(No Model.) 2 Sheets—Sheet 1.

M. G. BUNNELL.

DUMPING WAGON.

No. 549,954. Patented Nov. 19, 1895.

Fig. 1.

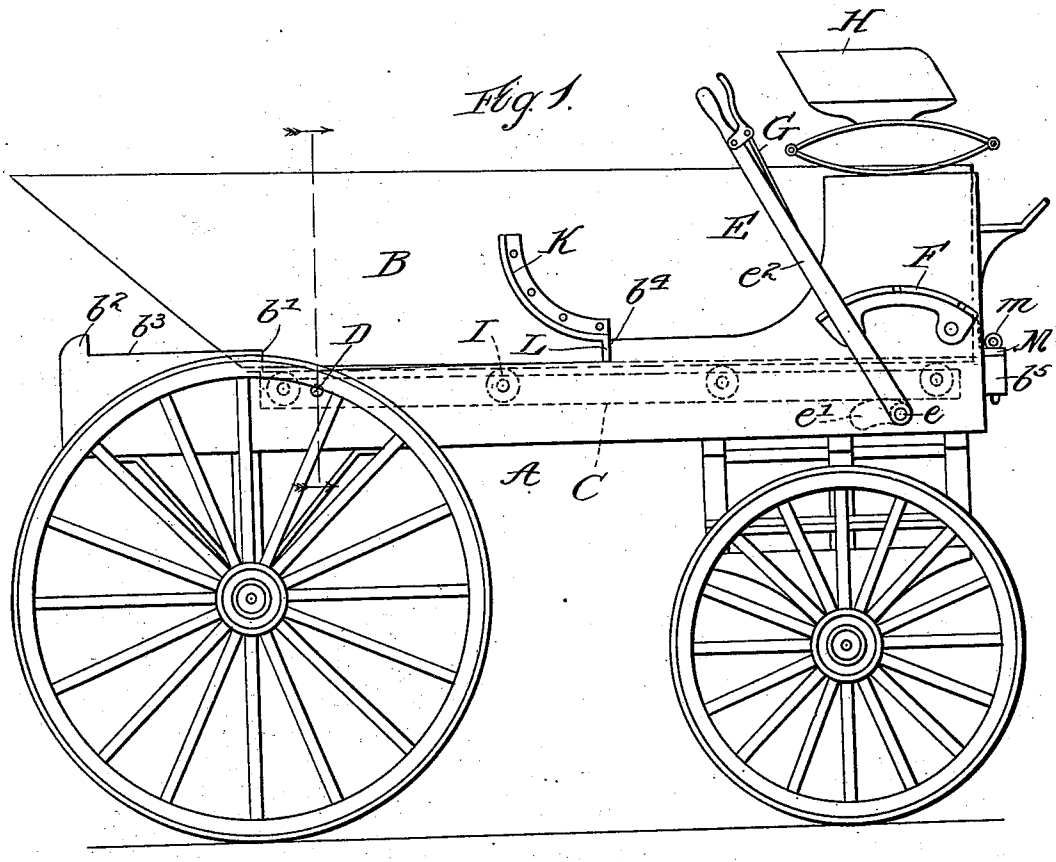
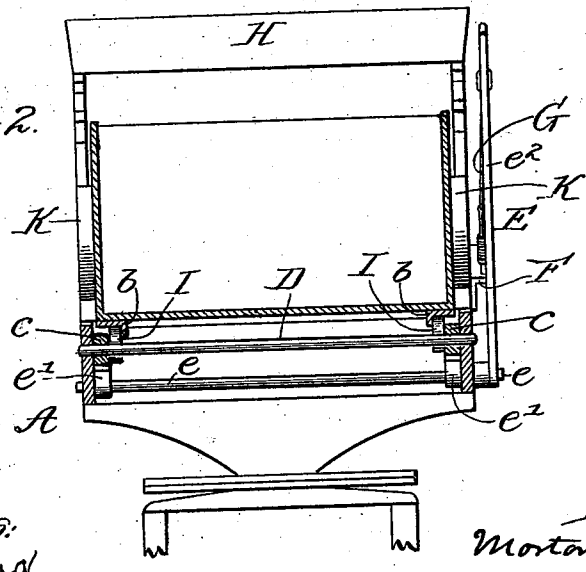


Fig. 2.



