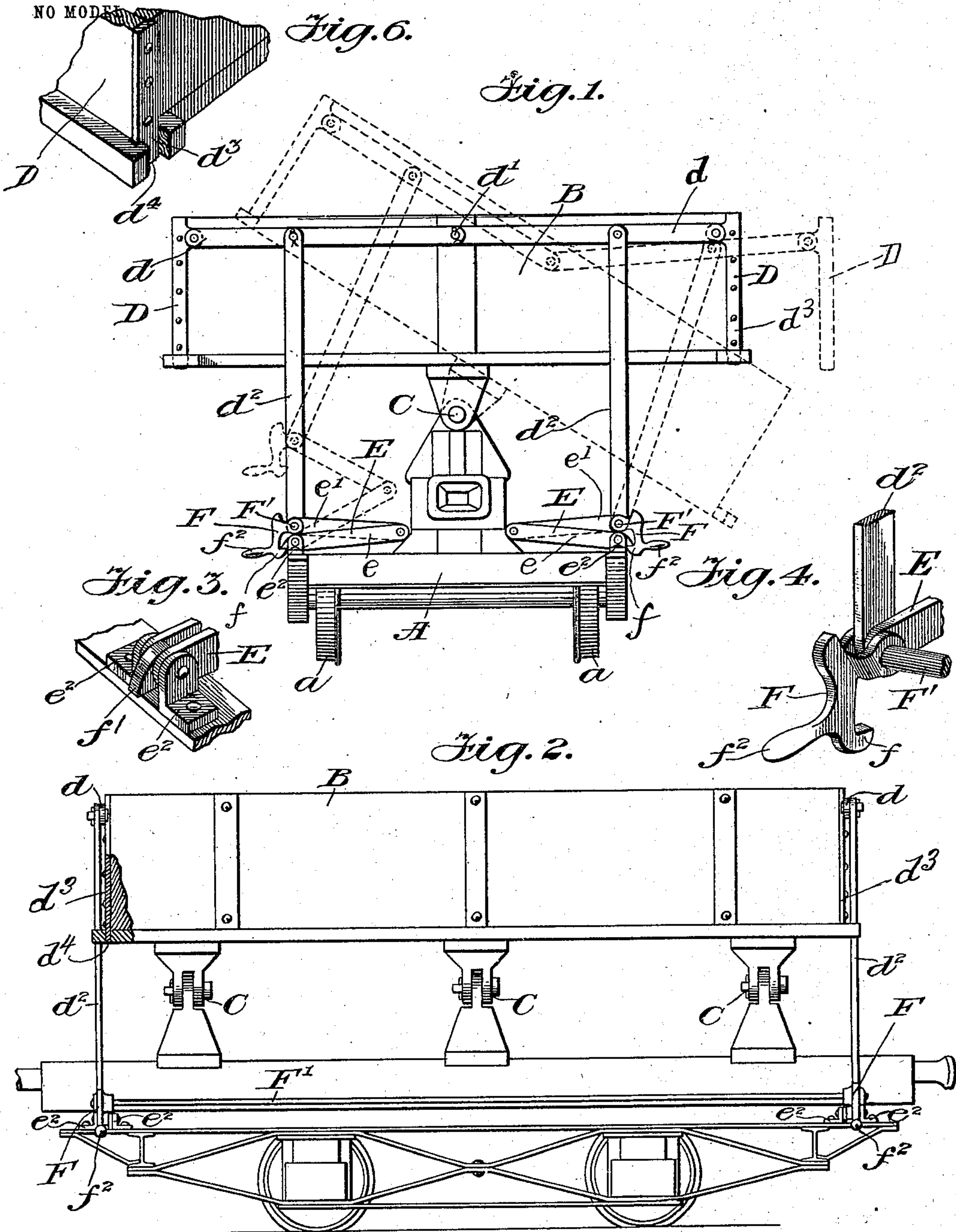


J. B. RHODES.
DUMPING CAR.

APPLICATION FILED APR. 21, 1902.

