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No. 891,325.

PATENTED JUNE 23, 1908.

P. BUTCHART.  
RAILWAY CAR.

APPLICATION FILED MAR. 6, 1907.

Fig. 1.

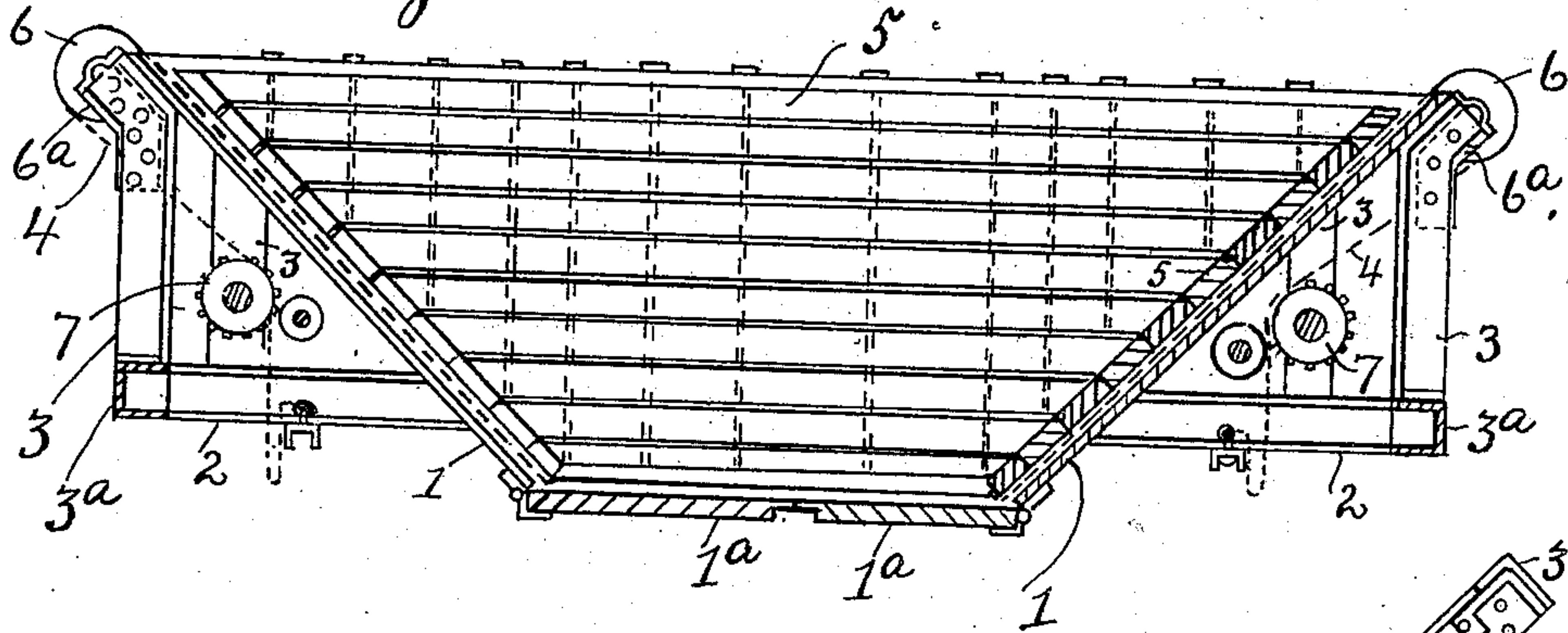


Fig. 2.

