R. W. DAVIES.

DUMP CAR.

APPLICATION FILED NOV. 15, 1909.

966,530.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

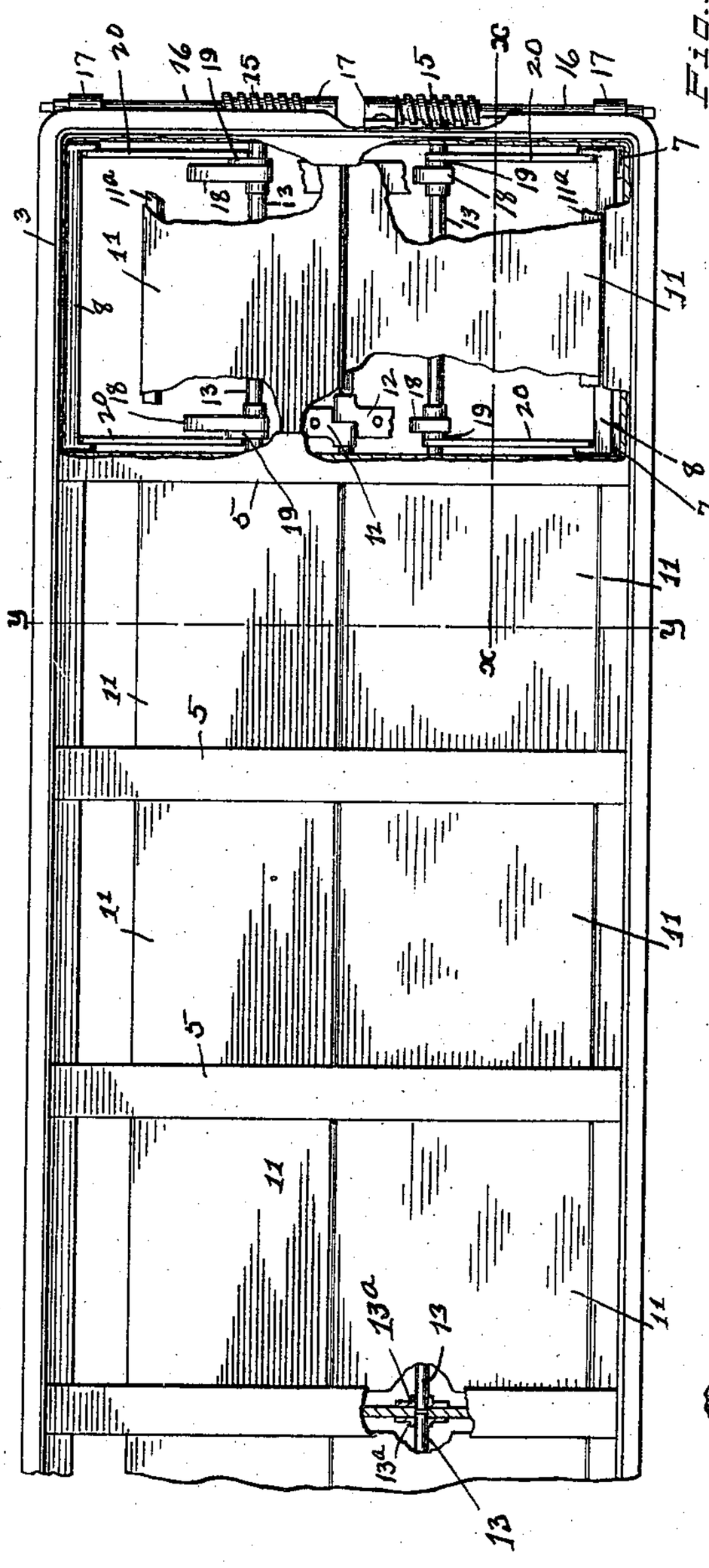
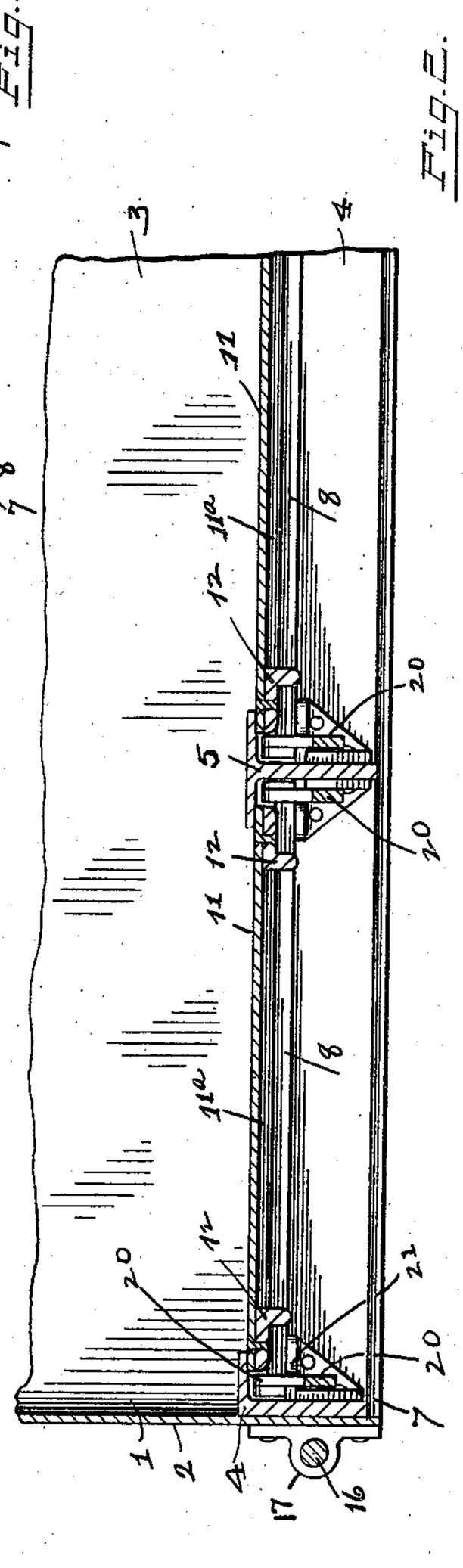


