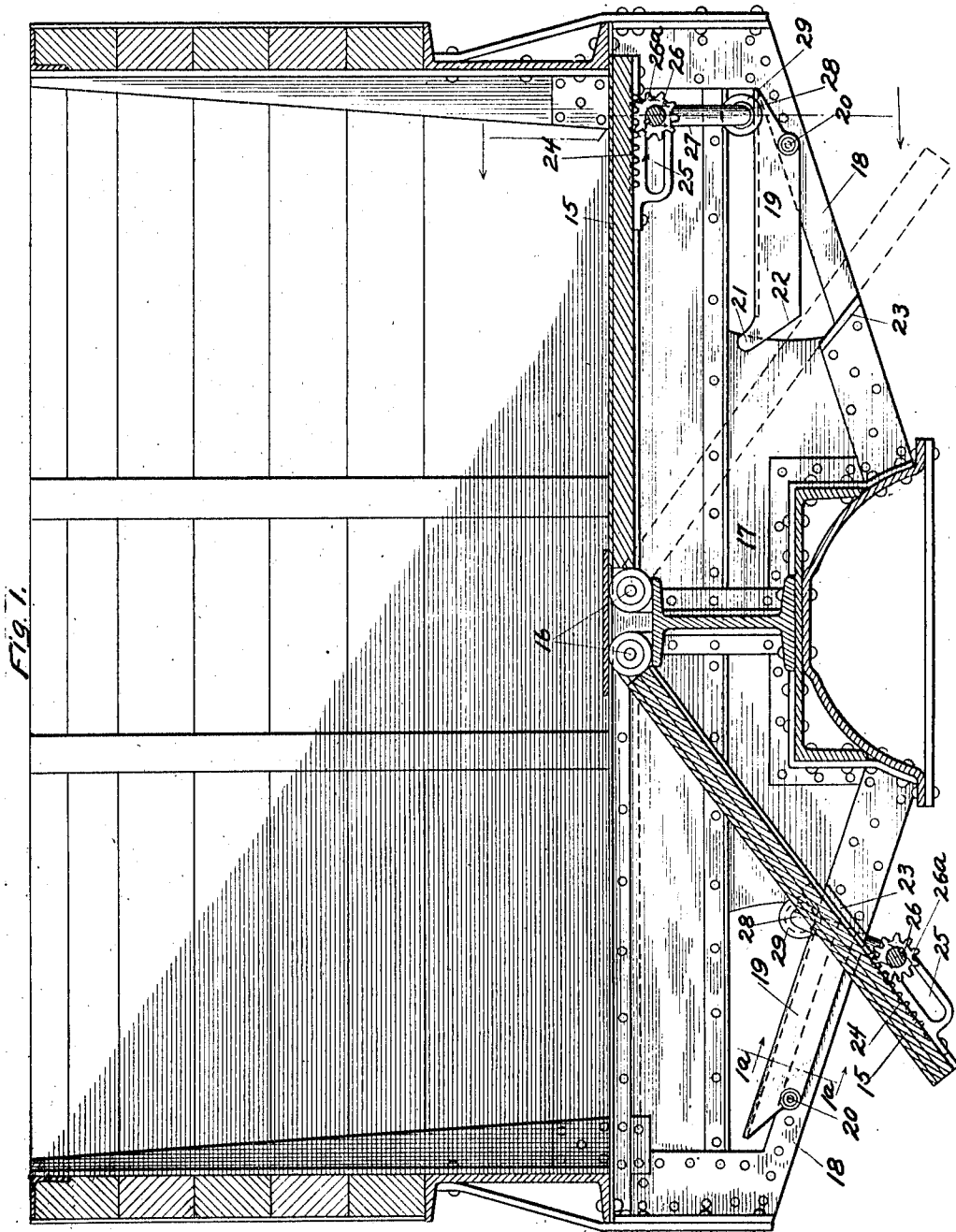
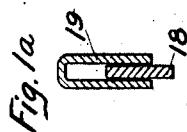


990,030.



