

C. H. CLARK.
SIDE DUMP CAR.
APPLICATION FILED AUG. 12, 1912.

1,065,218.

Patented June 17, 1913.

FIG. 1.

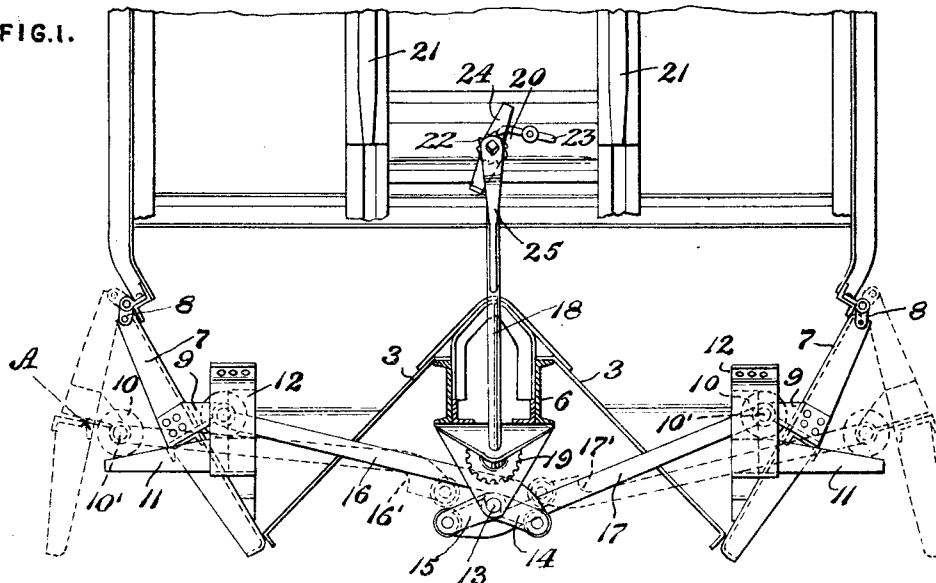


FIG. 2.

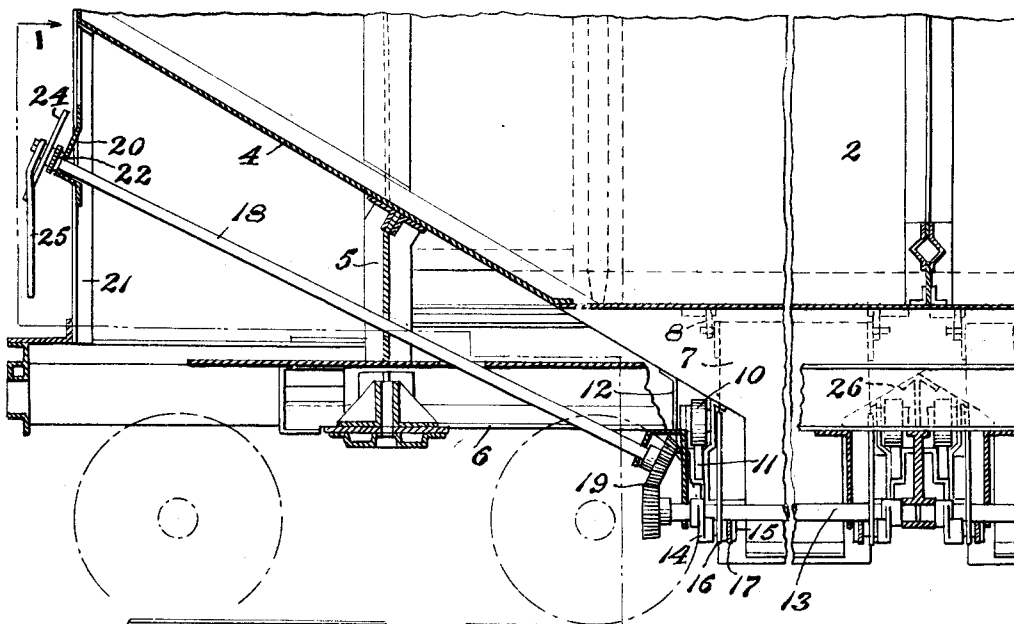


FIG. 3.

