

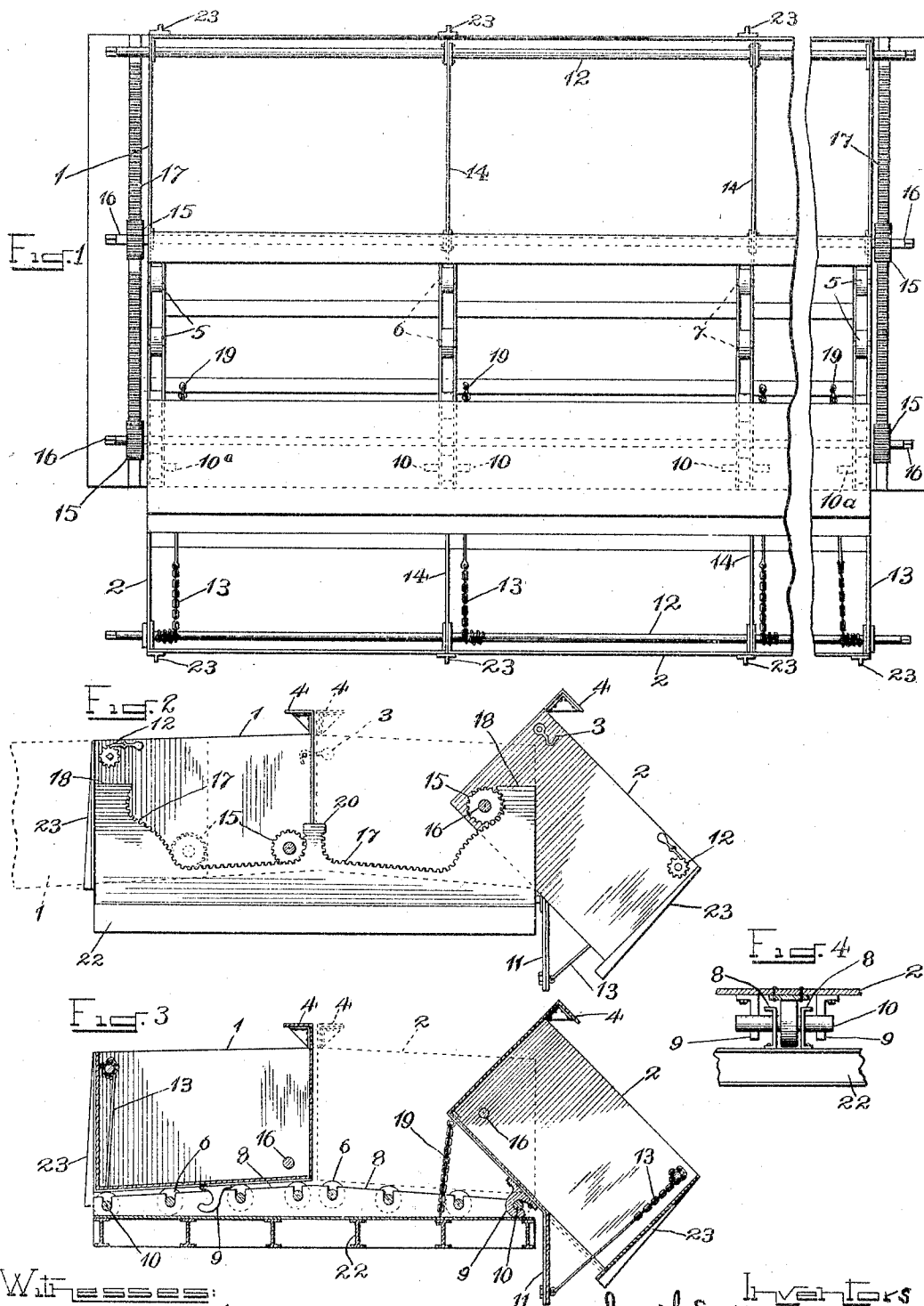
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J. S. DOE & F. CRANE.

DUMP CAR.

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DUMP-CAR.

SPECIFICATION forming part of Letters Patent No. 780,162, dated January 17, 1905.

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To all whom it may concern:

Be it known that we, JOSEPH S. DOE, residing at Hegewisch, and FRANK CRANE, residing at Chicago, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Dump-Cars, of which the following is a full, clear, and exact specification.

