No. 793,385. PATENTED JUNE 27, 1905.

A. MIEDEN.

DUMPING CAR.

APPLICATION FILED NOV. 10, 1904.

2 SHEETS—SHEET 1.

Fig. 1

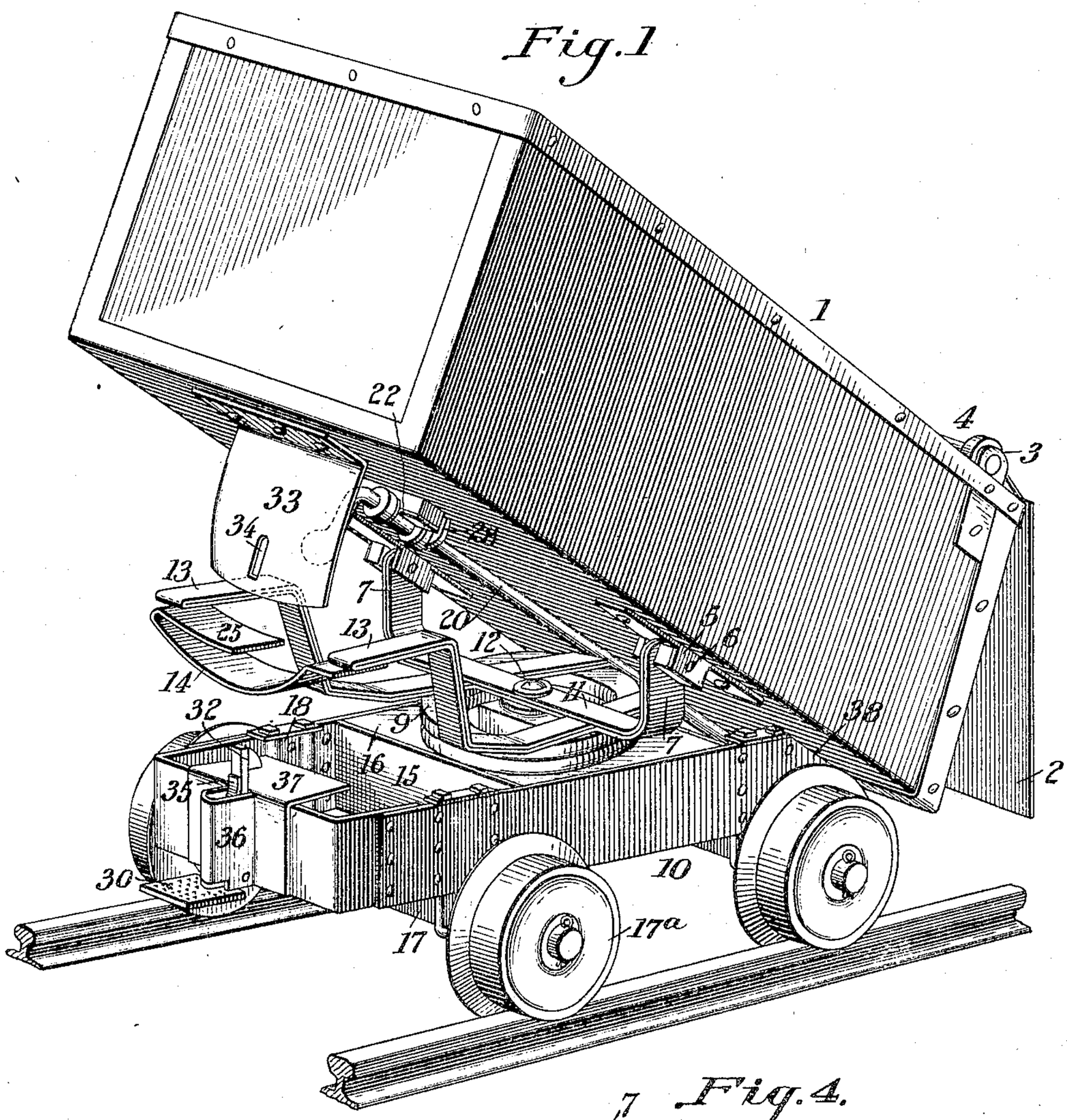
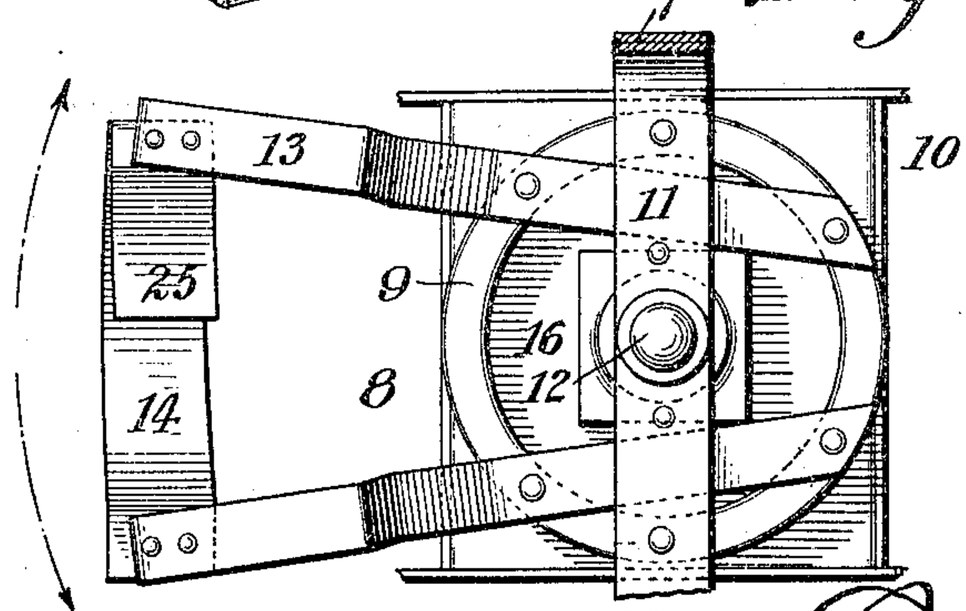


