V. D. JOHNSON.

MATERIAL CONTAINING AND DEPOSITING DEVICE.

APPLICATION FILED JULY 21, 1911.

1,039,540. **Patented Sept. 24, 1912.**

3 SHEETS—SHEET 1.

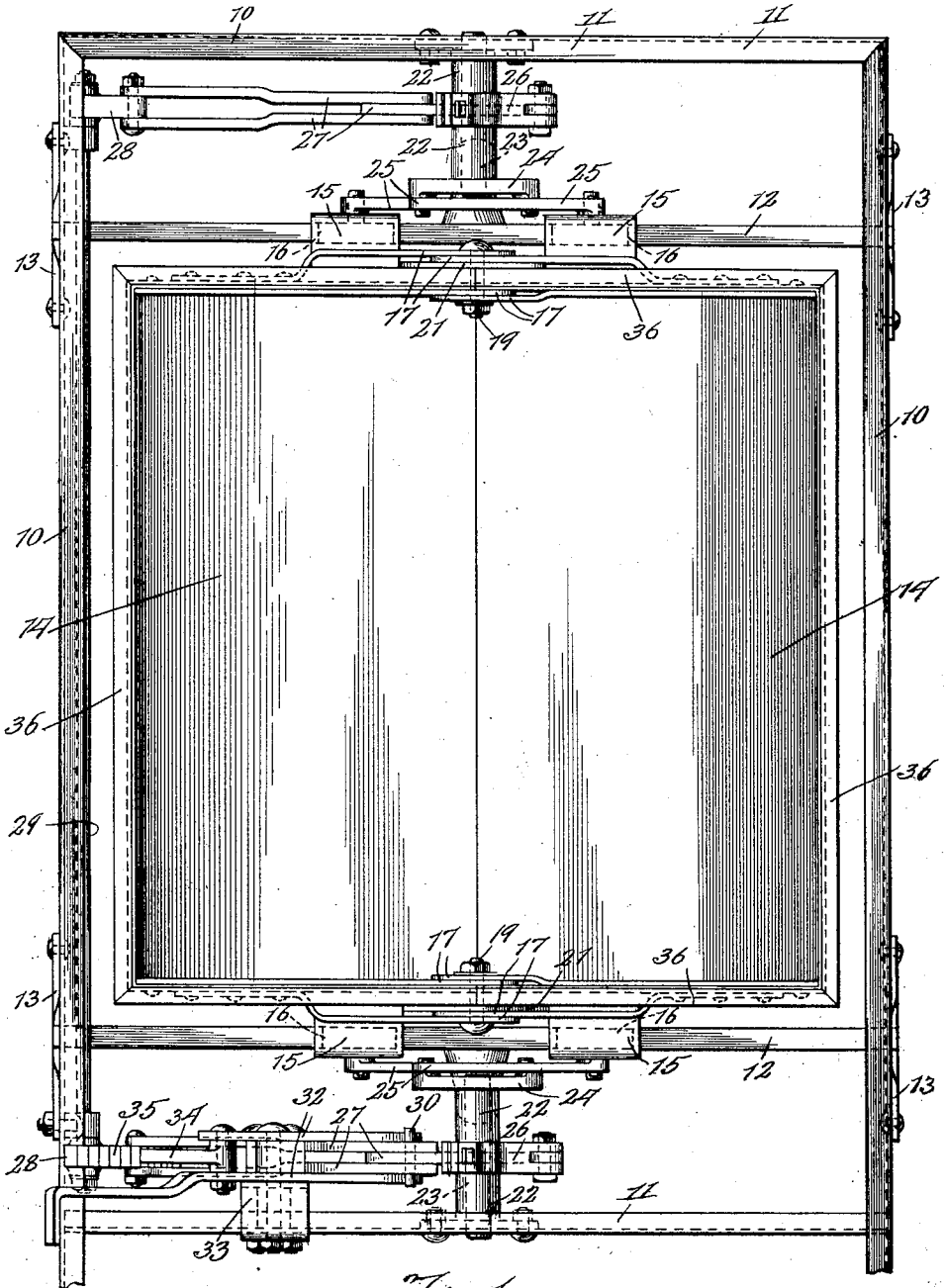

Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2.

