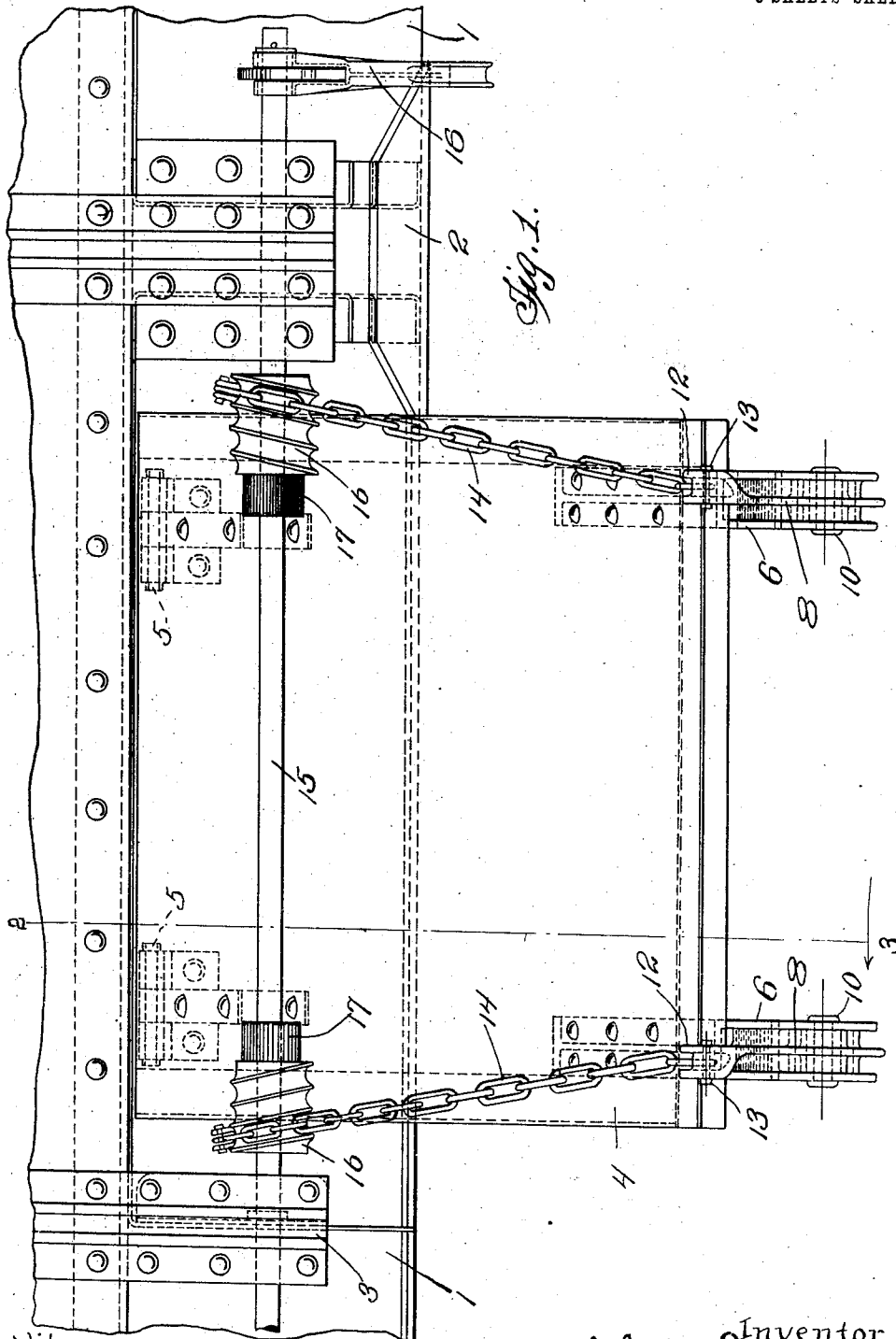


J. M. ROHLFING.
DUMPING CAR DOOR.
APPLICATION FILED AUG. 23, 1910.

1,047,570.