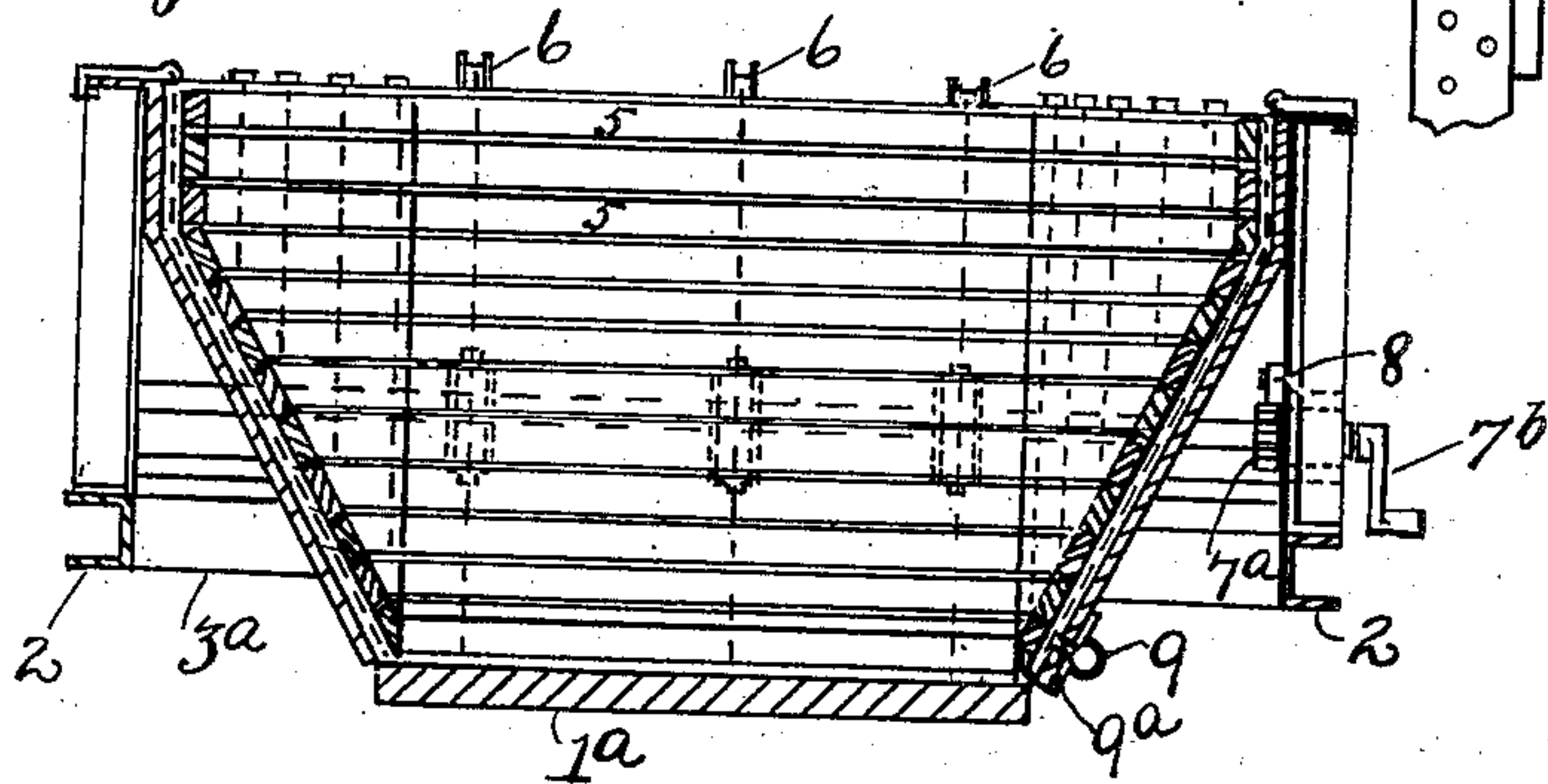
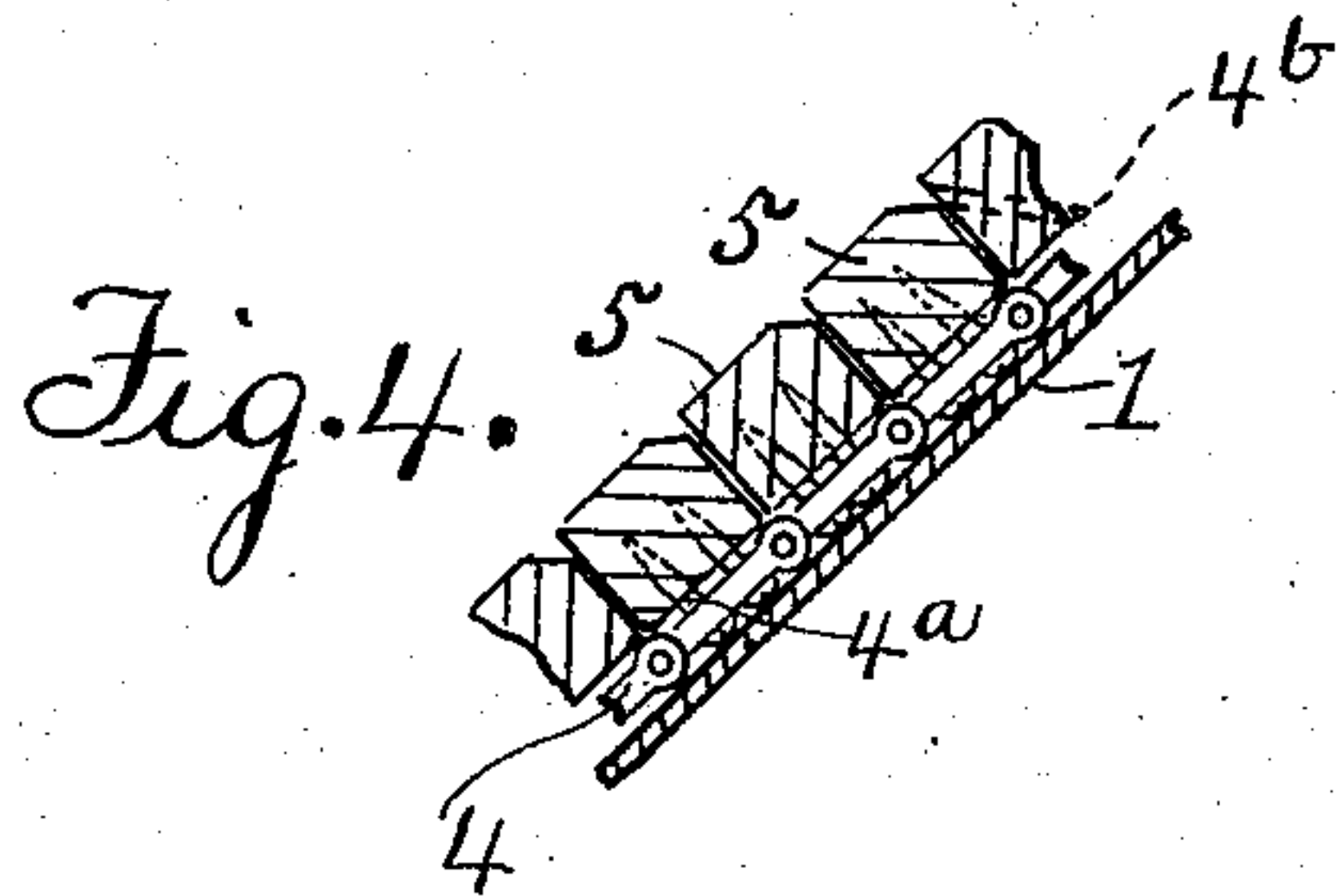
