E. H. SCHUR.

DUMPING CAR.

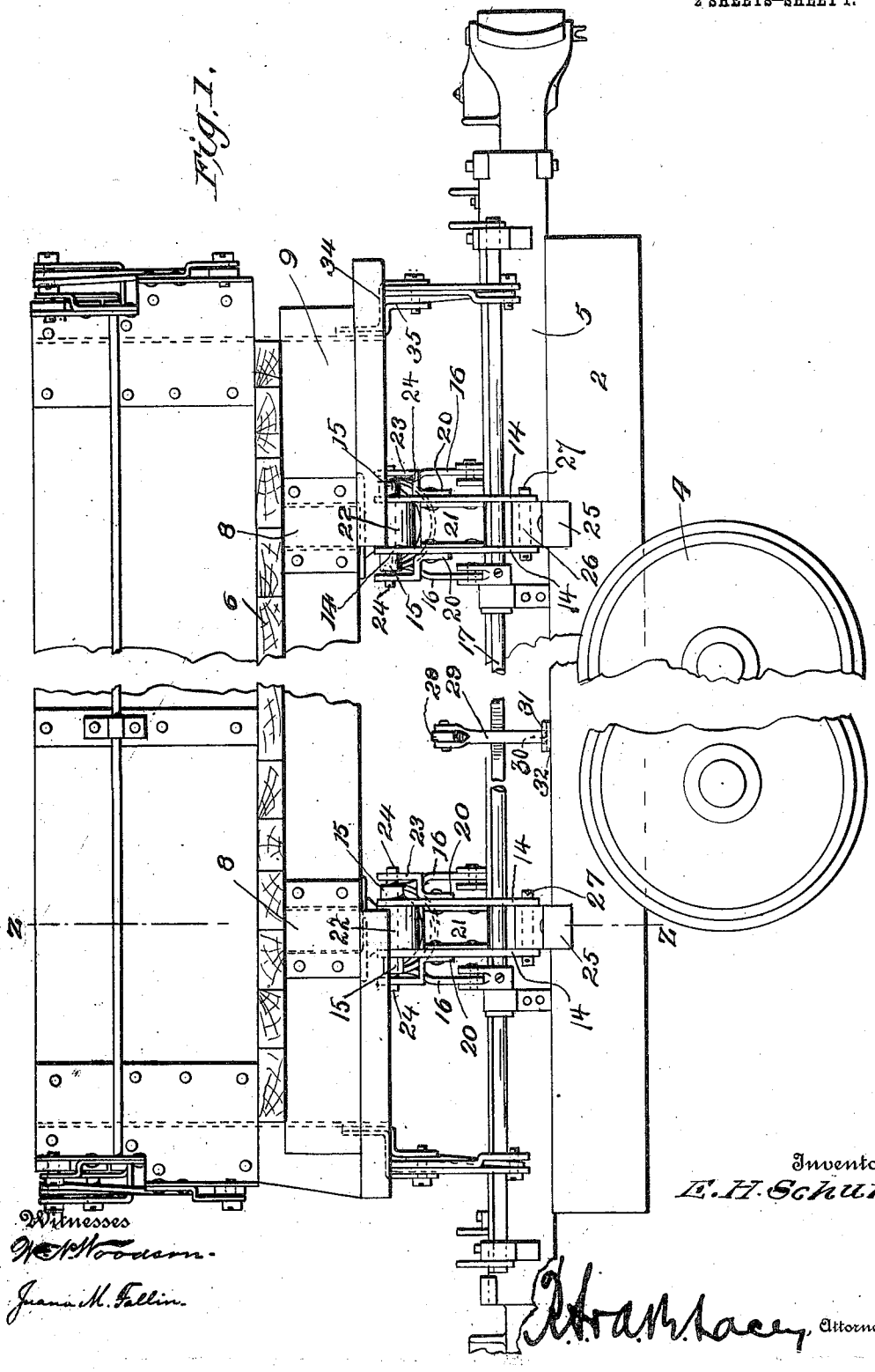
APPLICATION FILED AUG. 23, 1910.

1,066,156.