Patented Dec. 17, 1912.

3 SHEETS-SHEET 1.



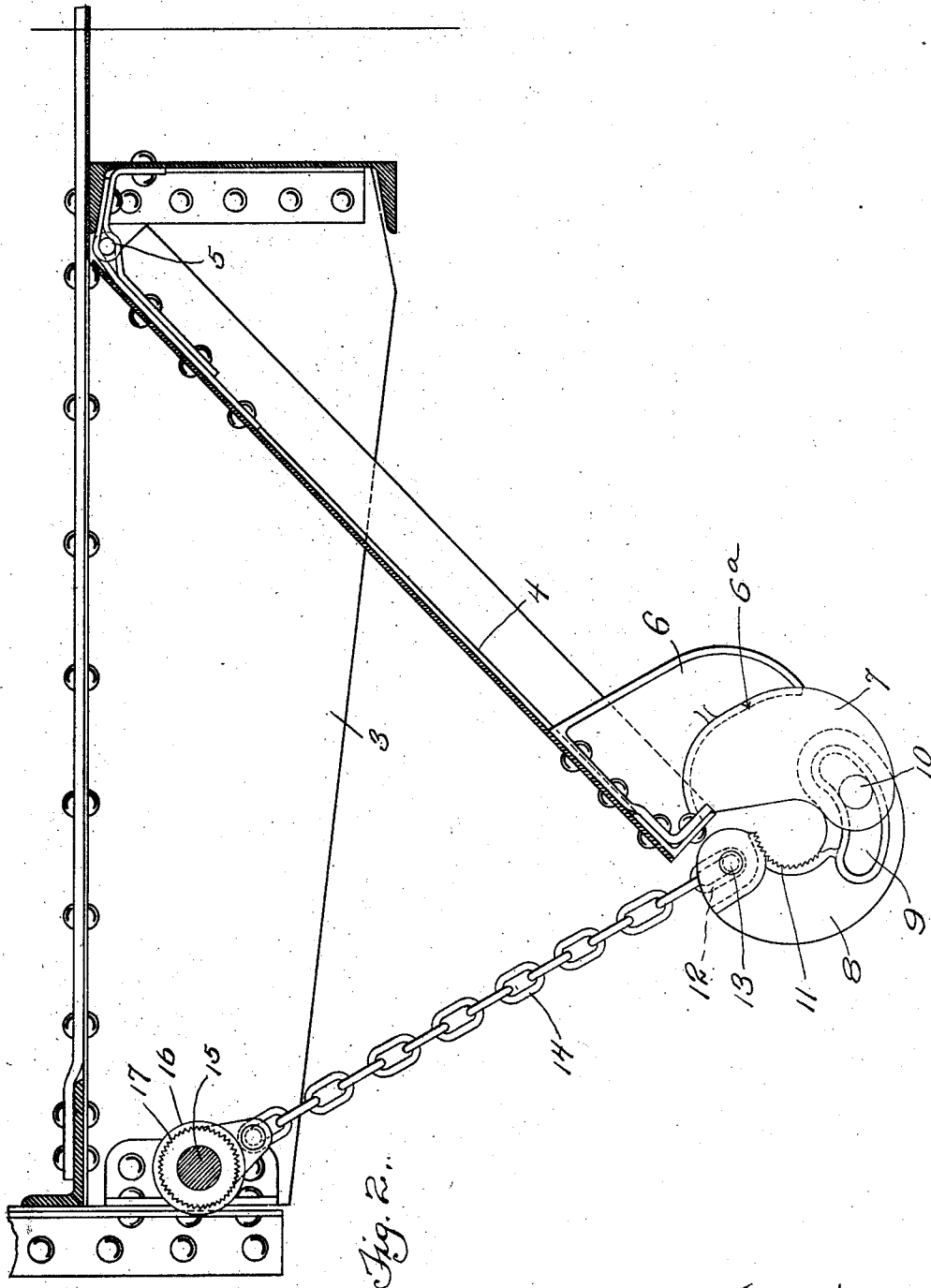
Witnesses
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Witnesses

