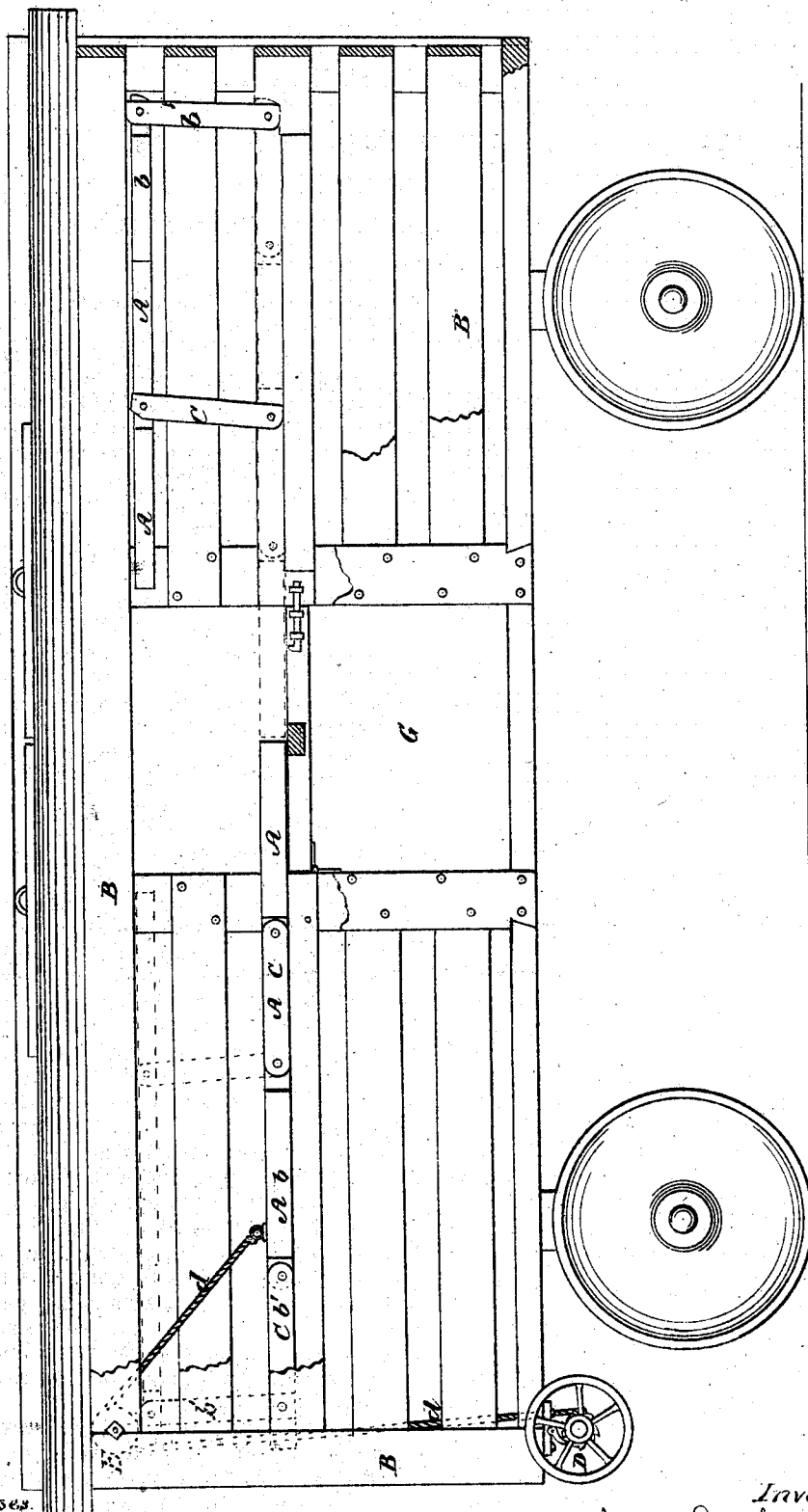


AMOS RANK.
Improvement in Railway Stock Cars.
 No. 124,626. Patented March 12, 1872.



Witnesses

W. H. Rowe
James Rank

Inventor.

Amos Rank
by his atty
W. D. Baldwin

UNITED STATES PATENT OFFICE.

AMOS RANK, OF SALEM, OHIO.

IMPROVEMENT IN RAILWAY STOCK-CARS.

Specification forming part of Letters Patent No. 124,626, dated March 12, 1872.

To all whom it may concern:

Be it known that I, AMOS RANK, of Salem, Columbiana county, Ohio, have invented certain new and useful Improvements in Railway Stock-Cars, of which the following is a specification:

My invention relates to that class of railway stock-cars in which a movable middle deck is employed to adapt the car to the transportation of large or small stock, either or both. The decks heretofore employed for this purpose, so far as my knowledge extends, have been constructed in three ways—first, a solid deck, movable vertically, which was heavy, cumbersome, and unwieldy; secondly, platform-sections pivoted to swing on horizontal axes, which occupied too much room in the car; and thirdly, removable sections of loose plank, which were awkward to handle, and required special provision in the car for storing them away when not in use. It is the object of my invention (while obviating the objections incident to the modes of construction hereinbefore mentioned,) so to construct a railway stock-car that it readily may be converted from a freight-car to a stock-car, adapted for carrying either large or small stock, or vice versa. This object I attain, first, by combining with a railway stock-car, a movable deck by means of hinged, pivoted, or flexible sustaining arms, rods, or chains, so that the deck may be swung into or out of position, or raised and lowered by both a latent or longitudinal and a vertical movement while remaining substantially parallel with the floor of the car, which construction possesses several advantages, hereinafter specified; second, by combining with a deck possessing the capacities above mentioned a windlass (or equivalent device) for moving the deck into or out of position; third, by constructing the middle deck of sections hinged or pivoted together in such manner that they can be folded together altogether, or partially, as may be desired, and moved out of the way or into different positions to adapt them to the varying requirements of the traffic; fourth, by constructing a middle deck of independent sections swinging away from the center of the car toward each end readily to clear the doorways; fifth, by constructing the car with an opening in the roof above the central sections, through which

access may be had to them and to the space covered by them.

