

W. G. ADAMS.
CAR DUMPING APPARATUS.

APPLICATION FILED JUNE 3, 1909. RENEWED FEB. 12, 1912.

1,033,512.

Patented July 23, 1912.

2 SHEETS—SHEET 1.

Fig. 3.

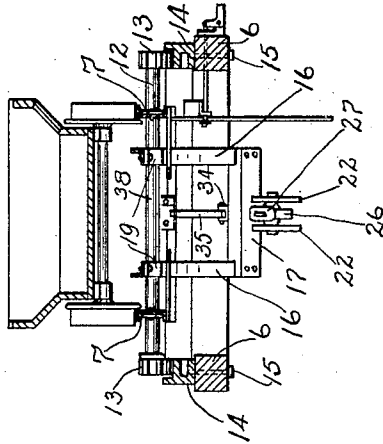


Fig. 2.

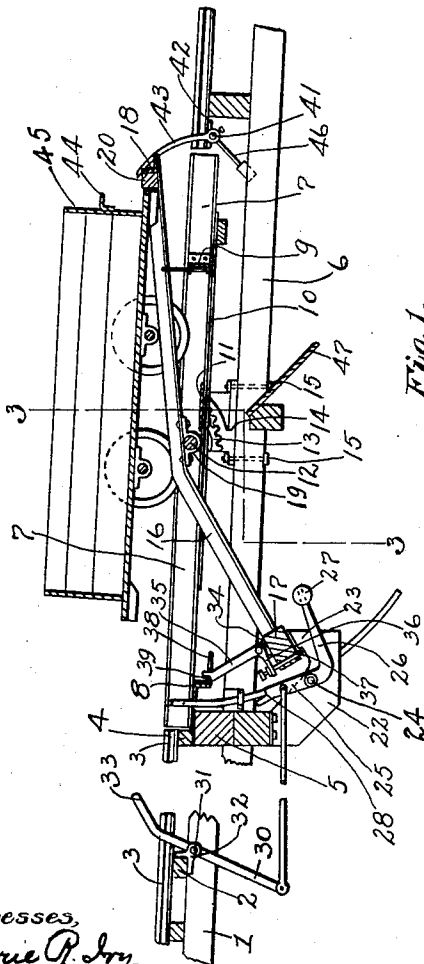
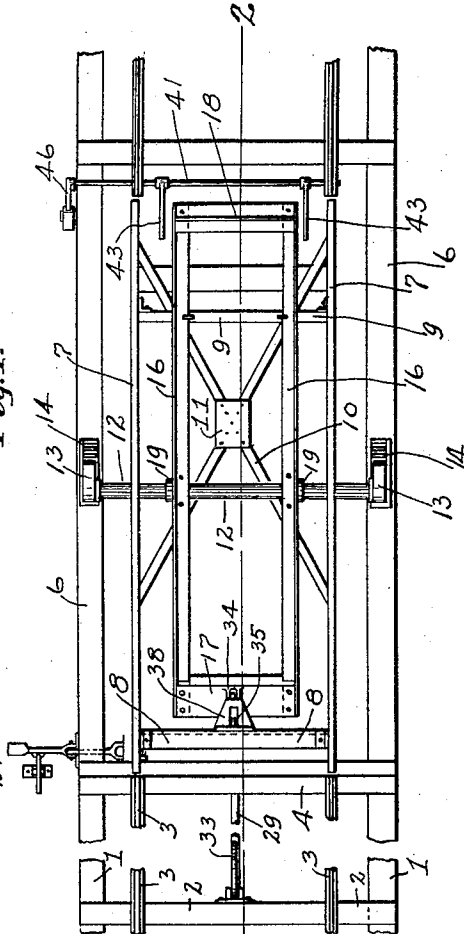


Fig. 1.



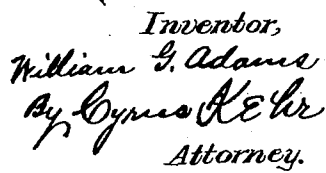
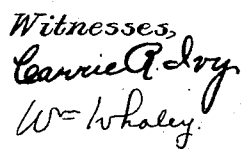
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

WILLIAM G. ADAMS, OF ROANOKE, VIRGINIA.

CAR-DUMPING APPARATUS.

1,033,512.

Specification of Letters Patent.

Patented July 23, 1912.

Application filed June 3, 1909, Serial No. 499,958. Renewed February 12, 1912. Serial No. 677,135.

To all whom it may concern:

Be it known that I, WILLIAM G. ADAMS, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented a new and useful Improvement in Car-Dumping Apparatus, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates particularly to that class of mine car dumping apparatus or tipples in which provision is made for automatically tilting the car from approximately the horizontal position for the discharge of its contents and then again righting the car and causing or allowing it to move forward to make room for a succeeding car.

My invention is applicable to such an apparatus as is described in Letters-Patent of the United States No. 909,303, granted to Edmund B. Hubard and me January 12, 1909, and the object of the present invention is to provide means for making such an apparatus as is described by said patent more positive in its operation.