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 2.

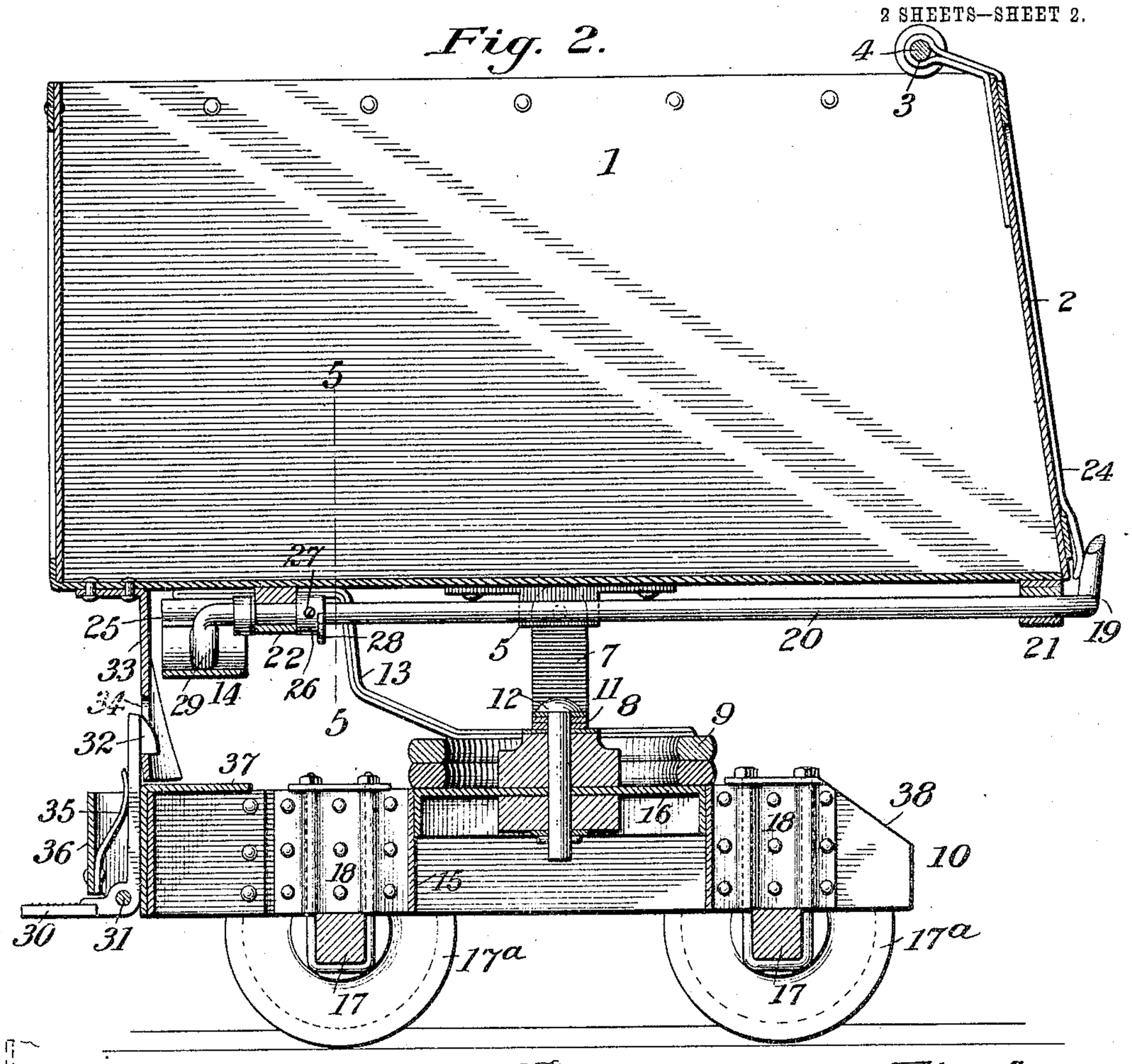