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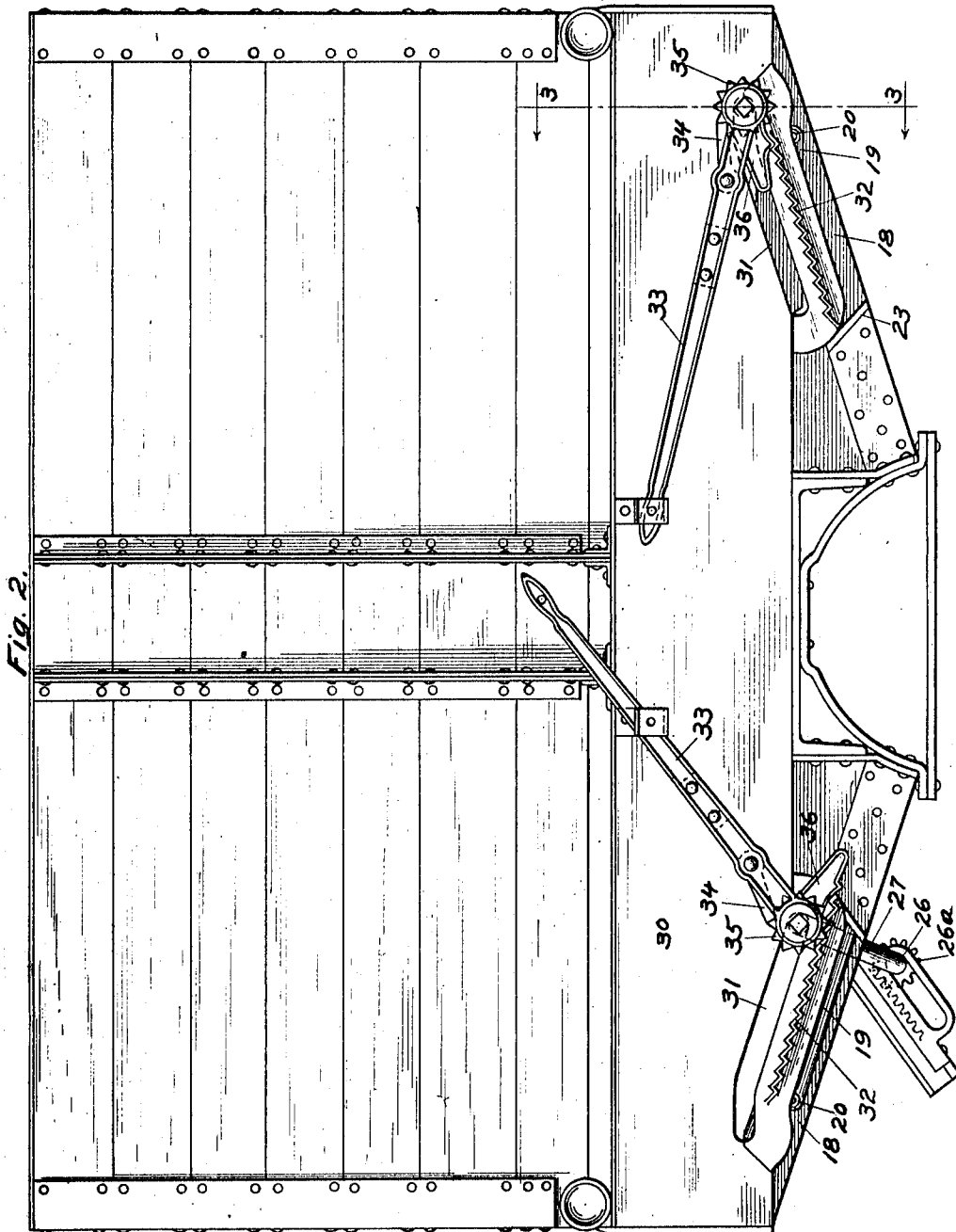
DUMP CAR.

APPLICATION FILED JUNE 18, 1908.

Patented Apr. 18, 1911.

3 SHEETS-SHEET 2.

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DUMP CAR.