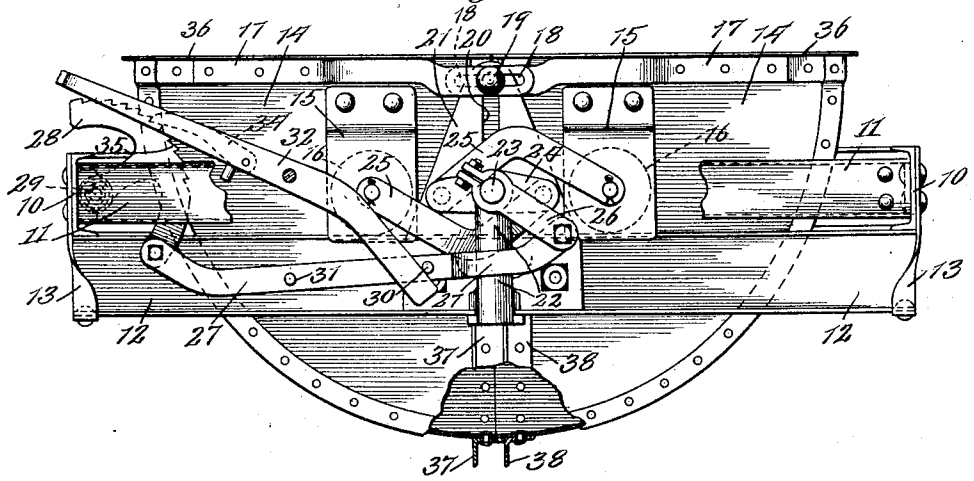
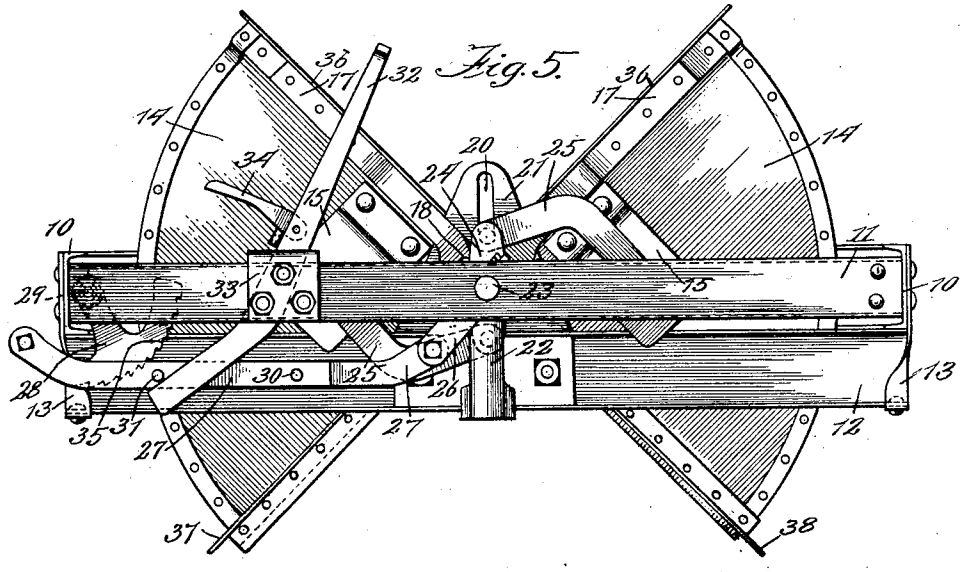


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 3.