In the accompanying drawings, Figure 1 is a plan of a tippie embodying my improvement; Fig. 2 is a longitudinal upright section on the line 2—2 of Fig. 1, showing the apparatus with a car thereon ready for tilting; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a section on the line 2—2 of Fig. 1, the car being tilted for discharging its load; Fig. 5 is a section on the same line, showing the track restored to the normal position and showing the auxiliary devices in position for the passing of the car forward away from the tippie.

The dumping apparatus and the track leading thereto and the track leading therefrom are supported upon the usual elevated frame-work. In the form shown in the drawings, longitudinal beams or sills, 1, support ties, 2, upon which rest ordinary track rails, 3. The ends of said rails are supported by a cross beam, 4, which rests upon a larger cross beam, 5, supported upon the longitudinal beams, 6. At the right of the ends of said rails is a tilting track section comprising rails, 7, a cross bar, 8, joining the left hand ends of said rails and a cross bar, 9, joining said rails near their right hand ends, and diagonal braces, 10, crossing each other and having their ends joined to said rails and being secured at their inter-

section to a plate, 11. Said rails extend downward farther than do the rails, 3, and their left hand ends rest upon the cross sill, 5, when said rails are in the normal or approximately horizontal position. The opposite ends of said rails have no such support; but near the middle of said frame, a shaft, 12, extends through said rails and is rigidly secured thereto. On each end of said shaft is a segment of a spur gear, 13, secured rigidly to said shaft and extending downward and toward the right and resting upon and meshing with an inclined gear rack, 14, which has its highest end toward the right and rests upon the longitudinal sill, 6, and is secured thereto by bolts, 15. For convenience in description, it will be understood that the cars move from left to right in Figs. 1, 2, 4, and 5, and that the right hand end of said tilting track section is the forward end while the left hand end of said section is the rear end. Said section may tilt, the forward end going down, by the forward rolling of said gear segments upon said gear racks into the position shown in Fig. 4. Such tilting is accompanied by a slight bodily forward movement of said section. In other words, the segment gear, 13, and the shaft, 12, travel slightly toward the right upon the stationary gear rack. And when said frame is again brought to the normal position, there is a corresponding leftward bodily movement of the frame.

Between the rails, 7, of the tilting frame is a tilting car-stopping member comprising side rails, 16, 16, a left hand or rear end piece, 17, and a right hand or forward end piece, 18. The side rails, 16, are secured rotatably to the shaft, 12, by bearings, 19. Combined with the end piece, 18, is a block, 20, the function of which is to engage the forward bumper of the loaded car when the car enters upon the tilting frame, as shown in Fig. 2. The forward end of said stopping member is normally at about the level of the rails, 7, 7, while the rear end of said stopping member is normally below said rails. (See Fig. 5.) When the stopping member is in this position, the car can pass toward the right without engaging said stopping member. At the rear end of said tilting stopping member, I have arranged means for holding said member in the normal position (the position shown in Fig. 5) when the tilting track section is in the horizontal position. Said means is in the nature

of a latch or stop mechanism. And, in addition to said latch or stop mechanism, I have applied to said stopping member a second latch mechanism for securing or locking the stopping member to the tilting track section after said stopping member has been tilted with reference to said track section so as to bring the block, 20, into position to engage the car. The object in locking said stopping member to said track section is to preclude failure of said stopping mechanism to engage the car and maintain such engagement after it has been made.

Below the cross sill, 21, (which is located below the cross sill, 5) a bracket, 22, is secured at the middle of said cross sill and directed toward the right so as to extend beneath the end piece, 17, which connects the two side rails, 16. Said bracket has a hip, 23, upon which the end piece, 17, may rest after it has been released from the first or lower latch mechanism, said end piece being heavy enough to tilt the stopping member as soon as the lower stop or latch is disengaged. To the side of said bracket at 24 is hinged a bell crank having an approximately upright arm, 25, and an approximately horizontal arm, 26, directed toward the right and supporting a weight, 27. The upper, right hand portion of the arm, 25, is cut away to form a notch, 28, in which the end piece, 17, may engage when descending while the arm, 25, stands at its right hand limit of movement. An approximately horizontal link, 29, is coupled by its right hand end to the arm, 25, and by its left hand end to an upright arm, 30, which is rigid on the rock shaft, 31, resting in bearings, 32, secured to one of the ties, 2. From the rock shaft, 31, a tripping arm, 33, rises into the path of the car, so that a loaded car approaching the tilting track section from the left will turn said tripping arm toward the right and thereby turn the rock shaft, 31, so as to cause the arm, 30, to draw the link, 29, toward the left. This involves the drawing of the arm, 25, of the latch bell crank toward the left and out of engagement with the end piece, 17, whereupon said end piece is free to move downward by gravity, and does so, because of the preponderance of weight of the stopping member at the left of the shaft, 12. This downward movement continues until said end piece rests upon the hip, 23.