Patented July 1, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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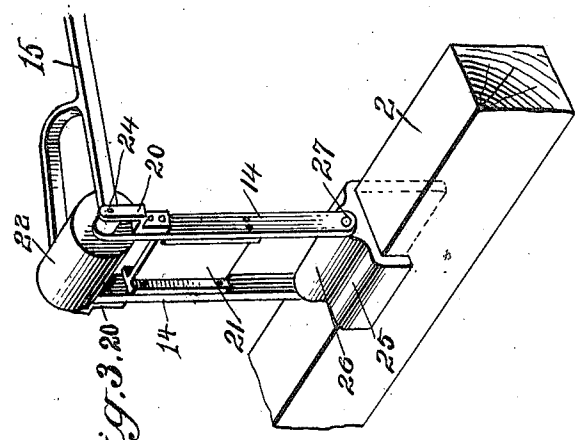


Fig. 3.

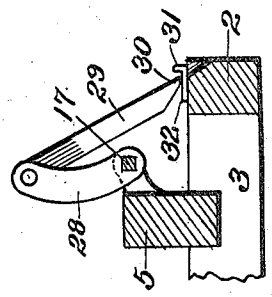


Fig. 4.

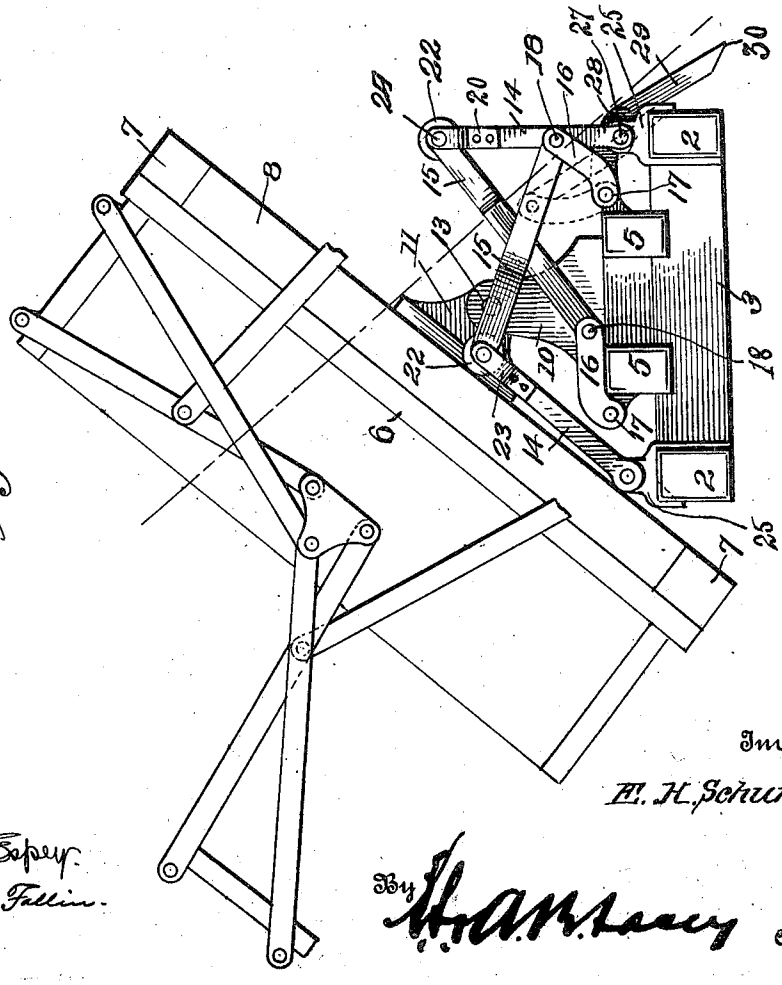


Fig. 2.

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DUMPING-CAR.

1,066,156. Specification of Letters Patent. Patented July 1, 1913.

Application filed August 23, 1910. Serial No. 578,553.

To all whom it may concern:

Be it known that I, ERNEST H. SCHUR, a citizen of the United States, residing at Hibbing, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Dumping-Cars, of which the following is a specification.

My invention relates to dumping cars of that class wherein the car is tilted or turned toward one side or the other in order to discharge its load, the car being provided with side boards adapted to be raised to permit the contents of the car to be discharged. In cars of this description the car body is ordinarily pivotally supported upon the center of the trucks from end to end and at a considerable distance above the trucks. Being so supported, it is evident that means must be provided for supporting the car body in a substantially horizontal position at all times except when the contents of the cars are being dumped.

