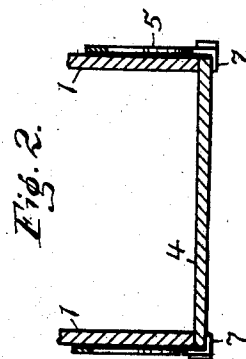
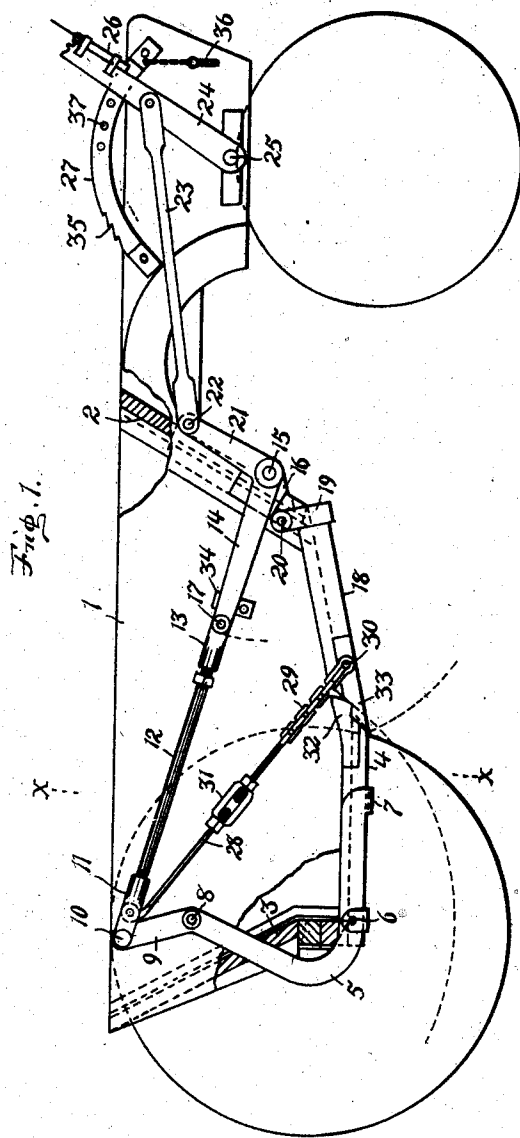


No. 878,687.

PATENTED FEB. 11, 1908.

E. B. SYMONS.
DUMPING WAGON.
APPLICATION FILED MAY 29, 1905.



WITNESSES:

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DUMPING-WAGON.

No. 878,687.

Specification of Letters Patent.

Patented Feb. 11, 1908.

Application filed May 29, 1905. Serial No. 262,759.

To all whom it may concern:

Be it known that I, EDGAR B. SYMONS, a citizen of the United States of America, and resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Dumping-Wagons, of which the following is a specification.

This invention relates to that class of dumping-wagons which have the bottoms of their wagon-boxes divided transversely into sections.

The objects of this invention are 1st. to afford for opening and closing the bottom of the wagon-box a quick acting and positive mechanism easily controlled by the operator; 2nd, to so arrange and mount the bottom sections of the wagon-box that when opened they will assume positions not interfering either with the load when dumped, or with the wagon-wheels; 3rd, to provide a flexible connection between the bottom sections which shall permit either of them, when the bottom is opened to swing rearwardly independently of the other upon striking any impediment as the wagon is drawn forward; and 4th, to afford throughout the several parts a simple and strong construction that may be easily assembled, and that shall embody other minor advantages hereinafter set forth.

My invention consists in the novel arrangement and construction of the supports for holding the bottom sections and relieving them, and in the connections by which said supports are operated as I shall hereinafter fully describe and specifically point out in the claims, reference being had to the accompanying drawings which form a part hereof and in which

Figure 1. is a side elevation of my wagon, certain well known parts common to other wagons being omitted; and Fig. 2. is a detail transverse section on the line $x-x$ of Fig. 1, showing the relation of the elbow irons and rear bottom section of the wagon.