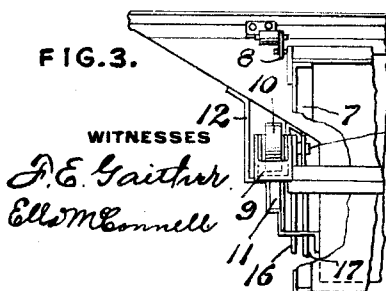
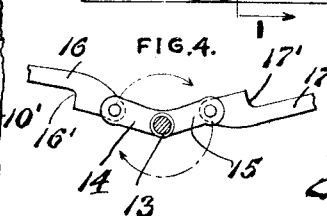


FIG. 4.



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CHARLES H. CLARK, OF CRAFTON, PENNSYLVANIA, ASSIGNOR TO CLARK CAR COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

SIDE-DUMP CAR.

1,065,218.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed August 12, 1912. Serial No. 714,639.

To all whom it may concern:

Be it known that I, CHARLES H. CLARK, a resident of Crafton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Side-Dump Cars, of which the following is a specification.

This invention relates to side dump cars, and has particular reference to improved mountings for the doors and to improved mechanism for operating them.

In the accompanying drawings, Figure 1 is a view partly in elevation and partly in cross section of a car embodying the improvements, taken on line 1—1 of Fig. 2, the gear wheel at the extremity of shaft 13 having been omitted in order to illustrate the parts when locking the doors in closed position. Fig. 2 is a central longitudinal section of a portion of the car, the doors being closed. Fig. 3 is a side elevation of the mechanism at one end of one of the doors. Fig. 4 is a detail of the door operating shaft and arms in unlocked position.

Referring to the drawings, 2 are the side sheets of the hopper which terminate at their lower ends in the discharge openings, and 3 is the inverted V-shaped central portion of the car bottom, the opposite lower edges of which define the bottom edges of said openings.

4 is an end slope sheet of usual construction, 5 the body bolster, and 6 the draft beams which extend beneath bottom 3, preferably from end to end of the car.

Each of the outwardly opening doors 7 at opposite sides of the car has loose swinging connections with the car body immediately above the opening, in the adaptation here shown each connection consisting of a link 8, said links permitting the door to rise and lower during its swinging movement. At each end of the door on the inner side thereof is an extension 9 and journaled thereon is roller 10, adapted to travel on outwardly and downwardly inclined track 11 secured by bracket 12 to the under portion of the body. In Fig. 1 the doors are shown closed in full lines, and open in dotted lines. When closed they are inclined downwardly and inwardly to meet the lower edges of the bottom sloping sheets 3, while when open the doors are raised slightly and incline outwardly. The arrangement is such that the center of gravity of the door, which is ap-

proximately at A, Fig. 1, rises throughout the opening movement of the door, so that while the doors move to open position under the pressure of the load they gravitate to closed position after the load has been discharged. The door mounting provides a very simple and compact structure and affords ample clearance for the discharging lading.

For locking the doors in closed position and for releasing them for dumping, shaft 13 extends longitudinally of the car body beneath bottom 3 and is provided with two sets of cranks 14 and 15—one set for each door. Arms 16 connect cranks 14 with one of the doors while similar arms 17 connect cranks 15 with the other door, the outer ends of the arms being secured to the journal pins 10 of rollers 10. Arms 16 are notched on their under edges at 16', and the upper edges of arms 17 are similarly notched at 17', so that when the parts are turned from the open-door position of Fig. 4 to the closed position of Fig. 1, arms 16 are carried over shaft 13 and arms 17 beneath the same with the notches of the several arms embracing the shaft and locking the doors in closed position. Shaft 13 turns through one part of a revolution for each opening and each closing movement of the doors, and the rotation of said shaft is controlled by the diagonal operating shaft 18 geared to one end of shaft 13 as indicated at 19, shaft 18 extending upwardly beneath the end slope sheet 4 and projecting outwardly through a bearing 20 secured to the end uprights 21 of the car body. A ratchet wheel 22 fast on shaft 18 is engaged by the pivoted dog or pawl 23 for securing said shaft with the doors and shaft 13 in locked position. Secured to shaft 18 is arm 24 which projects therefrom in opposite directions, and loosely mounted on the extremity of said shaft is lever bent as indicated in Fig. 2 to engage either end of arm 24. To release the load it is only necessary to loosen the hold of dog 23 and then turn shaft 18 sufficiently by means of lever 25 and arm 24 to start shaft 13. When shaft 13 has been turned sufficiently to disengage the notched arms 16 and 17 the pressure of the lading outwardly on doors 7 completes the opening movements, the parts taking the position shown in dotted lines in Fig. 1, also in Fig. 4, and when the lading has been discharged the doors gravitate to

closed position, the pivotal connection between arms 16 and 17 and their cranks 14 and 15, respectively, moving past the dead center lines, and the notched arms embrace shaft 13. If the doors should not fully close and lock, the movement may be completed by lever 25 as will be understood, and with dog 23 in engagement with ratchet wheel 22 the doors are securely locked.

