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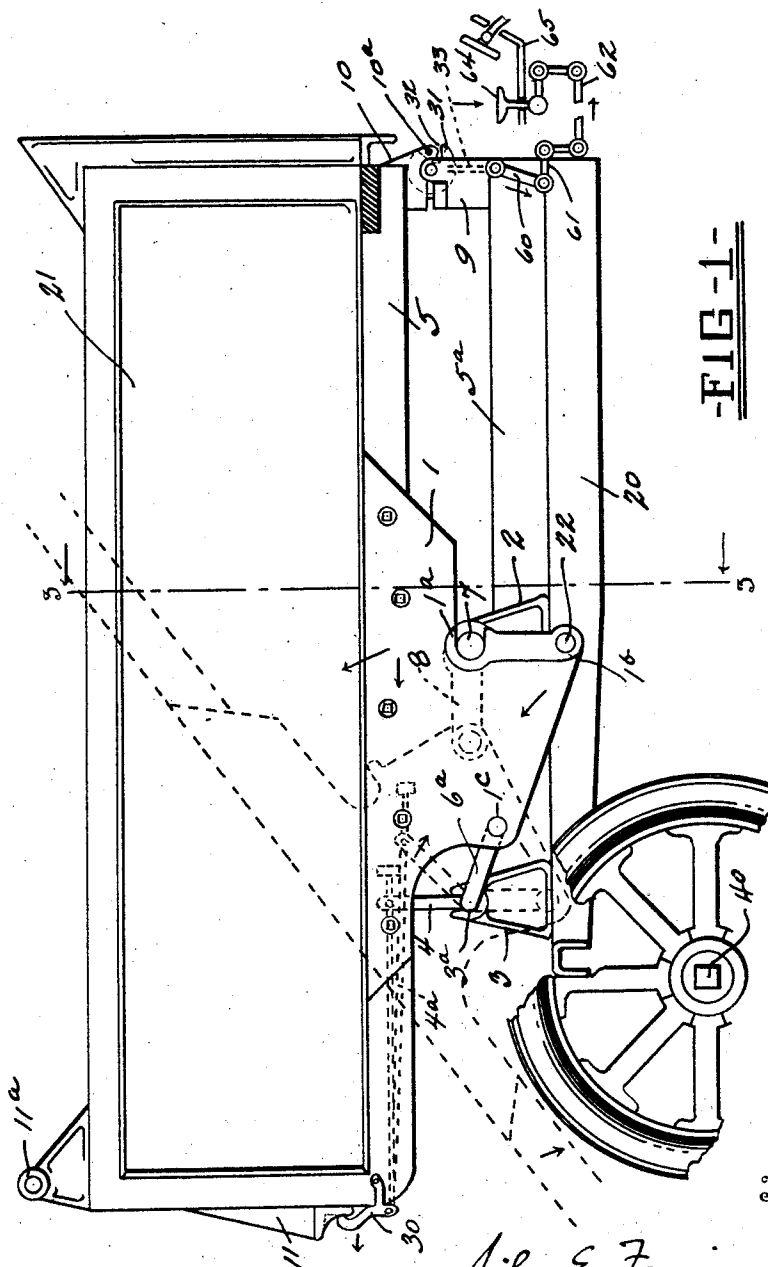
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DUMPING WAGON