Fig. 3.

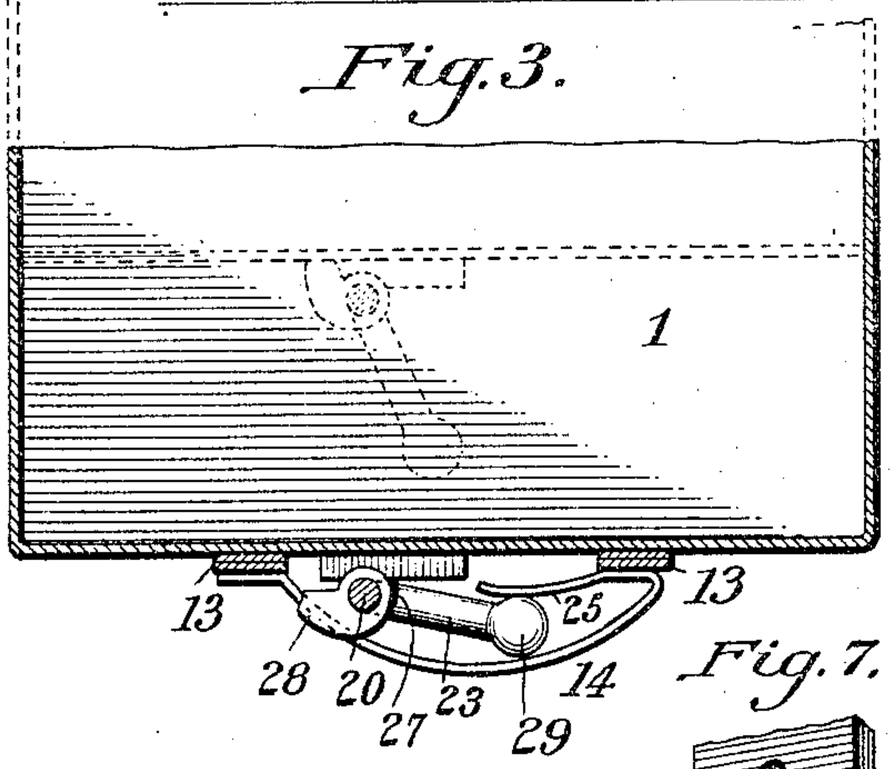

Fig. 7.

Fig. 6.

