TILTING DUMP WAGON WITH ADJUSTABLE BODY PIVOT

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This invention relates to dumping wagons and to a convertible body therefor. Referring initially to the dumping feature, it is an object to provide a chassis having brackets on which the body or bed frame is oscillable, and in which means are provided for holding the bed frame in a substantially horizontal position during the hauling or moving activities, and providing means by which the holding means are operated to release the rear portion of the bed frame in order that it will rock on pivots and move to an inclined position with the rear end dipped, as compared with the front end, which front end would be slightly raised, for a purpose to be presently explained.

It is an object of the invention to provide novel means for supporting the rear end of the bed frame and while the bed frame is being elevated to the dumping or unloading position, the said means acting as a pivotal support for the rear end of the bed frame while the front end is being propped or elevated by means to be presently described.

It is furthermore an object to provide latch bolts which act in conjunction with brackets secured to the side members of the bed frame near their outer ends, which brackets have apertures for receiving the latch bolts, whereby the bed is held or supported in different positions of adjustment; and it is furthermore the purpose of the inventor to provide springs for operating the latch bolts through their seated positions, and to provide mechanical means operated by a flexible member leading to the operator of the tractor, which are to be manipulated for moving the latch bolts out of engagement with the brackets when change of position of the bed frame is desired.

It is a further object of the invention to provide means for raising the front end of the bed frame to carry the bed into dumping position and, as considerable force is exerted on the mechanism for elevating the bed frame, it is desirable to have chocks at the rear of the chassis which will hold the wagon against being pushed rearwardly while force is being applied to raise the bed frame and, to that end, novel means are provided adjustably associated with the chassis which can be elevated out of operative position or lowered into operative position, as will presently appear.

A still further object of this invention is to provide means for raising the front end of the bed frame by power applying instrumentality and, in this connection, the chassis at its front end is provided with a bracket on which a sleeve is mounted, through which a tongue is slidable, and the said tongue is associated with links or props, the outer ends of which are pivotally connected to the tongue and the inner ends of which are pivotally connected to the bed frame, and they are operative to lift the front end of the bed frame after it has been elevated to a certain extent by reason of the movement of the bed frame on its trunnions, and the rear end by gravity descends from the horizontal to the inclined position, and it is the purpose of the inventor that the tongue shall be connected to a source of power, such as a tractor, which will move the tongue inwardly in its guide and thus bring into action the lifting rods or links, to which reference has been made.

It is a further object of the invention to facilitate the movement and guiding of the wagon by the employment of caster wheels suitably mounted on a bracket which is rotatably held in assembled relation with a plate carried by a portion of the bed frame, so that by the employment of a single rotary frame member to which the wheel assembly is connected, the frame member may be rotatably held in assembled relation to the plate which is mounted on the bed frame and thereby the caster wheels can be turned to facilitate the guiding or locating of the wagon.

With regard to the convertible body, it is an object of the invention to provide a bed platform or bottom having sides hingedly connected to the bed frame through the use of brackets attached to the said bed frame, with relation to which, standards to which the sides of the body are connected, oscillate so that the standards can be moved from a vertical to a horizontal position, and means are provided for supporting them in horizontal positions, whereas the sides of the bed are held in vertical positions by spacing bars at their ends which are removably attached in place on the sides of the bed.

It is obvious that when the standards are in the horizontal position and the sides of the bed are attached to them, they form extensions of the bed bottom and provide a wide deck for loads which do not have to be restrained at the sides of the wagon.

It is furthermore an object of the invention to provide extension brackets whose ends telescope into the standards which are hollow or tubular, and the said extension brackets are provided with extension sides of the body so that the said body may be deep when the auxiliary sides are in place.

It is furthermore the purpose of the inventor to produce a wagon of the character indicated which has a great variety of uses as compared with ordinary trucks or wagons, in that it can be expeditiously dumped and restored to carrying position with the bed frame horizontally disposed, and considering all the advantages and added functions as compared with ordinary.
trucks or wagons, it is comparatively inexpensive to produce and maintain.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth, and claimed.

