Jan. 25, 1927. 1,615,267

J. C. GAY ET AL

DUMP BODY

Filed Jan. 16, 1924 4 Sheets-Sheet 1

FIG. 1

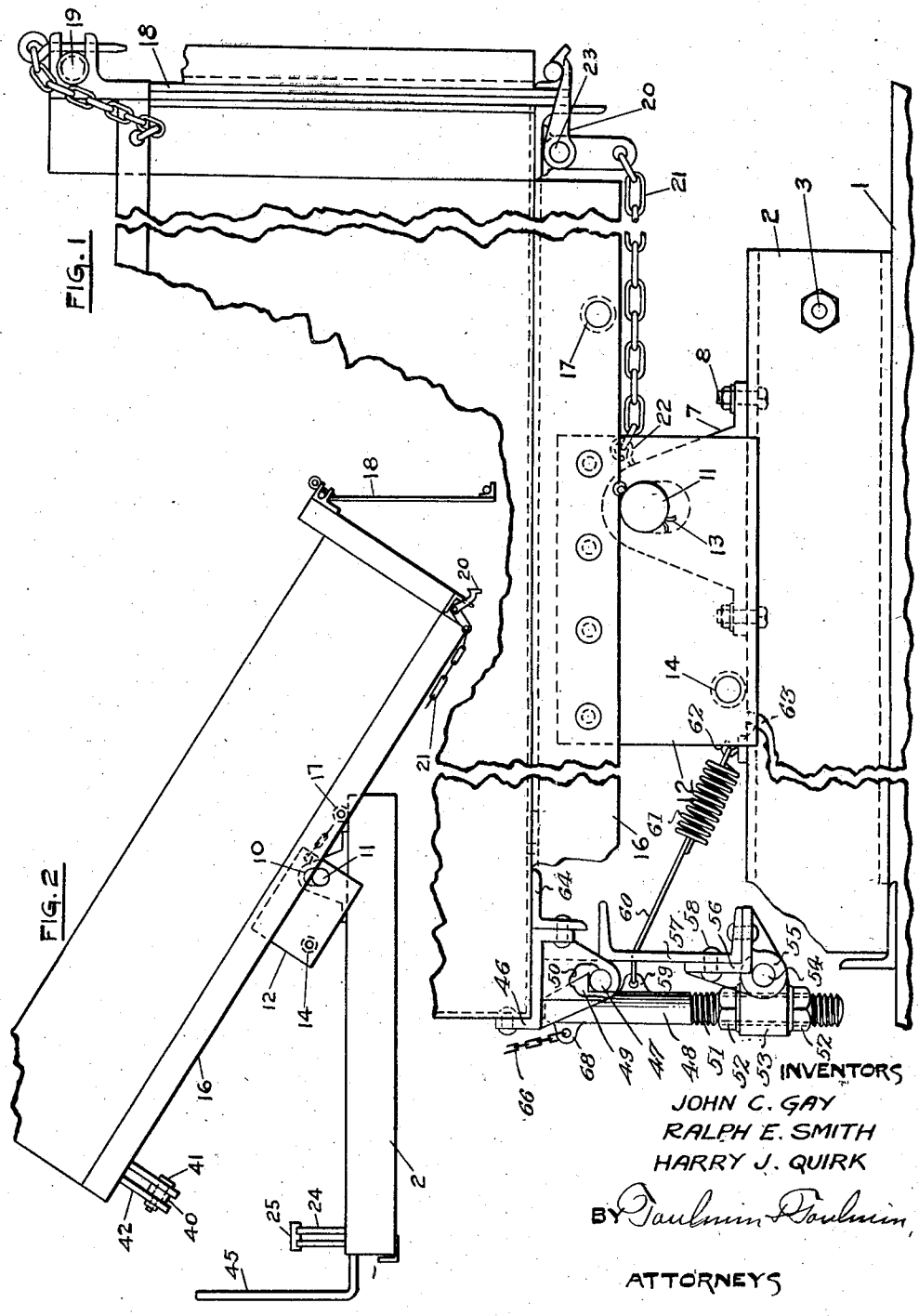


FIG. 2

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Filed Jan. 16, 1924 4 Sheets-Sheet 2