P. A. Kelle
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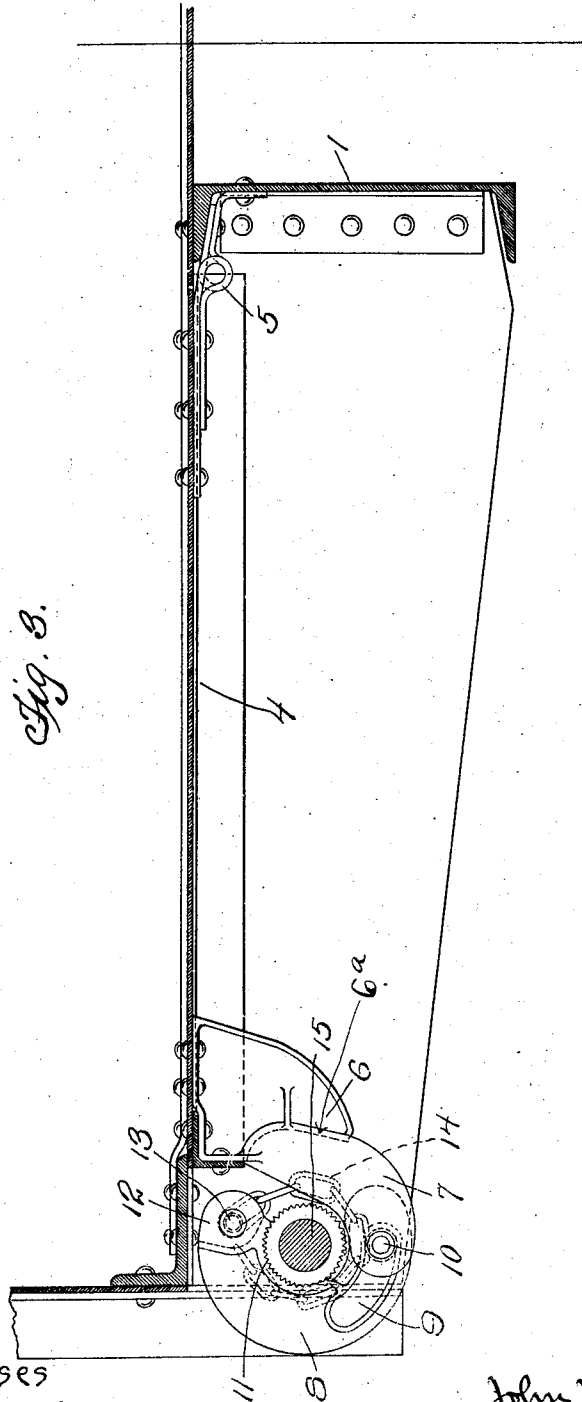
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UNITED STATES PATENT OFFICE.

JOHN M. ROHLFING, OF ST. LOUIS, MISSOURI, ASSIGNOR TO AMERICAN CAR AND
FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

DUMPING-CAR DOOR.

1,047,570.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed August 23, 1910. Serial No. 578,568.

To all whom it may concern:

Be it known that I, JOHN M. ROHLFING, residing at St. Louis, Missouri; and being a citizen of the United States, have invented certain new and useful Improvements in Dumping-Car Doors, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings: Figure 1 is a view in side elevation of a fragment of a car embodying the features of the present invention. Figs. 2 and 3 are transverse, vertical sections taken on the plane indicated by line 2—3 of Fig. 1, the door being illustrated in its open position in Fig. 2, and in its closed position in Fig. 3.

Referring to the drawings by numerals, 1 indicates one of the center sills of a flat bottom car, 2 the body bolster thereof, and 3 a floor beam or other cross bearer, a door 4 being disposed between bolster 2 and beam 3, and similar doors being arranged between the several cross bearers throughout the length of the car and at both sides of the center sills.

