June 11, 1940. G. A. STEUBER 2,204,164

ICE HATCH FOR REFRIGERATOR CARS

Filed Jan. 24, 1939 3 Sheets-Sheet 1

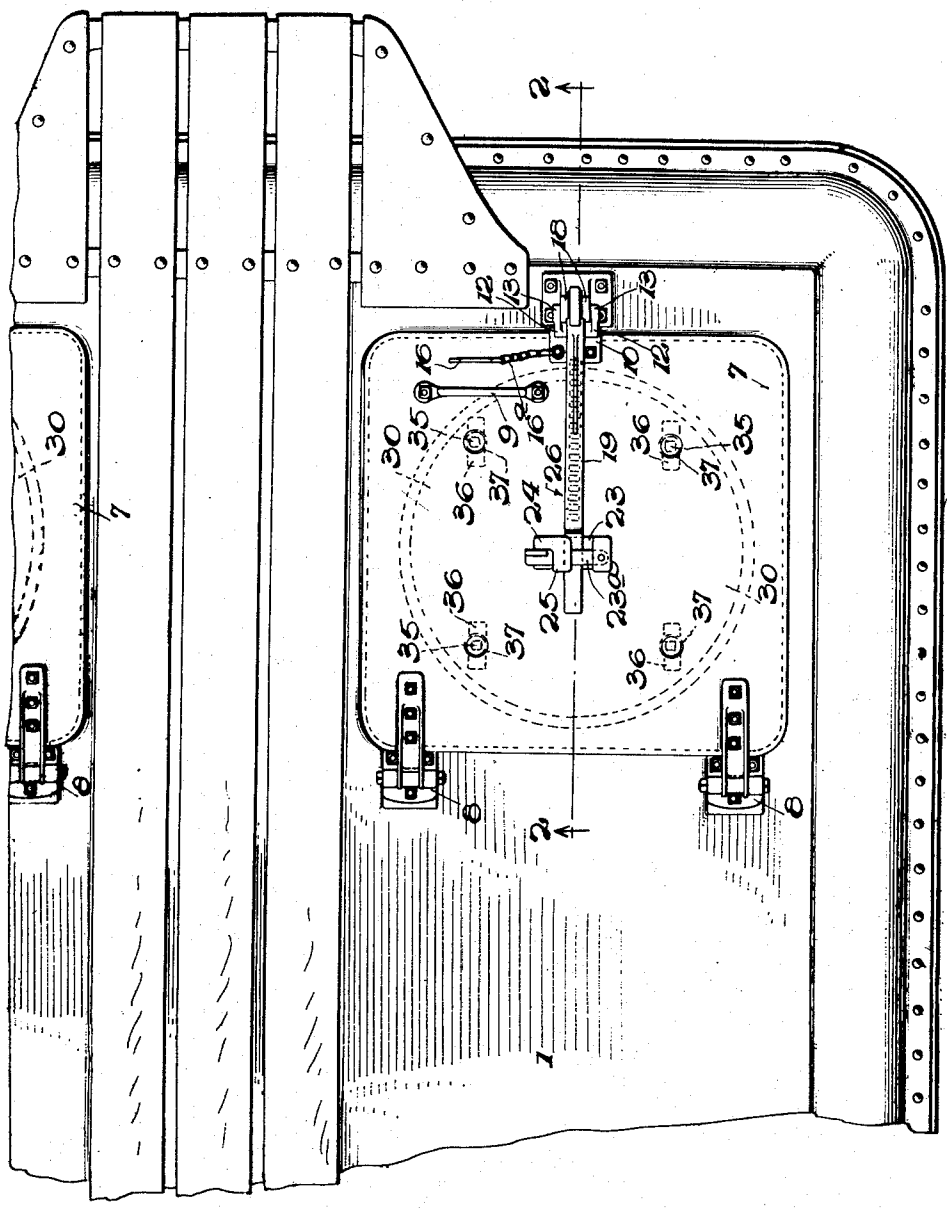


Fig. 1.