The upper locking or latch mechanism is so arranged as to move into engagement immediately upon the contact between the end piece, 17, and said hip, 23. To an ear, 34, fixed on said end piece opposite the arm, 25, is hinged a bell crank form latch piece having an approximately upright arm, 35, and an approximately horizontal arm, 36, extending toward the left. A bolt or shaft, 37, extends slidably downward through said

arm and such end piece, the lower end of said bolt normally extending a little way below said end piece. The bracket, 22, is cut away at the left of the hip, 23, sufficiently to avoid engagement with the lower end of said bolt when the end piece, 17, rests upon said hip, as shown in Fig. 2. When said end piece rests upon the lower latch arm, 25, the lower end of said bolt rests upon said arm and is thereby pressed upward, which causes the tilting of the upper latch, so that the arm, 35, of said latch is turned a short distance toward the right.

To the cross bar, 8, of the tilting track section is secured a horizontal slotted bracket plate, 38, into which the upper latch arm, 35, extends. The upper left hand portion of the arm, 35, is cut away to form a notch, 39, which receives said bracket plate, 38, when the arm, 35, is at its lower limit and is tilted toward the left after the bolt, 37, has been disengaged from the arm, 25, of the lower latch. When the upper latch is thus engaged, the tilting car-stopping member is, for the time being, prevented from returning to its normal position with reference to the rails, 7, of the tilting track section. As soon as the car entering upon the tilting track section has passed the tripping arm, 33, the weight, 27, on the lower latch bell crank restores the arm, 25, to its normal position—in the path of the bolt, 37, and the end piece, 17, of the tilting stopping member. When the track section is again restored to the horizontal position (a little before the left hand ends of the rails, 7, come to rest upon the sill, 5), said bolt, 37, and said end piece, 17, strike said arm, 25, and are thereby stopped, the bolt striking first and moving upward for the tilting and releasing of the upper latch.

The stopping member is set far enough to the right to bring the center of gravity of the car to the right of the shaft, 12, when the car is stopped on the tilting track section, whereby a preponderance of load is put upon said section at the right of said shaft. Hence said section and the car tilt as soon as the car engages the bumper block 20. But as soon as the coal has been discharged from the car, the excess of weight is on the left hand side of said shaft, so that the tilting into the normal position occurs automatically.

Beneath the track rails, 3, at the right of the tilting section is a transverse rock shaft, 41, resting in bearings, 42, to which shaft are secured arms, 43, rising into the path of a bracket plate, 44, on each end of the end gate, 45, when the car begins to tilt, whereby said end gate is held above the car by the time the latter reaches its lower limit. A weighted arm, 46, extends downward from the rock shaft, 41, at a proper angle to hold the arms, 43, in the proper position.

The tilting of the track section may be limited in any suitable manner, as by means of the chute or incline, 47. (See Fig. 4.)

Any suitable brake may be used to restrain the movements of the track section. Such a brake is shown in the aforesaid Patent No. 909,303.

I claim as my invention:

1. In an apparatus of the nature described, the combination of a tilting track section, a tilting car-stopping member hinged forward of its center of gravity, and means engaging and carried with said member and said track section for temporarily locking said member to the track section in position to engage the car, substantially as described.

2. In an apparatus of the nature described, the combination of a tilting track section, a tilting car-stopping member hinged forward of its center of gravity, and automatic means engaging and carried with said member and said track section for temporarily locking said member to the track section in position to engage the car, substantially as described.

3. In an apparatus of the nature described, the combination of a tilting track section, a tilting car-stopping member hinged forward of its center of gravity, means for normally holding said member out of the path of the car, and means engaging and carried with said member and said track section for temporarily locking said member to the track section in position to engage the car, substantially as described.

4. In an apparatus of the nature described, the combination with a car track, of a tilting track section, a tilting car-stopping member, a fixed member below the rear end of said stopping member for limiting the downward movement of said stopping member when released from its normal position, releasable means for holding said end of said stopping member in the normal position, and locking means for locking said stopping member with reference to the tilting section when said stopping member is released from its normal position.

5. In an apparatus of the nature de-

scribed, the combination with a car track, of a tilting track section having its axis so located as to be forward of the center of gravity when an empty car is in the discharging position upon said section and rearward of said center of gravity when said car is loaded, a tilting car-stopping member, a movable latch arm extending beneath and supporting said stopping member when the latter is in the normal position, automatic means tending to move said arm into the normal position, a tripping arm adjacent the track and in operative relation with said latch arm, and normally disengaged automatic locking mechanism engaging and movable with said car-stopping member and said track section for locking said car-stopping member to said tilting track section when said stopping member moves out of the normal position.

6. In an apparatus of the nature described, the combination with a car track, of a tilting track section, a tilting car-stopping member, a movable latch arm extending beneath and supporting said stopping member when the latter is in the normal position, automatic means tending to move said arm into the normal position, a tripping arm adjacent the track and in operative relation with said latch arm, and normally disengaged automatic locking mechanism engaging and movable with said car-stopping member and said track section for locking said car-stopping member to said tilting track section when said stopping member moves out of the normal position, said locking mechanism being adapted to be released by engagement with a relatively stationary part of the apparatus when the tilting track section is restored to its normal position.

In testimony whereof I have signed my name, in presence of two witnesses, this 22nd day of May, in the year one thousand nine hundred and nine.

WILLIAM G. ADAMS.

Witnesses:

BEVERLEY BERKELEY,
JOHN M. KYLE.