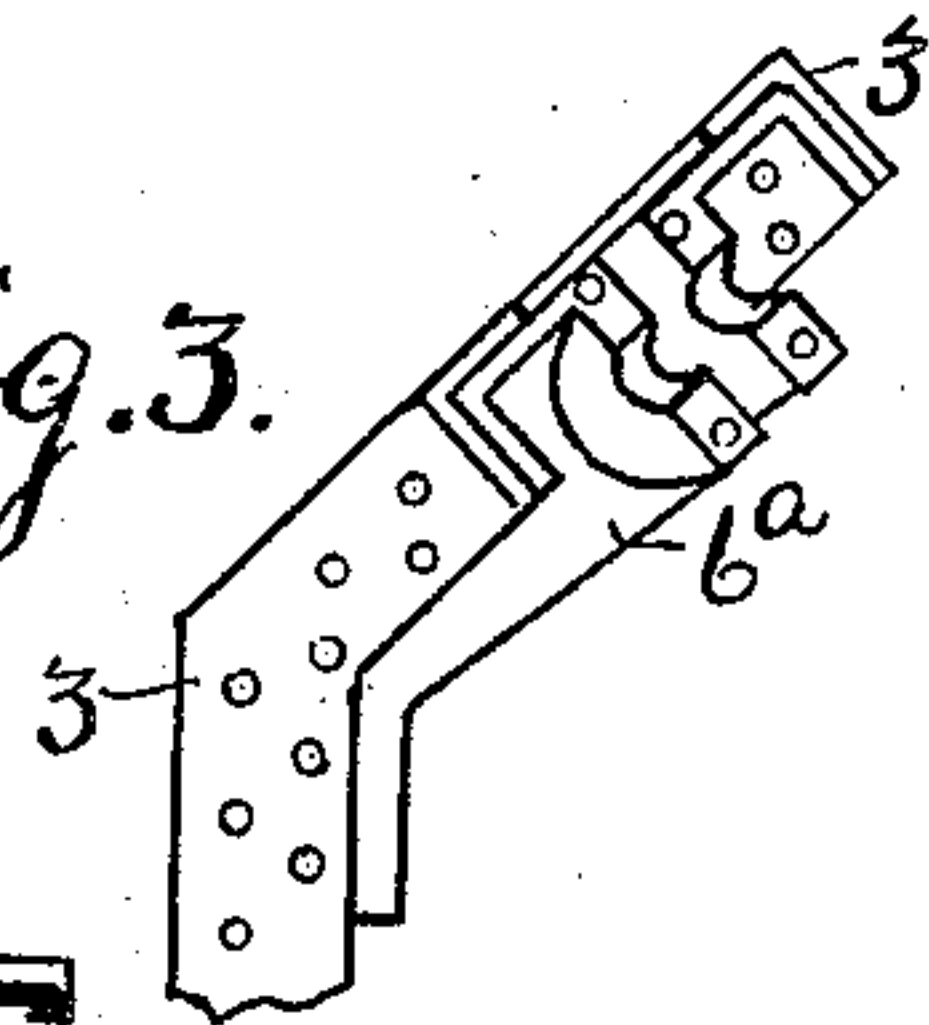


