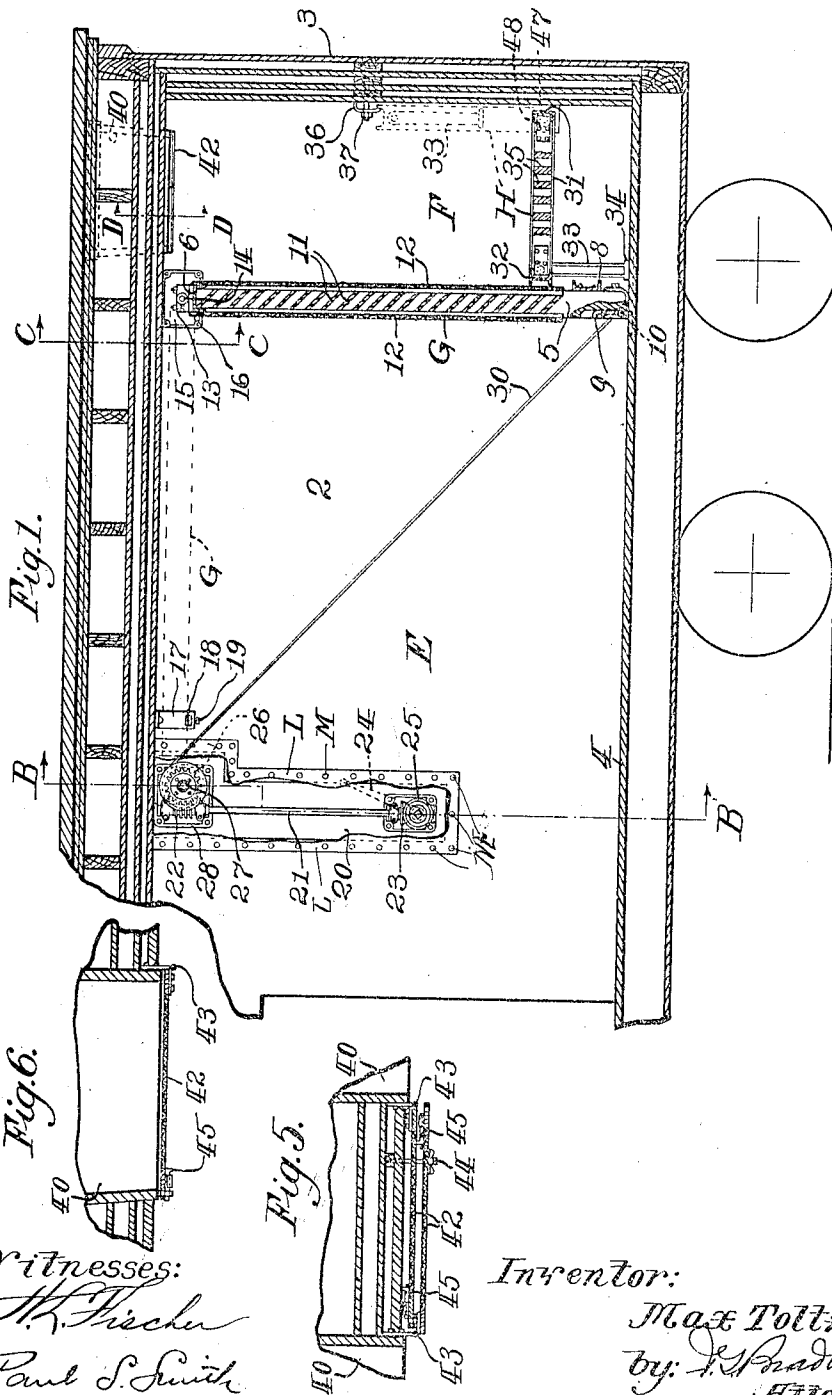


M. TOLTZ.
REFRIGERATOR CAR.
APPLICATION FILED SEPT. 26, 1910.

1,057,391.

Patented Mar. 25, 1913.