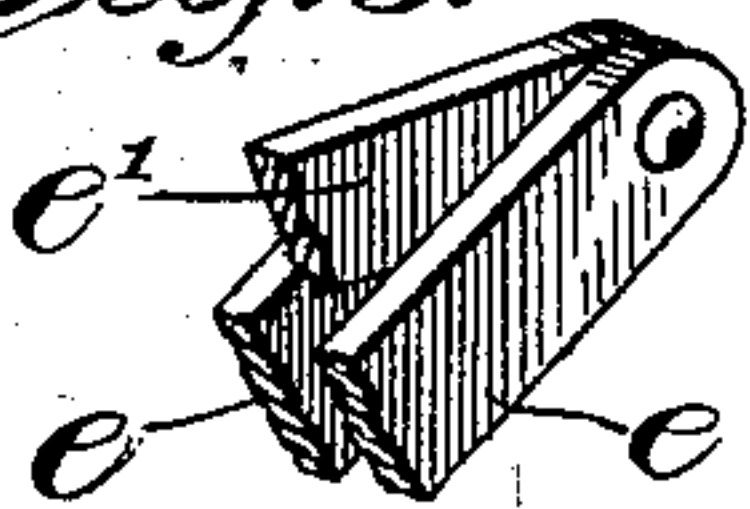
NO MODEL



Witnesses:

J. B. Weir
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Fig. 5.



Inventor:

Jay B. Rhodes
by Arthur F. Leland
Att'y.

UNITED STATES PATENT OFFICE.

JAY B. RHODES, OF HARVEY, ILLINOIS.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 723,920, dated March 31, 1903.

Application filed April 21, 1902. Serial No. 103,992. (No model.)

To all whom it may concern:

Be it known that I, JAY B. RHODES, a citizen of the United States, and a resident of Harvey, Cook county, Illinois, have invented
5 a certain new and useful Improvement in Dumping-Cars, of which the following is a specification.

My invention relates to dumping-cars of that type in which a tilting box or body is
10 provided at each side with an automatically-opening gate or side-board. The said body is usually mounted to tilt about a longitudinal axis, so as to allow either side to be tilted down for the purpose of discharging the load.
15 The said gates or side-boards are usually connected with the truck in such manner that they operate automatically. If the box or car-body tilts to the right, the gate or side-board at that side is automatically lifted, so
20 as to cause the load to be dumped at the right of the car, and, vice versa, if it is desired to dump the load at the left of the car then the body is tilted to the left and the gate or side-board at this side is automatically
25 opened, while the other gate or side-board remains closed.

Generally stated, it is the object of my invention to provide a simple and efficient construction of dumping-car of the foregoing
30 character.

A special object is to provide improved means for locking the box or body in a horizontal position.

Another object is to provide an improved
35 form of gate or side-board which will operate easily and without danger of breakage and which will release the load more quickly than heretofore and at the same time to so organize and combine the said locking means and
40 gates that the latter will be held positively and securely against any upward movement until it is desired to discharge the contents of the car-body.

A further object is to provide an improved
45 and more efficient connection between the gates or side-boards and the truck and to thereby secure greater certainty in the automatic opening and closing of the gates or side-boards.

50 It is also an object to provide certain details and features of improvement tending to increase the general efficiency and to render

a dumping-car of this type more serviceable and reliable in use.

To the foregoing and other useful ends my
55 invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is an end elevation of a dumping-car embodying the principles of my invention, the car
60 body or box being shown tilted to one side in dotted lines. Fig. 2 is a side elevation of the dumping-car shown in Fig. 1. Fig. 3 is a detail perspective illustrating one of the jointed connections between the truck and the gates
65 or side-boards. Fig. 4 is a similar detail perspective illustrating a portion of one of the connections between the gates and the truck and showing the hook which descends and automatically engages the projecting lug
70 shown in Fig. 3, so as to lock the body or box in a horizontal position. Fig. 5 is another detail perspective illustrating a portion of one of the articulated connections between the truck and the props for automatically
75 opening and supporting the gates or side-boards. Fig. 6 is a detail perspective of one corner of the car body or box, showing one of the lugs or projections of the lower edge of the side gates and also showing one of the
80 sockets or openings which are formed in the bottom of the car-body and which are adapted to receive the said lugs or projections.