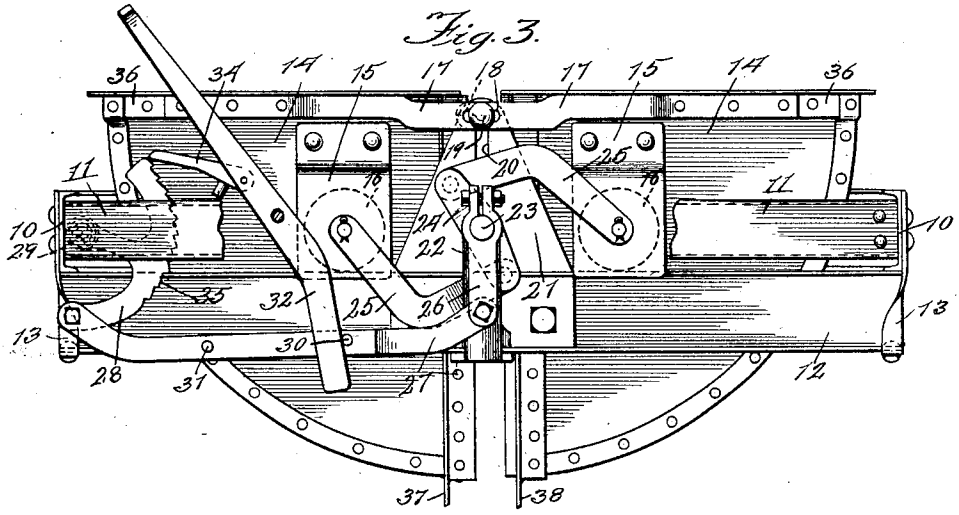
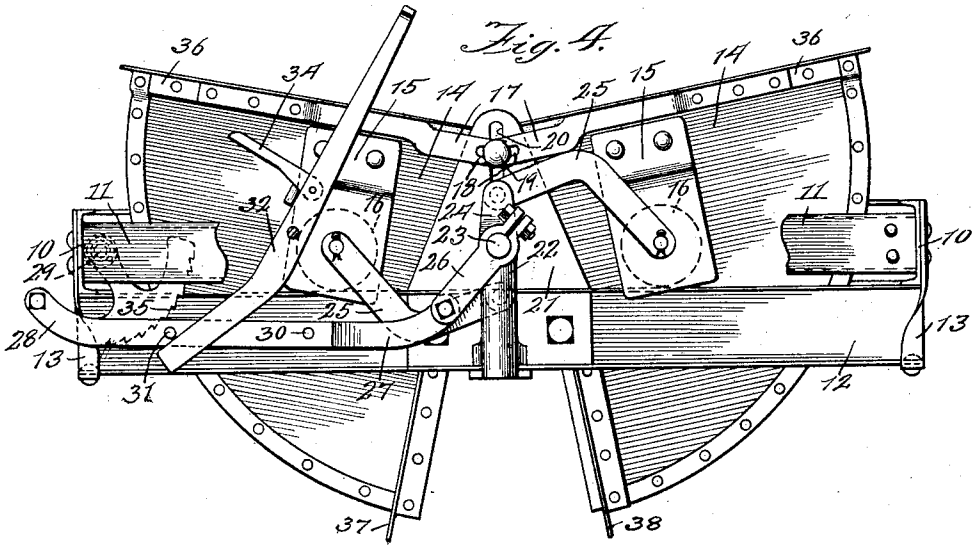


Fig. 4.



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UNITED STATES PATENT OFFICE.

VICTOR D. JOHNSON, OF AURORA, ILLINOIS.

MATERIAL CONTAINING AND DEPOSITING DEVICE.

1,039,540. Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed July 21, 1911. Serial No. 639,775.

To all whom it may concern:

Be it known that I, VICTOR D. JOHNSON, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented new and useful Improvements in Material Containing and Depositing Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention pertains to material containing and depositing devices, and relates particularly to dump wagons. Such devices, and especially dump wagons, are usually subject to the disadvantage that considerable space must be left between the bottom of the material container and the surface upon which the material is to be deposited; and it is one of the objects of my invention to produce a material containing and depositing device which will not have this disadvantage, *i. e.*, to produce a device in which the bottom of the container may be located near the surface upon which the material is to be deposited.

It is another object of my invention to produce a device which may be used without danger to the operator. And it is a further object of my invention generally to improve upon devices of the character set forth above.

A dump wagon constructed in accordance with my invention is shown in the accompanying drawings and described in the following specification.

I have shown and described this device in order that my invention may be clearly understood; but changes may be made in the device shown without exceeding the scope of the appended claims, and the invention may be embodied in other constructions within the scope of such claims.

In the drawings:—Figure 1 is a plan of the wagon frame and body; Fig. 2 is an end view of the same, showing the portions of the body together, a part of the frame being broken away to show the dumping mechanism; Fig. 3 is a view similar to Fig. 2, but showing the portions of the body in the position they assume after the dumping mechanism has been partly actuated; Fig. 4 is a view similar to Fig. 3, but showing the portions of the body in the position which they assume after the actuating of the dumping mechanism has been completed; and Fig. 5 is an end view showing the portions of the body in the widely separated position to which they may be moved by the load itself in escaping from the body.