Fig. 2.



Witnesses

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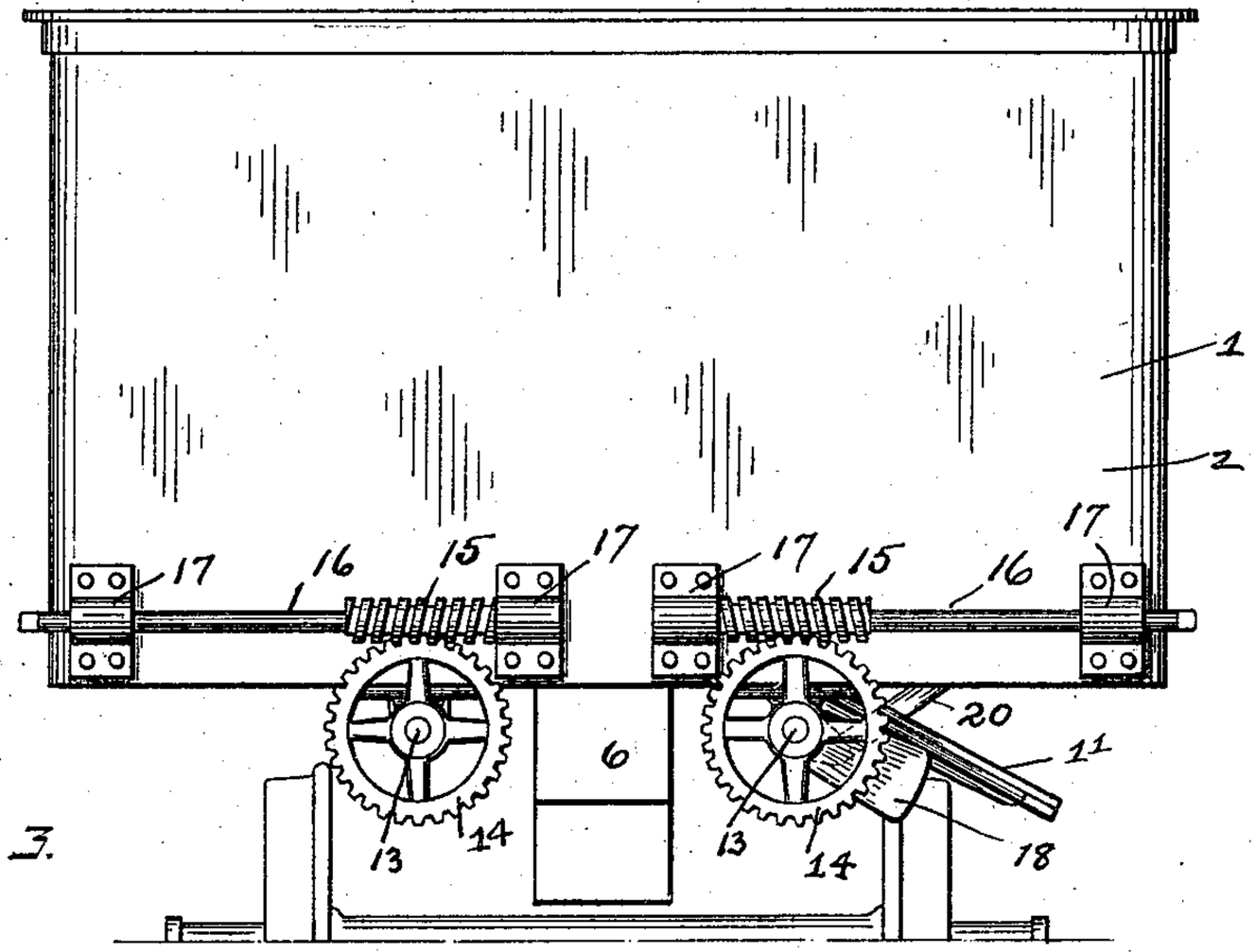