WITNESSES:
Wm. F. Fleming
Robt. Elliott

Inventor:
Morton G. Bunnell
by Chas. G. Page & Atty.

(No Model.) 2 Sheets—Sheet 2.

M. G. BUNNELL.

DUMPING WAGON.

No. 549,954. Patented Nov. 19, 1895.

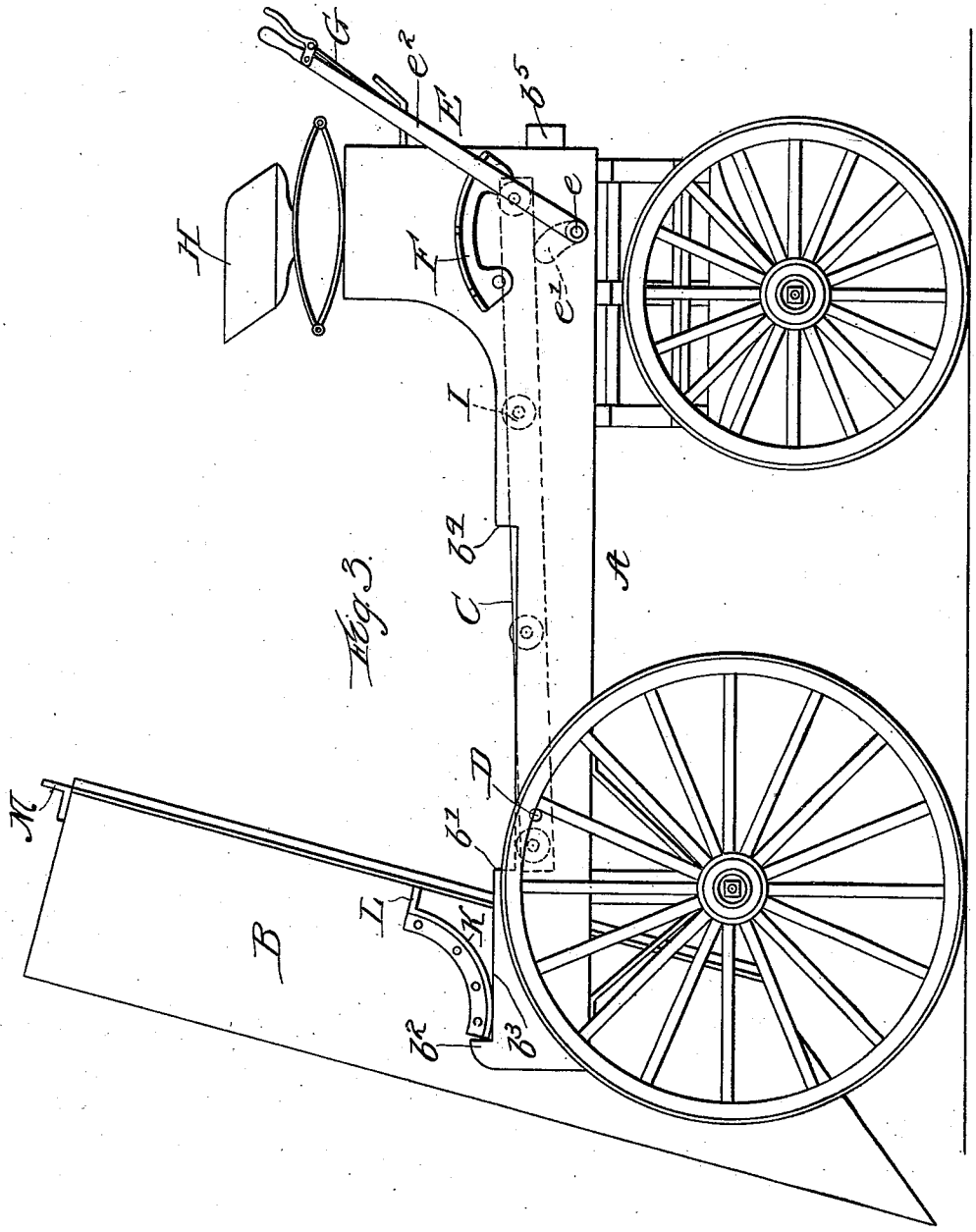


Fig 3.

