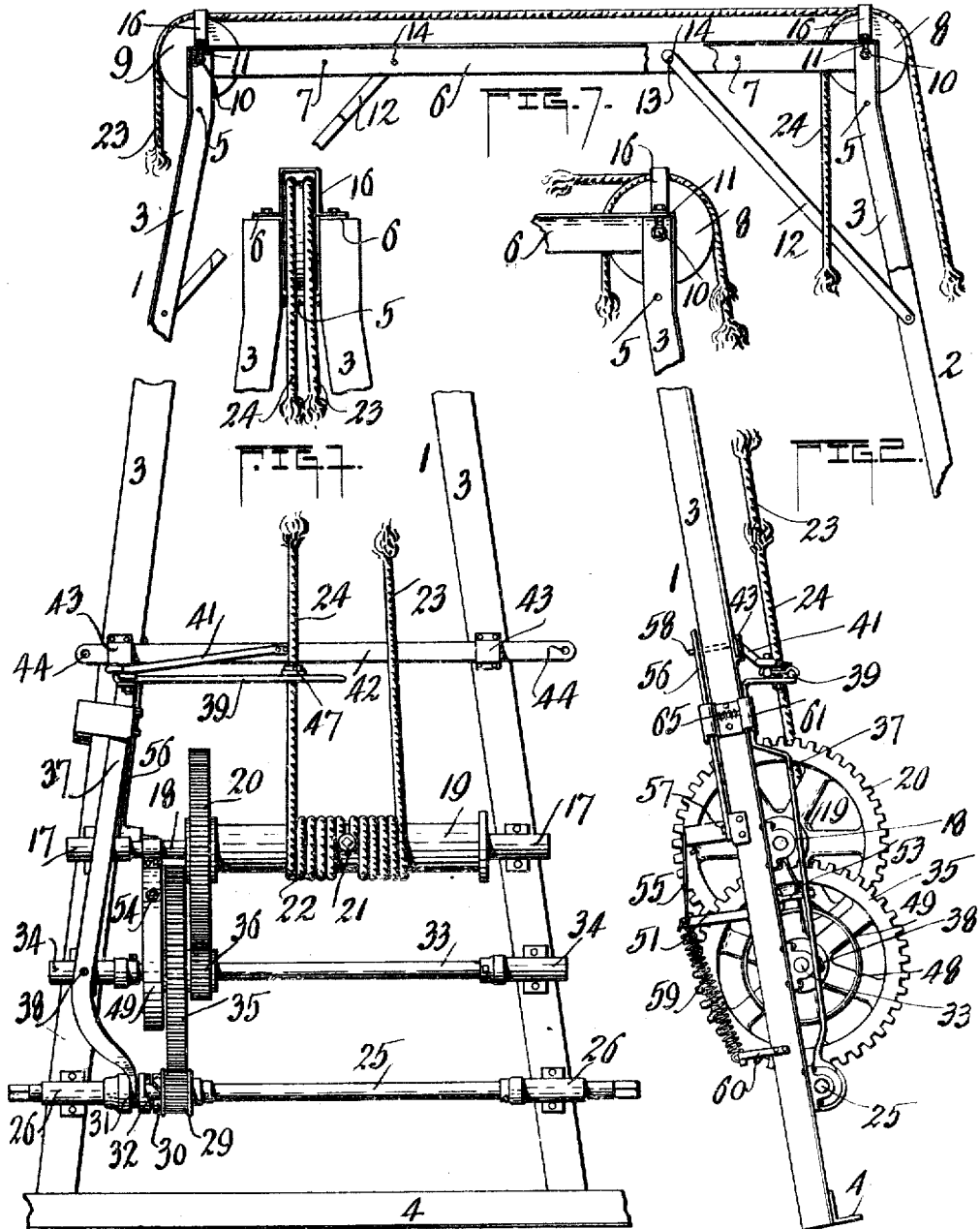


B. M. STEELE.
WAGON DUMP LIFTING JACK.
APPLICATION FILED SEPT. 13, 1906.

954,145.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1



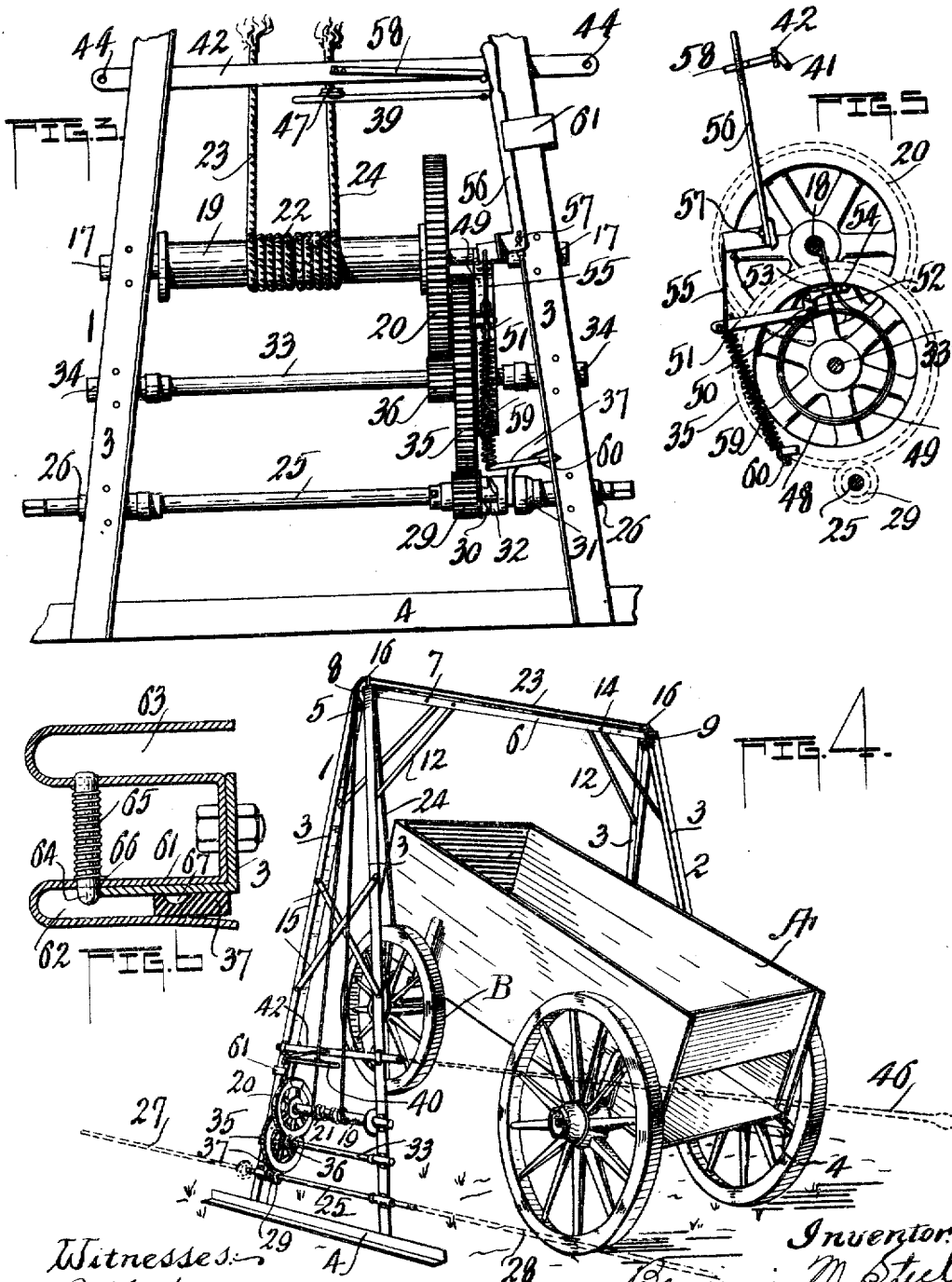
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UNITED STATES PATENT OFFICE.

BENJAMIN M. STEELE, OF PEORIA, ILLINOIS.

WAGON-DUMP LIFTING-JACK.

954,145.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed September 13, 1906. Serial No. 334,484.

To all whom it may concern:

Be it known that I, BENJAMIN M. STEELE, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Wagon-Dump Lifting-Jacks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to certain new and useful improvements in wagon dump lifting jacks and relates particularly to what is known as an overhead jack; that is to say, the elevating mechanism consists of an upright frame supporting pulleys and a driving mechanism in connection with which is used a cable or a similar device adapted to engage the hubs of the front wheels of a wagon and by such means, the wagon is lifted to a predetermined height to adapt the material therein to be gradually unloaded or discharged into a suitable conveyer or feeder from which the same is discharged into an elevator and by it, elevated into a barn or crib.

One of the objects which I have in view is to construct an upright frame having pulleys over which the opposite ends of a rope or cable are carried, to adapt the free ends thereof to engage the hubs of the front wheels of a wagon; and the said rope or cable consists of one piece, the looped end of which is wrapped about and secured to a suitable drum forming a part of a driving mechanism, which, when operated serves to elevate and lower the wagon by means of said rope or cable.

A further object of the invention consists of an elevating means for raising and lowering the front end of a wagon; gearing for operating such elevating mechanism; a friction brake adapted to be manually or automatically operated for locking the position of the elevating means when the wagon has reached a predetermined height and for retaining the same in such position, and means operating in connection with said friction brake for controlling and permitting said wagon to be dropped by gravity.

The support for the elevating means and driving and brake mechanism is made preferably of angle-iron uprights and cross-

braces which are adapted to be detachably connected to allow of said support being shipped in knock-down form.