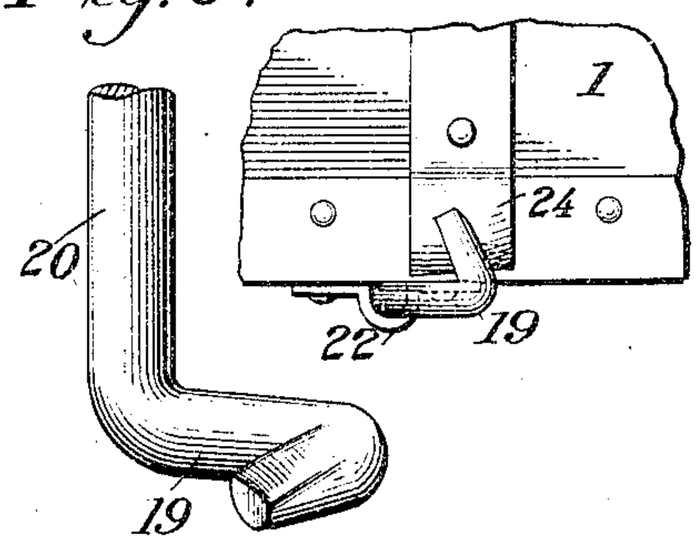

Fig. 5.

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No. 793,385. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

ADAM MIEDEN, OF SEATTLE, WASHINGTON.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 793,385, dated June 27, 1905.

Application filed November 10, 1904. Serial No. 232,180.

To all whom it may concern:

Be it known that I, ADAM MIEDEN, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a new and useful Dumping-Car, of which the following is a specification.

The invention relates to improvements in dumping-cars.

The object of the present invention is to improve the construction of dumping cars, carts, and the like having a tilting body and to provide one of great strength and durability having simple and efficient means for automatically unlocking the door of the car-body when the same is tilted and for similarly locking the same when the tilting body is returned to its normal or horizontal position.

A further object of the invention is to provide locking means which will have its unlocking operation facilitated by any pressure on the inner face of the door whereby the unlocking operation will be rendered easy and the door prevented from sticking.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of the dumping-car constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view on the line 5 5 of Fig. 2, illustrating the construction of the combined guide and keeper for operating the weighted arm of the rock-shaft. Fig. 4 is a detail horizontal sectional view illustrating the arrangement of the turn-table or the construction for supporting the combined guide and keeper. Fig. 5 is a detail view of a portion of the front of the body, the portion of the car-body illustrating the arrangement of the catch. Fig. 6 is a detail view of the catch. Fig. 7 is a detail view of the beveled plate which is engaged by the catch.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a tilting dumping-car body, provided at its front with a door 2, hinged at the top at 3 by any suitable means and adapted to swing outward, as clearly illustrated in Fig. 1 of the drawings, when the dumping-body is tilted. The hinges of the door are preferably provided with a pintle-rod 4, which extends entirely across the car and which passes through suitable hinge members of the sides of the car-body and the door. The front edges of the sides of the car-body are inclined, and the door is arranged at an inclination when the car-body is in a horizontal position, the inclination being sufficient to cause the door to close automatically and quickly, so that it will return to its closed position before the locking mechanism is operated, whereby the automatic locking of the door will be rendered positive and reliable. The body is provided at opposite sides with depending ears or bearings 5, and it is pivoted by pins 6 or other suitable fastening devices to a pair of upwardly-extending arms 7 of a rotary frame or support 8. The rotary frame or support 8, upon which the tilting body of the dumping-car is mounted, is suitably secured to the movable member or ring 9 of the central bearing or turn-table of a car-truck frame 10, whereby the body of the car is adapted to be both rotated and tilted. By this construction the car-body may be turned to discharge its contents at either side or at the end of the car.

Although the locking mechanism hereinafter described is shown applied to a rotary and tilting car-body, yet it will be readily understood that it is applicable to dumping cars or carts having a simple and pivoted body.