Witnesses:
Wm. F. Fleming
Robt. Everett

Inventor:
Morton G. Bunnell
by Chas. G. Page Atty.

UNITED STATES PATENT OFFICE.

MORTON G. BUNNELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. AUSTIN, OF SAME PLACE.

DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 549,954, dated November 19, 1895.

Application filed August 2, 1894. Serial No. 519,229. (No model.)

To all whom it may concern:

Be it known that I, MORTON G. BUNNELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Dumping-Wagons, of which the following is a specification.

My invention relates to dumping-wagons of the kind in which the wagon-body can be shifted rearwardly to a predetermined extent and then tilted so as to discharge the load.

In a dumping-wagon characterized by my invention the longitudinally-movable body which receives the load is arranged to move rearwardly and forwardly upon a tilting support or track, which said support or track is in turn fulcrumed upon a truck-frame having front and rear wheels. By such arrangement the tilting track can be adjusted so as to provide an incline sloping downwardly toward the rear end of the wagon and thereby permit the body to gravitate rearwardly for the purpose of tilting and dumping at a point back of the rear axle. The tilting track can also be adjusted so as to slope downwardly toward the front of the wagon and thereby permit the body to gravitate forwardly after it has discharged its load. The tilting track can also be adjusted to a horizontal or proximately-horizontal position, and in such condition it desirably provides a normal support for the body—that is to say, a support or rest, which sustains the body in its normal carrying position.

For the broader purposes of my invention I may employ as a means for tilting the track in both directions from the horizontal any known or suitable tilting device—for example, such as have heretofore been employed for tilting the body on a dumping wagon-body—although as a matter of further improvement a special tilting device is herein provided. When the tilting track is positioned to cause or permit the body to move rearwardly, the said body will run back upon the track until it reaches the point of tilt, at which juncture it is caused to tilt by reason of stops on the body engaging stops on the truck-frame. The initial tilt on the part of the body serves to bring a pair of trunnions with which it is provided in bearing engagement with the truck-frame, and as a matter of further improvement the trunnions consist of rockers, whereby during the tilt of the body it will have a compound movement adapted to insure a clean dump and comprising a tilting action, a rearward bodily movement, and a certain extent of rise. The rockers also prevent abrupt arrestment and shock in dumping and vary the distribution of weight relatively to the points about which the body tilts, as hereinafter specified.

Various details constituting matters of further improvement are hereinafter set forth.

In the accompanying drawings, Figure 1 represents in side elevation a dumping-wagon embodying my invention, the wagon-body being in its normal position. Fig. 2 is a cross-section on line *x x* in Fig. 1, the wheels being omitted. Fig. 3 is a side elevation showing the body in the act of dumping.

The truck-frame A can be supported upon the axles of the front and rear wheels in any suitable way. The body B in its normal or carrying position rests upon a tilting support or track C, which in turn has its rear end fulcrumed at the rear portion of the truck-frame. The tilting support in its simplest form comprises a couple of side bars *c*, fulcrumed at their rear ends by a pivot D, which extends transversely across the truck-frame and has its end portions arranged to bear in the sides of the truck-frame. A separate pivot for each bar *c* could obviously be employed, but as a preferred arrangement a single rod is employed. The side bars *c* can be suitably connected to form an oblong frame, or they can be left independent of one another, as may be preferred, it being seen that where the tilting device E comprises a rock-shaft *e*, provided with a couple of cams *e'* and having at one end an operating-lever e^2, said cams can respectively support the free forward ends of bars *c*, and hence that in either case said bars can be synchronously tilted by operating the rock-shaft. Where the bars *c* are connected to form a rigid frame, a single operating-cam could be used; but in such case it would evidently be better to arrange the cam under the middle longitudinal line of the frame, to insure steadiness on the part of the latter. The arrangement herein shown is considered simple and reliable and a matter of special im-