- 10 The adaptation shown in Fig. 2 contemplates a double hopper and the employment of two sets of doors arranged at either side of a central transverse bridge 26 beneath which the roller mountings for adjacent door ends are located. It will be understood, however, that the invention is not restricted to a car provided with two sets of doors, also that the invention may be variously embodied without departing from the scope of the appended claims.

I claim:—

1. The combination of a dump car having a discharge opening, a door, links pivotally connected to the door and also pivotally connected to the car body above the discharge opening, tracks, rollers on the door movable on the tracks, an operating shaft extending longitudinally of the car inwardly from the discharge opening and provided with cranks, and arms connecting said cranks to the door.

2. The combination of a dump car having a discharge opening, a door, links pivotally connected to the door and also pivotally connected to the car body above the discharge opening, tracks, rollers on the door movable on the tracks, an operating shaft extending longitudinally of the car inwardly from the discharge opening and provided with cranks, and arms pivoted to said cranks and also pivotally connected to the door coincidentally with the roller axes.

3. The combination of a dump car having a discharge opening, a door, links pivotally connected to the door and also pivotally connected to the car body above the discharge opening, tracks, rollers on the door movable on the tracks, an operating shaft extending longitudinally of the car inwardly from the discharge opening and provided with cranks, and arms connected at their outer ends to the doors and with the inner ends of the arms offset to extend partially around the operating shaft with said offset ends pivoted to the shaft cranks.

4. The combination of a dump car having discharge openings at opposite sides thereof, a door for each opening with each door having swinging connection with the car body above its opening, tracks, rollers on each door movable on the tracks, an operating shaft extending longitudinally of the car between the openings and provided with cranks, and arms extending from the shaft cranks to the doors.

5. The combination of a dump car having a discharge opening, a door mounted to swing at its top edge, tracks, rollers on the door for moving on the tracks, an operating shaft located inwardly from the opening and provided with cranks, arms connecting the cranks and door with the arms pivotally secured to the door, and means causing the shaft to hold the door in closed position.

6. The combination of a dump car having discharge openings at opposite sides thereof, doors mounted to swing at their top edges, tracks, rollers on each door movable on the tracks, and a door operating shaft located intermediate the discharge openings with two sets of cranks on the shaft—one set for each door, arms connecting each door with its set of cranks with the arms pivotally connected to the doors.

7. The combination of a dump car having a discharge opening, a door, links pivotally connecting the door with the car body above the discharge opening, outwardly and downwardly inclined tracks, rollers on the door movable on the tracks, and an operating crank shaft located inwardly from the opening and operatively connected to the door.

8. The combination of a dump car having a discharge opening, a door, a swinging connection between the door and the car body above the opening, downwardly and outwardly inclined tracks, rollers mounted on the door movable on the tracks, the tracks and said swinging connection arranged to cause the center of gravity of the door to rise throughout its opening movement whereby the door is adapted to open under pressure of the load and gravitate to closed position and door holding means.

9. The combination of a dump car having discharge openings at opposite sides thereof, a door for each opening, each door having swinging connection with the car body above its opening, outwardly and downwardly inclined tracks, rollers on each door movable on the tracks, the swinging connections and the tracks arranged to raise the center of gravity of each door throughout the opening movement whereby the doors are opened by the pressure of the load and gravitate to closed position, and door holding means.

10. The combination of a dump car, a door, a locking and releasing shaft operatively connected to the door, an actuating shaft operatively connected to the first mentioned shaft, means for locking the actuating shaft against movement in one direction, a lever, and an arm projecting from the actuating shaft and adapted to be engaged by the lever for throwing the shaft when the latter is released from said locking mechanism.

11. The combination of a dump car having discharge openings at opposite sides

thereof, outwardly swinging doors for the
openings, a shaft extending longitudinally
of the car and provided with cranks for
each door, arms connecting said cranks and
5 doors, the shaft adapted to make a partial
rotation for each opening and closing
movement of the doors, an actuating shaft
operatively connected to the first men-
tioned shaft, mechanism for locking the
10 actuating shaft against movement in one di-
rection, an arm projecting from the actuat-

ing shaft, and a lever adapted to engage
said arm for throwing the shaft when the
latter is released from said locking mecha-
nism.

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

CHARLES H. CLARK.

Witnesses:

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