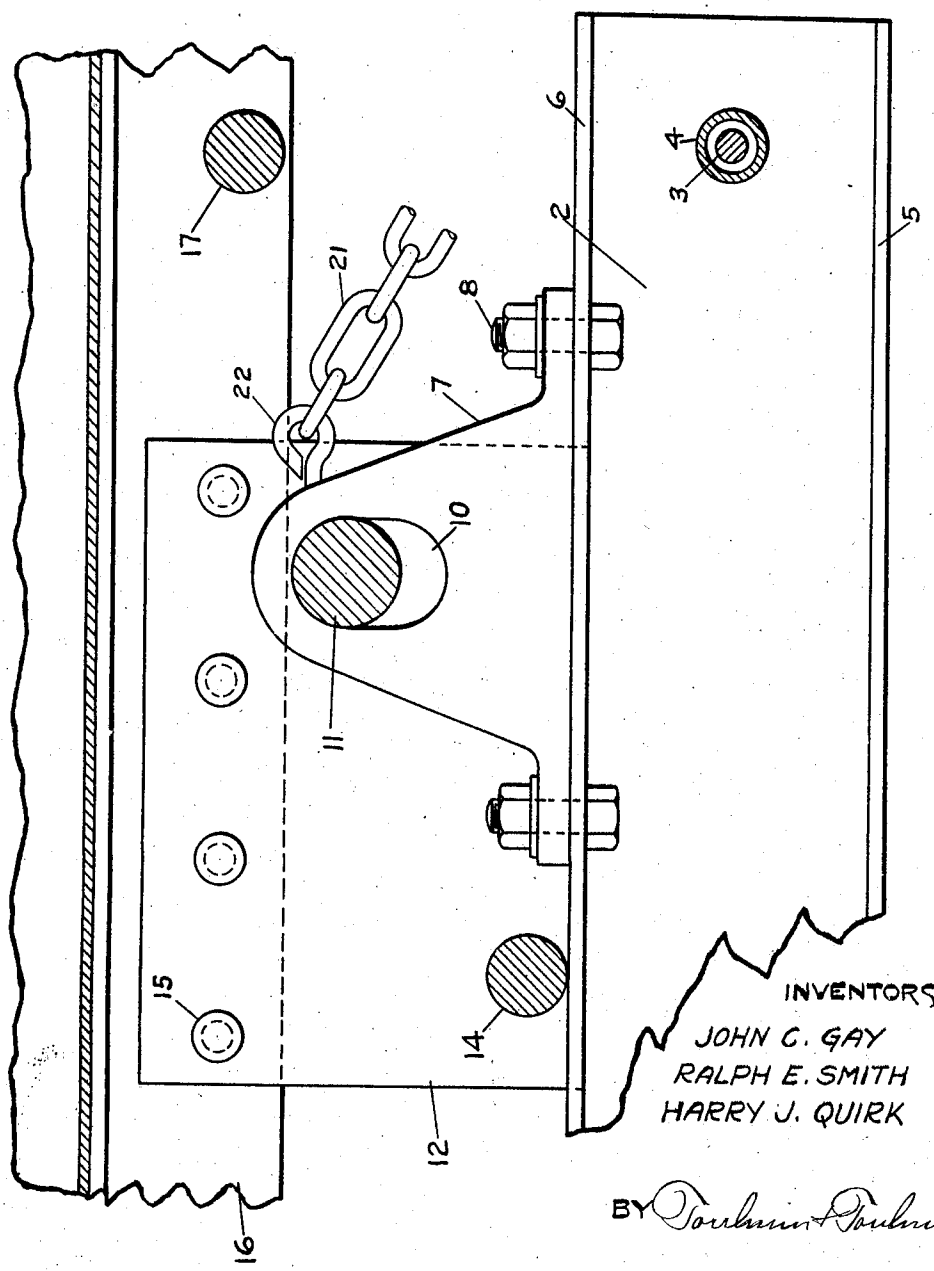


FIG. 3.

