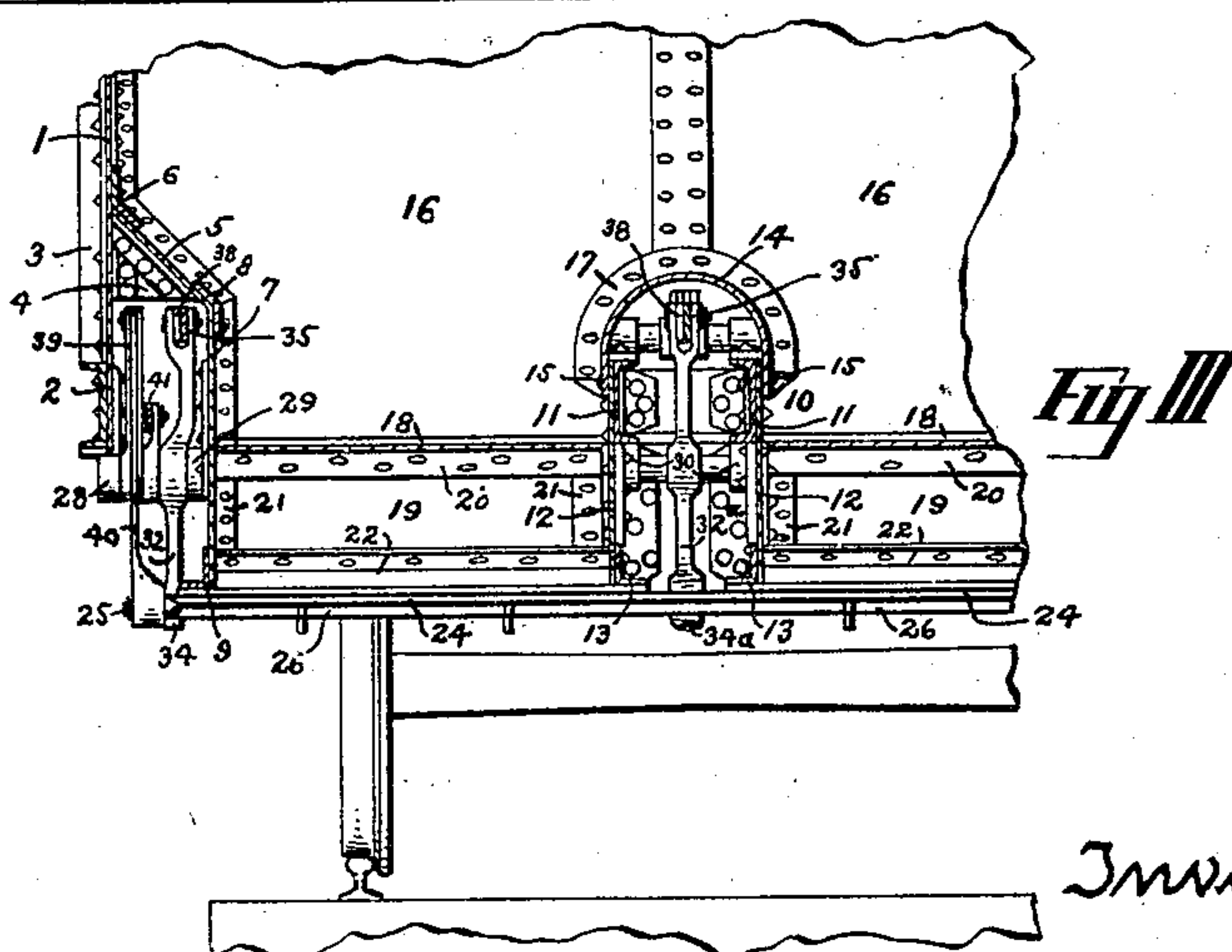