As thus illustrated my invention comprises, preferably, a suitable car-truck A, constructed
85 with suitable wheels *a*. The receptacle, or, in other words, the car body or box B, is preferably mounted upon and supported by the said car-truck. In order that the said box or receptacle may tilt to either side, so as to
90 dump the load at either side of the truck, the connection between the box B and the truck A preferably consists of a number of hinge-like or pintle bearings C. These pivotal connections, it will be seen, permit the car body
95 or box to tilt about a horizontally and longitudinally extending axis. The said body or box is adapted to carry the load and is preferably provided with automatically-opening gates or side boards D. When the body is
100 in a horizontal position, as shown in Fig. 1, these gates or side boards retain their positions at each side of the car, so as to normally close the open sides of the box or receptacle.

Each gate or side board can be pivoted to the outer ends of the arms d , which latter have their inner ends pivoted to the end walls of the box at d' . In addition to this arrangement each swinging arm d can be connected with the truck through the medium of the props or supporting members d^2 and also through the medium of the jointed or articulated members E. Preferably each of said jointed or articulated members consists of a pair of parallel bars $e e$ and also of a third bar e' . Constructed in this manner each articulated or jointed member is adapted to open and close like a jackknife, so to speak, each bar e' being adapted to swing down between the two bars $e e$. Each pair of bars $e e$ is preferably pivoted to the truck at e^2 and pivotally connected at the other end with the bar e' . The outer end of each bar e' is, it will be seen, pivotally connected with the lower end of one of the pendent props or supporting members d^2 . With this arrangement each gate or side board is provided with a pair of props or supporting members adapted to support the gates or side boards when the body is tilted to one side. For example, should the body be tilted to the right, as shown in Fig. 1, the articulated or jointed members at the left permit the props at that side to rise freely with the upward movement of the left-hand side of the car-body, while the props at the right bear down upon the pivotal connections e , and consequently the right-hand side of the car-body moves down, while the gate at that side is supported or upheld. If it be desired, however, to dump the load to the left, then the left-hand gate would be held up or supported in a similar manner, while the right-hand gate will rise and remain in place to close the open side of the box or body.

In order to enable the gates or side-boards to properly hold the load against discharging while the body is in a horizontal position, each gate or board is preferably provided with lugs or projections d^3 , adapted to engage sockets or openings d^4 in the bottom of the car-body. With this provision the pressure of the load cannot crowd the gates or side-boards outward—that is to say, cannot force or swing the gates outward about their pivotal connections with the arms d . However, as soon as one side of the car-body moves slightly downward, so as to release the projections d^3 from their sockets, then the gate thus released is free to swing about its pivotal connections with its arms d , thereby allowing a partial discharge of the load upon the initial movement of the gate. This has the further advantage of allowing the gate to immediately upon starting open swing away from the load, thereby clearing itself from the load in a manner to make the remainder of its opening movement comparatively easy and less likely to cause breakage. In other words, should the car be loaded with sharp-edged rocks, the edges of which might impinge upon and tend to prevent the gate from

opening, the gate to be opened will in such case swing clear of the rock upon the initial opening movement, thereby clearing itself of anything which might tend to resist its opening movement relatively to the box or body.

The articulated or jointed members E cause the lower ends of the props d^2 to always descend and rest upon the joints or pivotal connections e^2 . In other words, the bars e serve as guides for the bars e' , causing the latter to always swing downwardly and rest in the same place. In this way loose joints in the articulated connections between the gates and the car-truck will not tend to produce any uncertainty in the automatic operation of the gates, it being observed that, as stated, the articulated members E will, even though the joints be somewhat loose, always bring the lower ends of the props into their proper resting-places, as illustrated.

As a simple and effective arrangement for locking the car-body in a horizontal position, as would be necessary in loading and carrying a load, the lower ends of the props or supporting members d^2 can be provided with pivotally-mounted hooks F. Each hook, it will be seen, is provided with a portion f , adapted to engage and hook under a projection f' , involved in the pivotal connection e^2 . Furthermore, each hook is preferably provided with a handle portion f^2 . Thus mounted and formed these hooks are adapted to automatically lock the body or box in a horizontal position, as shown in Fig. 1. If it is desired to tilt the box to the right, as shown in Fig. 1, then the handle portions f^2 on the hooks at the left can be grasped, and the upward pull on these handles will then not only release the hooks from the projections f' , but will also tilt the car over to the right, as shown. Thus these locking hook-like members F not only serve as locking devices, but also as handles by which to tilt the box or receptacle. In addition these locking devices are, it will be seen, applied to the articulated connections between the gates and truck. Hence the means for automatically opening and closing the gates are rendered capable also of automatically locking the car-body against tilting movement.