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DUMP BODY

Filed Jan. 16, 1924 4 Sheets-Sheet 3

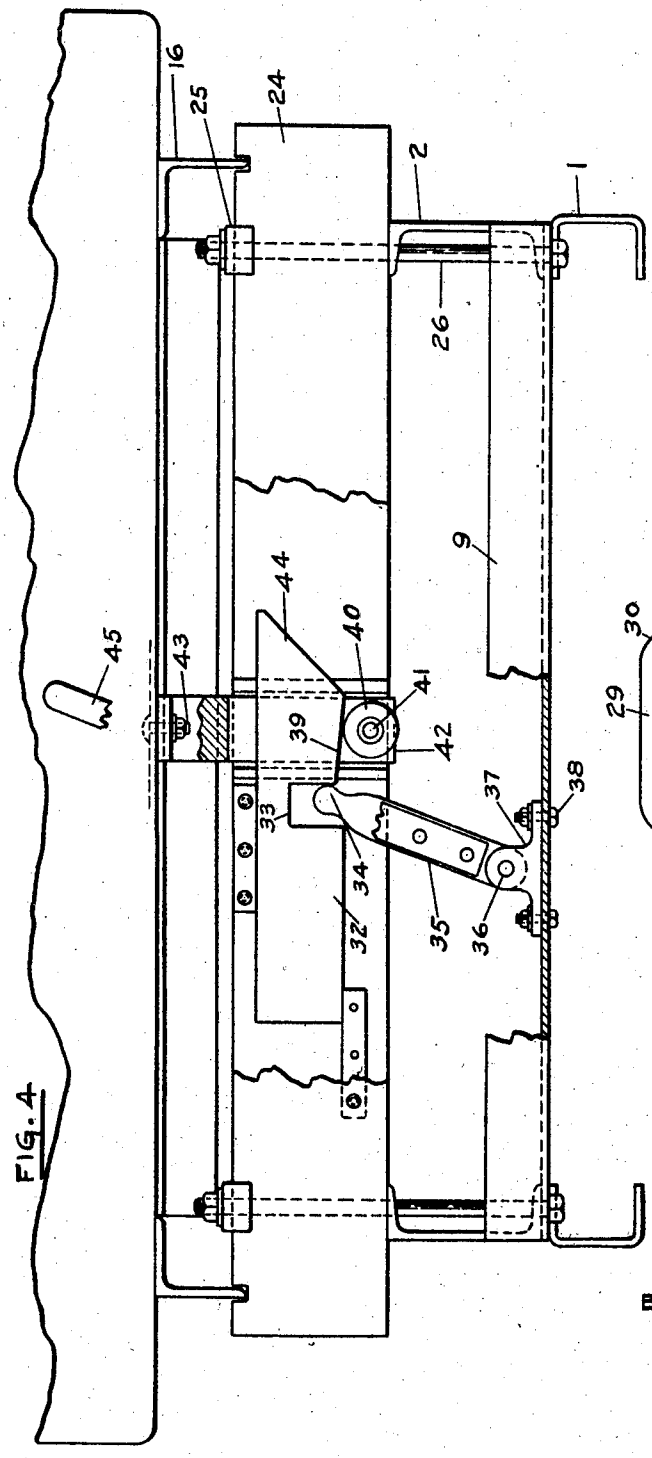


FIG. 4

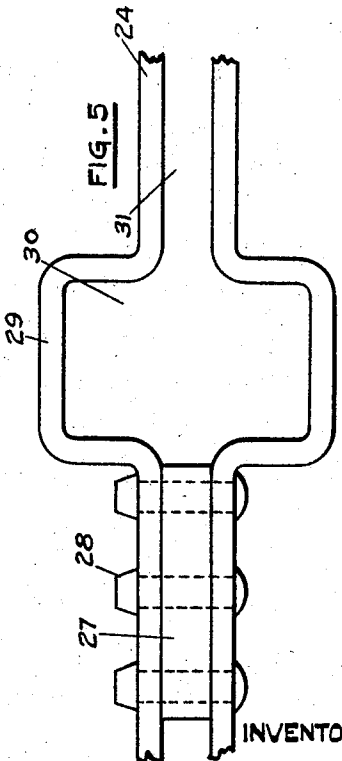


FIG. 5

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DUMP BODY

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FIG. 6

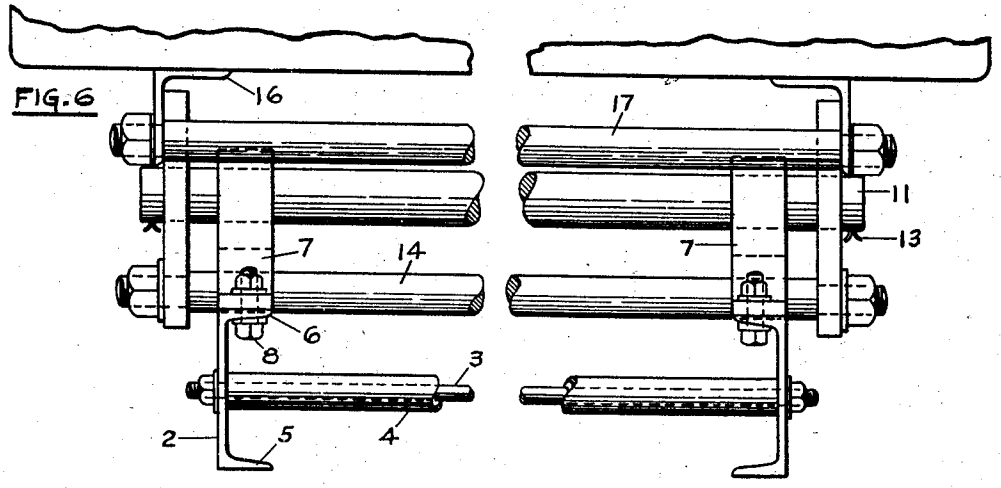
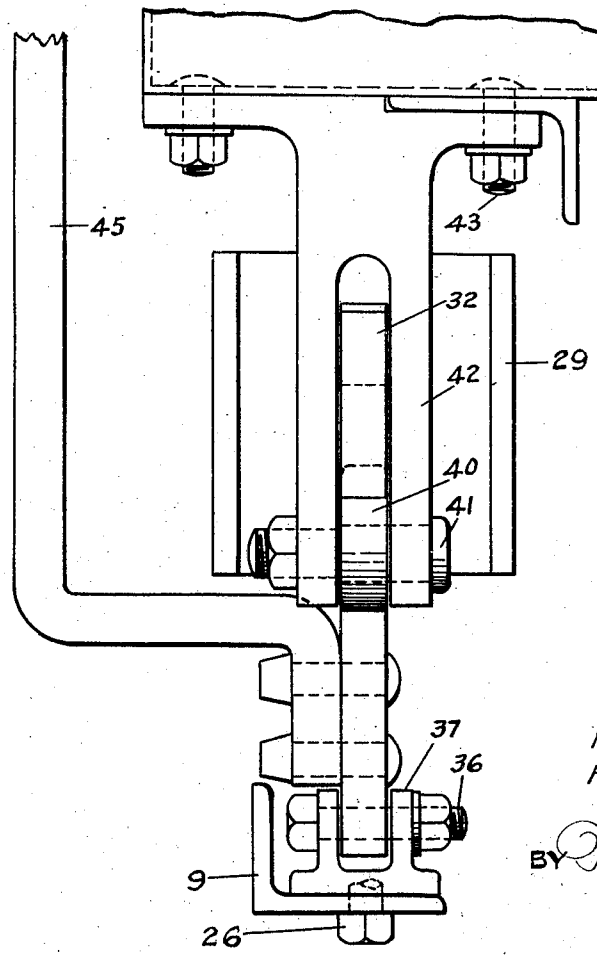


FIG. 7



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Patented Jan. 25, 1927. 1,615,267

UNITED STATES PATENT OFFICE.

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DUMP BODY.

Application filed January 16, 1924. Serial No. 686,492.

Our invention relates to dump bodies and in particular to those that are automatically self-dumping upon being released.

It is the object of our invention to provide a dump body which will automatically dump itself upon it being unlocked. It is a further object to provide such a body which will take up the shock of unloading to prevent excessive wear upon the parts of the body or damage to the truck, on which the body is mounted.

It is an additional object to provide a body which will automatically return itself to locking position after the load has been discharged. It is a further object to provide such a body and mechanism, which may be readily relocked in position and which will necessitate positive action upon the part of the operator before this locking can be accomplished, which prevents any accident occurring due to the loading of the body when it is unlocked.

It is an additional object to provide in such a body means for automatically releasing the rear door when the body is tilted, so that the load can be discharged at the desired moment, but not prematurely.