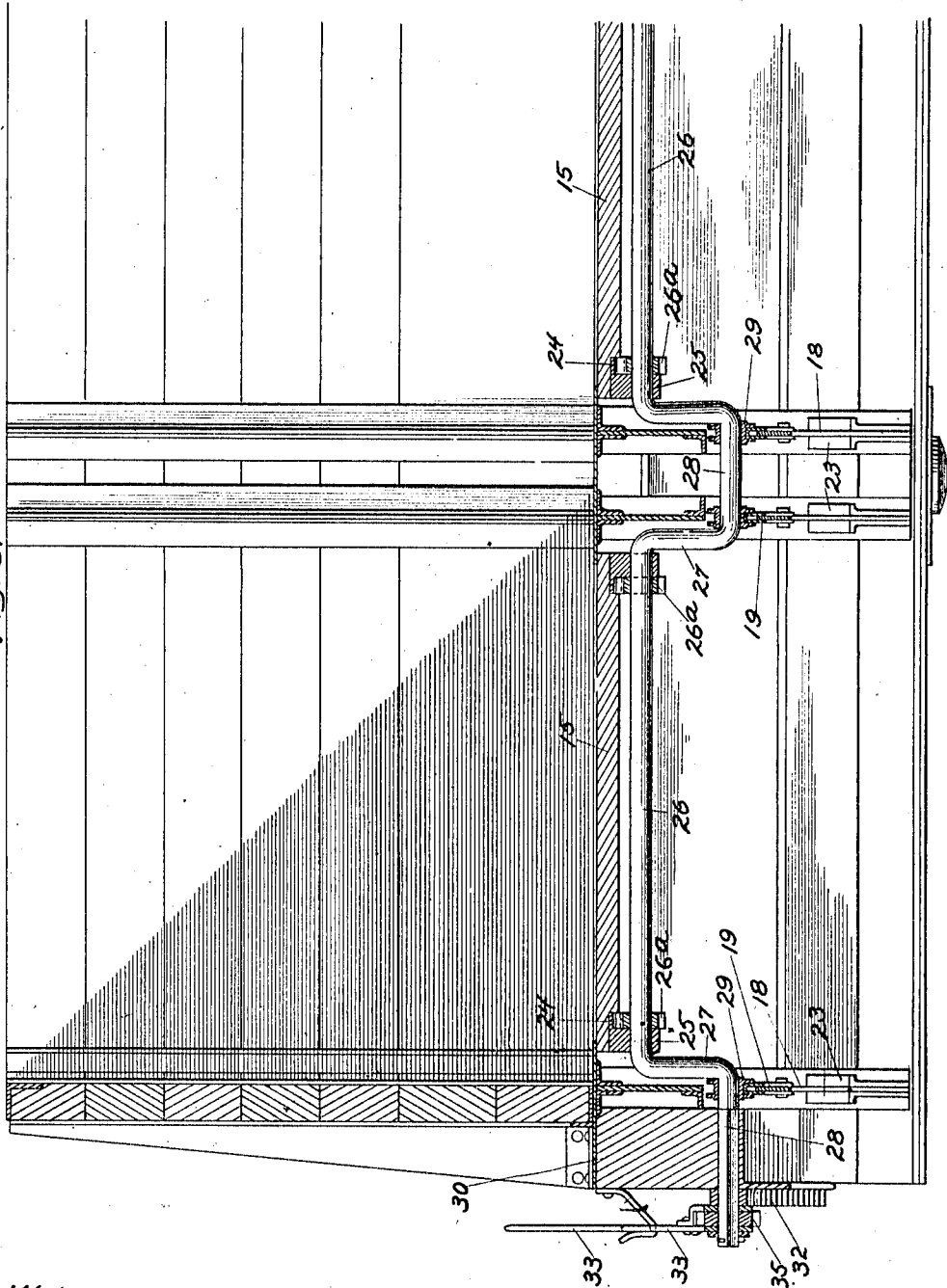
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3 SHEETS-SHEET 3.

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Fig. 3.



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# UNITED STATES PATENT OFFICE.

WILLIAM A. CASWELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL DUMP CAR COMPANY, A CORPORATION OF MAINE.

## DUMP-CAR.

990,030

Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed June 18, 1908. Serial No. 439,146.

*To all whom it may concern:*

Be it known that I, WILLIAM A. CASWELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dump-Cars, of which the following is a specification.

