No. 897,499. PATENTED SEPT. 1, 1908.

R. H. STEVENS.

DUMPING CAR.

APPLICATION FILED FEB. 13, 1908.

2 SHEETS—SHEET 1.

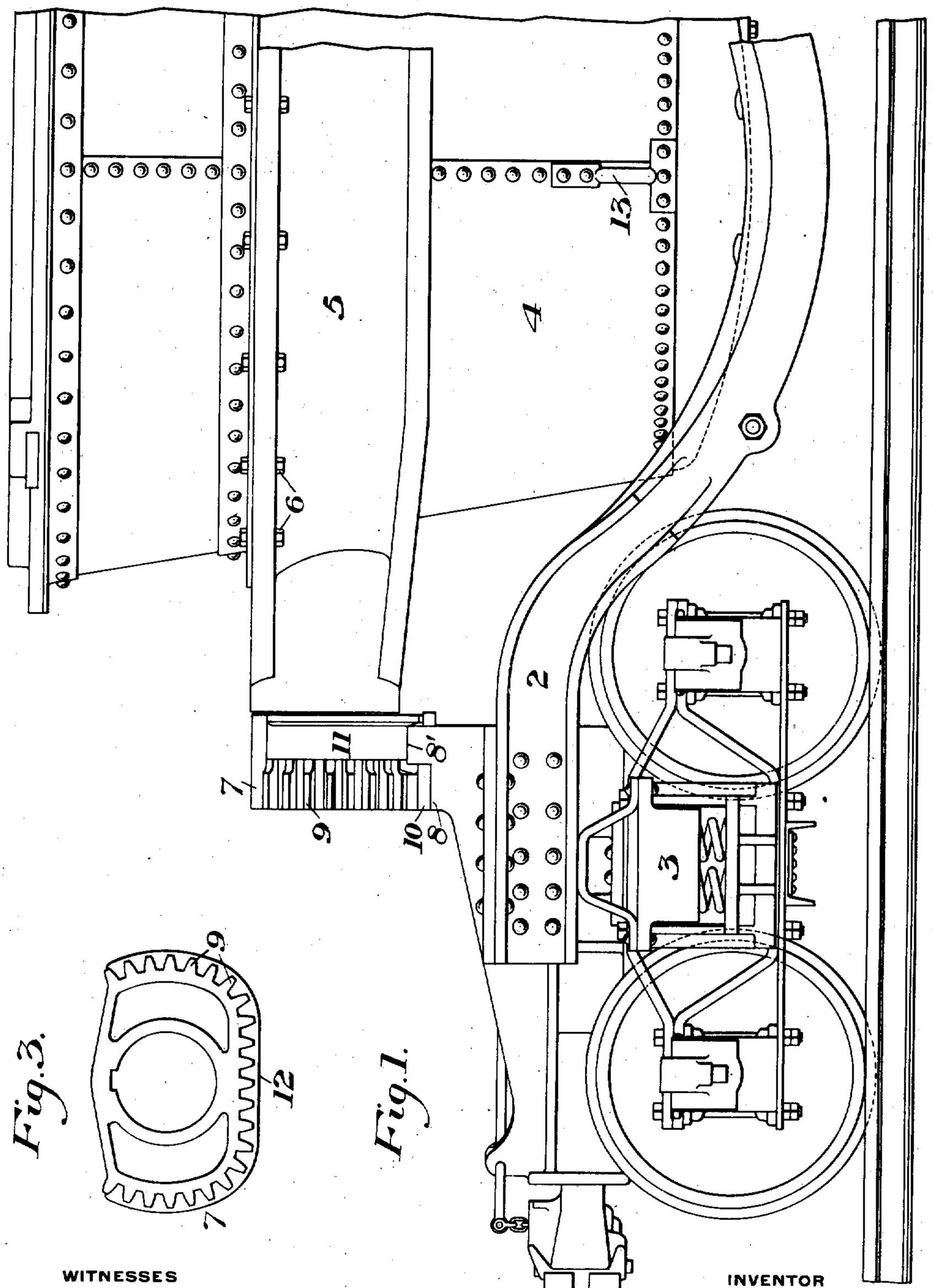

Fig. 1.

Fig. 3.