Filed April 24, 1926

2 Sheets-Sheet 1



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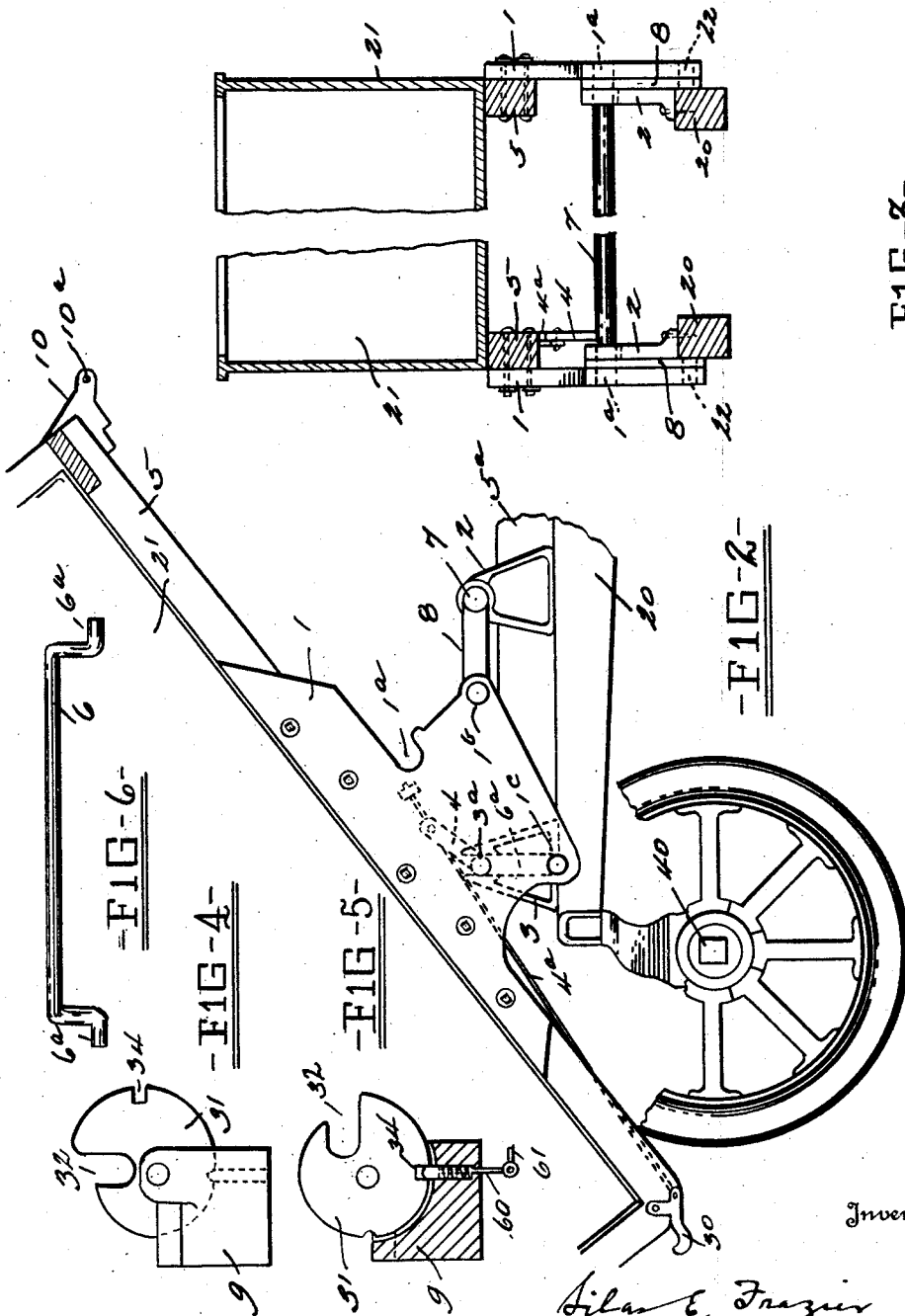
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UNITED STATES PATENT OFFICE.

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DUMPING WAGON.

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This invention relates to dumping wagons, and has for its object to provide an improved automatic dumping body which is pivoted to swing vertically and dump at the rear, the body also having somewhat of a rearwardly shifting movement which releases the body from its normal or carrying position. Associated with the dumping body is an end gate which is automatically unlocked when the body is dumped. The invention includes what may be described as a double toggle joint by means of which the body is permitted to dump when desired, but prevented from dumping at other times.

The invention will be more fully understood from the following description and the accompanying drawings, in which Fig. 1 is a side elevation showing the body in normal position. Fig. 2 is a similar view showing the parts in dumping position. Fig. 3 is a section on the line 3—3 of Fig. 1. Figs. 4, 5, and 6 are details of separate parts.

In the drawings, 20 indicates the side channels or sills of the chassis or subframe, the invention being particularly applicable to motor trucks, altho of course capable of application to other kinds of vehicles. 5 indicates the longitudinal bottom sills of the wagon body 21. Mounted upon the side frames or channels 20 of the chassis is a pair of blocks 2, one at each side, these blocks supporting a cross bar 7 which extends across under the body and above the chassis and is supported near its ends by said blocks, in rigid position. This bar 7 acts as a pivot, and also as a latching bar as more fully described hereinafter.

Secured to each side sill 5 of the body bottom is a casting 1 which is provided in its front edge with a notch 1^a engageable with the end of the bar 7 when the body is in carrying position, as shown in Fig. 1. This casting also has a hole 1^b for a pivot 22 by which the casting is connected to a link 8 which is preferably hung on the cross bar 7. It will be understood that these parts are duplicated, one set at each side of the body. The body's weight is therefore supported at its rear end, in normal position, by the links 8 suspended from the cross bar 7, the front end of the body being supported by blocks or sills indicated at 5^a on the chassis.