Fig. 3.

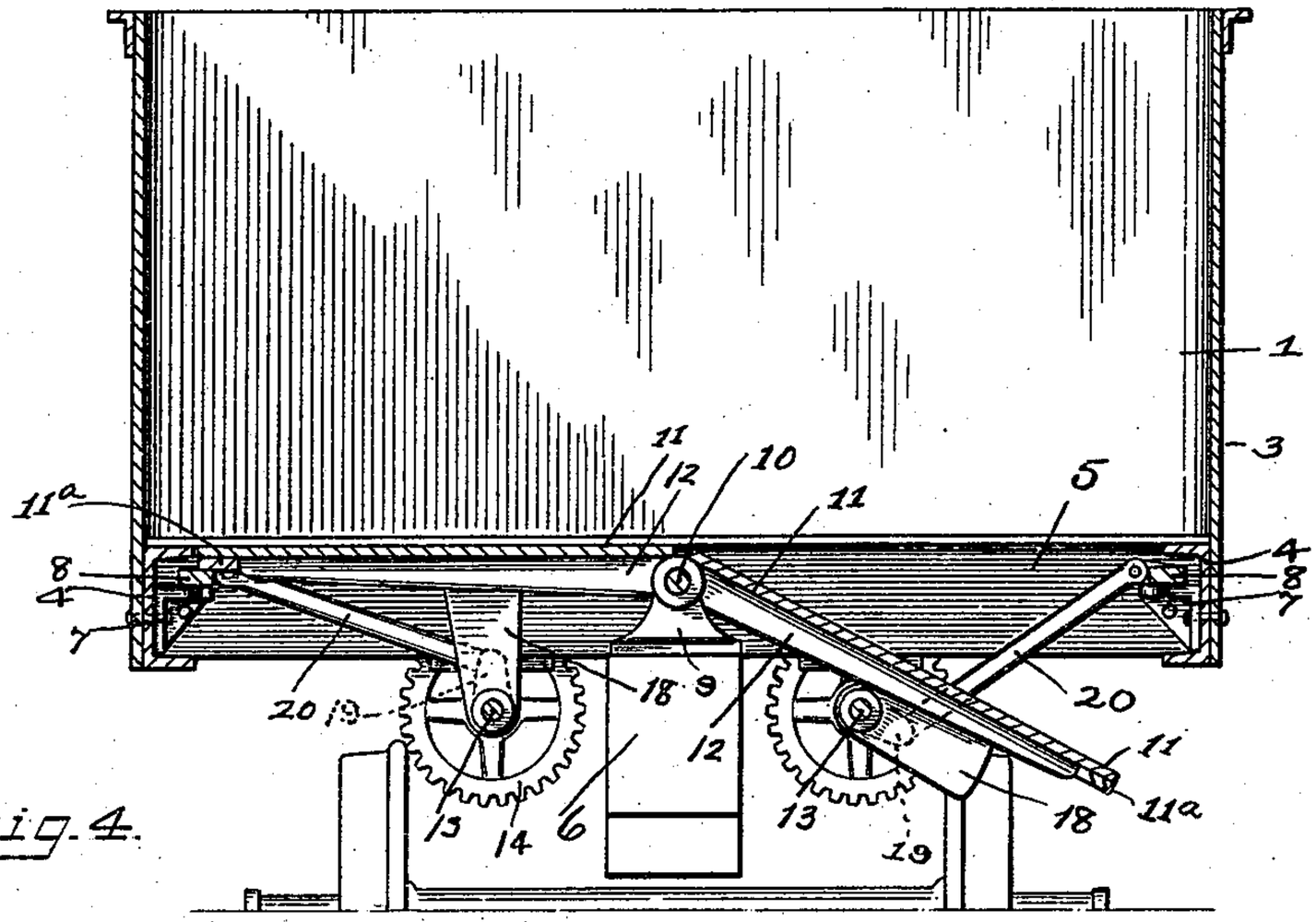

Fig. 4.

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UNITED STATES PATENT OFFICE.

RODERICK W. DAVIES, OF COLUMBUS, OHIO, ASSIGNOR OF ONE-HALF TO WILSON K. DOTY, OF COLUMBUS, OHIO.

DUMP-CAR.

966,530. Specification of Letters Patent. Patented Aug. 9, 1910.

Application filed November 15, 1909. Serial No. 528,111.

To all whom it may concern:

Be it known that I, RODERICK W. DAVIES, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Dump-Cars, of which the following is a specification.

My invention relates to dump cars of that class which are ordinarily constructed of steel and the objects of my invention are to provide a car of this class of simple and reliable construction which will be strong and durable and by means of which the contents of the car may be readily discharged therefrom when desired; to so construct my improved car as to admit of the same being employed as an ordinary gondola car and to produce certain other improvements in the construction and operation of my improved car, which will be referred to hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a car having my improved construction and showing the floor sections on one side of the center of the length thereof closed and the corresponding sections on the opposite side open, Fig. 2 is an enlarged sectional view on line *x*—*x* of Fig. 1, Fig. 3 is an enlarged end view of the car, and, Fig. 4 is an enlarged sectional view on line *y*—*y* of Fig. 1.

Similar numerals refer to similar parts throughout the several views.

1 represents the body of a car, which comprises preferably vertical ends and sides 2 and 3. On the inner sides of the lower portions of the car bodies, I provide the usual longitudinally arranged strengthening channel bars 4 and extending between these channel bars at proper intervals, are transverse cross sills 5 which are of T-form in cross section. Extending longitudinally beneath the center of the car, is the usual center sill 6 which is connected with the centers of the lengths of the cross sills 5. Secured to the inner side of each of the channel members 4 at its junction with the cross sills 5, are brackets 7 and upon each pair of these brackets is movably supported a bar 8, said bar extending in the direction of the length of the car and between two of the cross sills 5.