WITNESSES

W. W. Swartz

R. A. Balderson

INVENTOR

R. H. Stevens
by his attys
Bakewell, Byrnes & Parmalee

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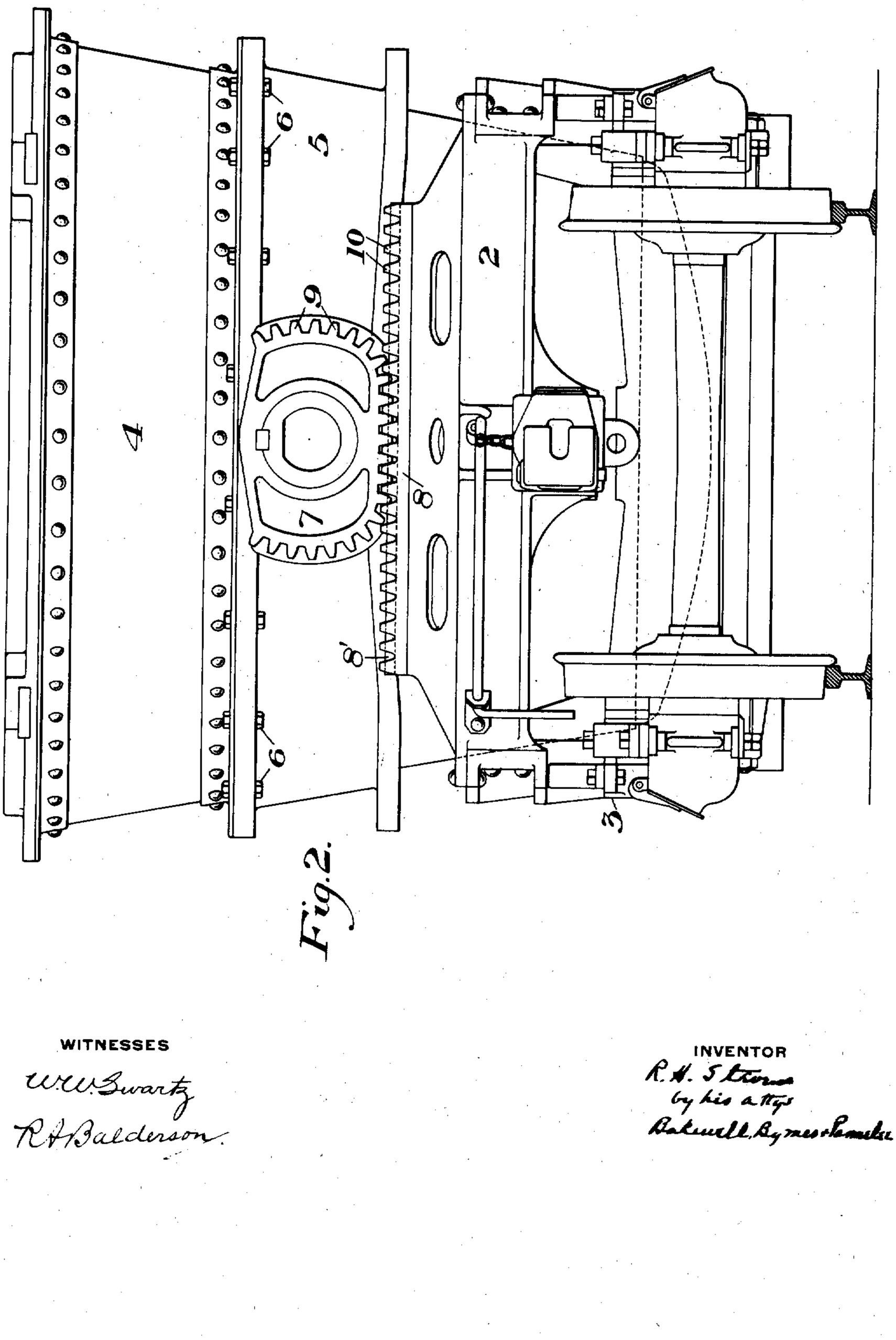

Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

RICHARD H. STEVENS, OF MUNHALL, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO PER TORSTEN BERG, OF STOCKHOLM, SWEDEN.

DUMPING-CAR.

No. 897,499. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed February 13, 1908. Serial No. 415,674.

To all whom it may concern:

Be it known that I, RICHARD H. STEVENS, of Munhall, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Dumping-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a partial side elevation showing a dumping ladle car equipped with my invention; Fig. 2 is an end elevation of the same; and Fig. 3 is a detail side elevation showing one form of trunnion gear constructed in accordance with my invention.