Thus it will be seen that by my invention I provide a dumping-car operating upon a different and more satisfactory principle than heretofore and involving a simplified and more efficient construction. The new mode of operation renders the automatic action of the gates more satisfactory in use, and the pivotal connections between the gates and their swinging arms not only, as stated, facilitate the discharge, but also enable the gates or side-boards to clear themselves from the load. In this way the bottom portion of each gate or side-board can first swing outward under the pressure of the load, and after swinging clear of the load can then rise freely and without danger of breakage. Furthermore, as explained, the car-body can be prac-

tically simultaneously unlocked and tilted—that is to say, the effort made by the operator in unlocking the body is also utilized for tilting the body over to one side. The hooks or locking devices F at each side of the car can be connected by rods F'. In this way both hooks at one side of the car can be operated by grasping the handle of either one. In returning to its horizontal position the hooks or locking devices automatically lock the car in such horizontal position. In this way the means for actuating the gates and the means for locking the car in its normal position are combined in a way to make it unnecessary to employ separate devices for the two purposes. In other words, the props serve not only as a means for tilting up the gates relatively to the body or box, but also as stays or tie-rods for holding the car-body in its normal position. In this way my improved arrangement obviates the necessity of employing independent or additional means, such as chains or other like devices, for holding the car in its normal position. Furthermore, it will be seen that with the construction and organization shown and described I provide a pair of gates or displaceable side-boards which when the gate is in its normal or horizontal position are locked positively and securely against any upward movement whatever. Thus the gates, although pivoted so as to instantly swing outward upon a slight tilting movement of the car-body, are at the same time so locked and held down in place by the locking devices applied to the foldable props that neither one is liable to release its lower edge from the floor of the car-body. Consequently, and as will now be apparent, I provide locking devices which perform a double function, so to speak—that is to say, they not only lock the car-body against a premature or undesirable tilting movement, but also tie the gates or displaceable side-boards down in place until the proper time for dumping. Practically, then, I provide locking devices which are preferably applied to the foldable props and which in preventing the latter from unfolding serve to normally tie the pivoted and displaceable side-boards to the truck. In this way the catch devices for locking the lower edges of the gates or side-boards to the car-body are locked against loosening by the locking devices applied to the articulations of the foldable props.

What I claim as my invention is—

1. In a dump-car, the combination of a suitable truck, a tilting receptacle carried by said truck, gates or side-boards normally closing the open sides of said receptacle, swinging arms connecting the said gates or side-boards with the said receptacle, props or supporting members having their upper ends pivotally connected with said arms, a single bar having one end pivotally connected with the lower end of each prop or supporting member, and a pair of bars connecting the other end of each single bar with the said truck.

2. In a dump-car, the combination of a suitable truck, a tilting receptacle carried by said truck, gates or side-boards normally closing the open sides of said receptacle, swinging arms connecting the said gates with the said receptacle, props or supporting members having their upper ends pivotally connected with said arms, a bar pivotally connected with the lower end of each prop or supporting member, a plurality of members pivotally connected at one end with the truck and pivotally connected at their other ends with the said bars, each member having a slot or recess adapted to receive one of said bars, and locking means carried by the said props and adapted to lock the receptacle in a horizontal position.

3. In a dump-car, the combination of a suitable truck, a tilting receptacle carried by the truck, side gates normally closing the open sides of the receptacle, articulated connections between said gates and said truck, said connections being adapted and operative to automatically open and close the gates, and locking devices carried by said articulated connections and adapted to lock the receptacle against movement relatively to the truck.

4. In a dump-car, the combination of a suitable truck, a tilting receptacle carried by the truck, gates or side-boards arranged to normally close the open sides of said receptacle, articulated connections between the said gates and the said truck, said connections being adapted and operative to automatically open and close the gates, and hooks carried by said connections and adapted to engage projections which are rigid with the truck, so as to lock the receptacle against movement relatively to the truck.