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ICE HATCH FOR REFRIGERATOR CARS

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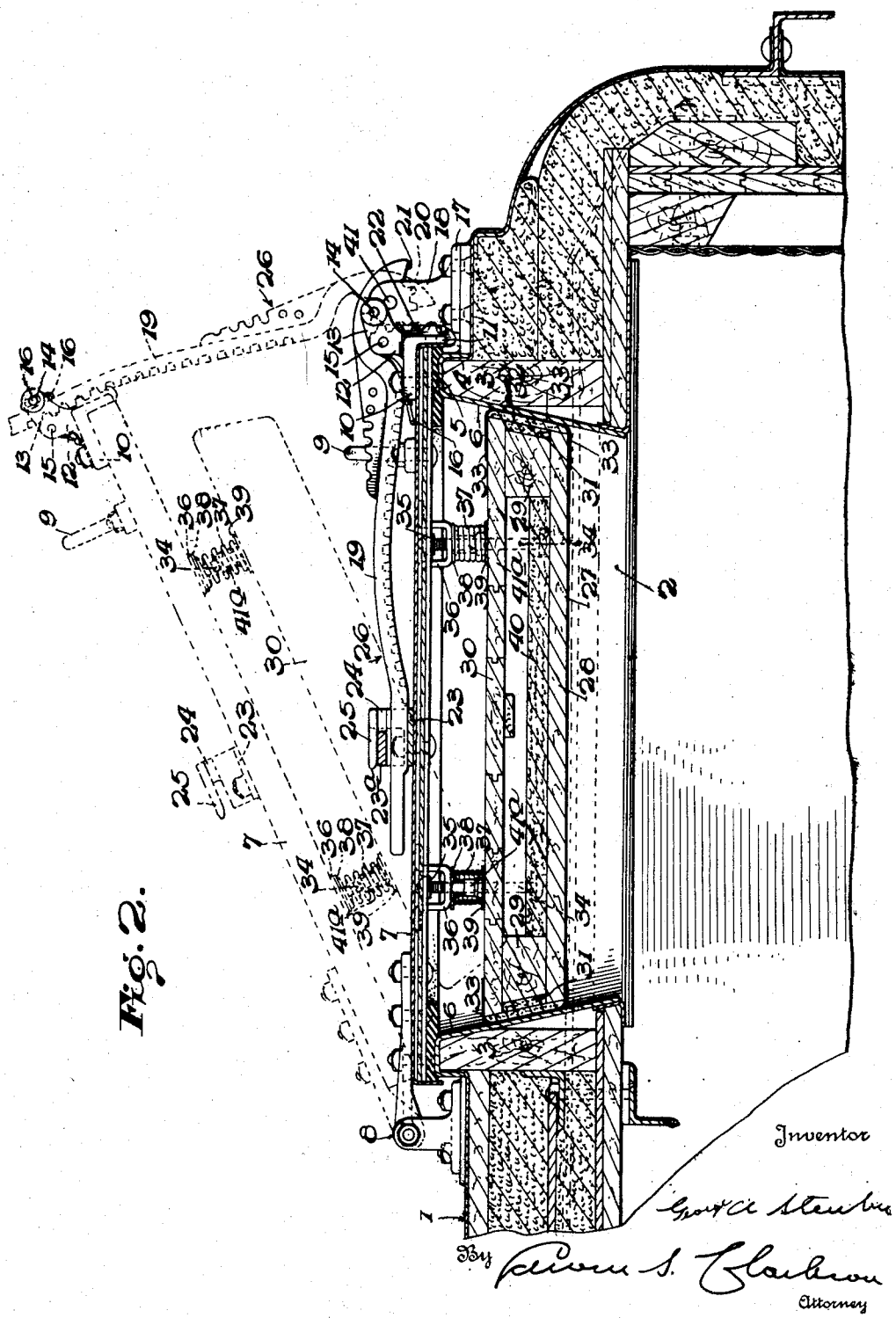


Fig. 2.

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ICE HATCH FOR REFRIGERATOR CARS