In the particular embodiment of my invention which is shown in the drawings, the wagon frame is rectangular and consists of two side bars 10 and two end bars 11, these bars being formed of channel iron and being secured at their ends by means of rivets or the like. Connected between the side bars 10, but below the level of the same, are two transverse track bars 12, also formed of channel iron, which are secured in place by hangers 13 riveted to them and to the side bars 10.

The track bars serve to support the body 14 of the wagon, which body is of semi-cylindrical shape and divided centrally into two portions which are adapted to be separated when the contents of the body are to be dumped. In being separated from each other, the portions of the body first move transversely away from each other, thereby loosening the load, and then tilt in opposite directions, whereby the load is dumped. To this end, the body 14 is provided with four brackets 15, one at each end of each portion of the body; and in these brackets are journaled rollers 16, which engage the top surfaces of the track bars 12 and are adapted to roll thereon. The portions of the body 14 are provided, at the meeting edges of their ends, with overlapping horizontal arms 17 having in their ends short slots 18. Through these slots 18 pass bolts 19 which are vertically guided in vertical slots 20 formed in standards 21 which extend upward from the track bars 12. These parts constitute a lost motion connection between the two body portions and the vertical guideway. Considering the portions of the body as being in the positions shown in Fig. 2, it will be seen that, if a force tending to separate these portions be exerted upon them at the brackets 15, the body portions will move transversely away from each other on the rollers 16. When, however, they have separated to such an extent that the ends of the slots 18 in the arms 17 engage the bolts 19 (Fig. 3), the portions of the body can only move farther by tilting about the bolts 19, which bolts descend in the slots 20. It will be seen, therefore, that the portions of the body first separate transversely, and then tilt about the rollers 16 as pivots, these rollers continu-

ing their transverse separating movement. Thus, during the latter portion of the movement of the portions of the body, the portions simultaneously tilt about the rollers 16 and slide upon these rollers. This combined movement is very advantageous, in that the portions of the body have not, in separating, any tendency to compress the load and thus be hindered in their operation. In fact even if the device were not constructed so that the body portions had the preliminary transverse movement described above, these portions would still move laterally away from the load while opening beneath it,—thus facilitating the dumping operation.

The mechanism for effecting the tilting operation is substantially the same at each end of the wagon, and a description of that at one end, therefore, will suffice. Mounted in bearings 22 carried by the track bar 12 and the end bar 11 of the frame, is a spindle 23 which carries at the end thereof, adjacent the body 14, a cross head 24, which is normally disposed in a horizontal plane, as shown in Fig. 2. Arms 25 are pivotally connected between the ends of the cross head 24 and the brackets 15 carried by the separable portions of the body 14, each arm 25 being connected to that end of the cross head 24 which extends away from the bracket 15 to which such arm is connected. The points of connection of the arms 25 with the brackets 15 are substantially in the same plane as the points of connection of these arms with the cross head 24; so that the arms 25 are in a dead center position when the parts are in the condition shown in Fig. 2. It will be seen that, if the spindle 23 be rocked in a clockwise direction, the arms 24 will exert a force upon the brackets 15 tending to separate the portions of the body 14, and will therefore first move them apart and then tilt them. It is to be noted, however, that this movement of the portions of the body can only be effected by rocking the spindle 23; since, unless the spindle is rocked, the body portions are securely locked against movement, owing to the fact that the arms 25 are in a dead center position when the body is closed.

The spindle 23 carries, between the bearings 22, a lever 26, to the outer end of which is connected one end of a link 27. The other end of the link 27 is connected to a curved lever 28 carried by a rockable shaft 29, the latter being mounted in suitable bearings so as to extend longitudinally along one side of the wagon frame. The link 27 is provided with spaced stops 30 and 31, adapted to be engaged by the forked end of an operating lever 32 which is rockably mounted in a bearing 33 carried by the end bar 11 of the frame. If the operating lever 32 is rocked in a clockwise direction about its pivot, it will engage the stop 31 of the link 27; and, if its movement is continued, the operating lever will carry with it the link 27, thereby rocking the spindle 23 in a clockwise direction and separating the portions of the body 14. When the dumping operation has been completed and it is required to bring the portions of the body together again, the operating lever 32 is swung about its pivot in a contra-clockwise direction until it strikes the stop 30 of the link 27. The swinging of the operating lever being continued results in the link 27 being moved toward the right and the body portions being reunited.