Referring to the drawings:

Figure 1 is a side elevation of the complete body and its mechanism in loaded position. Portions of the body are removed in order that the entire mechanism may be shown on one sheet.

Figure 2 is a similar view, showing the body in tilted position but equipped with a modified locking device.

Figure 3 is an enlarged detail view of the inside of the pivotal support and loose bearing.

Figure 4 is an end elevation of the front of the body equipped with the modified locking device shown in Fig. 2, parts broken away to show the lock and with a portion of the locking lever also broken away.

Figure 5 is an enlarged fragmentary plan view of the guides of the locking devices shown in Figs. 2 and 4.

Figure 6 is a rear end elevation of the pivotal supports and stops for the body.

Figure 7 is an enlarged side elevation of the locking mechanism shown in Fig. 2.

Referring to the drawings in detail;

1 is the main frame of the truck chassis, upon which is mounted by suitable bolts or clamps the supplementary frame 2. This frame 2 is held together by a plurality of transverse bolts 3 and spaced by the spacing sleeves 4 (Fig. 6). The frame members of the supplementary frame are preferably channel steel members, the lower flange 5 resting on the chassis frame 1 and the upper flange 6 forming the support for the body bearing blocks 7, which are bolted thereto by the bolts 8. The front of this supplementary frame is strengthened by the transverse angle member 9.

Turning to the bearing block 7, it will be observed that there is an oblong opening or bearing 10 with rounded ends which allows the rocking shaft 11 to freely play within the bearing opening 10 so that in the loaded position this rocking shaft is in engagement with the upper portion of the bearing opening 10 and when the parts are in the unloading position the rocking shaft 11 descends to the lower portion of the bearing opening 10. This rocking shaft is carried by the side plates 12 and prevented from lateral movement by the cotter pins 13. These side plates act not only as a support for the rocking shaft, but also as a support for the stop shaft 14, which limits the forward movement of the body in its loaded position. The plates are further useful for the purpose of guiding the body in its rocking movement and preventing lateral movement. These side plates are connected to the body by the bolts 15. The body itself is designated 16. The body also carries a transverse rod 17, which limits the movement of the body downwardly at its rear end when it is discharging.

The rear end of the body is provided with the swinging door 18 which is pivoted at 19 in the usual manner to the top of the body. It is prevented from opening by the bell crank latch 20, which engages with the bottom of the door and prevents the opening of the door until the body tilts to a position when the door should open to discharge the contents of the body, at which time the movement of the body straightens the chain 21, which is connected to the bearing block 7 by the hook 22. The continued pull on

this chain due to the change in position of the body operates the bell crank 20 on the shaft 23, unlatches the door and permits it to open to discharge the body contents.

Turning to the locking mechanism, it will be observed that between the supplementary frame 2 and the body, and acting as a support for the forward end of the body, is a bracket 46 which is bolted to the body and carries a transverse bar or rod 47. Engaging with this bar is a locking finger 48, having a locking head 49. This locking finger through its head 49 engages with the rod 47 to lock the body in its horizontal position. The cam surface 50 on this locking head permits of the rod 47 passing by the head 49.

The lower end of the locking finger 48 is threaded as at 51, upon which the locking nuts 52 are mounted on either side of the collar 53, through which the locking finger 48 passes and in which it is threaded. Thus the position of the locking finger is adjustable, but when adjusted is firmly clamped in position by the nuts 52.

This collar 53 is freely mounted upon the transverse rod 54 which is carried in the eyes 55 of the brackets 56 which are mounted upon the channel iron 57 by the bolts 58. This channel iron 57 is mounted upon the forward end of the supplementary frame members 2. In order to maintain the locking finger in locking position or in the position to lock, we provide an eye 59 thereon, in which is hooked a rearwardly and downwardly extending link 60, which link is connected at its rearward end to a helical spring 61. This spring has a hook 62 connected to a cross plate 63 mounted on the supplementary frame members 2 beneath the body. A transverse angle iron 64 is also provided beneath the body to assist in supporting the brackets 46, which carry the locking rod 47. A second eye 68 is provided, to which is attached the chain 66 which passes forwardly to the driver's seat, so that he may unlock the body by pulling the chain. The brackets 46 and 56 may be attached to the body and to the frame without modifying their structure, and that there may be only one or more of these locking devices at the front of the body. It will thus be seen that with the parts locked as shown in Figure 1, the body may be loaded and to unload, the driver may jerk the chain freeing the finger from the rod 47, so that the weight in the side to the rear of the bearing shaft 14 can counterbalance the body and the loaded body can tilt and descend backwardly. In doing so the shaft 11 can play in the enlarged bearing opening, thus relieving the shock when the body suddenly tilts its full load. The rear door is arranged so that it will not open until the body has become tilted to an extent where it is certain that the load will be discharged and that the weight of the load has carried the body far enough backwardly for that purpose.