Secured to and supported upon the center frame sill 6 between each pair of cross sills, is an upright bracket or bearing member 9, the upper sides of these brackets having journaled therein a hinge rod or shaft 10 which extends throughout the length of the car. On this hinge rod between each pair of cross sills 5 are hinged the inner ends of two opposing doors 11, this hinge connection being effected by journaling the inner ends of underside bars 12 on said hinge rod and said doors each adapted when horizontally disposed, to close the spaces between the cross frame members 5 and between the side channel members 4, thus forming in connection with the upper side flanges of said channel members and the top flanges of the cross frame members, a complete floor for the car. The bars 12 which are secured to the underside of each of the floor sections, are preferably of angular form and are arranged adjacent to the sides of said sections, as shown in Fig. 2 of the drawing.

Suitably journaled beneath the underframe of the car, are two pairs of parallel shafts 13, the shafts of one pair extending lengthwise of the car on opposite sides of the center sill 6 throughout one-half the length of the car and the shafts of the remaining pair extending throughout the length of the remaining half of the car, the inner ends of said shafts being journaled as indicated more clearly in Fig. 1, in bearings 13^a carried by the center cross sill 5. The outer end portion of each of the shafts 13 is extended beyond the end of the car and carries thereon a worm wheel 14, each of said worm wheels gearing with a worm 15 formed with or carried by a horizontal shaft 16 which is journaled in bearings 17 secured to the end of the car body. On each of the shafts 13 beneath each floor section, are secured the corresponding ends of a pair of elevating or cam arms 18, the outer ends of which are slightly rounded as indicated in the drawing. These cam arms are so arranged as to result when the shaft is rotated, in the ends thereof bearing against the underside bars or ribs 12 of the door sections and when said