In describing the invention in detail; reference will be had to the accompanying drawings forming part of this application, wherein, like characters denote corresponding parts in the several views, and in which:

Figure 1 illustrates a view in elevation of a wagon embodying the invention, omitting the bed;

Figure 2 illustrates a plan view thereof;

Figure 3 illustrates a plan view of the front portion of the installation showing the tongue, and parts with which it connects;

Figure 4 illustrates a view in elevation, showing the parts in dumping position;

Figure 5 illustrates a detail view of a fragment of the body frame and the standard;

Figure 6 illustrates a sectional view on the line 6-6 of Fig. 2;

Figure 6A illustrates a plan view of the plunger bolts and means for operating same;

Figure 7 illustrates a sectional view on the line 7-7 of Fig. 3;

Figure 8 illustrates a detail view showing the outer end of the tongue and one of the links connected thereto;

Figure 9 illustrates a sectional view on the line 9-9 of Fig. 3;

Figure 10 illustrates a detail view showing a fragment of the bed frame and a standard adjusted to a horizontal position;

Figure 11 illustrates a sectional view showing a fragment of the bed frame, standards and parts associated therewith;

Figure 12 illustrates a detail view of a vertical section of the caster wheels as associated with the chassis frame; and

Figure 13 illustrates a view in front elevation of the caster wheel on a reduced scale.

In these drawings 10 denotes the side rails of a chassis frame, each having a bracket 11 between its ends offset forwardly of the longitudinal center of the side rails and provided with bearings 12, for a purpose to be presently explained. At the rear end of the frame there is mounted between the side rails, a supporting member 13 on which a plate 14 is oscillately mounted and it extends transversely of the supporting member.

There is a link 15 pivotally connected to the plate on each side of the pivot 16, by which the plate is oscillately connected to the support, and one such link is employed on each end of the plate, and the plate is provided with slots, such as 17, in which the pivot 18 by which the link 15 is connected to the plate is slidable. The outer end of the link is pivotally connected to a rod 19 which extends from a plunger bolt 20, which operates in a sleeve or guide 21 mounted on the side frame of the chassis. Suitable bushings 22 are provided in which the plunger bolt is slidable, and the chassis frame has an aperture through which the plunger bolt reciprocates. The plunger bolt is under pressure of a spring 23 located in the sleeve or housing, and the spring operates to force the plunger bolt normally outwardly through the chassis frame for the purpose of holding the bed frame at different positions of adjustment, as will presently appear. The plate 14 has an arm 24 rigidly connected to it and it projects outwardly beyond the side of the chassis frame, and an operating cable 25, which may be of any ordinary construction, is connected to the outer end of the arm and extends forwardly beyond the front of the wagon to a location where the operator of a tractor or power applying means for moving the wagon is located, it being understood that when a pull is exerted on the cable the plate 14 will turn on the pivot and thus exert a pull on the links 15 and they in turn will retract the bolts against the action of the spring. The parts, it is understood, are duplicated on each side of the chassis frame, and the bolts are intended to hold the bed frame in different positions of adjustment.

The bed frame 26 is of rectangular construction and on the side thereof, trunnions or pivots 27 are mounted, secured to the bed frame and descends until one of the trunnions operate in the bearings 12 which are preferably babbitted or otherwise lined to prevent wear on the brackets, and the said trunnions support the bed while it is being transported, but provision is made for dumping the wagon on which operation the trunnions leave the bearings and are elevated thereabove, so that the bed frame with the bed is carried to the dumping position by means to be presently explained.

Near the rear of the chassis frame, brackets 28 are provided, one on each side of the bed frame, and these brackets are provided with apertures 29 which are intended to selectively receive the plunger bolts which have been described. When the wagon is in transporting position, the bed is supported approximately horizontally by the trunnions on their brackets and by plunger bolts which enter the lowermost of the apertures 29 in the brackets 28, but when the load is to be dumped, the plunger bolts are retracted from the lower of the series of holes in the brackets and by gravity the rear end of the bed frame and bed descend until one of the other apertures in the brackets aligns with the plunger bolts. The plunger bolts would be released to enter either of the holes, according to the inclination which the load should have for effecting the dumping operation at that stage of the operation. If the load were to be precipitously discharged, the uppermost hole 29 would be made to register with the plunger bolt before the plunger bolts were released by the operator, so that the brackets would then be hinged on the chassis frame with the bed in its greatest inclination, whereas if only a moderate discharge of the contents of the body or truck were desired, the plunger bolts would be released so that they would enter the intermediate hole in the bracket, and thus the rate of discharge would be lessened, as compared with the first mentioned operation.

It is believed that the operative results of the mechanism so far described will be understood from the description accompanying the reference to the several parts and their relation to other parts of the wagon.

In order to supplement the unloading process additional to that which would take place from inclining the bed by dropping its rear end through the change of relation between the brackets and the plunger bolts, provision is made for lifting the front of the bed frame, and the bed frame may be of any ordinary form, but there is shown a preferred form of construction in which the chassis frame has diagonally disposed braces 30 and 31 connected to the sides of the
chassis frame, and these braces converge and their ends are connected to longitudinally disposed struts which may be connected to the sides of the chassis frame in appropriate manner.