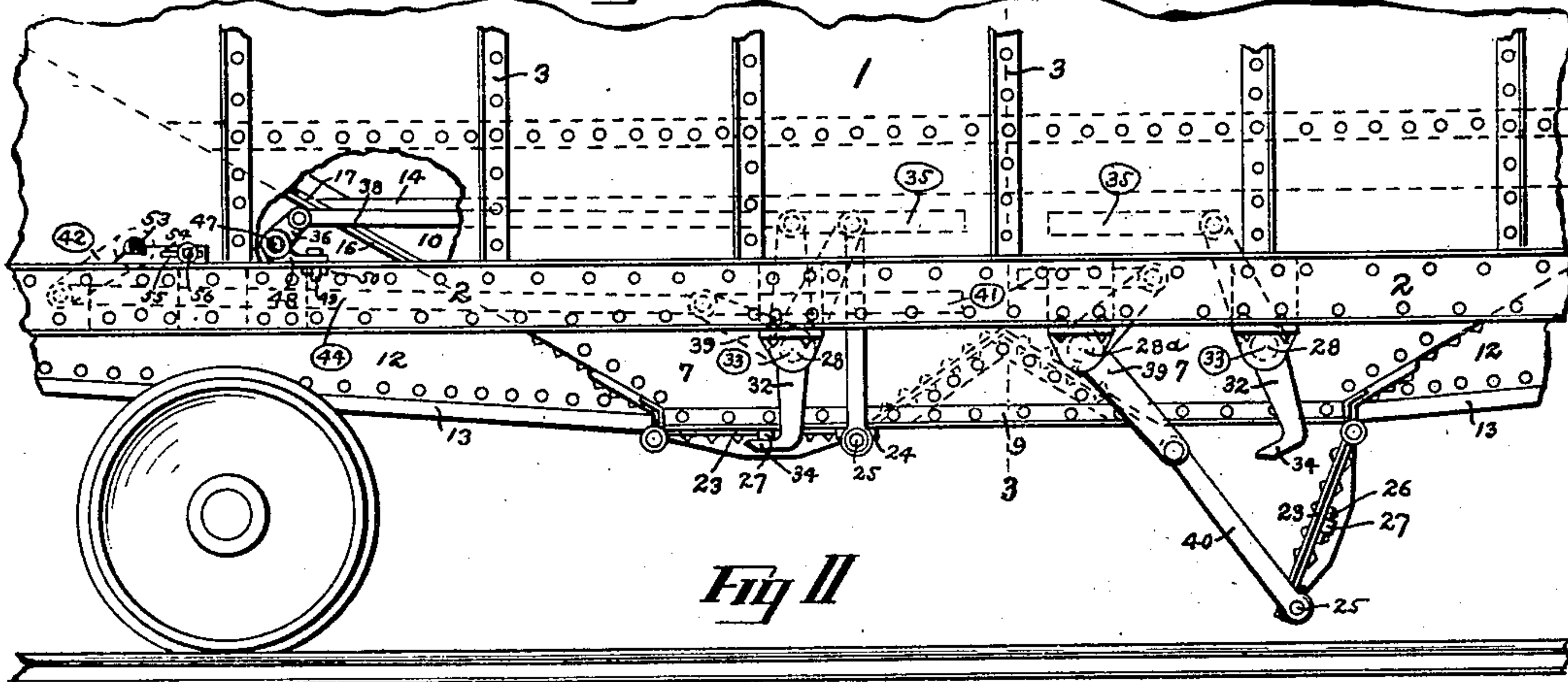