provement. Broadly considered, however, I may employ other known forms of tilting devices—for example, such as have heretofore been employed in dumping-wagons for tilting up the forward end of the wagon-body. The tilting device is arranged so that it can be set to maintain the tilting body-support C in a horizontal or proximately horizontal position, as in Fig. 1, wherein the body is shown in position for receiving and carrying a load. As a simple arrangement, the truck-frame A is provided with a notched rack F, and the hand-lever e^2 of the tilting device is provided with a latch device G for engaging with said latch. When, therefore, the tilting support is in a horizontal position, as in Fig. 1, the lever E can be locked to the segment F, so as to hold the tilting support in said position. The lever E is within convenient reach of a driver occupying the seat H, and hence the driver can operate the tilting device without leaving his seat. Antifriction-rolls I, principally shown in dotted lines, are arranged between the body and its tilting support. These rolls could be attached to the body; but as a preferred arrangement the rolls are carried by the side bars of the tilting support C, and the body is provided with angle-irons b, arranged to traverse the rolls, as in Fig. 2.

When it is desired to dump the load, the driver will operate the tilting device, so as to raise or tilt upwardly the forward end of the tilting track or support C, and thereby cause such bed or support to form an incline which slopes downwardly toward the rear end of the wagon. When the tilting support is thus adjusted, the body B will be caused by gravity to move rearwardly. The dumping takes place automatically and without further work on the part of the driver. To such end the wagon-body has upon each side a trunnion preferably consisting of a curved or part circular rocker K.

The body is also provided upon each side with a stop L, and the truck-frame has at each of its sides a stop or abutment b'. When the body has moved back to a proper extent, the stops L on the body will engage the stops b' on the truck-frame, and at such juncture the greater or heavier portion of the loaded body will be in rear of the rear end of the tilting support C. Thereupon the body will tilt rearwardly so as to dump, and in so doing the rockers will engage and rock upon bearing portions b^3 of the truck-frame, as in Fig. 3, thereby not only supporting the body during the act of dumping, but also permitting it to dump well to the rear, so as to clear the rear axle and assume a nearly-vertical position. During such operation the stops L on the body leave the stops b' on the truck-frame and the bearing-point shifts rearwardly along each rocker, by which arrangement the body while tilting also moves bodily to the rear and rises to some extent, thereby involving a compound motion or movement.

The truck-frame is provided at each of its rear end corners with a stop b^2, so that the ends of the rockers will engage such stops when the body has tilted to a suitable extent. The body will also right itself or tilt back upon the tilting support C as soon as it has parted with its load, and to assist such action the forward portion of the body can be suitably weighted. It will be seen that when stop L is brought against stop b', during the longitudinal rear movement of the wagon-body, a larger portion of the latter will be not only in rear of stop b', but also in rear of the rear end of the track which terminates opposite or about opposite said stop. At such juncture therefore the body will tilt of its own accord, and in so doing the weight of the load will be transferred from the track directly to the truck-frame, and as the body continues to tilt the bearing-points will shift from the forward to the rear ends of the rockers. As these rockers curve upwardly from front to rear, the body will rise and will also move bodily to the rear simultaneous with its tilting action, and as said bearing-points shift toward the rear ends of the rockers the portion of the body forward of such points will become proportionally longer and heavier, whereby at the termination of the tilt there will be no abrupt stoppage and shock. This distribution of the weight also causes the body to right itself after parting with the load, it being seen in Fig. 3 that the longer heavier portion of the body is forward of the points of support. The forward end of the body can also be counterweighted to assist in the last-mentioned action. The rockers K and bearings b^3 should be toothed or roughened, so as to prevent slip in dumping. After the body has thus righted itself the driver can operate the tilting device so as to lower the forward end of tilting support C below the horizontal. In this way said support is caused to incline downwardly toward the forward end of the wagon, and hence the body will then move forwardly until it has attained its normal position, which latter can be determined by the engagement of stops L on the body with stops b^4 on the truck-frame, one of said stops b^4 being shown in both Figs. 1 and 3. After the body has thus regained its normal or carrying position the tilting device can be operated so as to place the tilting support C in a horizontal or proximately horizontal position. The wagon-body can be temporarily locked in its carrying position by any suitable locking device, and hence special illustration of the same need not be made, although I have shown a lug M on the forward end of the body, which said lug is understood to have a hole for a pin m, which can be inserted through such hole and extended down into a corresponding hole in a projection b^5 on the truck-frame.