Similar figures of reference indicate similar parts throughout the several views:

1—1 are the sides of the wagon-box. The front end 2, of the box and the rear end 3, are rigidly secured between the sides thereof. The rear bottom 4 is pivotally secured to elbow-irons 5, as shown at 6, and the forward

ends of said elbow-irons have inturned lugs 7 which support said bottom-section 4 when the latter is moved to its closed position. The elbows 5 are swung on pivotal supports 8 secured to and projecting from the wagon-box. The elbow-irons 5 have arms 9 which extend above the pivotal points 8 and said arms are pivotally connected at 10 with the forks 11, secured by threaded attachment to toggle bars 12. The forks 13, threaded on the respective forward ends of bars 12, are pivoted respectively to the adjacent ends of the crank arms 14, both of which are keyed to a crank-shaft 15 supported in the bearing afforded by the lugs 16, the latter being mounted on the wagon body. The screw connections of the forks 11, and those of 13, to bars 12, have spirally opposite threads, respectively, whereby a turn-buckle adjustment is provided for, in turning bars 12, allowing the distance between pivotal centers 10 and 17 to be varied to take up wear, and thus the bars 12 together with crank arms 14 constitute adjustable toggle connections.

To form the hinge support for the forward bottom section 18, an iron strap 19 with up-turned ends is secured to said section 18 and its upturned ends are pivoted to the adjacent sides of the wagon-box as indicated at 20.

One of the crank arms 14 has an arm 21 at an angle which is pivoted at 22 to the forked bar 23 which is connected at its forward end by pivotal attachment to the hand-lever 24 pivoted to the wagon-box at 25. The hand-lever 24 is provided with a spring pressed pawl or latch 26 adapted as commonly used, to be held in position by the hand of the operator to engage automatically in the notches on the rack 27 fastened rigidly to the box.

Bars 28 are secured within the forks 11 and have connection with the forward bottom section 18 by means of chains 29 at points indicated at 30. The bars 28 are provided with turn-buckles 31 by means of which adjustment of the bottom section 18 is affected so as to close properly in relation with the other bottom section.

The bottom section 4 has overhanging hooks 32 projecting forwardly from its front end, which are adapted to engage over cor-

responding oppositely disposed hooks 33 secured to the rear end of the bottom section 18, and thereby the forward end of the former section is supported by the latter section when said sections are in closed position.

It will be noted that when the bottoms are closed the centers of the pivots 17 are somewhat above lines connecting the centers of pivots 10 and that of the shaft 15, from which it is evident that when the wagon is loaded a small fractional part of the force in the weight of the load is exerted in pushing the crank arms 14 up against stop-lugs 34, thereby holding the controlling mechanism firmly in proper position.

When the wagon is loaded, the driver in order to dump the load, disengages the pawl on the hand-lever from the foremost notch of the rack 27 and draws said lever backward until the middle toggle joints 17 are brought below the toggle center lines, when the weight of the load forces the bottom sections and controlling mechanism into open position. In the described operation the direct pressure of the load upon bottom section 4, tends to swing it backward part way. Its further backward and upward swing indicated by dotted line is affected by the pull of chains 29 connected to section 18 which swings forward and downward under pressure of the falling load.

As the hand-lever swings backward the pawl 22 slips over the rearwardly slanted teeth 35, whereupon, the rear bottom section is held in its extreme open position until the driver again disengages the pawl and pushes the hand-lever forward to closed position. This forward movement of the hand-lever is rendered easy by the gravity swing of section 4 which also operates to raise section 18 through chains 29.

It is obvious that the flexible connections afforded by chains 29 allow sections 18, at any time when not in closed position, to swing rearwardly and upwardly in position to slide over any obstacle in the road as the wagon is drawn forward.

To convert my wagon into a spreading-wagon it is only necessary to insert a bolt 36 into one of the holes 37, in rack 27, said bolt serving as a stop-lug for hand-lever 24. This allows the bottom sections to swing apart a determinable distance only which distance may be varied as desired by changing the position of said bolt 36 relative to the rack.