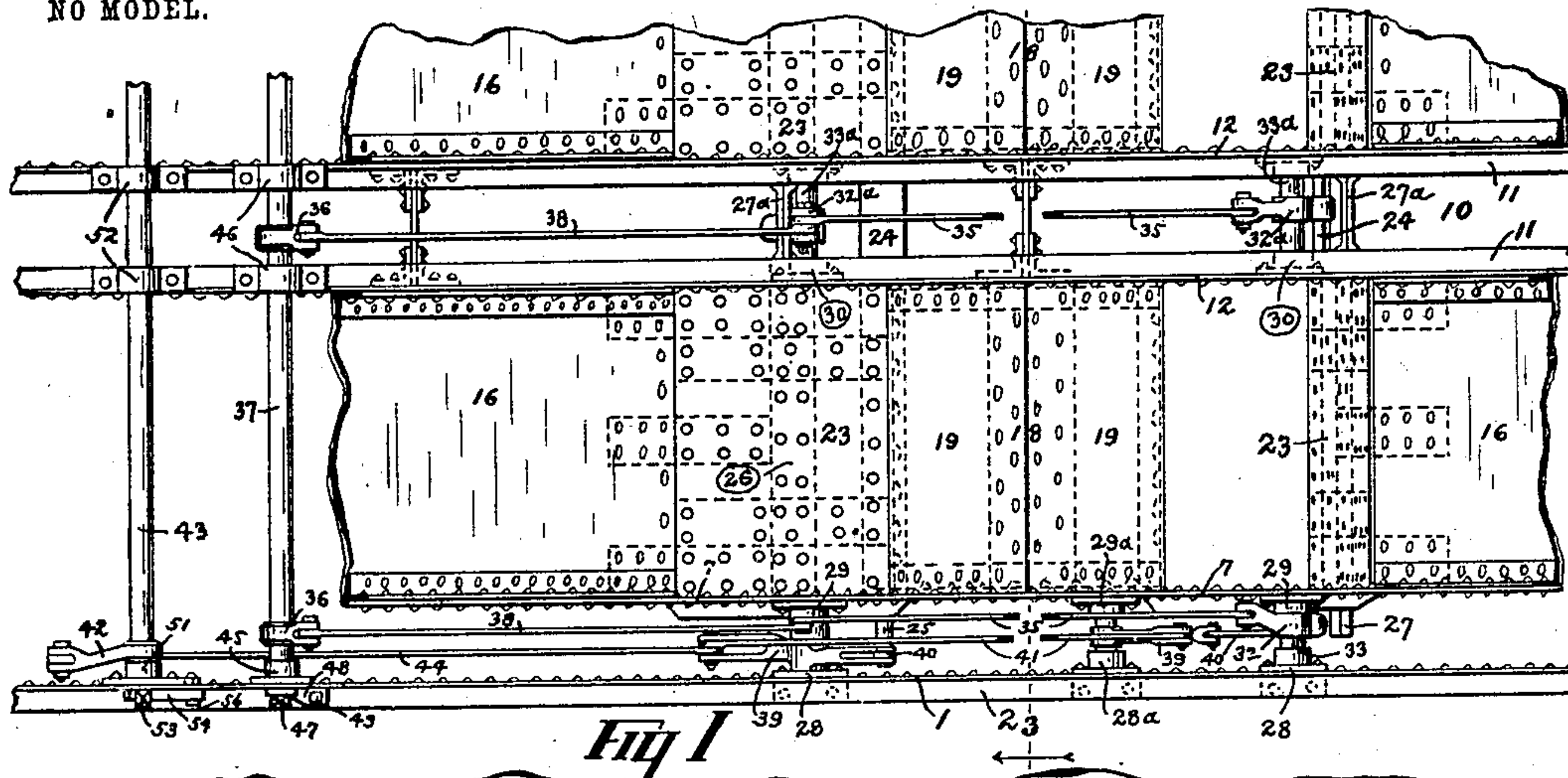