A bracket is connected to the front end of the frame structure and it comprises side plates 33 each having angularly disposed ends 34 and 35, and the said bracket further comprises a yoke 36 which, with the side plates 33, is connected to the chassis frame by fastenings 37 extending through the angularly disposed portion 34 of the side plates, the members 34 and 32 of the chassis frame, and through one side of the yoke, this fastening being in the nature of a bolt which may be secured in place by a key 38. A housing or tongue guide 39, which is preferably rectangular in cross section, is supported by the bracket and it has an aperture 40 through which a securing or king pin 42 may be inserted, which pin is intended to hold the tongue 41 in different positions of adjustment. The tongue is slidable in the housing and it is provided with a plurality of apertures 42 by which the tongue may be held in different locations with respect to the housing. It is intended that the tongue should have a coupling 43 at its outer end by which it is connected to a tractor. A source of power, and when the tractor is pulling the load, the pin will be inserted in the aforesaid apertures of the housing and tongue, but when the load is to be dumped, the tongue is to be freed from the influence of the king pin 42a so that the tongue may slide rearwardly in the housing; and furthermore, the rear end of the tongue has a detent 44 which will engage the inner end of the housing and limit the outward movement of the tongue.

Rods or links 45 have their outer ends pivotally connected to the tongue through the medium of a bolt 46 extending through a bracket 47 on the tongue and through apertured plates 48 on the outer ends of the links. The inner end of each link has an apertured arm mounted on a pivot 59 of a bracket 51, one of which is secured to each side of the bed frame. When the bed has been allowed to gain an inclined position, the front end thereof will be elevated to such a degree that when the tongue is moved rearwardly, the links will exert a pressure upwardly on the front end of the bed and move it to a position where the load will be discharged. It may gradually assume this position according to the movement given the tongue under the influence of the tractor, as shown in the drawing. When the bed is to be moved to its horizontal position, the plunger bolts are released and, with slight pressure on the front end of the bed, the bed may be moved on its trunnions to the horizontal position and when the plunger bolts are released, they will enter the apertures in the lower ends of the brackets.

As a means for facilitating the guiding of the wagon and locating it in position for discharge of the load, a caster wheel (see Figures 12 and 13) is employed at the front end of the chassis frame instead of the usual front axle and wheels employed in such trucks. The caster wheel, in the present embodiment of the invention, is associated with a top plate or bracket 53 which is horizontally positioned but which in mounting it on the chassis frame requires the employment of a wedge plate 54 which extends from one side to the other of the chassis frame, and it has a beveled upper surface conforming to the angle of inclination of the chassis frame in order that the top plate may be horizontal and in order that the rotating parts of the caster wheel will be parallel thereto and also that the axle of the caster wheel may be vertically disposed at right angle to the top plate.

There is a bar 54 in front of the wedge plate which extends across the members between the side bars, and it is connected to the side bars to strengthen the structure for the tongue housing. A plate 55 rotates under the plate 52 and the plate 52 has a recess 56 into which a spring-pressed detent or pawl 57 is seated, for the purpose of holding the caster wheels against undue vibration or shimmery, though the caster wheel and the plate 55 may turn independently of the plate 52 while the caster wheel bracket is turning.

A sleeve 59 is attached to or integral with the plate 55, and a wrist or king pin 60 is located therein and projects at the end thereof, the said pin being also extended through the plates 52 and 56. The sleeve 59 has a base plate 60 attached to it and it is braced by check pieces 61 integral therewith, and the cheek pieces are welded to the sleeve so that a rigid bracket is produced extending from the sleeve, and the plate 50 is provided with a bearing 62 in which a shaft 63 is secured, the said shaft being provided with suitable spindles (not shown), on which the caster wheels 64 are rotatably secured in appropriate manner, and as the details of construction of the caster wheels may be changed to suit particular requirements, it is believed that those skilled in the art will understand the manner of their mounting. The bearing is secured to the plate 60 by a plate and bolt assembly, generally identified by the numeral 64a, and the lower end of the wrist pin 59 is secured in place by fastenings, such as nuts 64b.

It is the purpose of the inventor to provide a convertible bed or wagon body by which the capacity of the bed may be augmented by the addition of side boards, with novel means by which they are applied to or removed from the body frame, and there is provided plurality of supporting members or brackets each comprising two side plates or cheek members 65 which are connected by a plate 66 secured to the sides of the body frame. Tubular standards, such as 67, are pivoted to each of the brackets thereby means of a bolt 68 extending through the cheek pieces and through the standard. The standard has an angularly disposed foot 69 projecting from its side which is intended to abut and bear against the side frame member when the said standard is in horizontal position, that is to say when it is moved outwardly so that the side 70 of the body assumes a horizontal position in alignment with the bottom of the bed in order that the bottom of the bed and the side of the body form a dock to which loads may be applied if the load is not susceptible of being dislodged from the side of the dock. Such commodities could be visualized as filled bags or the like.