After the rocking of the spindle 23 to an extent sufficient to move the arms 24 out of their dead center position, the weight of the load might cause the portions of the body 14 to suddenly open and, if the operating lever 32 were definitely connected with the link 31, cause the operating lever to swing suddenly over. The same thing might occur, owing to the weight of the body portions, during the closing operation. By the construction described above, however, I allow a lost motion between the operating lever and the link 27; so that, even if the portions of the body 14 should separate, or come together, suddenly, the operating lever 32 would not follow that movement, and there would consequently be no danger of injury to the operator. The operating lever 32 has pivoted thereto a pawl 34, the end of which engages a series of ratchet teeth 35 formed upon the curved surface of the lever 28. By this means, the spindle 23 is definitely locked in the position in which the body is closed and can only be released by the movement of the operating lever itself. The mechanism for operating the portions of the body, and guiding them in their movement, is the same at each end of the device, except that the actuating lever and locking pawl are omitted at the opposite end to that at which these parts are provided; at that end, the mechanism is actuated by the arm 28 connected to the shaft 29.

The body 14 is formed of sheet metal, strengthened at its edge by angle irons 36. In order to provide for a closed joint between the meeting edges of the portions of the body, I provide angle irons 37 and 38, of which the iron 37 is set somewhat beyond the edge of the body portion to which it is attached, and the iron 38 is set somewhat within the edge of the body portion to which it is attached, so that the edge of the angle iron 37 overlaps the edge of the opposed body portion and abuts against the angle iron 38 (see Figs. 2 and 3).

When the contents of the wagon are to be dumped, the lever 32 is swung over to the right (Fig. 2), during which movement it first strikes the stop 31 and then moves the stop and the link 27 to the left, thereby

rocking the spindle 23. The effect of rocking the spindle 23 is that the portions of the body 14 are first separated transversely (see Fig. 3), whereby the load is loosened, and then tilted into the position shown in Fig. 4, the load being thereby dumped. The load, in falling through the space between the portions of the body can, by its weight, tilt the body portions to a greater extent (Fig. 5), thereby accelerating the dumping operation. When the material has been dumped, the portions of the body can be brought together again by swinging the lever 27 in the opposite direction, which reverses the above described operations.

It will be seen that, by the construction described above, much space beneath the body is saved; in fact the body may be operated quite close to the ground. The compound transverse and tilting movement of the body portions causes loosening of the load from the body and facilitates the dumping. There is no danger to the person operating the dumping mechanism, and no chance of the body opening and dumping its contents accidentally.

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

1. In a dump wagon, a body formed of two separable members constituting when together a material container, a lost motion connection between the upper adjacent corners of said members, said connection permitting a bodily transverse separation and a tilting of said members for dumping the load.

2. A dump wagon, comprising a body formed of two separable members constituting when together a material container, means connecting said two body members together at their upper adjacent corners, said means permitting an initial transverse separation and a tilting of said body members to dump the load of material, and manually operable means for actuating said body members.

3. A dump wagon, the body of which comprises two separable members adapted to form a material container when together, a lost motion connection between said members permitting a bodily transverse separation and a tilting of said members, and manually operable mechanism for bodily separating and tilting said members to deposite the material, said mechanism being arranged to releasably lock said members together.

4. A dump wagon, the body of which comprises two separable members adapted to form a material container when together, a lost motion connection between said members permitting a bodily transverse separation and a tilting movement of said members, mechanism for separating said members to deposit the material, and manually operated means for actuating said mechanism, said actuating means having also a lost motion connection with said mechanism.

5. A dump wagon, the body of which comprises two separable members adapted to form a material container when together, a lost motion connection between the upper adjacent corners of said members, said connection permitting a bodily transverse separation and a tilting of said members, mechanism for separating said members to deposit the material, and actuating means for said mechanism having a lost motion connection therewith, said mechanism being arranged to releasably lock said members together.

6. A dump wagon, comprising a container formed in two corresponding portions, said portions being connected to each other by a lost motion connection so as to be capable of a transverse separating movement to a limited extent, means for supporting said portions, said supporting means being located above the plane of the bottom of said portions, and means for bodily moving said portions transversely upon said supporting means to withdraw said portions from each other and for subsequently tilting said portions to complete the depositing of the material.