No. 725,710.

PATENTED APR. 21, 1903.

R. H. HORN BROOK.
BOTTOM DUMPING CAR.
APPLICATION FILED OCT. 29, 1902.

NO MODEL.



Witnesses:
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Katharine P. Mease

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UNITED STATES PATENT OFFICE.

RAYMOND H. HORN BROOK, OF CANTON, OHIO.

BOTTOM-DUMPING CAR.

SPECIFICATION forming part of Letters Patent No. 725,710, dated April 21, 1903.

Application filed October 29, 1902. Serial No. 129,181. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND H. HORN-BROOK, a subject of the King of Great Britain, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Improvement in Bottom - Dumping Cars, of which the following is a specification.

My invention relates to supporting, locking, tripping, and raising the cross-doors in the bottom of a dumping-car; and the principal object of my improvement is to manipulate the doors in a convenient and positive manner without the use of gears or cables. I attain this object by the construction and mechanism illustrated in the accompanying drawings, in which—

Figure I is a plan view of part of a car, showing one cross-door raised and the other lowered; Fig. II, a side elevation of the same; and Fig. III, a middle cross-section of the same on line 3 3, Figs. I and II.

Similar numerals refer to similar parts throughout the drawings.

Each side of the car is preferably made of the plate 1, the longitudinal stiffening channel-bar 2 along its lower edge, and the vertical stiffening angle-bars 3 on its outer face. On the inner faces of the side plates are attached the vertical gusset-plates 4, which support the side slope-plates 5. The slope-plate on each side is attached on its upper edge to the side plate by means of the obtuse-angle bar 6, and on its lower edge carries the outer side plate 7 of the hopper by means of the obtuse-angle bar 8. Each hopper outer side plate is preferably provided with the stiffening angle-bar 9 along its lower edge.

The center ridge 10 of the car is made of the channel-bar center sills 11, having their flanges directed inward, on the webs of which sills are riveted the girder-plates 12, which descend to form the inner side plates of the hopper. The hopper inner side plates are preferably provided with the stiffening angle-bars 13 along their lower edges. The center ridge is completed by the curved ridge-plate 14, which is riveted to the channel-bars and girder-plates by its side edges 15 and to the end slope 16 of the car by its flanged end edges 17. The cross-ridges 18 are each made of the inclined plates 19, joined by the obtuse-angle bar 20, and are attached to the hopper outer and inner side plates in each side of

the car by means of the angle-bars 21. The free edges of the inclined plates are preferably stiffened by the obtuse-angle bars 22. The cross-ridges serve the double purpose of directing the contents of the car to the proper hopper-mouth and of stiffening the sides of the hoppers.

The cross-doors 23 are hinged to the lower edges of the end slope of the car, and the free edges of the doors swing upward against the depending flanges of the obtuse-angle bars on the free edges of the cross-ridge plates. The opposite doors operate together, being connected by the raising-bars 24, which are attached to the free edges of the doors and extend across the entire car and have the projecting round ends 25 and by the supporting-bars 26, which are attached near the middle of the doors and likewise extend across the entire car and have the projecting ends 27, which are preferably squared, as are also the middle parts 27^a of these bars between the doors.

The bearings 28, 29, and 30 are attached to the sides of the car and to the outer and inner sides of the hoppers, respectively, one set being provided each way from the cross middle line of the car over the cross-doors, and like bearings 28^a and 29^a are attached to the sides of the car and to the outer sides of the hoppers between the cross-doors and the middle line in the end of the car opposite the operating-shafts 37 and 43, which end is herein designated as the "forward" end. The doors are normally supported by the trip-levers 32 and 32^a, which are pivoted on the short shafts 33 and 33^a, which shafts are mounted in the bearings 28 and 29 at the sides of the car and in the bearings 30 in the middle of the car. The lower arms of the trip-levers are bent or curved to form the hooks 34 and 34^a, which hooks are adapted to engage under the squared ends and middle parts of the supporting-bars, as shown for the rear doors in the drawings, and the upper arms of the trip-levers are connected by the trip link-bars 35, which cause the levers to act in unison. The upper arms of the rear trip-levers are also connected with the arms 36 on the trip-shaft 37 by the trip drag-links 38.

The raising-levers 39 for the rear doors are pivoted on the rear shaft 33 on each side of the car, and for the forward doors they are

pivoted on the short shafts 34, which shafts are mounted between the bearings 28^a and 29^a on each side of the car. The raising-levers are preferably L-shaped, and to the longer arms are pivoted the door-links 40, which in turn are pivoted to the projecting round ends of the raising-bars at the outer free corners of the doors. The shorter arms of the raising-levers are connected by the raising link-bars, as 41, which cause the levers to act in unison, and the shorter arms of the rear raising-levers are also connected with the arms, as 42, on the raising-shaft 43 by the raising drag-links, as 44.