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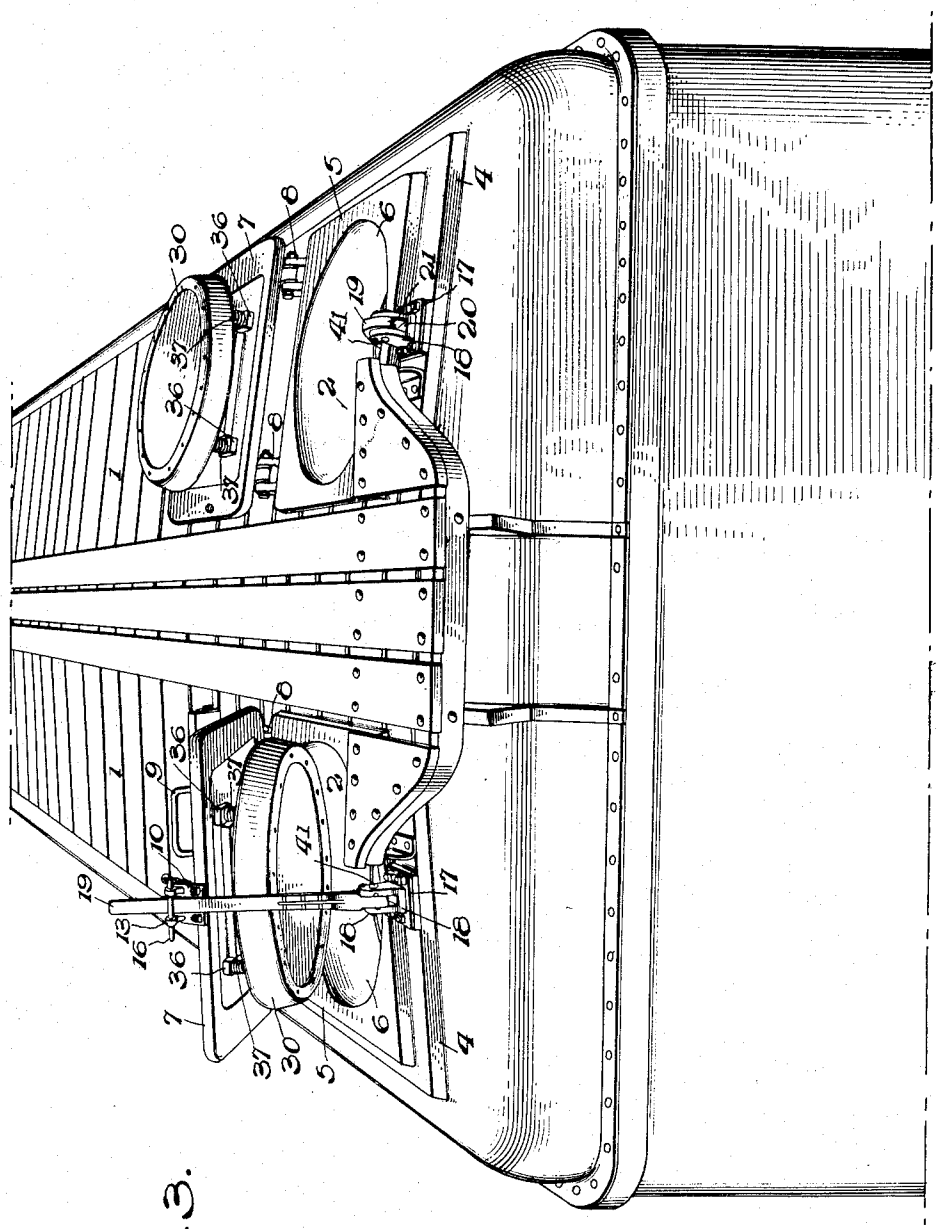


Fig. 3.

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Patented June 11, 1940

2,204,164

UNITED STATES PATENT OFFICE

2,204,164

ICE HATCH FOR REFRIGERATOR CARS

George A. Steuber, Penfield, N. Y., assignor to Despatch Shops, Inc., a corporation of New York

Application January 24, 1939, Serial No. 252,699

1 Claim. (Cl. 98—7)

The object of my invention is to provide an ice hatchway cover or door of a refrigerator car with means to support the combined weight of the door and closure plug carried thereby when the plug and door are opened for ventilation, said means functioning also as a pry bar in lifting the door and plug from sealed position; and with these and other objects in view, my invention consists of the parts and combination of parts hereinafter set forth.

In the drawings:

Figure 1 is a detail top plan view of a car showing my improved hatch cover.

Figure 2 is an enlarged detail sectional view of the hatchway cover, the cover being also shown in dotted lines in partial open position.

Figure 3 is a detail perspective view of the top of a car showing my improved hatchway and cover.

The reference numeral 1 designates the roof of a refrigerator car of any approved type provided with an ice hatch opening 2.

The ice hatch opening 2 is preferably round or circular and at its periphery, preferably the framing 3, extends above the plane of the roof; this framing is faced by an integral lining or cover comprising the flange 4, top 5 and facing 6, the latter extending downward to the bottom of the hatchway.

The door 7 is hinged at 8 in any suitable manner and is provided with a handle 9.