When the bottom sections 4 and 18 are in closed position the hook 33 on the bottom section 18 engages in the corresponding hook 32 on the bottom section 4, and while the bottom section 18 is held in closed position by the chains 29 the connection between the sections formed by the hooks prevents the bottom section 4 from springing out of closed position. When the chains 29 are slackened, allowing the bottom section 18 to swing for-

wardly, the hook 33 will disengage from the hook 32 so as to release the forward end of the bottom section 4.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:

1. In a dumping wagon, the combination of a wagon box, with a bottom section supported by elbow-irons pivoted to the box at the rear end and adapted to swing rearwardly.

2. In a dumping wagon, the combination of a wagon box supported partly by a rear axle, with a bottom section secured to elbow-irons pivoted at the rear end of the box above the bottom of the box.

3. In a dumping wagon, the combination of a wagon box supported partly by a rear axle, with a bottom section secured to elbows swung on pivots supported in a position higher than the axle, and means for swinging said bottom section rearwardly and upwardly.

4. In a dumping wagon, the combination of a wagon box, with a bottom section secured to elbows provided with pivotal supports, said elbows adapted to swing in planes approximately parallel with the sides of the box and carrying the bottom section around the end of the box.

5. In a dumping wagon, the combination of a wagon box supported partly by a rear axle, with bottom sections dividing transversely relative to said box, rear one of said sections being swung on supports pivoted higher above the ground than the bottom of the box.

6. In a dumping wagon, the combination of a wagon box with a bottom comprising a front and a rear section, said front section being hinged to said box and adapted to swing forwardly, said rear section being secured to elbow-irons pivotally supported and adapted to swing rearwardly.

7. In a dumping wagon, the combination of a wagon box, with a bottom comprising a front section hinged to said box and a rear section secured to elbows pivotally supported, and flexible connections securing together said elbows and said front section.

8. In a dumping wagon, the combination of a wagon box with a bottom comprising a front section hinged to said box and a rear section secured to elbows pivotally supported, a shaft supported in bearings secured to said box, and toggles connecting said elbow with said shaft.

9. In a dumping wagon, the combination of a wagon box, with a bottom comprising a front section hinged to said box and a rear section secured to elbows pivotally supported, and means for simultaneously swinging said front section rearwardly and upwardly and said rear section forwardly and upwardly for the purpose of closing said bottom.

10. In a dumping wagon, the combination of a wagon box, with a bottom comprising a front section hinged to said box and a rear section secured to elbows pivotally supported, a crank supported in bearings secured to said box, toggle bar connections adjustable in length between said elbows and said crank, and means for turning said crank and for holding it in determinable positions.

11. In a dumping wagon, the combination of a wagon box, with a bottom comprising a front section hinged to said box and adapted to swing forwardly from the middle of the wagon, and a rear section secured to elbows pivotally supported and adapted to swing rearwardly from the middle of the wagon, means for opening said bottom by swinging said sections apart, and means for arresting the swing of said section and for holding them determinable distances apart, for the purpose of spreading the load.

12. In a dumping wagon, the combination of a body, with front and back bottom sections, the back section being pivoted to the body above the bottom thereof, means for causing one of the sections to be dumped, and connections from said section to the other section whereby the pressure of the load on the former is utilized in dumping the latter.

13. In a dumping wagon, the combination of a body, with front and back bottom sections, the back section being pivoted to the

body above the bottom thereof and the front section being self dumping when released, controlling means for said section, and connections from said section to the other section whereby the pressure of the load on the self dumping section is utilized in dumping the other section.

14. In a dumping wagon, the combination of front and back bottom sections pivotally mounted near the remote extremities, and controlling means comprising two flexible connections associated with the front section whereby said sections are simultaneously operated.

15. In a dumping wagon, the combination of front and back bottom sections pivotally mounted near their remote extremities, and controlling means comprising two flexible connections associated with one of said sections whereby said sections are simultaneously operated.

16. In a dumping wagon, the combination of a body, with front and back bottom sections dividing centrally, the back section being pivoted to the body so as to swing out from under the bottom thereof.

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

EDGAR B. SYMONS.

Witnesses:

W. J. BURNS,
H. J. LAMPKE.