The trip-shaft 37 is mounted across the car near one end, herein designated the "rear" end, in the bearings 45 and 46 on the side and center sills of the car, and the squared end 47 of the shaft projects outside of the car over the stiffening channel-bar 2, by which squared end the shaft is rotated by an ordinary crank. On the inner part of the projecting end of the trip-shaft is securely attached the bracket 48, by means of which the shaft can be stopped against rotation, as by the bolt 49, passing through the flange of the channel-bar 2, and the key 50, passing through the bolt, which key can be secured by an ordinary car-seal or by a padlock. The raising-shaft 43 is likewise mounted across the car in bearings 51 and 52, and the squared end 53 of the shaft projects outside of the car, by which squared end the shaft is likewise rotated by an ordinary crank. The raising-shaft is stopped from rotation by the locking-bolt 54, which slides endwise on the flange of the channel-bar 2 and under the projecting squared end of the shaft. The movement of the bolt is limited by the slot 55, operating on the ordinary bolt 56.

The doors being closed and locked, as shown for the rear doors and the operating-shafts in the drawings, when it is desired to lower the doors, as for emptying a load from the car, the locking-bolt 54 is first driven endwise by a hammer or otherwise out of engagement with the squared end of the raising-shaft, which releases this shaft and permits it to rotate when the doors are dropped. The bracket 48 is then released from the flange of the channel-bar 2 by withdrawing its key and bolt, which frees the trip-shaft for rotation. A crank is then applied to the squared end of the trip-shaft, and by its rotation the upper arms of the trip-levers are drawn rearward and the lower arms are thrown forward, thereby releasing or tripping the hooks 34 and 34^a from the squared ends and middle parts of the supporting-bars, whereby the doors are freed and drop down as far as permitted by the longer arms of the raising-levers and the door-links, as shown for the forward doors in the drawings, and at the same time the raising-shafts are rotated by the depression of the longer arms of the raising-levers. When the car is emptied, the doors are raised by the reverse rotation of the raising-shaft, which

draws rearward the shorter arms of the raising-levers and throws upward the longer arms and with them the door-links and the doors. When the doors are tightly closed, the locking-bolt is moved endwise under the squared end of the raising-shaft, which holds the doors in their closed position. The trip-shaft is then rotated to throw the hooks on the lower ends of the trip-levers in engagement under the squared ends and middle parts of the supporting-bars, which engagement positively supports the doors thus closed until the closing mechanism is again released and the supporting-hooks tripped.

In the drawings the rear doors are shown as raised and the forward doors are shown as lowered; but it will be understood this relation of the doors is only shown for the purpose of illustration and that the levers are so coupled and connected with the operating-shafts that the doors are always opened and closed in unison.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A car center ridge composed of opposite channel-bars having their flanges directed inward, girder-plates riveted to the webs of the channel-bars and depending therefrom, there being angle-bars riveted along the lower edges of said girder-plates, and a curved ridge-plate riveted to the girder-plates and channel-bars by its side edges.

2. A car center ridge composed of opposite channel-bars having their flanges directed inward, girder-plates riveted to the webs of the channel-bars and depending therefrom, and a curved ridge-plate riveted to the girder-plates and channel-bars by its side edges.

3. In a car, doors hinged to the bottom of the car on each side of the center ridge, a bar connecting the doors and projecting from the sides thereof, levers pivoted to the car, there being hooks on the levers adapted to engage said bar at the ends and between the doors, and means for throwing the levers to trip the doors.

4. In a car, a transverse door hinged to the bottom of the car, a bar projecting from the sides of the door, a transverse shaft in the car, hooked arms on the shaft adapted to engage the projecting ends of the bar, and means for rotating the shaft to trip the door.

5. In a car, doors hinged to the bottom of the car on each side of the center ridge, a bar connecting the doors and projecting from the sides thereof, levers pivoted to the car, links connecting the levers with the ends of the bar, and means for rotating the levers to raise the doors.

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

RAYMOND H. HORN BROOK.

Witnesses:

HARRY FREASE,
ELSIE F. MALLORY.