Fig. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

PETER BUTCHART, OF DULUTH, MINNESOTA.

## RAILWAY-CAR.

No. 891,325.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed March 6, 1907. Serial No. 360,893.

*To all whom it may concern:*

Be it known that I, PETER BUTCHART, citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Railway-Cars, and do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to ore cars and has for its object the provision of an improved lining for the ore-containing receptacle of such car, which lining is adapted, in part, to have a limited vertical movement so as to start the load in case that it fails to discharge immediately upon opening the trap doors in the bottom of the car. With this and other objects in view, as will hereinafter appear, the invention consists of the constructions, combinations and arrangements of parts hereinafter described and claimed.

In the drawings Figure 1, is a vertical, longitudinal section through the box and upper frame of a car equipped with my invention. Fig. 2, is a vertical transverse section through the same. Fig. 3, is an enlarged fragmentary detail perspective view of two of the box-supporting end posts and of a portion of a journal box casting mounted thereon. Fig. 4, is an enlarged fragmentary detail vertical section of a part of said lining, and equally illustrative of either the side or end wall thereof.

In the drawings 1 is the outer shell of a hopper-shaped load-receiving box, open at the top, and closed at the bottom by trap doors 1<sup>a</sup> hinged thereto in any suitable manner or by any suitable means. Said shell is supported by a suitable skeleton frame, as by one comprising the longitudinal beams 2 and the vertical posts 3, and transverse beams 3<sup>a</sup>. Cars having such skeleton frames and load-supporting shells or boxes or analogous parts are old in the art, and I therefore make no claim thereto *per se*. Neither is my invention considered as restricted to use with the exact form of frame and shell here described or illustrated since cars of this general character adapted for carrying ore, earth, or other minerals vary in their details of construction, and I believe that my invention may be modified, within the scope of my claims so as to adapt it to other forms of this type of cars. Suspended within said shell,

at each side thereof, by any suitable form of hangers, as by sprocket chains 4, is a series of bars 5 preferably of wood and preferably laid horizontally, forming the non-descending side portions of my improved lining.