This free play of the bearing shaft in its bearing openings permits the movement back and forth to a limited degree of the body when the discharge takes place, particularly at the time when the stop rod 17 comes in contact with the top of the frame 6. It will also be observed that the body is so constructed that the load is distributed over the entire chassis frame.

When the body is down in a locking position the load is carried on the cross member 14 and the cross member 11 is raised to the upper point in the elongated eye of the bracket 10. As soon as the lock is released the cross member 11 drops to the lower point of the eye in the bracket, changing the center of gravity and causing the body to tilt backwards, and as the load gravitates downward the weight of the body rests momentarily, or until the larger portion of the load is discharged on cross member 17. The body then gradually tilts forward and rests on cross members 11 and 17 until it is drawn down to a locking position, again resting on cross member 14.

In Figs. 2, 4, 5 and 7, is shown a modified form of locking device comprising a pair of spaced locking guides 24 which consist of a pair of plates on edge that are held together by a spacing clamp 25 and bolted to the supplementary frame by the bolts 26. They are further spaced by the blocks 27 and bolts 28, which blocks are also used as guide blocks for a purpose to be hereinafter described. Centrally of their length they are separated from one another in oppositely disposed U-shaped portions 29. These U-shaped portions form a receiving chamber substantially rectangular in form designated 30. The sides of this chamber communicate with the passageways 31 between the plates 24. In this passageway 31 reciprocates the locking block 32. This block has a slot 33 for the reception of an actuating head 34 mounted on the actuating lever arm 35, which is pivoted at 36 in the bearing block 37 connected to the angle iron 9 by the bolts 38.

It will be observed that the locking block is provided on its under surface between the slot 33 and one end with a tapering surface 39, so that it will readily roll upon the roller 40, which is carried on the roller shaft 41 between the arms 42 bolted to the bottom of the body by the bolts 43. The locking block 32 is passed between these arms. It is also provided with a tapered nose 44 to facilitate its entry between these locking arms. The block is reciprocated by the actuating arm 35, which in turn is actuated by the locking lever 45, which moves back and forth in front of the body readily accessible

either from the side of the vehicle, or from the back of the cab of the truck.

When the body assumes its horizontal position, the locking arms will be brought over the opening 30 or inserted therein, so that the operator by moving the handle to the right can force the locking block between the arms over the roller 40 and positively lock the body in a position to be loaded. The necessity for positively moving this handle is a safeguard of advantage, because its position is so conspicuous that it is immediately apparent the body is in unlocked condition, unless the lever has been brought to its locking position.

We desire to comprehend within our invention such modifications as may be necessary to adapt it to varying conditions.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a dump body, a body, means to pivotally support such body, one point of pivotal support being forward of the center of said body and another point of pivotal support being rearward of the center of said body, a floating intermediate pivot between said front and rear pivots, said pivots being arranged to be brought into successive operation, so that the body will automatically move to dumping position when loaded and return to horizontal or loading position when the load is dumped and a closed bearing for the intermediate pivot, said intermediate pivot being adapted to shift in said bearing in the extreme loading and dumping positions of the body.

2. In a dump body, a body, means to pivotally support said body, one point of pivotal support being forward of the center of said body and another point of pivotal support being rearward of the center of said body, an intermediate pivot between said front and rear pivots and off the body center, and bearing means to permit vertical movement of said intermediate pivot when the body is shifting from one pivotal support to the other, whereby said body will automatically move to dumping position when loaded and return to horizontal or loading position when the load is dumped.