Each door 4 is hinged at its inner edge, as at 5, to its respective adjacent center sill, and the outer edge of each door is provided with a pair of depending spaced brackets 6, 6, each terminating in an outwardly projecting bifurcated portion 7, said bifurcated portion extending outwardly of said brackets beyond the dotted line 6' of Figs. 2 and 3, and within this latter portion and between the arms of the bifurcation thus provided extends the lower or inner end of a semi-circular or parti-circular slidable link 8. Link 8 is formed longitudinally with an arcuate slot 9 and a pin 10 extends there-through and through the arms of the bifurcation of portion 7 for retaining the link against separation from its respective bracket 6 while leaving the link free for a limited amount of longitudinal travel on said pin within the bifurcation of the bracket 6. The inner face of the outer por-

tion of link 8 is formed with serrations or teeth 11, and the upper end of the link is formed with an offset bifurcated portion 12 through the arms of which bifurcation extends a pin 13 which latter is engaged by the lower end of a chain 14, which chain extends within said bifurcated portion 12 of the link.

Spaced outside the longitudinal vertical planes of the car occupied by the outer edge of the doors 4 and journaled in the several cross bearers is a shaft 15 extending in a lower plane than said doors when the doors are closed and on this shaft are fixed sleeves 16, 16, spaced apart and disposed outside the transverse, vertical planes of the car occupied by the brackets 6, each of said sleeves being formed on its outer surface with a worm adapted to receive and direct the wrapping of the respective chain 14, the upper end of said chain being fixed to the outer end of its respective sleeve. The inner end of each sleeve 16 terminates in a serrated annular collar 17 adapted to receive the upper end of the link 8 and the teeth or serrations of the collars 17 correspond to and are designed to mesh with the serrations 11 of their respective links 8.

An operating lever 18 engages shaft 15 and is loosely mounted thereon and provided with a suitable pawl and ratchet mechanism for rotation of the shaft in either direction.

In operation, the door being open as indicated in Fig. 2, it is only necessary to rotate the shaft 15 in a direction for winding up the chains 14 on sleeves 16 for closing the door, and when the door has arrived at a closed position, the bifurcated portions 7 of bracket 6 will lie immediately beneath shaft 15 and the upper ends of the links 8 will partly overhang the shaft. A slight additional rotation of shaft 15, through the action of chains 14 drawing inwardly on the upper ends of links 8, will cause the serrations of the links to mesh with the serrations of collar 17 and to move into snug engagement with the shaft, with the upper end of the link overhanging the shaft and extending beyond the line of gravitation so that the strain of sustaining the door 4 is transferred from the chains directly to the links which are then in their extended position with the pin 10 at the inner end of slot 9 and the stress is transmitted through brackets 6 and links 8 to shaft 15. When it

is desired to open the doors 4 for dumping the car, the shaft 15 is rotated in a reverse direction sufficiently to force the upper ends of links 8 outwardly until the serrations thereof become disengaged from the teeth of collars 17, thereby forcing their lower portions between the bifurcations of the brackets 6, whereupon the door will drop, due to its weight and the weight of the sustained load, unwinding the chains 14 in its descent. Obviously, slot 9 and the bifurcations of the brackets 6 are essential in the operation described to accommodate the longitudinal thrust of link 8 when being brought to the final position after closing the door and in being loosened before the door begins to open.

What I claim is:—

1. In a car, the combination with a hinged door and a rotatably mounted shaft, of a winding chain a bifurcated bracket extending from the door and a cooperating bifurcated slotted link engaging said bracket between its bifurcation, said link being shiftable longitudinally and adapted at times to overhang the shaft.

2. In a car, the combination with a hinged door and a rotatably mounted shaft, of a bracket extending from the door, a cooperating slotted link engaging said bracket, said link being shiftable longitudinally and having a semi-circular recess adapted at times to fit over the shaft, and a flexible connection between the link and shaft.