2 SHEETS-SHEET 1.



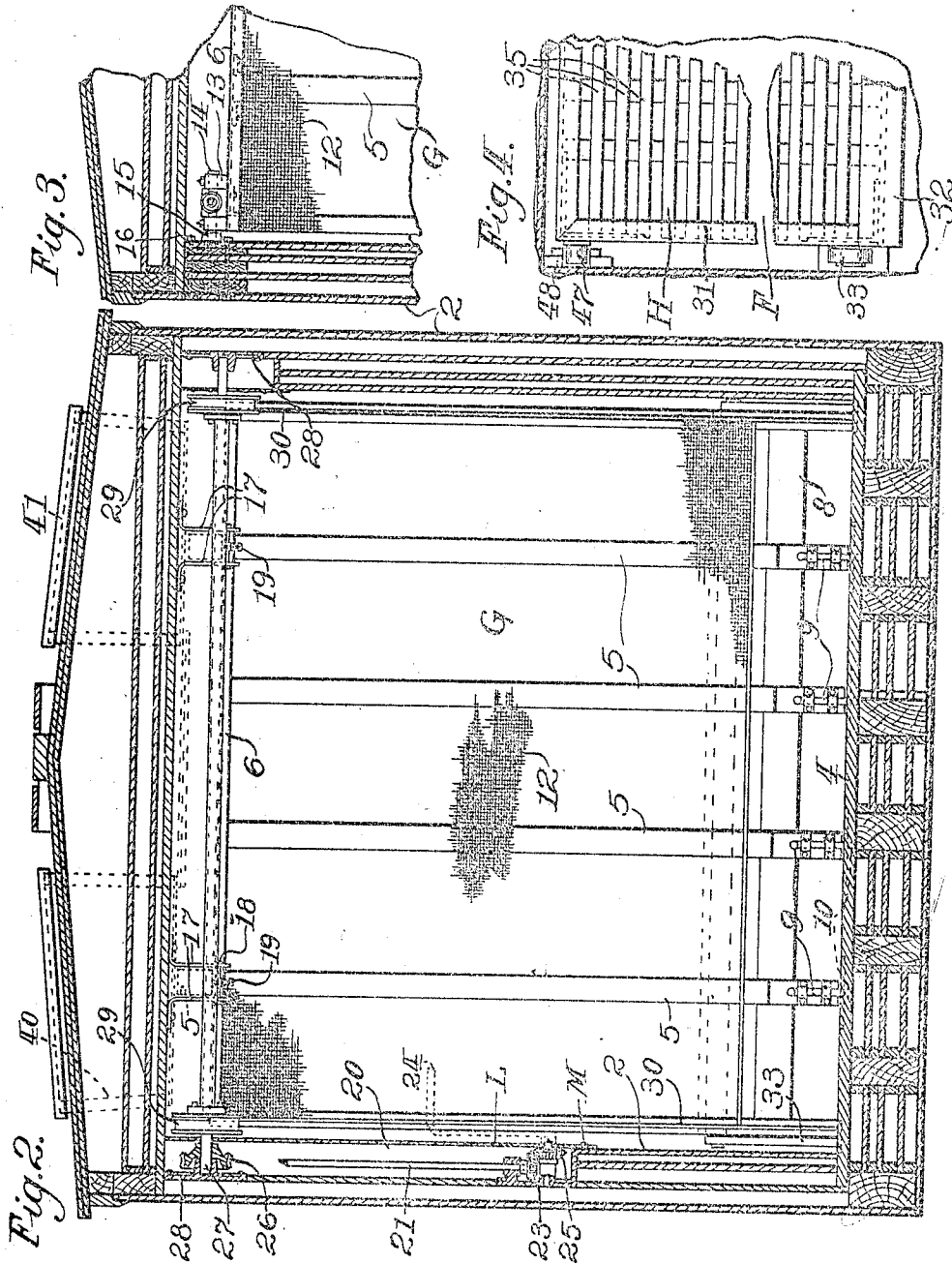
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UNITED STATES PATENT OFFICE.