The primary object of my invention is the provision in combination with rigid supports pivoted under the car body at the sides thereof, of means for latching or locking the supports in a vertical position, and preventing the supports from being accidentally moved or shifted into such position that the weight of the load would tend to tip the car body laterally to a dumping position.

A further object is the provision of means which not only tends to lock the lateral supports in a vertical position, but also provides means whereby the supports may be readily operated from the side opposite to that on which the load is to be discharged.

One of the difficulties ordinarily found in constructions of this character is that it is necessary in order to move the supports on one side of the car that the workman be on the side of the car toward which the load is to be dumped. By my invention, the workman may stand upon the opposite side of the car to that where the load is to be dumped and operate the dumping mechanism, thereby protecting the workman against injury due to the discharge of the load upon or around him.

My invention is shown in the accompanying drawings, wherein:

Figure 1 is a side elevation of a railway dumping car with my invention applied thereto. Fig. 2 is an end elevation of the dumping car shown in Fig. 1, the body of the car being tilted. Fig. 3 is a perspective detail view of one of the pivoted supporting members. Fig. 4 is a side elevation of the locking device, the rock shaft on which it is supported, and the beams 2 and 5 being in section.

As illustrated in Figs. 1 and 2, the body of the car is mounted on longitudinally extending sills 2. These, together with the transverse sills 3 form a base frame which is supported in any suitable manner upon wheeled trucks. Supported upon the transverse sills or beams 3 are the longitudinal beams 5 disposed in parallel relation on each side of the central longitudinal axis of the car body. The floor of the car 6 is supported and braced by oppositely disposed parallel longitudinally extending beams 7 and transverse beams 8. Mounted upon the base formed by the parallel beams 5 are a plurality of upwardly projecting standards 10 and extending down from the floor of the car, and preferably mounted upon the cross beams 8 are the supporting members 11 which are pivoted at their lower ends to the standards 10 by pivot pins 13 passing through the co-acting ends of the standards. The body of the car is thus supported for a laterally tilting movement in either direction.

For the purpose of supporting the car body in a horizontal plane or tipping it to either side, the following instrumentalities are provided. Pivotally mounted on the beams 2 are a plurality of supporting members 14, one of which is illustrated in Fig. 3. A series of these supporting members are disposed on each of the beams 2, the supporting members on one beam being oppositely disposed with relation to the supporting members on the opposite beam so that the said supporting members 14 will support both sides of the car body when both sets of supporting members are turned to a vertical position.

The upper end of each supporting member 14 on one side of the car is connected by a link 15 to an arm 16 mounted upon a rock shaft 17 mounted in bearings on that one of the beams 5 which is adjacent the other side of the car. There are, therefore, two rock shafts 17 each of which is mounted upon one

of the beams 5, the rock shafts being located one on each side of the standards 10. These rock shafts extend along the entire length of the car and the arms 16 are rigidly engaged with the rock shafts so as to turn therewith. Each arm 16 is pivotally connected to the corresponding link 15 by a transverse pin or other suitable connecting means 18. The link 15 is in turn pivotally connected to the upper end of the supporting member 14 in any suitable manner.

Preferably each of the supporting members 14 is formed as shown in Fig. 3, of two oppositely disposed bars each having a bracket 20 and held in proper spaced relation to each other and rigidly braced by a transverse web 21 riveted to the bars 14. The brackets 20 and the upper ends of the bars 14 form bearings for the trunnions 24 of an anti-friction roller 22. The terminal of the link 15 is received and pivoted by the trunnion 24, the link 15 being bifurcated at its adjacent end so as to straddle the roller 22.

The lower ends of the bars 14 are pivoted as at 27 to a saddle 25 which rests upon and fits over the beam 2 and which is attached thereto in any suitable manner. The saddle is formed with a bearing 26 for the pin 27.

Each of the arms 16 is relatively short and slightly angular in form, as illustrated in Fig. 2, the rock shaft 17 being located slightly below the upper faces of the beams 5 so that when this arm 16 is turned to a horizontal position by the rotation of the rock shaft, as shown in Fig. 2. the arm 16 will lie horizontally and rest upon the corresponding beam 5.