The arms 7 are preferably formed integral with a transverse bar 11, through which passes a central pivot or king-bolt 12. The rotary support or frame is also provided with a pair of rearwardly-extending arms 13, angularly bent, as shown, and secured at their inner or front portions to the turn-table and having their rear portions offset from the truck-frame and arranged at an elevation, as clearly shown in Fig. 1, for supporting a combined guide and keeper 14. The truck-frame, which may

be constructed in any desired manner, is composed of two sides and the rear end piece of the sides being connected at the center of the truck by transverse pieces 15 and by the top plate 16. Suitable blocks or pieces are secured to the upper and lower faces of the top plate 16 for maintaining the central pivot or king-bolt in a perpendicular position. The transverse pieces 15 and the top portion 16 maintain the truck-frame perfectly true; but any other suitable form of bracing may be employed. The axles 17 are detachably secured to the sides of the top frame by substantially U-shaped bolts or rods having threaded ends and provided with nuts. The sides of the U-shaped rods or bolts pass through openings formed by plates 18, riveted or otherwise secured to the inner faces of the sides of the top frame and bowed or bent at their inner faces to provide grooves, as clearly shown in Fig. 2 of the drawings. The flanged wheels 17ª are arranged on the journals of the axles to enable the truck to run upon a track, as shown in Fig. 1 of the drawings; but any other suitable form of truck or running-gear may be employed.

The hinged door of the dumping-body is held in its closed position by a catch 19, consisting of a substantially V-shaped arm of a longitudinal rock-shaft 20, which is journaled in front and rear bearings 21 and 22 of the bottom of the car-body. The rock-shaft, which is arranged beneath the car-body, extends substantially the entire length of the same and is provided at its rear end with a removable arm 23, which is automatically operated by the combined guide and keeper 14, as hereinafter explained. The inner or lower portion of the V-shaped arm is arranged at an obtuse angle to the rock-shaft, and the upper or outer arm is arranged at an inclination and extends upwardly at an angle to the door of the car-body, as clearly illustrated in Fig. 2. The door of the car-body is provided with a plate or member 24, which is beveled downwardly and transversely toward its lower right-hand corner, forming inclined angularly-disposed faces, as clearly shown in Fig. 5 of the drawings. The coöperating angularly-disposed faces of the catch and the plate or member of the door facilitate the unlocking operation and enable the internal pressure on the door to rotate the rock-shaft, and thereby swing the catch downwardly away from the door when the rock-shaft is free to rotate. This will greatly facilitate the operation of unlocking the door and will prevent the latter from sticking when the inner face of the door is subjected to great pressure.

The combined guide and keeper 14, which is disposed transversely of the rear portion of the car, is secured to the rearwardly-extending arms 13, and it is curved longitudinally, presenting an upper concave face. It is provided at the inner end with an arm or portion 25, arranged above and spaced from it, as clearly shown in Fig. 3, to form a stop for the weighted arm of the rock-shaft. When the rear end of the tilting car-body is raised, the upward movement permits the weighted arm of the rock-shaft to swing downward from a substantially horizontal position (illustrated in full lines in Fig. 3) to the nearly vertical position shown in dotted lines in the said figure. The rotation of the rock-shaft is limited by a collar 26, having a set-screw 27 and provided with a projecting portion or flange 28, arranged to engage the body to limit the movement of the weighted arm, whereby the latter is held in an inclined position for enabling the said weighted arm to be operated by the combined guide and keeper. When the car-body is run back to a horizontal position, the downward movement of the rear end carries the weighted arm into engagement with the concave upper face of the combined guide and keeper, which causes the arm to swing laterally into the space or opening between the upper portion of the stop 25 and the adjacent portion of the combined guide and keeper 14. The weighted arm is provided at its end with an enlargement or head 29, which is round and which facilitates the operation of the gravity-arm of the rock-shaft. The stop 25 prevents any movement of the gravity-arm through any vibration of the car. The hinged door closes before the gravity-arm engages the combined guide and keeper, and the operation of the catch is thereby rendered positive and reliable.

The body is held against tilting and rotary movement by a substantially L-shaped foot-latch 30, having vertical and horizontal portions pivoted at its angle by a pin 31 or other suitable fastening device and provided at its upwardly-extending arm with a beveled head 32, arranged to engage a depending plate or member 33. The plate or member 33, which is provided at its top with an attachment-flange, is secured to the lower face of the rear end of the car-body, and its lower portion, which is curved transversely, is provided with a slot 34, which is adapted to receive the projecting head 32 of the latch. The latch is held in engagement with the depending plate or member 33 by a spring 35, mounted in a suitable housing or casing 36, as clearly illustrated in Fig. 2 of the drawings. The horizontal portion of the latch is enlarged and roughened to form a foot-plate and is adapted to be readily engaged by the foot of the operator, whereby the upwardly-extending arm of the latch will be swung out of engagement with the plate or member 33. When the latch is disengaged from the plate or member 33, the car-body may be rotated to turn its front or discharging end in the desired direction, and it is also adapted to be readily tilted for discharging its contents.