Suspended within said shell at each end thereof, by sprocket chains 4 are vertically movable central sections of said lining of a trifle less width than the load discharge opening in the bottom of the car, which sections are composed of series of bars as 5 preferably of wood, laid horizontally and secured to said chains by wood screws 4<sup>a</sup>. At each side of said central sections at each end of the car are non-descending wing portions of said lining, preferably constructed in the same manner as said side portions. All of said horizontal bars are preferably beveled inward and upward at their upper exposed edges, so that the bottom edge of each bar will overhang the upper edge of the bar next below it, and thus tend to prevent the ore or earth from entering the crevices between the bars.

The chains upon which the end central sections are hung, are carried over suitable rollers or guide wheels 6 journaled in suitable bearing boxes as 6<sup>a</sup> secured in any suitable manner to supports near the upper edge of said shell. Said central section supporting-chains are thence carried down and engaged by sprocket-wheels, as 7, which are journaled in any suitable manner on the car, and the ends of said chains are secured to any suitable anchorages in such manner as to leave a slack portion sufficient to permit of the lowering of said central sections the desired distance when the trap doors are opened. The sprocket wheels are prevented from accidental lowering rotation by suitable dogs 8 pivoted to said frame and adapted to engage ratchet wheels 7<sup>a</sup> keyed to the shaft upon which said sprocket wheels are mounted. Said shafts may be turned by any suitable means as by a fixed or removable crank 7<sup>b</sup>. Rollers 9 are preferably positioned oppositely to said sprocket wheels 7 and near to the same so as to prevent the chains from disengaging from the sprocket wheels.

Since at certain seasons of the year ore tends to freeze in transit in the cars into a more or less solid mass and thus bridge over the trap doors, it frequently becomes desirable to thaw it out by steam after arrival at the ore dock. Such an operation at such time involves great delay and much labor.



I therefore have provided a steam pipe 9 extending in a suitable condition along the side of the car and have provided suitable nipples 9<sup>a</sup> connecting a series of ports in said pipe with a series of ports through said shell, so that steam may be conducted into the space between said shell and lining and thence find its way through the crevices between said bars or through apertures 4<sup>b</sup> which may be formed in the bars. Said pipe is intended to be connected in any suitable manner with a source of steam supply on the locomotive, as in the manner of connecting steam heating apparatus on railway trains, well known to builders of railway rolling stock and is not deemed necessary to be herein more specifically illustrated or described.

In operation, the non-descending bars of the lining tend, as well as the vertically movable sections, to sway or vibrate slightly on account of the bumping of the cars and thus prevent the ore from freezing to the lining, or to break the adhesive ice in case the ore so freezes when the cars are still. When the trap doors are opened, if the ore is so frozen that it will not naturally break away from the end sections, the vertically movable sections may be released to lessen the support for the ore which will then tend more readily to descend through the opening in the bottom of the car. The sudden checking of the descending bars, caused by the taking up of the slack in the chains, will cause the ore to

break loose from the end sections if it has not already done so.

The connecting of the thawing or steam pipe with the locomotive, enables steam to be applied to the ore while the train is in transit, thereby preventing the freezing of the ore, or enabling the thawing of it in transit while running down grade or otherwise, so that it will come to the dock for the most part in unfrozen condition, and time and labor in thawing it out may be wholly or largely saved.

Having now described my invention, what I claim is:

In a car the combination with a suitable frame and a box or shell mounted thereon, and adapted to receive a load at the top and to discharge it through an opening in the bottom, of a lining comprising non-descending sections, comprising bars suspended in said box against the sides thereof, and of vertically movable sections comprising bars suspended within said box, said vertically movable sections being adapted in lowered position to extend through the opening in the bottom of said box, and means for raising or lowering said vertically movable sections.

In testimony whereof I hereunto affix my signature, in presence of two witnesses.

PETER BUTCHART.

Witnesses:

JAMES T. WATSON,  
AUDEN JOHNSON.