3. In a dump body, a body, means to pivotally support said body, said pivotal support being so arranged that the body may move vertically relative to said support, as well as rotate thereabout, means carried by said body to limit its forward movement and upon which the body will pivot and be supported when in horizontal position, and other means carried by said body to limit its tilting rearward movement and upon which the body will pivot in extreme dumping positions.

4. In a dump body, a body, means to pivotally support said body, said pivotal support being so arranged that the body may move vertically relative to said support, as well as rotate thereabout, means carried by said body to limit its forward movement and upon which the body will pivot and be supported in extreme horizontal positions, and other means carried by said body to limit its tilting rearward movement and upon which the body will pivot in extreme dumping positions, said first means being so arranged that when the body has reached the horizontal position at the end of its maximum forward movement, it will be at the point of maximum vertical movement and when the body is limited in its rearward movement, it may descend to its maximum lowermost position, and when the body is pivoting on said last mentioned means, said pivotal support will be raised from its lowermost position.

5. In a dump body, a body, means to pivotally support said body, said pivotal support being so arranged that the body may move vertically relative to said support, as well as rotate thereabout, means carried by said body to limit its forward movement and upon which the body will pivot and be supported in extreme horizontal positions, and other means carried by said body to limit its tilting rearward movement and upon which the body will pivot in extreme dumping positions, said first means being so arranged that when the body has reached the horizontal position at the end of its maximum forward movement, it will be at the point of maximum vertical movement and when it is limited in its rearward movement, it may descend to its maximum lowermost position, and when the body is pivoting on said last mentioned means, said pivotal support will be raised from its lowermost position, said body being so disposed relative to its pivot that when empty, it will assume substantially the horizontal position and when filled and released from the horizontal position it will tilt backwardly, and means to hold the body releasably in its horizontal position.

6. In combination, in a dump body, of a supplementary frame, a bearing block carried by said frame on either side thereof, a body, a bearing shaft carried by said body working in said blocks, means to limit the body's movement forwardly and rearwardly about the bearing shaft and blocks, and upon which means the body pivots in its extreme loading and dumping positions, respectively, means to lock the body in its horizontal position, said bearing blocks having openings of size greater than the diameter of the bearing shaft to permit of the up and down movement of the shaft in the bearing blocks when the body is tilted, said limiting means limiting the forward movement of the body being so arranged as to maintain the bearing shaft in its uppermost

position when the body is horizontal and the other limiting means so arranged to permit the shaft to reciprocate in the blocks when the body tilts to its rearmost position.

7. In a dump body, a supplementary frame adapted to be mounted on a chassis frame, bearing blocks, enlarged eyes in said bearing blocks, a bearing shaft mounted in said eyes, a means on the body to carry said shaft, forward stops located forward and below the bearing shaft, and rear stops located to the rear and above the bearing shaft, said body pivoting on said stops in certain of its positions.

8. In a dump body, a supplementary frame adapted to be mounted on a chassis frame, bearing blocks, enlarged eyes in said bearing blocks, a bearing shaft mounted in said eyes, a means on the body to carry said shaft, forward stops located forward and below the bearing shaft, rear stops located to the rear and above the bearing shaft, said body pivoting on said stops in certain of its positions, means to lock said body in its horizontal position, so that the bearing shaft is in the top of the eyes of the bearing blocks and when the body is unlocked and pivoting on said rear stop, the shaft can reciprocate in the eyes to absorb the shock of unloading.

9. In a dump body, a supplementary frame adapted to be mounted on a chassis frame, bearing blocks, enlarged eyes in said bearing blocks, a bearing shaft mounted in said eyes, a body means to carry said shaft on said body, forward stops located forward and below the bearing shaft, rear stops located to the rear and above the bearing shaft, said body pivoting on said stops in certain of its positions, means to lock said body in its horizontal position, so that the bearing shaft is in the top of the eyes of the bearing blocks and when the body is unlocked and pivoting on said rear stops, the shaft can reciprocate in the eyes to absorb the shock of unloading, and means to permit the load to discharge to the rear of the body when the body assumes a predetermined angle.

10. In a dump body, a frame, bearing members carried by said frame, a body, side plates carried by said body, a bearing shaft carried by said plates, a stop shaft carried by said plates, a second stop shaft carried by said body, said bearing members having enlarged eyes to permit the vertical movement of the bearing shaft.

In testimony whereof we affix our signatures.

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