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HATCH COVER STRUCTURE FOR RAILWAY CARS

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2 Sheets-Sheet 2

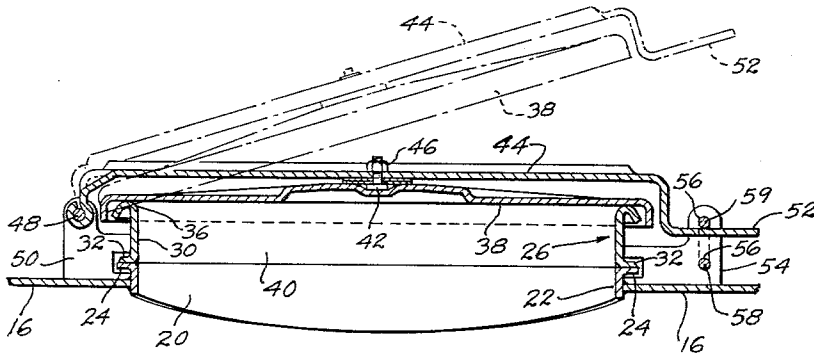


FIG. 3.

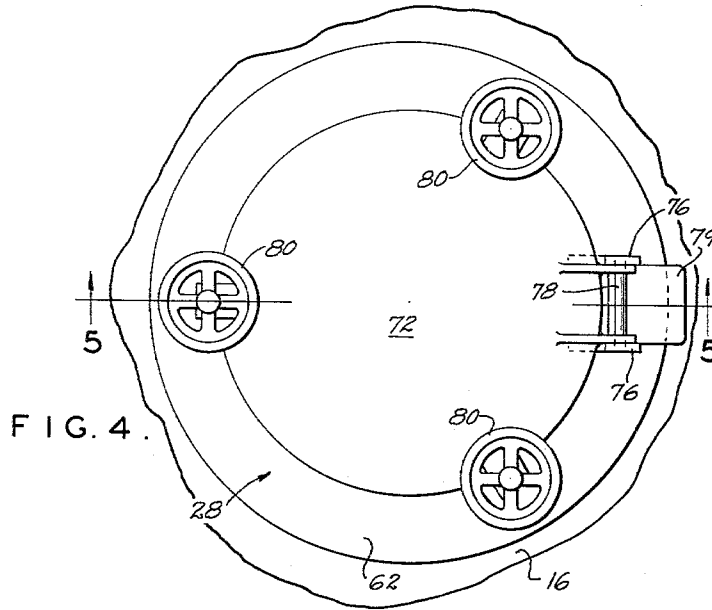


FIG. 4.

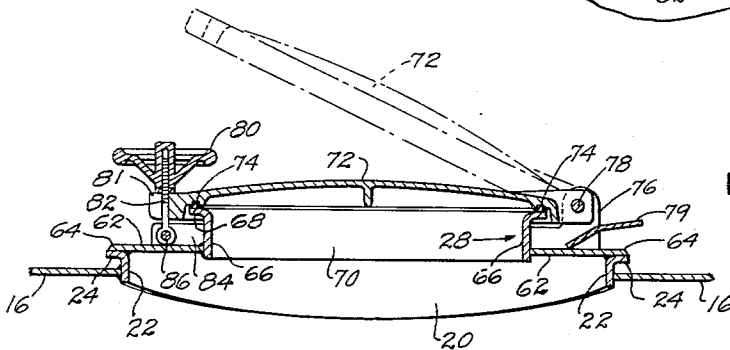


FIG. 5.

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HATCH COVER STRUCTURE FOR RAILWAY CARS
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1 Claim. (Cl. 105—377)

This invention relates to a hatch cover structure for railway cars and more particularly to such a hatch cover structure adapted to be positioned over the roof opening in a railway car.