5. In a dump-car, the combination of a suitable truck, a tilting receptacle carried by the truck, gates or side-boards arranged to normally close the open sides of said receptacle, articulated connections between the said gates and truck, said connections being adapted and operative to automatically open and close the gates when the receptacle is tilted, and locking devices carried by said articulated connections and adapted to lock the receptacle in a horizontal position, said locking devices being provided with handles and thereby adapted to serve as a means for tilting the receptacle.

6. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, swinging arms having their inner ends pivotally connected with the said body, displaceable side-boards normally closing the sides of said body, the lower edges of said side-boards being adapted to engage the said body, pivotal connections between the said side-boards and the outer ends of said arms, said pivotal connections permitting the side-boards to hang pendent and to swing freely outward when released by the tilting action of the body, foldable props connecting said arms with the said truck, and locking devices ap-

plied to the said props and adapted to lock the latter in folded positions for the purpose of holding said body in its normal position.

7. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, oppositely-arranged displaceable side-boards for said body, swinging arms connecting said side-boards with said body, foldable props connecting said arms with said truck, and locking devices applied to said props and adapted to normally keep the latter folded for the purpose of maintaining the body in its normal position.

8. In a dump-car, the combination of a suitable truck, a tilting box or receptacle, swinging side gates for said box or receptacle, swinging props adapted to automatically open either gate when the box or receptacle is tilted to one side, locking devices secured to the lower ends of said props and adapted to engage the truck, so as to lock the box or receptacle in its normal or horizontal position, and a pair of rotary rods connecting the said locking devices.

9. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, displaceable side-boards normally closing the sides of said body, swinging arms connecting said side-boards with the said body, extensible props connecting the said arms with the said truck, and locking devices adapted and applied for normally holding the said side-boards against upward movement.

10. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, displaceable side-boards normally closing the sides of said body, swinging arms having their inner ends pivotally connected with said body and their outer ends pivotally connected with the upper portions of said side-boards, the said side-boards thereby being free to swing freely outward about their pivotal connections with said arms upon a slight tilting movement of said body, catch devices adapted and applied for holding the lower edges of said boards against outward movement, extensible props connecting the said arms with the said truck, and locking devices adapted and applied for normally locking and holding the said side-boards positively and securely against any upward movement, so as to normally prevent the said catch devices from releasing the lower edges of the said side-boards.

11. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, a side-board arranged to normally close the side of said body, supporting means to which

the upper portion of said board is pivoted, catch devices adapted and applied to normally hold the lower edge of said board against outward movement, and locking devices adapted and applied for normally keeping said catch devices from releasing the said board.

12. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, displaceable side-boards normally closing the sides of said body, and locking devices adapted and applied for normally and positively connecting the said side-boards with said truck, said locking devices thereby being operative to normally lock said boards against upward movement and thereby hold the said body against tilting movement.

13. A dumping-car comprising a suitable truck, a tilting body mounted on said truck, displaceable side-boards normally closing the sides of said body, and locking devices adapted and arranged to cooperate with said side-boards in normally holding said body against tilting movement.

14. A dump-car comprising a tilting body, a displaceable side-board for said body, swinging arms having their outer ends connected with the said side-board and their inner ends pivotally connected with the said body, props having their upper ends connected with the said arms, said props being adapted to support the said arms and said side-board against downward movement when the said body is tilted down, a suitable truck upon which said body is mounted, and locking devices for normally and positively connecting the lower ends of said props with said truck.

15. A dump-car comprising a suitable truck, a tilting body mounted thereon, a pair of displaceable side-boards, swinging arms having their outer ends connected with said side-boards and their inner ends pivotally connected with said body, props having their upper ends connected with said arms and their lower ends connected with the said truck, and locking devices for normally and positively connecting the lower ends of said props with said truck, said locking devices and props thereby being adapted to normally hold the tilting body against movement.

Signed by me at Chicago, Cook county, Illinois, this 15th day of April, 1902.

JAY B. RHODES.

Witnesses:

ARTHUR F. DURAND,
HARRY R. BAUMGARTNER.