7. A dump wagon, comprising a frame having transverse tracks, a container formed in two corresponding portions, said portions being connected to each other by a lost motion connection so as to be capable of a transverse separating movement to a limited extent, each portion being slidably supported on said tracks in such manner that a part of each portion hangs below said tracks, and mechanism for bodily moving said portions on said tracks away from each other and for subsequently tilting said portions to complete the depositing of the material.

8. In a dump wagon, a body formed of two separable corresponding members constituting when together a material container, said members being connected together at their upper adjacent corners by a lost motion connection permitting both a transverse separation of said members and a vertical movement of said corners, pivotal supports for said members at approximately the gravitational centers of the ends of said members, said supports being capable of a transverse movement, and an operating means for said members arranged when operated to separate the said supports at each end of the body to thereby cause the said members to separate transversely and to tilt on said supports to dump the load, and when operated reversely to draw said supports together to thereby return said body members to their closed or normal position.

9. In a dump wagon, the combination

with a body formed of two corresponding portions, said portions being connected together by a lost motion connection to permit of both a bodily transverse movement toward and from each other and a tilting of said portions for dumping purposes, of supporting means for each of said body portions to permit the same while being supported to be moved transversely and tilted as set forth.

10. In a dump wagon, a rectangular frame comprising longitudinal and transverse members, a semi-cylindrical body interposed and suspended between said members, said body being divided longitudinally and centrally into two portions, each of said body portions being pivotally supported on said transverse members, the said pivotal supports being approximately at the center of the ends of each said portions, and guiding means on the frame located adjacent the dividing line of each end of the said body, connections between the upper adjacent corners of said body portions and said guiding means, said connections permitting a limited transverse separation of said body portions when said body portions are rocked or tilted on their pivots for dumping the load, and manually operated means for rocking or tilting said body portions.

11. In a dump wagon, a body divided longitudinally and centrally into two portions, supporting rollers for said body portions, one at each end of each said portion and located approximately at the center thereof, a horizontal track bar extending transversely adjacent each end of said body and affording a support and track for said rollers, and a lost motion connection between the upper adjacent corners of said body portion to permit the transverse separation of said two portions as well as the tilting or rocking of the same for dumping the load.

12. In a dump wagon, a frame comprising longitudinal and transverse members, a body interposed and suspended between said longitudinal and two of said transverse members, said body being divided longitudinally and centrally into two portions, a roller secured approximately centrally of each end of each side body portion and bearing on the adjacent transverse member of the frame, said rollers and transverse members serving to support the weight of the body and permitting the two body portions to be transversely separated to a limited extent and tilted or revolved for dumping purposes, and guiding connections between the upper adjacent corners of said body portions, said connections permitting said limited transverse separation of said body portions as well as the tilting of the same.

13. In a dump wagon, a body divided longitudinally and centrally into two portions, supporting rollers for said body portions, one at each end of each said body portion and located approximately at the center thereof, a horizontal track bar extending transversely adjacent each end of said body and affording a supporting track for said rollers, vertical guiding means on the frame located near the dividing line of each end of said body, and connections between said guiding means and the upper adjacent corners of said body portions to permit the bodily transverse separation of said two portions when it is sought to tilt or revolve the same for dumping the load.

14. A material depositing device comprising a container made in two portions adapted to be separated from each other; means for guiding said portions in a transverse direction; means for guiding the parts of said portions adjacent the meeting edges of the same and above the plane of said transverse guiding means, in a vertical direction after said portions have been moved transversely so as to become separated from each other; mechanism for imparting movement to said portions; and actuating means for said mechanism having a lost motion connection therewith.

15. A material depositing device comprising a container made in two portions adapted to be separated from each other; means for guiding said portions in a transverse direction; means for guiding the parts of said portions adjacent the meeting edges of the same and above the plane of said transverse guiding means, in a vertical direction after said portions have been moved transversely so as to become separated from each other; mechanism for imparting movement to said portions; and actuating means for said mechanism having a lost motion connection therewith; said mechanism being arranged so as to releasably lock said portions together.

16. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other, means for guiding said portions transversely, a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent said container, and a pair of arms, one of said arms being connected between each portion of said container and the end of said cross head extending away from such portion.

17. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other, means for guiding said portions transversely, a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent said container, and a pair of arms, one of said arms being connected between each portion of said container and the end

of said cross head extending away from such portion, the points of connection between said portions and said cross head being substantially in the same plane, whereby said portions are releasably locked together.

18. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other, means for guiding said portions transversely, a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent said container, a pair of arms, one of said arms being connected between each portion of said container and the end of said cross head extending away from such portion, the points of connection between said portions and said cross head being substantially in the same plane, whereby said members are locked together except when said spindle is operated, and means for rocking said spindle, said means having a lost motion connection with said spindle.

19. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other; means for guiding said portions transversely; means for guiding the parts of said portions adjacent the meeting edges thereof and located above said transverse guiding means, in a vertical direction after said portions have been moved transversely so as to become separated; a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent to said container; and a pair of arms, one of said arms being connected between each of said portions and the end of said cross head extending away from such portion, whereby the portions of said container will be first separated and then tilted when said spindle is rocked.

20. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other; means for guiding said portions transversely; means for guiding the parts of said portions adjacent the meeting edges thereof and located above said transverse guiding means, in a vertical direction after said portions have been moved transversely so as to become separated; a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent to said container, and a pair of arms, one of said arms being connected between each of said portions and the end of said cross head extending away from such portion, the points of connection of said arms with said portions and cross head being substantially in the same plane, whereby said portions are locked together except when said spindle is rocked, and whereby the portions of said container are first moved transversely and then tilted when said spindle is rocked.

21. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other; means for guiding said portions transversely; means for guiding the parts of said portions adjacent the meeting edges thereof and located above said transverse guiding means in a vertical direction after said portions have been moved transversely so as to become separated; a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent to said container; a pair of arms, one of said arms being connected between each of said portions and the end of said cross head extending away from such portion, the points of connection of said arms with said portions and cross head being substantially in the same plane, whereby said portions are releasably locked together, and whereby, when said spindle is rocked, the portions of said container are first moved transversely and then tilted, means for rocking said spindle, and means for locking said spindle against movement except when said rocking means is operated.

22. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other; means for guiding said portions transversely; means for guiding the parts of said portions adjacent the meeting edges thereof and located above said transverse guiding means, in a vertical direction after said portions have been moved transversely; a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent to said container; a pair of arms, one of said arms being connected between each of said portions and the end of said cross head extending away from such portion, the points of connection of said arms with said portions and cross head being substantially in the same plane, whereby said portions are releasably locked together, and whereby, when said spindle is rocked, the portions of said container are first moved transversely and then tilted; and means for rocking said spindle, said rocking means having a lost motion connection with said spindle.

23. A material containing and depositing device comprising a container formed in two portions, one of which is adapted to be moved away from the other; means for guiding said movable portion transversely; means for guiding the part of said movable portion which is adjacent the other portion and located above said transverse guiding means, in a vertical direction after said movable portion has been moved transversely; a rockable spindle disposed longitudinally with respect to said container and

having a cross arm at the end thereof adjacent said container, said cross arm extending away from said movable portion; an arm connected between said movable portion and the end of said cross arm, whereby when said spindle is rocked said movable portion is first moved transversely and then tilted.

24. A material containing and depositing device comprising a container formed in two portions adapted to be separated from each other; means for guiding said portions transversely; means for guiding the parts of said portions adjacent the meeting edges thereof and located above said transverse guiding means, in a vertical direction after said portions have been moved transversely; a rockable spindle disposed longitudinally with respect to said container and having a cross head at the end thereof adjacent to said container; a pair of arms, one of said arms being connected between each of said portions and the end of said cross head extending away from such portion, and the points of connection of said arms with said portions and cross head being substantially in the same plane, whereby said portions are locked together except when said spindle is rocked, and whereby, when said spindle is rocked, the portions of said container are first moved transversely and then tilted; means for rocking said spindle, said rocking means having a lost motion connection with said spindle; and means for locking said spindle against movement except when said rocking means is operated.

25. In a dump wagon, a material container consisting of two portions having an initial transverse separating movement, means to limit the said separation of said two portions to that just sufficient to slightly separate their meeting edges and loosen the load, said two portions having also a rocking movement while separated to dump the load, and operating means for effecting said separating and rocking movements, whereby the initial separating movement prevents compression of the load during the subsequent rocking and dumping movements.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

VICTOR D. JOHNSON.

Witnesses:
P. A. JOHNSON,
THADDEUS J. MERRILL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."