What I claim as my invention is—

1. In a dumping wagon constructed with front and rear wheels, a longitudinally movable tilting body, and a tilting track along

which the body is arranged to move both rearwardly and forwardly and tilt independently of the track at the end of its rearward movement so as to dump the load, substantially as set forth.

2. In a dumping wagon constructed with front and rear wheels, a longitudinally movable tilting body, and an adjustable tilting support arranged to sustain the body in its normal carrying position and providing when tilted into position to slope downwardly from front to rear an inclined track along which the body can slide, substantially as set forth.

3. In a dumping wagon constructed with front and rear wheels, a longitudinally movable tilting body, and an adjustable tilting support arranged to sustain the body in its normal carrying position and adapted to tilt both ways from the horizontal so as to alternately provide an inclined track along which the body can gravitate rearwardly, and an inclined track along which the body can gravitate forwardly, according to the direction in which said support is tilted, substantially as set forth.

4. In a dumping wagon constructed with front and rear wheels, a longitudinally movable tilting body, a tilting support providing a track or bed along which the body can move both rearwardly and forwardly, and a tilting device under control of the driver and arranged for tilting the said support, substantially as described.

5. In a dumping wagon constructed with front and rear wheels, a longitudinally movable tilting body, a tilting supporting track and anti-friction rolls arranged between said track and body, which said body is arranged to move along the tilting track and to tilt independently of the track upon reaching the end of its rearward movement, substantially as set forth.

6. In a dumping wagon constructed with front and rear wheels, a longitudinally movable tilting body, and a tilting track fulcrumed at the rear portion of the wagon and extending forwardly therefrom, substantially as and for the purpose described.

7. In a dumping wagon constructed with front and rear wheels, a truck-frame supported upon the axles, a tilting track fulcrumed upon the truck-frame, and a longitudinally movable tilting body provided with trunnions and arranged to move along the track, the said trunnions being arranged to engage and bear upon the truck-frame when the body has moved rearwardly into position for tilting, substantially as set forth.

8. In a dumping wagon, the tilting track comprising bars provided with rolls, and the longitudinally movable tilting body provided with angle irons arranged to engage said rolls, said body being arranged to tilt independently of the tilting track upon reaching the end of its rearward longitudinal movement substantially as described.

9. In a dumping wagon, a tilting track, a longitudinally movable tilting body arranged for movement along the track, and a tilting device comprising a cam and lever for adjusting the angle of the tilting track, substantially as described.

10. In a dumping wagon, a tilting track, a longitudinally movable body arranged for movement along the track, a tilting device for adjusting the track, and a locking device for temporarily locking the tilting device in different positions, substantially as described.

11. In a dumping wagon, a tilting track, upon the truck-frame, the tilting body arranged for end movement along the track, and trunnions secured upon the body and arranged to engage and bear upon the truck frame when said body is tilted at the rear end of the wagon, substantially as described.

12. In a dumping wagon, the combination of the body provided with rockers K and stops L, and the truck-frame provided with stops b', b^2, and bearings b^3 for the rockers, substantially as described.

MORTON G. BUNNELL.

Witnesses:
R. M. ELLIOTT,
RETA M. WAGNER.