3. In a car, the combination with a hinged bottom door, of a rotatably mounted shaft, a bracket depending from the door and adapted when the door is closed to project beneath the shaft, a link engaging said bracket and shiftable longitudinally thereof, said link being shaped to conform to the shape of the shaft and adapted to overhang the shaft and a flexible connection between said shaft and said link.

4. In a car, the combination with a hinged door and a rotatably mounted shaft, of a bifurcated bracket extending from the door, a cooperating slotted link engaging said bracket, said link being shiftable longitudinally and adapted at times to overhang the shaft, a flexible connection between said shaft and link, and a serrated collar on said shaft, the link being formed with serrations adapted to mesh therewith.

5. In a car, the combination with a hinged door, of a bracket depending therefrom, a segmental link formed with an arcuate longitudinal slot, a pin carried by said bracket and extending through said slot, a shaft, and flexible means for moving the free portion of the link to and from a position overhanging the shaft.

6. In a car, the combination with a hinged door, of a bracket depending therefrom, a segmental link formed with an arcuate longitudinal slot, a pin carried by said bracket

and extending through said slot, a shaft, and a flexible connection between the free end of the link and the shaft, the free end of the link being adapted at times to overhang the shaft.

7. In a car door operating device, the combination comprising a door, a door lifting means, a door locking means including an arcuate slotted link and a bifurcated door bracket with which said link is in slidable engagement.

8. In a car door operating device, the combination comprising an operating shaft, a longitudinally shiftable slotted link adapted to encircle and over-ride said shaft and a door bracket in slidable engagement with said link.

9. In a car door operating device, the combination comprising an operating shaft, a door and a flexible connection between said door and shaft comprising a longitudinally shiftable link adapted to move inwardly at its upper end over said shaft to lock the door in closed position.

10. In a car door operating device, a door, an operating shaft, a connection between the shaft and door, said connection including a two-part ring having a pin and slot connection between the parts thereof, said ring adapted to encircle said shaft to hold the door in closed position.

11. In a car door operating device, a door, a shaft, a flexible connection adapted to be wound on said shaft, a two-part ring member in the plane of movement of said door, one part fastened to the door and the other part fastened to the connection, and a pivoting and sliding connection between the parts of the ring, whereby one part may fit below and the other part rest on said shaft.

12. In a car door operating device, the combination comprising a door, a bifurcated bracket pendent from said door, a bifurcated portion of the bracket extending beyond the free edge of the door and a link slidably connected with the bifurcated portion of said bracket.

13. In a car door operating means, the combination comprising a door, a shaft in a plane lower than said door when the door is closed, a bracket pendent from said door, an arcuate link slidably pivoted to said bracket, and flexible means connecting said link with said shaft.

14. In a car door operating means, the combination comprising a door, a shaft in a plane lower than said door when the door is closed, an arcuate bifurcated link slidably pivoted to said bracket, and flexible means connecting said link with said shaft.

15. In a car door operating means, the combination comprising a door, a shaft in a plane lower than said door when the door is closed, a bracket pendent from said door,

an arcuate slotted and pivoted link slidably pivoted to said bracket, and flexible means connecting said link with said shaft.

16. In a car door operating means, the combination comprising a door, a shaft in a plane lower than said door when the door is closed, a bifurcated bracket pendent from said door, a slotted and pivoted arcuate link slidably connected with said bracket, and flexible means connecting said link with said shaft.

17. In a car door operating device, the combination comprising a door, a winding shaft, a chain connected with said shaft and a slidable arcuate link connected with said chain and telescopically connected with said door, said arcuate link being adapted to be

drawn over and engage the upper surface of said shaft.

18. In a car the combination of a hinged door and a rotatably mounted shaft, a chain adapted to be wound on said shaft, a bifurcated bracket affixed to said door, a longitudinally shiftable slotted link, a pin affixed to the bifurcations of said bracket passing through said slot, said chain having an end attached to said link, adapted to draw said link over said shaft.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN M. ROHLFING.

Witnesses:

CHARLOTTE MITZE,
J. H. BRUEGGEMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."