Normally, conventional freight cars, such as hopper cars, have hatch covers and associated hatch openings of one size or diameter. The size of the hatch covers and associated hatch openings will depend on factors such as, for example, the commodity to be transported by the railway car, the particular type of railway car involved, and the type of loading means employed. In some instances it is desirable to modify the size or diameter of the hatch covers and associated hatch openings, such as when the type of commodity transported by the car is changed or to adjust for a special type loading means.

It is a primary object of this invention to provide in a railway car having a roof opening of a predetermined size a hatch cover structure adapted to accommodate hatch openings and associated hatch covers of different diameters or sizes. This arrangement permits a railway car to be arranged with a more or less standard roof opening, while the hatch covers and associated hatch openings as distinguished from the roof openings are modified as desired. For example, the roof openings in a railway hopper car may have a diameter of thirty (30) inches and a hatch cover and associated hatch opening of either twenty (20) inches or thirty (30) inches in diameter may be positioned over the roof opening.

This invention comprises a hatch cover structure adapted to be positioned over a roof opening of a railway car, the hatch cover structure having an annular plate with inner and outer marginal portions, a hatch ring secured to the inner marginal portion of the plate and forming a hatch opening of a diameter substantially less than the diameter of the roof opening, and a hatch cover mounted on the ring for movement between open and closed positions relative to the hatch opening. More particularly, a housing extends about the roof opening and has an upper outturned annular flange extending in a generally horizontal direction to form a supporting rim and the outer marginal portion of the annular plate is secured to the rim, the hatch ring being supported in inner concentric relation to the roof opening and being of a diameter substantially smaller than the inside diameter of the housing which defines the roof opening. Other objects and features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the constructions hereinafter described, the scope of the invention being indicated in the following claims.

In the accompanying drawings, in which two possible embodiments of the invention are illustrated,

FIGURE 1 is a perspective of a railway hopper car having a plurality of generally circular hatch covers spaced longitudinally along the roof of the car;

FIGURE 2 is an enlarged top plan of a relatively large diameter hatch cover in closed position over an associated hatch opening;

FIGURE 3 is a section taken generally along line 3—3 of FIGURE 2;

FIGURE 4 is a top plan of a relatively small diameter hatch cover over an associated hatch opening; and,

FIGURE 5 is a section taken generally along line 5—5 of FIGURE 4.

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Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to FIGURE 1 of the drawings, a railway hopper car is generally designated 10 and has a car truck 12 at each end. A shell 14 defines the interior of car 10 and has a roof 16. Mounted on roof 16 is a running board generally designated 18 to provide a support for workmen on top of the car. Spaced along the longitudinal axis of car 10 are a plurality of roof openings 20 generally circular in shape and of a predetermined diameter. Roof openings 20 are of a relatively large diameter in order to accommodate hatch covers and associated hatch openings of varying diameters and sizes up to the diameter of roof openings 20.

As illustrated in FIGURES 3 and 5, a ring-shaped housing 22 defines each roof opening 20 and is secured such as by welding to the adjacent edge of roof 16. Extending around the circumference of housing 22 is an integral outturned annular flange 24 forming a support rim or ledge extending in a generally horizontal direction. Hatch cover structures embodying hatch covers and associated hatch openings of varying sizes and diameters may be mounted on support flange 24 for covering roof opening 20.

As examples of hatch cover structures which may be mounted on support flange 24, a relatively large diameter hatch cover structure designated generally 26 is illustrated in FIGURES 1—3, and a relatively small diameter hatch cover structure generally designated 28 is illustrated in FIGURES 4 and 5.

Referring to FIGURES 1, 2 and 3 in which the relatively large diameter hatch cover structure 26 is illustrated, hatch ring 30 has a lower outturned annular flange 32 secured to flange 24 such as by welding. An upper outturned flange 36 forms a seat for hatch cover 38. Hatch opening 40 is formed by hatch ring 30 and is of the same diameter as roof opening 20 (see FIGURE 3).

Secured to hatch cover 38 is a stud 42 on which a strap-type hinge 44 is secured by nut 46. Hinge 44 is pivotally mounted at 48 to bracket 50 which, in turn, is secured to roof 16.