It will, of course, be noted, that the arms 16 on one side of the base are connected to the supporting members 15 on the opposite side of the car, and that therefrom the arms cross each other. When either rock shaft is rotated to its full extent in one direction the links 15 and 16 will be in approximate alinement and the supporting member 14 will be raised to a vertical position, the roller 22 thereof bearing against the under face of the corresponding beam 8. When, however, the rock shaft is turned in a reverse direction, that is, in the position shown on the right hand side of Fig. 2, the arms 16 will be moved upward and outward and the links 15 connected thereto will be retracted.

The standards 14 on the opposite side of the car from the last named rock shaft will be turned to an inwardly inclined position, and there being no supporting end on that side of the body of the car the weight of the car body will cause it to tip, as shown in Fig. 2. After the load is dumped the car body may be again lifted to a horizontal position by rotating the rock shaft on the side of the car opposite the depressed portion of the car body, which will throw the arms 16 upward and inward, which will push outward on links 15, move the supporting members 14 outward and upwardly, and cause the anti-friction members 22 to contact with the beams 8 on the bottom of the car body, thus lifting the car to a horizontal position.

As a means for actuating the rock shaft 17 and for locking the shafts in such position that the supporting members 14 cannot be turned upon the pivots so as to permit the car to be dumped or laterally rocked, I provide each rock shaft at a point about the middle of the car with the outwardly projecting curved arm 28. In the normal position of the parts, that is, when the car body is in its horizontal position and the supporting members are vertical, the arm 28 on each rock shaft extends upward and slightly inward, as shown in Fig. 4. When, however, the rock shaft to which the arm 28 is attached is rocked to dump the car, the arm takes the position shown in full lines in Fig. 2.

Pivotally attached to the extremity of the curved arm 28 is the downwardly extending latching member 29 which is formed at its lower end with a tooth 30 adapted to engage with the angle extremities 31 of a plate 32 which is attached to the upper face of the adjacent sill 2.

It will be noted that the member 29 is sufficiently longer than the member 28 so as to hold this member 28 turned slightly inward from a vertical position, as shown in Fig. 4, when the member 29 is engaged with the latch plate 32.

It will be noted from Fig. 2 that when one of the standards 14 is in a vertical position the corresponding arm 28 and member 29 will be in the position shown in Fig. 4, and in dotted lines in Fig. 2, and further that in this position of the parts the corresponding link 16 on the opposite side of the car will lie flat down upon and bear on the beam 5 and that any inward thrust upon the corresponding link 15 will be exerted in a line which if extended will pass below the corresponding rock shaft 17, so that any inward movement of the standard 14 and the connecting link 15 will force the connected arm 16 down firmly upon the corresponding beam 5 and that, therefore, the parts, when in this position, will be locked from any inward movement until the proper rock shaft is actuated and the arm 16 is locked from any upward and outward movement which would actuate the rock shaft by the engagement of the member 29 with the rib 31 of the corresponding plate 32.

When it is desired to operate the tipping mechanism, the latch 29 is released from the tooth 31 and the member 29 is pulled which will act to rotate the rock shaft 17, thus withdrawing the connected supporting mem-

bers 14 from their supporting position turning them upon their pivots into the position shown in the left hand side of Fig. 2, and permitting the car to tip downward on that side.

By the use of my invention there is absolutely no danger of the car accidentally dumping or tipping, nor is there any danger of the car dumping or tipping toward the side where the operator is standing. The operator is obliged always to operate the dumping mechanism from the side opposite to that where the material is dumped, thus all chance of accidents is obviated.

While I have illustrated in Fig. 2 a construction and arrangement of devices for causing a raising and lowering of the movable side boards of the car, this is simply to complete the illustration of the car, and a description thereof is not necessary inasmuch as this is a common and well known construction thoroughly understood by those skilled in the art.

What I claim is:

1. In a dumping car, a base, a car body pivotally mounted on the base and capable of being tipped laterally in either direction, oppositely disposed supporting members pivoted to the base and normally extending vertically up therefrom and engaging with the car body to support the same in a horizontal position, oppositely disposed rock shafts, links connecting each rock shaft with the supporting members on the opposite side of the car, and latching devices connected to the corresponding rock shaft and when in normal position preventing the actuation thereof in a direction to turn the corresponding supporting members into a lowered position.