Also mounted on each side sill of the chassis is a bearing block 3, located behind the block 2 and near the rear end of the chassis. These blocks 3 carry, in bearings 3^a at

the top, a rock shaft 6 the outer ends of which are cranked as indicated at 6^a and engage in bearing sockets 1^c in the rear corner or knuckle of the castings 1, and in normal position the pivotal points 6, 1^c and 22 are substantially in line, as shown in Fig. 1, but assume different positions when the body is dumped as will be hereinafter explained.

A lever arm 4 is fastened to the rocker 6 and is connected by a rod 4^a to a pivotal latch 30 at the rear end of the body engageable with the end gate 11 to hold said end gate closed.

At the front of the body a latch is provided consisting of a bracket 9 mounted on sills 5^a and supporting a rotary latch 31 which may be turned to engage its notch 32 with a pin 10^a carried by a bracket 10 fastened to the front door corner of the body. A spring catch 33 engages a notch 34 in the latch to hold the latter in locked position. By releasing the catch the latch may turn to unlocked position to permit the body to dump. The arrangement of the latch is such that it will automatically lock when the body is returned to normal position after dumping.

The location of the pivots 22 and the pivot bar 7 is slightly forward of the center of gravity of the body when loaded, the pivots 22 being then substantially in line vertically with and below the pivot bar 7, and at this time, as stated, the cranks 6^a are swung forward substantially in line with the pivots 22. The ends of the bar 7, in this position, are engaged in notches 1^a in the castings 1, thus assisting in locking the body in position. When the catch 31 is released, the front end of the body tends to lift and the rear end to drop, and a slight movement in this direction swings the pivots 22 rearwardly and upwardly, the body 21 shifting rearwardly a slight distance necessary to clear the notches 1^a from the bar 7, the links 8 permitting this rearward swing or movement incident to the weighted rear end of the body. The body then turns to dumping position on pivots 22 as a center, as shown in Fig. 2. When the body swings in this manner the crank 6^a swings upwardly, and this swings the lever arm 4 which, by the pull rod 4^a, unhooks the latch 30 and allows the tail gate 11 to swing open, said tail gate being pivoted at the top at 11^a. The load is thus dumped, the pivots 22 swinging from

a position below the pivot bar 7 to a position behind the same, and the pivot points 1^c swinging down as shown in Fig. 2. The movement of the pivots 22 rearwardly carries them beyond the center of gravity of the body which is slightly to the rear of the pivot bar 7. Therefore when the body is dumped and the truck pulled away from the load, the pivots 22 are behind the center of gravity and the front end of the body automatically swings down on the pivots 22 to normal position. As it swings down the pivots 22 and links 8 swing down to original position under the pivot bar 7 and the pin 10 at the front of the body enters the notch 32 in the latch and turns the latch, which, by a cam action, incident to the weight of the forward end of the body, draws the body forwardly until the notches 1^a again engage the ends of the pivot bar 7 and the spring latch 33 engages in the notch 34, thereby locking the body in normal or original position. At the same time, the cranks 6^a swing downwardly and the shaft 6 is rocked and the arm 4 connected to the rod 4^a is pushed backwardly and engages the latch 31 with the end of gate 11 and holds the same closed.

It will be noticed that the rear axle indicated at 40 may be located under the extreme rear end of the chassis and that the major part of the load is carried on the frame a considerable distance ahead of the rear axle, which is advantageous for load distribution on the wheels. Nevertheless the rearward movement of the body as it swings to dumping position is sufficient to cause it to clear the rear axle and springs, the rearward movement referred to being equal to the length of the links 8. The swinging of these links, as stated, nevertheless transfers the pivots 22 to the opposite side of the center of gravity, whereby the body has a tendency to dump when loaded and to resume its normal position when unloaded. In case of slight sticking of the body in either position, the actions may be started or assisted by a slight lift by a driver, or with a bar or other implement. The action of the device is almost entirely automatic with respect both to the dumping action and the tail gate action, and the construction is such that a special chassis is not required, but the devices may be applied to existing frames and bodies. It will be noticeable also that there are no projecting parts beyond the ordinary lines of the truck, and the main parts are few and simple and can be relatively cheaply constructed.

The means for releasing the spring latch 33 include a link 60, a bell crank 61, a link 62, a bell crank 63 and a pedal 64, all connected with the pedal in the foot board indicated at 65 in position to be pushed down by the foot of the driver and pull the latch down out of engagement with the notch 34.