Another modification or utility associated with the wagon bed may comprise extended side boards 71 which are attached to brackets 72, the ends 73 of which are lodged in the tubular standards, and it is obvious that such modified construction would considerably increase the capacity of the bed of the wagon, and the side boards, as well as the supplemental or auxiliary side boards, would be held in their upright positions by braces or rods 74 having hooks 75 anchored to the side boards, or other appropriate means may be provided for strengthening the structure.
As force is applied to the tongue for raising the bed, the wagon is apt to move unless provision is made for checking it and hence, there is shown a restraining device which is duplicated on the two sides at the rear of the chassis, and each device comprises a member 77 having a shoe 78 at its outer end which is intended to assume an inclined position in order that it will lodge in the ground or engage the tongue in such a manner that it will resist the rearward movement to which reference is made. The member 77 is secured to an arm 79 hung from a pivot 80 on a bracket 81 which is secured to the chassis frame. A member 82 is secured to the member and is anchored to the body frame as illustrated in Fig. 1 and the chain may be adjusted to hold the shoe suspended, or it may be released for permitting it to gain its operative position.

I claim:

1. In a dumping wagon, a chassis frame inclined downwardly from its forward end to its rearward end and having bearings on its sides, a body frame with a body thereon, trunnions on the body frame partially rotatable in the bearings of the chassis frame, a tongue pivotally connected to the forward end of the chassis frame and to the front end of the body frame, means pivotally connecting the chassis and body frame to the rear end thereof whereby the body frame is held at different positions of adjustment with respect to its horizontal position, means for holding said means in different positions of adjustment, and manually operated elements for changing the positions of said means.

2. A dumping wagon according to claim 1 in which the means for holding the body frame in adjusted relation to the chassis comprises brackets secured to the chassis frame, said brackets having apertures, spring-pressed bracket-engaging bolts adapted to be forced into the apertures selectively for holding the body frame at different inclinations with respect to the chassis, the said bolts acting as pivots for supporting the body frame during the dumping operation of the wagon, and manually operated means for retreating the bolts.

3. In a dumping wagon according to claim 1 in which the means for holding the body frame in adjusted relation to the chassis comprises spring-pressed bolts, the springs of which are effective to project the bolts into apertures of the brackets, a member turnable on a support carried by the chassis, the said member having slots therein, links connecting the bolts to the said member, said links having pivots slidable in the slots of the member, and a manually operated means connected to said member for turning it on its pivot.

4. A dumping wagon comprising a chassis frame, a bracket on each side of the chassis frame located forwardly of the longitudinal center of the said frame, a bearing formed in each of the brackets, a body frame having trunnions partially rotatable in the bearings, brackets near the rear ends of the body frame depending therefrom and having spaced apertures vertically disposed with relation to one another, bracket-engaging means carried by the chassis comprising spring-pressed bolts adapted to enter the apertures of the brackets selectively whereby the body frame is held approximately in horizontal position or selectively in different inclined positions according to the engagement of the bolts in the apertures of the brackets, the said bolts forming trunnions on which the body frame is oscillately suspended during the dumping position, and means for raising the front end of the body frame for dumping a load.

5. A dumping wagon according to claim 4 in which the said means for raising the front end of the body frame comprises rods pivotally connected to the chassis frame, a tongue slidable longitudinally with respect thereto, and said rods pivotally connected at one end to the forward end of the body frame and connected at the opposite end to the tongue whereby longitudinal movement of the tongue during the dumping of the body frame elevates the front end of the body frame through said thrust rods.

6. A dumping wagon according to claim 4 in which the chassis frame is provided with a caster wheel for supporting and guiding the front end of the said chassis.

7. A farm wagon of the character described comprising an independent undercarriage chassis frame inclined from its forward end to its rearward end, a body frame mounted thereon, a pivotal connection between the body frame and the chassis frame at the rear end of the respective frames whereby the body frame may be elevated with respect to the chassis frame, a tongue supported by the chassis frame and slidable longitudinally with respect thereto, and said rods pivotally connected at one end to the forward end of the body frame and connected at the opposite end to the tongue whereby longitudinal movement of the tongue during the dumping of the body frame elevates the front end of the body frame through said thrust rods, and further means for locking said body frame in various elevated positions.

CHESTER M. WILLIAMS.

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