My invention relates to dumping cars in which the body portions of the cars are arranged to be tipped in opposite directions to be emptied of their contents, and it more particularly relates to tipping ladle cars employed in carrying molten metal, slag and similar materials.

The object of the invention is to provide improved means for holding or maintaining the car-body or ladle in its vertically upright position upon the frame of the car and for rocking or rolling the car body forwardly on its supports as it is tilted in being emptied of its contents.

In the drawings, 2 represents the car frame of a dumping ladle car which is mounted upon wheel trucks 3 in the usual manner and 4 is the ladle which is removably secured in the trunnion ring 5 by means of bolts 6. The trunnions forming part of the trunnion ring 5 are provided with trunnion gears 7 which are keyed or otherwise secured in place. The trunnion gears 7 are mounted on racks 8 forming part of the car frame 2 so as to permit of the ladle being rocked sidewise in both directions to be emptied. The gears 7 are provided with teeth 9 which mesh with similar teeth 10 in the racks 8, and these gears are also provided with a cylindrical face portion 11 which contacts with the flat plane surfaces 8′ on the racks 8 to support the ladle and prevent its weight being put upon the teeth of the gears 7 and racks 8. Each of the gears 7 is provided with a horizontal flat portion 12, this flat portion being provided to maintain the car body in a vertically upright position, while being carried from place to place upon the rails of a railway track. Ears 13 are provided on each side of the car body or ladle to which a chain hook is secured for the purpose of tipping the ladle to empty it of its contents. The cars are provided with the usual coupling devices and coupling operating mechanism.

In the operation of my improved car, the flat sides provided on the trunnion gears 7 hold the ladle stationary in its vertically upright position and prevent its being tipped while the car is being transported from place to place upon the railway tracks. When it is desired to dump the car, a chain hook is attached to one of the ears 13 on the ladle 4 and the car is tilted or tipped through this hook and its chain, which is connected to any suitable means for dumping. As the ladle is tipped, the axis of the trunnion is raised vertically by the action of the periphery of the gear wheels 7 and at the same time the car body or ladle is rolled forwardly or rocked by means of the co-acting teeth in the wheel 7 and the racks 8.

When the car has been emptied, the movement of the ladle is reversed and the car is again brought into its vertically upright position, in readiness to be again filled, after which the above described operations are repeated.

The advantages of my invention will be apparent to those skilled in the art. The apparatus is simple and is easily kept in repair. There are no moving parts which have to be moved into and out of position to hold the car in its vertically upright position and the car is securely held in this position while being transported from place to place.

Modifications in the construction and arrangement of the parts may be made without departing from my invention. Instead of having a flat surface on the trunnion gears 7, these gears may be cylindrical and corresponding cylindrical depressions be provided in the racks 8 so as to hold the car in its vertical position, or cylindrical trunnion gears having their axis eccentric to the axis of the trunnions may be used with the straight rack 8 shown.

While I have shown my invention applied to a tipping ladle car, the invention is applicable generally to tilting cars having a ladle or body portion which is tipped either sidewise or endwise to empty it of its contents.

I claim:—

1. In a ladle car, a rolling and tipping ladle having supporting trunnions, gear wheels on said trunnions, a car frame having hori-

zontally extending trunnion supports on which the trunnions roll in tipping the ladle, the contacting surface of the trunnion wheels and trunnion supports having meshed gear teeth, the teeth of the trunnion wheels in contact with the trunnion supports when the ladle is in its upright position being flattened to lower the horizontal axis of the trunnion; substantially as described.

2. In a ladle car, a rolling and tipping ladle having a supporting trunnion, gear wheels on said trunnions, a car frame having horizontally extending trunnion supports on which the trunnion wheels roll in tipping the ladle, the gear teeth on the trunnion wheels in mesh with the rack teeth on said trunnion supports being arranged to lower the axis of the trunnions when the ladle is in its central upright position; substantially as described.

3. A tilting car comprising a body portion having trunnions thereon, a car frame having trunnion-supports and coacting toothed surfaces on the trunnions and supports, the teeth in mesh when the car body is in its central position being arranged to lower the axis of the trunnions and maintain the car body in its vertically upright position; substantially as described.

In testimony whereof, I have hereunto set my hand.

RICHARD H. STEVENS

Witnesses:

W. H. CORBETT,

J. A. HAMILTON.