2. In a dumping car, a base, a car body pivotally mounted on the base and capable of being tipped laterally in either direction, oppositely disposed supporting members pivoted to the base and normally extending vertically up therefrom and engaging with the car body and supporting the same in a horizontal position, parallel actuating rock shafts disposed longitudinally of the car, connecting members between said rock shafts and the supporting members on the opposite side of the car, and latching devices connected to each corresponding rock shaft and normally preventing the actuation of the rock shaft.

3. In a dumping car, a base, a car body pivotally mounted on the base and capable of being tipped laterally, supporting members pivoted to the base and normally extending vertically up therefrom and engaging with the car body to support the same in a horizontal position, a rock shaft extending beneath the car body, an arm on the rock shaft operatively connected to the supporting members, an actuating arm attached to the rock shaft, and a latching device connected to said arm and normally preventing the actuation of the rock shaft.

4. In a dumping car, a base, a car body pivotally mounted on the base and capable of being tipped laterally in either direction, oppositely disposed sets of supporting members pivoted to the base and normally extending vertically up therefrom and engaging with the car body to support the same in a horizontal position, rock shafts disposed on either side of the car beneath the car body, arms extending from each rock shaft, connecting means connecting the arms of each rock shaft with the supporting members on the opposite side of the car, an operating arm attached to each rock shaft, and latching members pivoted one to each operating arm and adapted to engage the base to prevent the actuation of the rock shafts.

5. In a dumping car, a base, a car body pivotally mounted on the base for lateral tipping movement in either direction, oppositely disposed, longitudinally extending rock shafts, oppositely disposed supporting members pivoted to the base and normally extending vertically up therefrom and engaging with the car body to support the same in a horizontal position, arms projecting from each rock shaft, connections between the arms of each rock shaft and the supporting members on the opposite side of the car, arms, one on each rock shaft, latches pivoted one to the extremity of each of last mentioned arms and depending therefrom, and means engaging the latch when in one position to hold the arm elevated and the rock shaft to which it is attached from rotation in one direction to lower the supporting member.

6. In a dumping car, a base, a car body pivotally mounted on the base for lateral tipping movement in either direction, oppositely disposed parallel rock shafts mounted on the base, oppositely disposed supporting members pivotally mounted on the base and normally extending upward therefrom to engage the bottom of the car to support the car body in a horizontal position, arms on the rock shafts, links connecting said arms to the supporting members on the opposite side of the car whereby when the rock shafts are rotated the supporting members connected thereto will be turned upon their pivots, an upwardly and outwardly extending arm rigidly attached to each rock shaft and normally extending upward and outward when the car body is in horizontal position, latch members pivoted one to each of the upwardly and outwardly extending arms and depending therefrom when the arms are in normal position, and a locking plate mounted on the base beneath each of said latch members each having an upwardly turned detent with which the latch

engages, said latches affording means whereby the rock shafts may be rotated when the latches are released from the detent.

7. In a dumping car, a base, a car body pivotally mounted on the base for lateral tipping movement in either direction, oppositely disposed supporting members mounted on the base, and normally extending upward therefrom to engage with the bottom of the car bottom to support it in a horizontal position, rock shafts operatively connected to the supporting members to move the same into or out of a vertical position, arms projecting from the rock shafts whereby they may be actuated in one direction, and latching members pivoted to said arms and adapted to prevent the arms from being actuated to turn the rock shafts in one direction.

8. In a dumping car, the combination with a base, and a car body pivotally mounted on the base for a lateral tipping movement, of supporting members pivotally mounted on the base and adapted to be turned into a vertical position to support the car body or into an inclined position to permit the car body to tip, a rock shaft, means for operatively connecting the rock shaft with the supporting members to actuate the supporting members from the rock shaft, a handle on the rock shaft whereby it may be actuated, and means attached to the handle for preventing an actuation of the handle and rock shaft in one direction.

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

ERNEST H. SCHUR. [L. S.]

Witnesses:

A. PALMER,

JENNIE LEKVE.