arms are in vertical positions, the doors are thus held in their closed or horizontal positions. On each of the shafts 13 beneath each floor section, is also carried a pair of shorter arms 19, to the outer end portion of each of which is pivoted a connecting bar 20, the outer and upper end of the latter being pivotally connected with the corresponding movable bar 8 heretofore described. It will be observed that the connecting bars 20 are arranged beneath the underside of the laterally extending top flanges of the cross sills 5.

In forming the floor sections, I provide the underside of the outer portions thereof with cleats or fixed bearing bars 11^a, which when the floors are in their horizontal or closed positions, bear upon the upper sides of the movable bars 8, the latter in turn being supported by the brackets 7. It will thus be understood that the weight of the floor sections is not held upon the shaft arms 18, but that the greater portion of said weight is carried by the bars 8.

Assuming that the floor sections are in their closed or horizontal positions and it is desired to discharge the coal or other contents thereof, it will be understood that all of the doors on one side of the car throughout half the car length may be dropped downward to the position indicated more clearly in Fig. 4 of the drawing, by turning the corresponding worm shaft 16, thus imparting the desired rotary movement to the corresponding shaft 13 and downward movement of the arms 18 and 19. In the downward movements of the connecting bars 20, which results from the movement of the bars 19, it will be understood that the movable bars 8 will be forced toward the sides of the car and out of contact with the cleats 11^a of the floor sections, thus permitting said floor sections to drop downward. In order that the edges of the floor sections may clear the brackets 7 in the downward swinging movement of the former, the projecting portions of said brackets are recessed as indicated at 21. By thus properly rotating each of the four shafts 16, it is obvious that the entire contents of the car, may be dumped therefrom on opposite sides of the center of the length of the car. It will also be understood that in closing the floor sections through the the proper turning of the shafts 16, said sections will be raised by the cam or elevating arms 18 and that the movable bars 8 will through the resultant movements of the connecting bars 20, be moved into positions beneath the outer edges of the floor sections.

From the construction and operation described, it will be observed that a dumping car is produced in which positive means are provided for raising and lowering the floor sections of the cars and that the construction of the car is otherwise such as to admit of its being used as an ordinary gondola or dumping car.

From the foregoing description, it will be seen that simple, and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim, is:—

1. In a dump car, the combination with the car body comprising connected sides and ends and transverse frame members arranged at intervals therein, of a pair of opposing floor sections hinged at their inner ends between each pair of said transverse frame members, movable floor supporting members supported on the inner sides of the lower portions of said car body, parallel shafts journaled on opposite sides of the center of the length of the car, means carried by said shafts for raising said floor sections to horizontal positions, and means controlled by the movements of said shafts for moving said movable floor supporting members into and out of engagement with the undersides of said floor sections.

2. In a dump car, the combination with a car body comprising ends and sides and cross frame members extending at intervals between said sides, of a shaft supported longitudinally beneath said car body, a pair of opposing floor sections between each pair of cross frame members, said floor-sections hinged to said shaft, a bar slidably supported adjacent to each side of the car, parallel shafts journaled beneath and on opposite sides of the center of the car, members carried by said shafts for engaging the undersides of said floor sections and elevating the same when said shafts are rotated, arms carried by said parallel shafts and connecting bars pivotally connecting said arms with said slidable bars, and means for rotating said parallel shafts.

3. In a dump car, the combination with a car body comprising connected ends and sides and transverse frame members, of a pair of opposing floor sections hinged at their inner sides between each pair of transverse frame members, brackets projecting from the inner sides of the lower portions of said car body between each pair of transverse frame members, movable bars supported on said brackets, parallel shafts journaled on opposite sides of the center of the length of the car, cam arms carried thereby and adapted when the shafts are rotated to move the floor sections upward to horizon-

tal positions, arms carried by said parallel shafts and connecting bars pivotally connecting said shaft arms and movable bars, a worm wheel carried on each of said parallel shafts, and a journaled worm carrying shaft for each of said worm wheels, said worms gearing with said worm wheels.

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

RODERICK W. DAVIES.

Witnesses:
C. C. SHEPHERD,
E. V. GRISWOLD.