The rear end of the truck-frame is provided with a stop 37, consisting of a flange arranged in the path of the depending plate or member 33 to limit the downward movement of the rear end of the body. The flange of the sides of the truck-frame are beveled or cut away at 38, as clearly shown in Fig. 2, to permit the front portion of the body to swing downward the desired distance and to provide a support for the same when discharging its contents.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the class described, the combination with a dumping-body having a door, of a shaft provided with a catch for engaging the door, said catch and door having coöperating inclined faces, arranged to automatically rotate the shaft when the door is subjected to internal pressure, and the shaft is free to turn.

2. In a device of the class described, the combination of a dumping-body having a door, the latter being provided with an inclined and angularly-disposed face, and a shaft having an arm supporting a catch and presenting an inclined face to the door and coöperating with the inclined and angularly-disposed face thereof.

3. In a device of the class described, the combination with a dumping-body having a door, of a plate or member mounted on the door and beveled to form an inclined and angularly-disposed face, and a shaft provided with a substantially V-shaped arm having its inner portion disposed at an obtuse angle to the shaft, and its outer portion arranged at an inclination and presenting an inclined face to the door when in engagement with the same, the inclined face of the catch coöperating with the inclined and angularly-disposed face of the said plate or member.

4. In a device of the class described, the combination with a tilting body having a door, of a rock-shaft provided with a catch for engaging the door, said rock-shaft being also provided with a gravity-arm for releasing the door when the body is dumped, and means located in the path of the gravity-arm for swinging the same to lock the door.

5. In a device of the class described, the combination with a dumping-body having a door, of a rock-shaft provided with a catch for engaging the door and having a gravity-arm, and a guide arranged in the path of the gravity-arm for swinging the same to lock the door.

6. In a device of the class described, the combination with a dumping-body having a door, of a rock-shaft provided with a catch for engaging the door and having a gravity-arm, and a transversely-disposed curved guide arranged in the path of the gravity-arm for actuating the same.

7. In a device of the class described, the combination with a dumping-body having a door, of a rock-shaft provided with a catch for engaging the door, and having a gravity-arm, and a guide arranged in the path of the gravity-arm for actuating the same, said guide having an upper portion forming a stop and arranged to engage the gravity-arm when the dumping-body is in its normal position.

8. In a device of the class described, the combination of a dumping-body having a door, a rock-shaft extending substantially the entire length of the body and provided at its front end with a catch and having a gravity-arm at its rear end for releasing the door, means located in the path of the gravity-arm for operating the same to lock the door, and a latch for locking the dumping-body in its normal position.

9. In a device of the class described, the combination of a dumping-body having a door, a rock-shaft provided with a catch for engaging the door and having a gravity-arm, said gravity-arm being provided at its end with a rounded head or enlargement, and a curved guide arranged in the path of the arm in position to be engaged by the head or enlargement.

10. In a device of the class described, the combination of a truck, a rotary frame or support having rearwardly-projecting arms, a dumping-body mounted on the rotary frame or support and having a door, a shaft mounted on the body and provided with a catch for engaging the door and having a gravity-arm located adjacent to the said rearwardly-extending arms, and a guide supported by the rearwardly-extending arm and arranged in the path of the gravity-arm.

11. In a device of the class described, the combination of a dumping-body having a door, a beveled plate carried by the door, and a shaft having a beveled catch coöperating with the beveled plate.

12. In a device of the class described, the combination with a dumping-body having a door, of a shaft provided with a substantially V-shaped arm having its inner portion disposed at an obtuse angle to the shaft, and its outer portion arranged at an inclination and presenting an inclined face to the door when in engagement with the same.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ADAM MIEDEN.

Witnesses:
H. A. TERWILLIGER,
S. W. CLARK.