MAX TOLTZ, OF ST. PAUL, MINNESOTA.

REFRIGERATOR-CAR.

1,057,391.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed September 26, 1910. Serial No. 583,726.

To all whom it may concern:

Be it known that I, MAX TOLTZ, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Refrigerator-Cars, of which the following is a specification.

My invention relates to improvements in refrigerator cars and has as one of its objects the design of a car that can be used as a refrigerator car, and can if desired be converted into a car convenient for use as a common freight carrier utilizing the space that is ordinarily wasted in the empty ice bunkers. I secure this end by means of ice bunkers constructed with folding parts which form convenient and effective bunkers when the car is to be used as a refrigerator car, and can be easily moved into a position taking up little space and this in the part of the car the least used for the storage of freight.

The structure in which I have set forth my invention is especially designed to meet the practical requirements of easy manipulation, convenience and strength. I have illustrated the details of this structure together with the principles of my invention in the accompanying drawings which form part of my specification, and in which—

Figure 1 is a vertical longitudinal sectional view of one end of a car fitted with my folding bunkers, showing a section of the bunker and bunker walls and an elevation of the operating mechanism; Fig. 2 is a transverse section on the line B—B, Fig. 1; Fig. 3 is a partial section on the line C—C, Fig. 1; Fig. 4 is a fragmentary plan illustrating the grating and its supports in operative position; Fig. 5 is a fragmentary section on the line D—D, Fig. 1, illustrating the hatchways and their screens folded back against the ceiling of the car, and Fig. 6 is another fragmentary section showing the screen on one of the hatchways closed.

In the above drawings is illustrated a common refrigerator car structure E having side walls 2, end walls such as 3, and floor 4. In each end of the car E, a temporary ice bunker F is formed by means of a removable bulk head or grating G and a hinged bottom grating H in an operative position. The bulk head or side partition wall G is made up of a series of posts 5, standing vertical when the wall is in operative position. The posts 5 are positioned at substantially equal intervals across the width of the car and are

fixed at their upper ends to a head channel 6. The lower ends of the posts are spaced apart by a channel 8 or similar means, and are anchored against lateral movement by catch bolts 9, sliding vertically on the posts 5 and fitted to suitable recesses 10 in the floor of the car. Slat 11 are fixed horizontally in the spaces between the posts and sloping toward the bunker to prevent overflow of water from ice contained in the bunker and to permit ventilation. In addition, a fine meshed wire screen 12 is placed on the two faces of the partition to exclude small particles of ice or other material.

At each extremity of the head channel 6 is bolted a bearing box 13 carrying a stub shaft 14 which is journaled in bearings 15 attached to the sides 2 of the car by bolts 16, forming in this way pivot bearings at the upper edge of the wall G upon which the wall is adapted to be rotated into a horizontal position in the top part of the car. Pairs of hangers 17 depend from the roof of the car, each carrying a cross bar 18 and set bolt 19 by which the posts 5 can be fixed against the roof of the car as indicated by dotted lines in Fig. 1. In a recess 20, in a portion of the wall 2 that lies outside of the ice bunker F is mounted a vertical shaft 21 fitted at its upper end with a worm 22 and at its lower end with a bevel gear 23, and adapted to be operated by a suitable handle 24 (shown by dotted lines) actuating a bevel gear 25 which meshes with the gear 23 and is also mounted within the recess 20. The worm 22 engages a worm wheel 26 on a shaft 27 which extends across the upper portion of the car and is journaled in bearings 28 on the walls of the car. The shaft 27 carries a winding drum 29 at either end immediately within the walls of the car, on which are wound ropes or cables 30 attached to the lower ends of the two posts 5 which are next to the walls 2. By operating the handle 24 the worm 22 is rotated and the cable 30 is wound on the drums 29 thus raising the wall G to a horizontal position in the top of the car. The recess 20 is closed by a removable panel L which is detachably secured to the wall 2 by screws M. Thus the operating mechanism can be gotten at easily to keep the same in order.