Our invention relates to that class of dump-cars in which the body portion of the car is dumped over the side of the truck or the main frame without necessarily tilting or tipping the latter; and the invention has for its object to provide improved and efficient means whereby the body or box of the car may be readily dumped or tilted in this manner and as readily returned to its former or normal position on the truck or frame.

With these ends in view our invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a plan view of our improved dump-car, partially broken away and showing one side or section of the car in its dumped position. Fig. 2 is an end elevation thereof. Fig. 3 is a cross-section thereof, and Fig. 4 is an enlarged detail view of one of the rollers and coacting parts hereinafter described.

In illustrating our invention we have omitted the truck or wheels, which, as is well understood, may be of the usual or any suitable construction, and we have shown the car-body as being constituted of two boxes 1 2, arranged back to back longitudinally of the car and when in their normal or transporting position may be locked together against accidental separation in any suitable way, as by means of one or more hooks 3, and each of these boxes may be provided with one-half 4 of a running-board secured along the inner edge of the box at a slight elevation and extending longitudinally of the car in such a manner that when the boxes are brought to-

gether these two halves 4 will constitute a complete platform or board for the trainmen to walk along.

Each of the boxes 1 2 is capable of sliding outwardly and tilting over the edge of the car, and this action may be produced simultaneously or independently, as the exigencies of the case may require. To the end that they may slide or thus move more readily they are mounted on an incline, so as to be assisted in this movement more or less by gravity, and each of them is supported upon two or more series of antifriction-rollers 5 6 7, which are journaled in channel-irons 8, extending transversely of the car, these channel-irons being higher at their mid-lengths, as shown in Fig. 3, and the rollers 5 6 7 being journaled in inclined lines extending downwardly on both sides of this high point, so as to give the boxes 1 2 a tendency to roll outwardly when released, as aforesaid. The outward movement of each of the boxes 1 2 is limited by any suitable stop, preferably by means of a pair of hooks 9, one of which is arranged at each end of each of the boxes 1 2 and adapted to engage with projecting ends 10 of the journal of the outer one of the rollers in one or more of the series 5 6 7 and on both sides of the car. In the plan view, Fig. 1, each of the three series of rollers is provided with one of these protruding journal-bearings, as shown in dotted lines; but the end series 5 has a protruding journal 10^a on the outer one of the rollers on one side only, and in that case the hook 9 would be on only one side and not necessarily on both sides, as where the journal projects in both directions, as shown in Fig. 4; but the number of stops of this character employed throughout the length of the box, as also the number of series of rollers 5 6 7, are entirely immaterial, it being desirable, however, that there be at least one series of rollers at each end of each box and one of the stops at each end to insure against uncertain or uneven movement of the box. The hooks 9 are so situated that when they come into engagement with the stops 10 the box will lose its equilibrium and tilt in the manner shown in Figs. 2 and 3, the hooks 9 being situated to

one side of the center of the box; but this particular location of the hooks 9 is not essential with the mechanism which we have provided for controlling the tilting movement of the box. Any suitable provision may be made for allowing the contents of the box to slide out when the box thus tilts. This provision preferably consists of a trap 11, hinged in the bottom and constituting the outer half thereof, so that when the outer half is projected beyond the ends of the channels 8 this trap may be lowered for allowing the contents to slide out and fall contiguous to the side of the car. This trap 11 may be controlled in its movements by a winch 12, journaled in the ends of the box and having chain or flexible connection 13 secured to the trap, so that the trap may be raised or lowered as well as held at any desired degree of inclination for directing the contents away from the car a greater or less distance, if desired. In the particular example of the invention shown in the drawings each of the boxes 1 2 is composed of a series of compartments divided off from each other by partitions 14, and consequently it is desirable to provide each compartment with a separate one of the traps 11, all, however, operated by the same winch 12. The box may be returned to its former or normal position, as shown on the left in Figs. 1, 2, 3, or, in fact, may be urged into its dumping position, as shown on the right in said figures, by one or more pinions 15 or other suitable gearing mounted on each of the boxes upon a longitudinal shaft 16, carried by the boxes and journaled in the ends thereof, one of these pinions 15 being preferably located at each end of each box and near the inner lower corner thereof, so that the power applied will be uniformly distributed throughout the length of the box, and arranged to engage with each of the pinions 15 at each end of the car and on both sides thereof are racks 17, with which the pinions remain in mesh throughout the movements of the box in both directions, so that by turning the shaft 16 these movements may be controlled in cases where the boxes slide outwardly by the aid of gravity or may be produced by the pinions in cases where such movement is too slow or does not occur automatically, or such movements may be produced entirely by the pinions when it is desired to return the boxes to their former or normal position. Consequently the outline of each of the racks 17 is given the peculiar formation shown in Fig. 2, which corresponds with the movement of the corner of the box—that is to say, the inner end thereof is parallel with a line touching the peripheries of the rollers, and the outer end thereof is curved on an arc concentric with that described by the corner of the box as it tilts on its center 10. By thus mounting the pinions upon the box and the racks upon the frame we are enabled to connect the pinions together so that