The object of my invention is to provide a new and improved door supporting and operating mechanism for dump cars. This object and various others will be made apparent in the following specification and claims, taken in connection with the accompanying drawings, in which—

Figure 1 is a cross section of a dump car having my improvement embodied therein. Fig. 1<sup>a</sup> is a section on the line 1<sup>a</sup>, 1<sup>a</sup>, looking in the direction of the arrows. Fig. 2 is an end view of the car. Fig. 3 is a section taken on the line 3, 3 of Fig. 2, looking in the direction of the arrows.

In the particular embodiment of my invention which I have chosen to illustrate and describe, the car is of the "gondola" type, the floor being composed entirely, or in part, of dumping floor sections 15 hinged along the longitudinal axis 16 over the center sill 17. The inclined bracing members 18 extend from the under framework of the car to the side sills. Each one of these inclined members has a track 19 pivoted thereon at the point 20. The cross section of the track 19 has an inverted U shape, as shown in Fig. 1<sup>a</sup>, the sides thereof embracing the inclined member 18 when in the position shown at the left of Fig. 1, that is, when the dumping door is open. The inner or lower end of the member 19 is beveled, as indicated by the reference number 22, and rests on the shoulders 23 when down in the position shown at the left of Fig. 1. This end of the member 19 also has an upturned projection 21 which acts as a seat to support the shaft 26, presently to be described. It will be observed that the pivoted track 19 can be tilted about its axis 20 until its outer extremity will rest on the member 18. Thus, it will be seen that the movement of the track 19 is limited in both directions by positive stops, on the one side by the shoulders 23 and on the other side by the member 18 where the outer extremity of the track 19 comes in contact with it.

On the under side of the door 15 is a short rack 24 extending transversely, and opposite

this is a slotted member 25, also extending in the same direction. A longitudinal shaft 26 extends through the slots 25 and carries gear pinions 26<sup>a</sup> fixed on the shaft and which engage the aforesaid racks 24. Between consecutive dumping doors 15 the shaft 26 has offset portions 28 connected to the main part of the shaft by the cranked parts 27. The offsets 28 carry flanged rollers 29, these rollers riding upon the pivoted tracks 19. The end sill 30 of the car has an inclined slot 31 on each side through which the end offset 28 projects. At the end of the car this offset part 28 of the shaft 26 carries a ratchet wheel 35 fixed on the shaft. The lever 33 also loosely engages the shaft at one end and has a pawl 34 adapted to engage the ratchet 35. The shaft 28 also carries a dog 36 and the end sill 30 has a row of teeth 32 below the inclined slot 31, adapted to be engaged by said dog.

When the door is in open position, as indicated at the left of Fig. 1, it will rest on the shaft 26, which in turn will hang by the offset 28 on the horn 21 at the end of the member 19. The member 19 in turn may be supported by the shoulders 23. When it is desired to close the door, the lever 33 will be rotated in a clockwise direction, as viewed at the left of Fig. 2. This will throw the shaft 26 up, the fulcrum being the offset portion 28. But by reason of the engagement of the gear pinion 26<sup>a</sup> with the rack 24 the shaft 26 will be advanced along the slot 25 away from the door hinge 16. This will cause the offset 28 to move upwardly along the incline member 19, such movement being facilitated by the rollers 29. When the roller 29 reaches the top of the inclined pivoted track 19,—inasmuch as it sustains the weight of the doors—it will tilt the pivoted track 19 into the position shown on the right of Fig. 1. At this time the pivoted track 19 will come up into a level position.

It will be observed that the longitudinal shaft 26 extends under the door 15 close to its outer edge when the door is closed; that the cranks 27 stand vertically, supporting the weight of the load on the doors by a direct thrust, and that these cranks 27 are in turn supported by the offset portions 28 which rest on the pivoted tracks 19. It will also be observed that in this position the offsets 28 have no tendency to roll off from the pivoted track 19, for at this time it is in

a level position. The mechanism just described obviously facilitates opening the doors to a considerable width. Both the rotation of the shaft 26 and its reciprocatory movement within the slots 25 contribute to this result.

I claim:

1. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, said shaft having an offset portion, a transverse track under said offset portion, means of engagement between the shaft and the door, operating to cause said shaft to move bodily on said track.

2. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, said shaft having an offset portion beyond the door, a transverse track under said offset portion along which it is adapted to be displaced, a rack on the under side of the door, a gear on the shaft engaging said rack, means to rotate said shaft, said rotation through the engagement between said gear and rack causing said shaft to move bodily on said track.

3. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, a rack on the under side of the door, a gear pinion on the shaft engaging said rack, an offset on the said shaft, a transverse track on which the offset rests, and means to rotate the offset causing said shaft to move bodily on said track.

4. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis, a pivoted transverse track on which the shaft rests, and stops to limit the movement of the pivoted track.

5. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, a transverse member under the shaft, a track pivoted at an intermediate point thereof on said member, and stops on the member to limit the rotation of the track in either direction, the track having a level position when in contact with one stop and an inclined position when in contact with the other.

6. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, a transverse member under the shaft, and a track pivoted on the member, said track having its cross section in the shape of an inverted U with the sides thereof embracing the said member.

7. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, said shaft having an offset portion beyond the door, a transverse track under said offset portion along which it is adapted to be displaced, a rack on the under side of the door, a gear on the shaft engaging said rack, a slotted mem-

ber fixed to the door alongside the rack and embracing the shaft, and means to move the shaft and thereby operate the door.

8. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, said shaft having an offset portion, a transverse track under said offset portion, a roller surrounding said offset portion and resting on said track, means of engagement between the shaft and the door, and means to move the shaft and thereby operate the door.

9. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis, a pivoted transverse track on which the shaft rests, said track having one end turned up to confine the movement of the shaft thereon, and stops to limit the movement of the pivoted track.

10. In a dump car, a hinged dumping door, a supporting shaft under the door parallel to the hinge axis thereof, a transverse supporting track under the shaft, and means connecting the door and the shaft, whereby rotation of the latter compels reciprocation of said shaft.

11. In a car, a hinged dumping door, a shaft beneath the door and parallel to the hinge axis thereof, transverse tracks, said shaft having a door contacting section and a track contacting section, said sections being axially out of line, a gear wheel fixedly secured upon said door contacting section, a rack upon said door meshing with said gear, and means for rotating said shaft.

12. In a car, a hinged dumping door, a shaft beneath the door and parallel to the hinge axis thereof, transverse tracks, said shaft having a door contacting section and a track contacting section, said sections being axially out of line, a gear wheel fixedly secured upon said door contacting section, a rack upon said door meshing with said gear, and means for rotating said shaft upon the track contacting section as an axis.

13. In a car of the class described, a hinged door, a supporting track beneath said door, door supporting devices between said track and said door, and means for moving said door supporting devices and thereby also moving said track.

14. In a car of the class described, a dump door, a movable track beneath said door, a door operating device supported upon said track, said track and door operating device having no tendency to move out of door supporting position, and means to displace said supporting device and thereby move the track to permit said door to drop.

15. In a car of the class described, a dump door, a supporting track pivoted intermediate its ends, an operating device between said door and track, said operating device being movable on said track between

points on opposite sides of the pivotal support thereof.

16. In a car of the class described, a hinged dumping door, supporting devices for said door, and a movable track adapted to hold said supporting devices in a stable condition when said devices are occupying their door supporting positions, said devices being adapted to move said track to a position allowing a further free movement from their door supporting positions when said devices are slightly moved from said supporting positions.

17. In a car of the class described, a hinged dumping door, supporting devices for said door, and a movable track adapted to hold said supporting devices in a stable condition when said devices are occupying their door supporting positions, said devices being adapted to move said track to a position allowing a further free movement from

their door supporting positions when said devices are slightly moved from said supporting positions, said track being adapted to guide said supporting devices into their supporting positions in the operation of closing said door.

18. In a car of the class described, a hinged dumping door, supporting devices for said door, and a movable track adapted to guide said supporting devices to and from their supporting positions, said supporting devices being adapted to move said track to a position in which it holds them in a stable condition supporting said door.

In testimony whereof, I have subscribed my name.

WILLIAM A. CASWELL.

Witnesses:

ANNA L. SAYOIE,  
LILLIAN A. KIBBY.