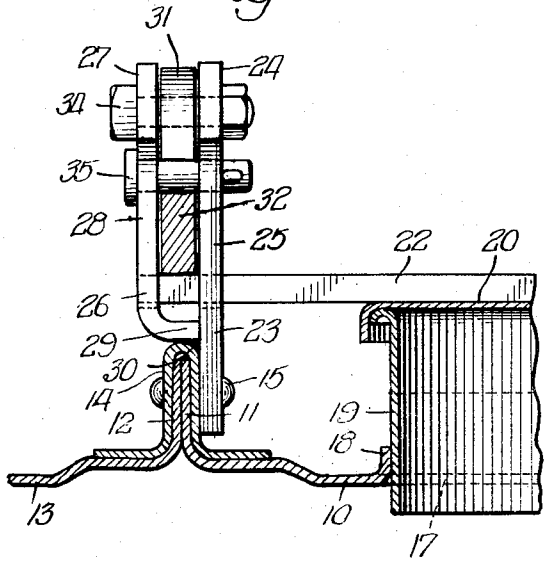
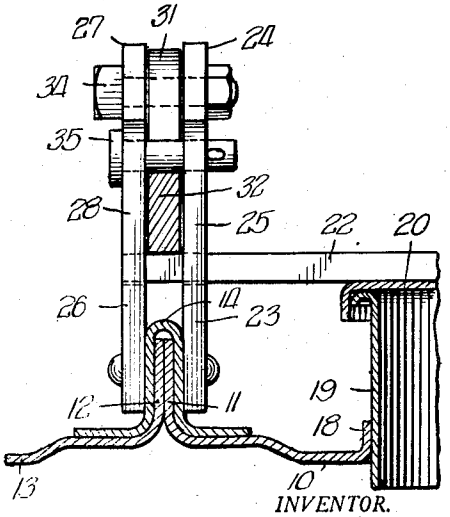


Fig. 4.



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HATCH COVER LOCK

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Application September 27, 1954, Serial No. 458,467

5 Claims. (Cl. 105—377)

This invention relates to improvements in hatch cover locks and is particularly applicable to the hatch covers of railway cars of the bulk commodity type, such as covered hopper cars, but, with slight modifications within the scope of the invention, may be used for refrigerator car or ship hatch covers.

The principal object of the present invention is to provide a relatively simple hatch cover lock to secure a hatch cover in closed position on a hatch frame, the operating lever of the lock being provided with a cam to exert considerable leverage upon the hinge strap of the cover to force the hinge strap and thereby the cover to closed position.

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

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

Fig. 1 is a top plan view of a car roof hatch sheet showing my improved hatch cover lock applied thereto.

Fig. 2 is a side elevation of the lock from the line 2—2 of Fig. 1, showing in dotted lines the hatch cover in partly opened position.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 3 of a modified form of the invention.

In the drawings the roof hatch sheet is indicated at **10**, provided with upstanding side flanges, one of which is shown at **11**, which abuts a similar flange **12** of an adjacent roof sheet **13**. A seam cap **14** is superposed upon the upstanding flanges **11** and **12** and secured thereto by a row of rivets indicated at **15** to hold the parts together in water tight relation. The roof sheets **10** and **13** extend between the side plates **16—16** of the car and are secured at their ends thereto.

The roof hatch sheet **10** is formed with a pair of hatch openings **17**, one adjacent each end of the hatch sheet, and said openings are formed so as to provide an upstanding flange **18** defining said openings. Within each opening is installed a hatch frame **19**, it being welded about its periphery to the flange **18**.

The hatch covers are shown at **20—20** and each is hinged, as at **21**, to one side of the hatch frame **19**. The hinge strap for said hinges is shown at **22**, it being elongated and extends centrally entirely over and beyond the hatch cover **20** to a point above the adjacent seam cap **14**, as shown clearly in Figs. 1 and 3. The hinge strap is secured along its length to the top of the hatch cover **20**. The hinge butt of hinge **21** is secured to the hatch frame in any acceptable manner.

The lock for each hinge comprises a bracket including a flat plate member **23**, the lower margin of which is secured to the seam cap **14** by a pair of the rivets **15**. This bracket is channel shaped in side elevation, having a longer upstanding arm **24** and a shorter upstanding arm **25**. Spaced a short distance from member **23**, and disposed parallel therewith, is a second flat plate member **26**,

correspondingly channel shaped in side elevation and having longer and shorter arms **27** and **28** respectively. The lower margin of this member **26** is turned normal thereto forming a flange **29** which is welded along its edge, as at **30**, to the lower margin of member **23**. The plate member **23** is positioned on the seam cap so that the space between the arms **24** and **25** is in alinement with the outer end of the hinge strap **22**, and consequently said end of said strap will rest therein when the hatch cover is in closed position.