they may be operated in unison by one person at one end of the shaft, and the shaft being situated on the box and preferably in the lower corner thereof cannot in any manner interfere with the discharge of the contents. The outer extremity of the rack 17 may be turned over the pinion 15 when at the limit of its upward movement, as shown at 18, Fig. 2, so as to constitute a stop for preventing the pinion from leaving the rack and also limiting the tilting movement of the box. This tilting movement may also be controlled, if desired, by one or more flexible connections or chains 19, secured to the bottom of each box and to the frame of the car and the inner side of the box. The inner end of each of the racks 17 may likewise be turned upward, as shown at 20, to constitute a stop for limiting the movement of the pinion. It will thus be seen that by means of the pinions 15 the boxes may not only be urged outwardly, so as to project over the sides of the car, but may be urged upwardly into their tilted position in case it should be necessary to apply power for that purpose, and after they have been tilted they may be returned to their former horizontal position and then worked inwardly until they meet at the center, where they may be latched together by the hooks 3.

The outer sides of each of the boxes may, if desired, be provided with stakes or posts 23, projecting downwardly below their bottoms.

The channel-beams 8 are shown as supported on longitudinal I-beams 22, which may constitute the frame of the car; but any other suitable support for the boxes or the trucks (not necessary to illustrate) may be employed.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. In a dump-car, the combination of a frame, a box movable laterally thereon and adapted to tip over the edge thereof, two racks mounted on the frame at the ends of said box below the top and near the bottom thereof, two pinions mounted on and movable with the box at the lower inner corner thereof and engaging said racks respectively for thus moving the box and means operatively connecting said pinions together whereby they may be rotated in unison.

2. In a dump-car, the combination of a frame, a box movable laterally thereon and adapted to tip over the edge thereof, two racks mounted on the frame at the ends of said box and below the top and near the bottom thereof, two pinions mounted on and movable with the box at the lower inner corner thereof and engaging said racks respectively for thus moving the box, said racks being formed on a line complementary in shape to the line of movement of the pinions during the lateral and tipping movements of the box.

3. In a dump-car, the combination of a

frame, a box movable laterally thereon and adapted to tip over the edge thereof, and a rack and pinion mounted, one on the frame and the other on the box, and engaging with each other for urging the box during said movements, the outer end of the rack being struck on an arc complementary in shape with that described by the box during its tilting movement and a trap in the outer side of the bottom of said box, hinged to the box at the inner edge of the trap and adapted to drop down at the edge of the car.

4. In a dump-car, the combination of a frame, two boxes mounted back to back thereon and adapted to move laterally in opposite directions and tilt over the edges of the frame, the inner top edge of each of said boxes being provided with one-half of a running-board extending longitudinally of the car, means for securing said boxes together and means for limiting their outward movement.

5. In a dump-car, the combination of a frame, a box movable laterally thereon and

adapted to tip over the edge thereof, rollers supporting said box on the frame and having projecting journals and hooks on the bottom of the box adapted to come into engagement with said projecting journals for giving the box a pivotal movement over the edge of the frame.

6. In a dump-car, the combination of a frame, a box movable laterally thereon and adapted to tip over the edge thereof, a rack and pinion mounted, one on the box and the other on the frame, and engaging with each other for thus moving the box, and a trap in the outer side of the bottom of said box hinged thereto at its inner edge and adapted to drop down at the side of the car when the box is moved outwardly and be folded upwardly by the inward movement of the box.

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