At its free end, and midway its sides, the door 7 is provided with a bracket casting 10 suitably secured thereto and provided with a depending flange 11 extending in front of a portion of the free edge of the door, and also provided with two spaced upwardly extending lugs 12 having forwardly extending arms 13, each having an opening 14 near their ends, the lugs 12 being also provided with openings 15 in which a sealing pin 16 is normally housed, said pin being connected to the casing 10 by means of the chain 16a.

A bracket casting 17 is suitably secured to the top of the car having two spaced upwardly extending arms 18 between which the hatch opening lever 19 is pivotally mounted, said lever being provided at its pivoted end with a segmental gear 20 at one end of which is a stop 21, said gear meshing with the toothed rack 22, or casting 12. The hatch operating lever 19 is held in closed position on the casting 23 by means of an overlapping portion which is an integral part of 23 and locked in place by means of pivoted latch 23—A which, when in locked position, can be sealed through opening 24.

The door lever 19 is provided on its under face with an elongated tooth rack 26.

The plug 27 has a base 28, a circular side member 29, and a top member 30 which may be of any suitable material. The periphery of the top and bottom members 28 and 30 extend beyond the periphery of the side member thus forming a peripheral recess in which suitable packing material 31 is secured. Suitable packing and sealing material 32 is secured around the periphery of the plug 27 and held in position by means of suitable material 33.

A plurality of connections are provided, arranged equidistantly from each other and from the center of the plug and the door, for suspending the plug from the door and resiliently forcing the plug and holding it to its seat when the door is closed. Each of these connections comprises a bolt 34 suitably and rigidly secured to the plug and extending upwardly above the plug and provided at its upper end with an adjustable nut 35, the upper end of said bolt projecting through an opening in the bottom of a guide bracket or U-shaped stirrup 36 rigidly secured to the under side of the door 7. A coiled spring 37 is positioned around each bolt 34 between the bottom of the stirrup 36 and the cover 30; washers 38 and 39 being placed at the top and bottom of said springs.

As will be seen from the drawings, the hatchway and plug are circular and each has a beveled periphery and there is insulation 40 between the top and bottom of the plug and that the flexible insulation 31, 32 and covering 33 enable the plug to adapt itself to any unevenness in the opening. This makes for a positive sealing unit at all times. The beveled sides of both the opening or hatchway and the plug assure the positiveness of this sealing unit irrespective of the shrinking or wearing of the sealing material and its cover.

While the door 7 is in closed position the springs 37 exert a pressure on the plug 27 and hold it firmly on its seat against leakage.

To raise the door 7 the latch 23—A is moved on its pivot from its position on top of door lever 19 whereupon the lever is pulled outwardly in a horizontal motion from under portion 25 which is an integral part of sealing casting 23 and pulled upward and swung on its pivot 41, thus moving the door and its rack 22 upwardly, when the limit of movement between the racks 22 and 20 is reached the door 7 is moved by the handle 9 to fully open position, or to any degree of opening for ventilation, and when that degree is reached the rack 26, on the underside of the door

lever 19, is intermeshed with the rack 22 on the door and held in that position by passing the pin 16 over the lever and through the openings 14 of the arms 13. Of course, it is understood that the plug 27 is raised and lowered with the door.

Preferably I prefer to place a suitable yielding material as a seal between the door and the hatch frame.

The lock 23 has a pivoted latch 23—A which is held in locked position by overhanging portion 25 of casting 23. Operating lever 19 is dropped into the groove of 23 and slid horizontally into a notch of 23 directly under the overhanging top portion of 23 noted to be 25. The pivoting of 23—A into locked position insures the compression in case 19 vibrates out of the notch of 23. The hatch is sealed by inserting seal ribbon through holes 24 which line up when 23—A is in locked position.

In order to keep the springs 37 concentric with the bolts 34 I mount a sleeve 41*a* around them but of less heighth than the spring.

What I claim is:

The combination with the ice hatch of a refrigerator car, of a door for the hatch, a lever pivoted to the car to open said door, a longitudinal series of rack teeth on the under face of said lever, a segmental pinion on the pivoted end of the lever, a toothed rack secured to the free end of the door engageable with the segmental pinion, whereby movement of the lever causes the segmental pinion to operate the rack on the door to give the door a preliminary opening, said rack on the door being engageable with the rack teeth on the under face of the lever to hold the door in a desired position for ventilation, and means to hold the rack teeth on the underface of the lever in engagement with the teeth of the rack on the door against accidental disengagement.

GEORGE A. STEUBER.