A bell crank lever is provided for forcing the hinge strap down in the space between the arms **24** and **25** and **27** and **28**, said lever comprising a short arm **31** and a longer arm **32**, the elbow of said arms being on a curve **33** of substantial radius to act as a cam surface in forcing the hinge strap down, all as clearly indicated in Fig. 2. The free end of the short arm **31** is pivotally mounted between the upper ends of arms **24** and **27** by means of bolt **34** with the longer arm **32** swingable downwardly between arms **28** and **25**, as shown in full lines, Fig. 2. When in this position the arm **32** is below the axially alined holes in upper ends of arms **25** and **28** so that a locking pin **35** may be passed through said aligned holes and lock the arm **32** in said position. A cotter key or other means may be provided to retain the pin **35** temporarily in position.

Thus when the arm **32** is elevated at least to the position shown in dotted lines, Fig. 2, the cover **20** with hinge strap **22** may be swung so that the strap **22** will be somewhere between arms **24—25** and **27—28**, as indicated in dotted lines, Fig. 2. Then the lever arm **32** may be swung on its pivot **34** so that the cam surface **33** thereof will bear against the upper surface of strap **22**, when a continued movement of the arm **32** will force the hinge strap **22** down and thereby cause the cover **20** to tightly engage the hatch frame. The pin **35** may then be inserted through the alined holes in arms **25** and **28** so that it will be immediately above lever arm **32**, and the cover is then locked in closed position until the pin **35** is removed to allow the hinge strap and cover to be manually raised.

Fig. 4 shows a slight modification of the bracket structure of the lock, the only difference being that the plate member comprising the arms **27** and **28** is identical with the other plate member comprising arms **24** and **25**. In this instance the lower margin **26** is not bent but is applied on one side of the seam cap **14**, and the other plate member is applied on the other side of the seam cap **14**, and all are held together by a pair of the rivets **15**. Since no other structure change is involved, the same reference characters are used to indicate the same parts in the two views. This modification results in a more simple manufacturing process, since both plate members are the same, and no forming die is required to bend the lower margin of one plate member, and also the welding operation is eliminated.

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

1. In a railway car having a roof structure with a hatch frame and a hatch cover hinged at one side to said frame, one element of said hinge comprising a strap overlying and projecting beyond the other side of said cover, a bracket having upstanding arms on opposite sides of the path of movement of said hinge strap, and a lever pivotally mounted at one end to one of said arms and swingable transversely over the projecting end of said strap when said cover approaches closed position to force said strap down between said arms and thereby said cover to closed position.

2. In a railway car roof structure having a hatch frame and a hatch cover hinged at one side to said frame, one element of said hinge comprising a strap overlying and

projecting beyond the other side of said cover, a bracket secured to said roof adjacent said frame and in the path of movement of the projecting end of said hinge strap, said bracket having upstanding arms on opposite sides of said path of movement, a lever pivotally mounted at one end to one of said upstanding arms and swingable transversely over the projecting end of said hinge strap when the cover approaches closed position to force said strap down and thereby said cover to closed position.

3. In a railway freight car having a roof embodying a plurality of transversely extending roof sheets having upstanding side flanges, adjacent flanges secured together by a seam cap, the combination therewith of a hatch frame secured to and projecting above a roof sheet, a hatch cover hinged at one side to said frame, one element of said hinge comprising a strap extending over and projecting beyond the opposite side of said cover and over the adjacent seam cap, a bracket secured to said seam cap, having upstanding spaced arms on opposite sides of the path of movement of said strap to receive the projecting end of said strap therebetween in the closed position of said cover, and a cam lever pivotally mounted to one arm of said bracket, and swingable over the projecting end of said strap to force said strap down between said arms and thereby said cover to closed position, and a locking pin engageable with the other arm of the bracket to secure the strap between said arms.

4. In a railway car having a roof structure with a hatch opening, a hatch frame secured thereto, a hatch cover hinged at one side to said frame, one element of said hinge comprising an elongated strap overlying and being attached to said cover and extending beyond the other

side thereof, a bracket secured to said roof in spaced relation to said cover and adjacent the projecting end of said hinge strap when the cover is closed, said bracket having upstanding spaced arms on opposite sides of the path of movement of said hinge strap, and a bell crank lever comprising a short arm pivotally mounted at one end to said bracket and a longer arm, a cam surface at the apex of said arms swingable transversely over the projecting end of said hinge strap when said cover approaches closed position, to force said strap down between said bracket arms and thereby said cover to closed position.

5. The structure set forth in claim 4, and a locking pin extendable through said arms and over the longer arm of the bell crank lever to hold said elongated strap down and thereby secure said cover in closed position.

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