The accompanying drawing shows all my improvements herein claimed as adapted to a railway car in the way best known to me; the details of construction of the devices shown obviously, however, may be modified in various ways without departing from the spirit of my invention. Some of the improvements, also, manifestly may be used without the others. In this instance the drawing shows a view, in elevation, of an ordinary slatted freight-car to which my improvements are applied, with a portion of the siding broken away to show the interior.

In order to carry out the first part of my invention, I connect the movable middle deck A with the body B of the car by means of arms or radius-bars C, pivoted at one end to the deck, and at the other to the sides of the car. In this instance the radius-bars move parallel to the sides of the car—slots being cut in the edges of the deck, in which the bars move. By using metal bars, the space thus left between the edges of the deck and the side of the car would be very small. The drawing also shows the deck so pivoted as to swing up to the roof of the car, the bars being pivoted at their lower end to the sides of the car for this purpose. It is obvious that the bars might be pivoted near the roof and have their lower ends attached to the deck, in which case the arms as well as the deck would swing clear out of the way. To admit of the movement incident to this mode of construction, the deck must either be made shorter than the car or be made in sections; and the deck may be arranged so that the sections shall swing toward the center of the car, past each other. In case the deck is suspended from above, cords or chains might be used to sustain it instead of the radius-bars above described; but I prefer the bars, as insuring a more accurate movement of the deck relatively to the car.

In order to carry out the next part of my invention, I mount a windlass, D, in suitable bearings on the car, and connect it by a cord or chain, d, with the movable deck. In this instance the windlass is fixed beneath the car and operated by a hand-wheel, the ropes d passing over suitable pulleys E. One or

more windlasses may be used; or the decks may be moved by other well-known equivalent devices; such devices have heretofore been used in stock-cars, and I only claim them in combination with the deck and its supports.

In order to carry out the next part of my invention, I construct the deck of sections pivoted together so as to flex vertically. In this instance a short end section, *b'*, is shown as pivoted to the center section *b*, so that as the deck swings upward the short section flexes and leaves room for the deck, to move laterally, or rather longitudinally, to accommodate the swing of the radius-bars. The center sections might be made short, so as to fold over or under the others, to allow the sections to swing upward toward the center of the car; but the plan above described is better.

In order to carry out the next part of my invention, I divide the deck vertically and transversely in the center of the car, so as to constitute two independent sections, each having its own system of supports, and arranged to swing away from the center of the car toward its respective end thereof, thus clearing the doorway. The drawing shows the sections hinged to swing upward; but obviously they might be made to swing downward, to rest upon the floor; practically, however, I regard the plan of swinging upward as the best.

In order to carry out the next part of my invention, I construct the car with a door or central opening, *G*, by which access is afforded to the central space, for purposes hereinafter specified. The car may be provided with water and feed bins, troughs, sprinklers, ventilators, &c., which, being familiar, need not be here particularly described. I also propose to use bars hinged so as to swing across the doorways to support the middle deck, and movable to clear the doorways, or otherwise made removable.

When the middle deck is swung out of the way, the car can be used for ordinary freight. My peculiar mode of supporting the deck enables the power of the lifting apparatus to be advantageously applied, especially as the flexing of the joints of the deck-sections dimin-

ishes the weight actually to be lifted, the other sections forming one of the radius-arms, on which the deck moves. By dividing the deck transversely and centrally, one part of the car can be used for dead-freight or large stock, and the other for small stock. The weight of the deck to be lifted is also divided, and the doorway quickly cleared. The end racks are useful for large stock, and the space between the middle deck and roof may be used to store forage. The opening in the roof allows ready access to this space, and the swinging outward of the sections leaves the entire space between the doorways clear from the roof to the floor, which would not be the case with an undivided deck. In loading small stock this is particularly advantageous, as by loading the lower story first the attendants can stand above and yet have access to the animals through the opening in the roof.

I claim as my invention—

1. The combination, with a railway stock-car, of a movable deck, by means of supports, which allow the deck simultaneously to move both vertically and horizontally, substantially as set forth.

2. The combination, in a railway stock-car, of a deck movable radially on its supports, with mechanism for moving the deck substantially as before set forth.

3. In a railway stock-car a movable middle deck, constructed of sections pivoted together, flexible vertically, and movable lengthwise of the car, substantially as before set forth.

4. The combination, with a railway stock-car, of a middle deck constructed of independent sections, swinging away from the center of the car, in opposite directions lengthwise of the car, substantially as described.

5. A railway stock-car having doorways independent, longitudinally-moving deck sections, and central openings in the roof, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

AMOS RANK.

Witnesses:

WILLIAM H. KIDD,

WILLIS CADWALLADER.