The grating H which forms the bottom of the ice bunker F is made up of a rectangular frame of channels 31 and an I-beam 32, hinged at one edge close to the end wall 3 of the car. Adjacent to the sides of the car

near the front corners of the frame are pivoted cast iron legs 33 having large bearing surfaces 34 at their lower ends to support the weight of ice contained in the bunker.

- 5 Within the frame is a suitable grating of slat bars 35, spaced apart to allow the drainage of the ice and resting on the flanges of the beams 31 and 32. The grating H can be readily rotated into a vertical position
10 resting against the end of the car, as shown in dotted lines in Fig. 1, the pivoted legs 33 hanging, by their own weight, vertically beside the frame. The grating H is retained in this position by a lock bar 36 which is
15 adapted to engage the edge of the upturned grating and can be fixed in position by a lock nut 37. Suitable ice openings 40 are provided in the roof of the car, closing with hatches 41. Ventilating hatches 42 made of
20 screening are hinged at 43 and adapted to swing back toward the center of the car against the ceiling where they are held in open position by a bolt 44, (see Fig. 5). When closed the ventilating hatches are se-
25 cured across the ice openings (see Fig. 6), by bolts 45.

- When the car is to be used as a refrigerator car the grating H is released from the lock bar 36 and lowered into a horizontal
30 position with the legs 33 standing vertically on the floor of the car. The partition wall G is then lowered into a vertical position and the catch bolts 9 are forced into the recesses 10 in the floor, firmly bracing the
35 wall. A sufficient quantity of ice to cool the car can then be lowered through the ice openings 40 in the roof of the car, after the ventilating hatches 42 are fastened back against the ceiling as illustrated in Fig. 5.
40 To convert the refrigerator car into a common freight carrier, the catch bolts 9 are raised and the handle 23 is operated, elevating the partition wall G to its position in the top part of the car where it is secured
45 by the hangers 17 and set screws 19. The grating H is then folded up against the wall 3 of the car, thus freeing the lading chamber from the incumbrance of an intruding ice bunker.

- 50 In accordance with the patent statutes I have described the principles of operation of my invention together with the apparatus which I now consider to represent the best embodiment thereof but I desire to have
55 it understood that the construction shown is only illustrative and that the invention

can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I 60 claim as new and desire to protect by Letters Patent is:—

1. A refrigerator car having an ice bunker formed by a vertical grating and a movable bottom, disposed in the end of the car, said 65 grating having its upper end pivotally mounted upon the car whereby the grating may be folded up adjacent the top of the car, a shaft extending across the car, a winding drum on said shaft, a flexible connec- 70 tion winding upon said drum and connected with the lower end of said grating and operating means for revolving said shaft secreted in a wall of said car.

2. A refrigerator car having an ice bunker 75 formed by a vertical grating and a movable bottom, disposed in the end of the car, said grating having its upper end pivotally mounted upon the car whereby the grating may be folded up adjacent the top of the 80 car, a shaft extending across the car, a winding drum on said shaft, a flexible connection winding upon said drum and connected with the lower end of said grating, operating means for revolving said drum secreted 85 in a wall of the car and a panel detachably secured to said wall over said operating means.

3. A refrigerator car having a shaft journaled upon and extending across the upper 90 portion of the car, winding drums disposed near the ends of said shaft, flexible connections adapted to wind upon said drums and secured to the lower ends of a vertical pivotally mounted grating, an actuating shaft 95 journaled in a wall of the car, worm gearing interconnected with the adjacent ends of said shafts, beveled gearing connected with the opposite end of said actuating shaft, and a handle detachably connected with said 100 beveled gearing, said actuating shaft, worm gearing and beveled gearing being secreted in a wall of the car, for the purposes specified.

In testimony whereof, I have signed my 105 name to this specification, in the presence of two subscribing witnesses.

MAX TOLTZ.

Witnesses:

FLORENCE L. TOLTZ,
F. G. BRADBURY