Extending from the end of hinge 44 opposite pivot 48 is an offset flange 52. Lugs 54 secured to roof 16 have spaced openings 56 receiving a sliding U-shaped retaining bolt 58. To release hatch cover 38, an upper leg 59 of U-shaped bolt 58 may be pulled from engagement with flange 52. A circular flange 60 on bolt 58 forms a stop which engages lug 54 to prevent U-shaped bolt 58 from being removed. To secure hatch cover 38, flange 52 is pressed downwardly until it clears upper leg 59 which is removed from openings 56. Then, leg 59 is moved over flange 52 and is received by openings 56 to secure hatch cover 38 in seated position on hatch ring 30 as shown in FIGURE 3.

Referring to FIGURES 4 and 5 in which the relatively small diameter hatch cover structure 28 is illustrated, an annular plate 62 has an outer marginal portion 64 secured to flange 24 such as by welding. Secured to the inner circumference of annular plate 62 is hatch ring 66 having an outturned upper flange 68. Hatch opening 70 is formed by hatch ring 66 and is of a diameter substantially smaller than the diameter of roof opening 20 (see FIGURE 5). Hatch cover 72 has a gasket 74 seated on flange 68. Lugs 76 are secured to annular plate 62 and hatch cover 72 is pivotally mounted thereto by pin 78. A support 79 between lugs 76 is adapted to engage and support cover 72 when the cover is swung away from opening 70.

To secure hatch cover 72, hand wheels 80 are spaced about its periphery. Beneath each hand wheel 80 is an outwardly opening slot 81 in hatch cover 72 adapted to receive a swing bolt 82. Lugs 84 secured to annular plate 62 mount swing bolt 82 for pivotal movement about pivot

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pin 86. On the extending end of each swing bolt 82 is a hand wheel 80 which is adapted to be drawn tight against hatch cover 72 for securing hatch cover 72 in seated position on flange 68 as shown in FIGURE 5. To release hatch cover 72, hand wheels 80 may be loosened and swing bolts 82 along with hand wheels 80 may be swung from slots 81 away from hatch cover 72.

Ring-shaped housing 22 about roof opening 20 forms a mounting for hatch cover structures having hatch covers and associated hatch openings of different sizes. Thus, a single size of housing 22 may be employed on hopper cars having hatch openings and associated hatch covers of varying dimensions, thereby to eliminate the necessity for stocking roof housings of various dimensions.

It is to be understood that hatch covers and associated hatch rings having any desired diameter smaller than the diameter of roof openings 20 may be employed effectively. Further, while the hatch openings and roof openings have been illustrated as being generally circular in shape, it is to be understood that this invention may be employed with openings having elliptical, rectangular, or other desired shapes.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, 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.

What is claimed is:

In a railway hopper car having a roof and a generally circular roof opening of a predetermined diameter extending through said roof to permit access to the interior of

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the car, a generally circular housing secured to said roof about said roof opening and having a smooth interior surface, said housing extending upwardly from the roof and having an outturned upper flange at its upper end extending in a horizontal direction, a hatch ring concentric with said housing having at its lower end an outturned lower flange extending in a horizontal direction and having at its upper end an outturned upper flange, said hatch ring having an inner diameter equal to the inner diameter of said housing and having a smooth interior surface forming an uninterrupted continuation of the smooth interior surface of said housing whereby lading may flow into the hopper car without obstruction, the lower flange of the hatch ring being seated on and secured in vertically aligned position to the upper flange of said housing, a hatch cover seating on the upper outturned flange of said ring in the closed position of the cover, means secured to the roof mounting the hatch cover for pivotal movement about a generally horizontal axis between open and closed positions relative to the hatch opening, and means secured to said roof to releasably secure the hatch cover in seated position on the upper flange of the hatch ring.

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ARTHUR L. LA POINT, *Primary Examiner.*