Any other suitable device for the same purpose may be substituted.

I claim:

1. The combination of a frame, a self-acting dumping body mounted and automatically shiftable rearwardly thereon, a cross bar mounted on the frame, and swinging links pivotally connecting the cross bar and the body, said links normally hanging vertically below the cross bar and arranged to swing rearwardly and upwardly when the body is dumped.

2. The combination with a frame and a self-acting dumping body automatically shiftable rearwardly thereon, of depending brackets at opposite sides of the body, and links pivotally hung from the frame and pivoted to said brackets, the links normally hanging vertically with their lower ends pivoted to the brackets and arranged to swing rearwardly and upwardly when the body is dumped, the pivotal connection of the links to the frame being slightly in advance of the center of gravity line of the body.

3. The combination stated in claim 2, the links being of such length as to swing their pivotal connections to the brackets behind said line when the body is lifted back and dumped.

4. The combination of a frame having front and rear supports mounted thereon, a rear dumping body, brackets attached to the lower part of the body and having depending portions projecting between the front and rear supports, links pivoted to the front supports and depending therefrom to pivotal connection with said projecting portions, and cranks carried by the rear supports and depending to pivotal connections with said projecting portions.

5. The combination of a frame, supporting blocks mounted thereon, a cross bar supported by said blocks, a self-acting rear dumping body automatically shiftable rearwardly on the frame, brackets attached to the body and having projections normally extending below the cross bar, and pivoted links connecting the cross bar and the projections on the brackets, said links normally depending downwardly from the cross bar and arranged to swing upwardly and backwardly when the body is shifted back and dumped.

6. The combination stated in claim 5, the brackets having notches in which the cross bar is engaged when the body is in normal position.

7. The combination with a frame, of a self-acting rear dumping body having a tilting and a rearwardly shiftable movement with respect to the frame, the body having depending brackets at opposite sides of the frame, links pivoted at their upper ends to the frame and at their lower ends to said brackets and arranged to swing backwardly

and upwardly to permit tilting and shifting movements of the body, and a latch to hold the body in normal position.

8. The combination stated in claim 5, the frame having thereon a member with projections, and the brackets having notches which engage said projections when the body is in normal position.

9. The combination of a frame and a self-dumping rearwardly tilting and shifting body, the body being provided with brackets depending at opposite sides of the frame, and links pivoted at their upper ends to the frame and depending to pivotal connection with the brackets, the pivotal connection of the links to the frame being slightly forward of the center of gravity of the body, and the links being of sufficient length to swing their pivotal connection to the body behind the center of gravity thereof when the body is dumped.

10. The combination with a frame and a rearwardly tilting body thereon, of means to pivotally support the body on the frame with the pivot in advance of the center of gravity of the body when in normal position, and to shift said pivot behind the center of gravity of the body when the latter is in dumped position, said means including depending swinging links pivoted at their upper ends to the frame and at their lower ends to depending projections carried by the body.

11. The combination with a frame and a tilting and slidable body thereon, of a pivoted cam latch carried by the frame and engageable with the body and automatically actuated when engaged by the body to shift the same forwardly.

12. The combination with a frame, swinging links carried thereby, and a body supported by said swinging links and arranged to tip rearwardly, of a pin at the front of

the body, and a turning latch mounted on the frame and having a notch in which said pin is engaged when the body is in normal position said notch having a cam surface engaged by the pin to shift the body forwardly when the latch is turned.

13. The combination of a frame, a rearwardly tilting body mounted thereon, front and rear members supported on the frame, brackets depending from the body between said front and rear members, a pivoted link connection between the front member and the lower front part of said brackets, and swinging connections between the rear member and the lower rear part of said brackets.

14. The combination stated in claim 13, the front member being located slightly in advance of the line of the center of gravity of the body when the latter is in normal position.

15. The combination of a frame, a rearwardly tilting body supported thereon, a pivot bar supported on the frame and extending across under the body, brackets attached to the bottom of the body and depending behind said pivot bar, hanging cranks mounted on the frame behind said brackets and pivotally connected thereto, and swinging links depending from the cross bar and pivoted to the lower front corners of said brackets, the cranks being substantially in line with the last named pivots when the body is in normal position and said pivots being normally slightly in advance of the center of gravity of the body when in such position.

16. The combination stated in claim 15, the brackets having notches in which the cross bar is engageable when the body is in normal position.

In testimony whereof, I affix my signature.

SILAS E. FRAZIER.