For a further and full description of the invention herein and the merits thereof, and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is an enlarged end view showing that portion of the jack containing the driving and friction brake mechanism, a portion of the uprights forming the jack being broken away to show the extreme upper end thereof; Fig. 2 is an enlarged side view of that portion of the jack which is shown in Fig. 1; Fig. 3 is a rear view of that portion of the upright of the jack shown in Fig. 1, and containing the driving and friction brake mechanism; Fig. 4 is a somewhat reduced perspective view in outline of the complete lifting jack and showing the manner of elevating the front end of a wagon; Fig. 5 is an enlarged detail view of the gearing and friction brake mechanism, as the same would appear looking at the right end of Fig. 3; Fig. 6 is an enlarged sectional plan view of certain parts attached to one of the uprights of the jack with which cooperates a lever controlling one of the clutch parts of the gearing for raising and lowering the wagon, and Fig. 7 is a somewhat reduced side elevation and partial section of the upper ends of the uprights of the jack and showing the cross-braces for connecting the same and the pulleys carried thereby.

The mechanism for raising and lowering the elevating means, I have preferred to show in connection with an overhead jack, yet, the same may be applied to a platform jack on which the front wheels of a wagon may rest, as the front end thereof is elevated and lowered and in employing the mechanism just referred to on an overhead jack, the outline of said jack is similar to this type which have heretofore been used with the exception of the detail construction of the uprights, the upper cross-braces and the manner of connecting and discon-

necting the same whereby the parts of the said jack may be shipped in knock-down form.

In the drawings, the jack comprises a pair of standards 1 and 2 which are inclined toward each other and are of suitable height; said standards consist of angle-iron uprights 3 which converge toward their upper ends and have their lower ends connected and braced by the angle-iron sills 4 which are adapted to rest on the ground, as best seen in Fig. 4 of the drawings. The upper ends of the uprights 3 of each standard are preferably spaced apart for a suitable distance and are connected and braced by the short studs 5 as shown; and the upper ends of the corresponding uprights 3 of the standards 1 and 2 are connected, braced and suitably held spaced apart by means of the angle-iron braces or sills 6, as shown.

The braces or sills 6 extend parallel with each other and are held suitably spaced apart and braced by means of the studs 7 which are similar to those indicated as 5, bracing the upper ends of the uprights 3 of each of the standards, and said studs 7 not only serve to brace and hold the sills 6 suitably spaced apart but connect them as one piece to adapt the braces or sills 6 to be detached at their opposite ends from the upper ends of the uprights 3 of the standards 1 and 2. To the opposite ends of said braces or sills 6 and between the same are journaled the grooved pulleys or rollers 8 and 9; the former having a double groove to adapt two parts of a rope or cable to ride over the same and the latter being preferably provided with only one groove to allow one portion of a rope or cable to ride over the same. Spindles 10 carry the grooved pulleys or rollers 8 and 9 and said spindles have a bearing in the braces or sills 6, and when said braces or sills are connected up with the uprights 3 of the standards 1 and 2, the said spindles are dropped into and extend through slots 11 in the upper ends of the uprights 3, which form a bearing for the outer ends of said spindles. In such position the horizontal portions of the angle-iron braces or sills 6 will rest on the upper ends of the uprights 3, as best seen in Figs. 1, 2 and 7. The braces or sills 6 are braced from the body of the uprights 3 by means of the straps or reaches 12 which are pivotally connected to the uprights 3 as shown in Figs. 4 and 7, and the upper ends of said straps or reaches 12 are slotted as at 13, see Fig. 7, to allow the same to have a detachable connection with shoulder rivets 14 secured to and projecting inwardly from the inner faces of the braces or sills 6. Thus, it will be seen, that the straps or reaches 12, through the provision of the slots 13 in their upper ends, may be disconnected from the rivets 14, above referred to, by swinging

said reaches 12 upward and outward, which will release the braces or sills 6 from the standards 3, when said braces or sills 6 may be lifted or detached from the standards, leaving the jack in three distinct parts, consisting of the standards 1, 2 and the braces or sills 6, which are connected with each other in the manner specified.

The uprights 3 of each standard are braced from each other by means of the straps 15 connected at their opposite ends to the opposite upright 3, as best seen in Fig. 4; and overlying the pulleys 8 and 9 are straps 16 which are connected to the opposite braces 6, in the manner best seen in Figs. 1, 2 and 7, which serve to prevent any dislodgment of the rope or cable to be described, which rides over the said pulleys and beneath the straps 16, also best seen in Figs. 1, 2 and 7.

In boxings 17 secured to the uprights 3 of the standard 1 are journaled the opposite ends of what will be hereafter known as the drum shaft 18, on which is secured to rotate with said shaft, a drum 19 to which is attached a large gear wheel 20, which latter may be secured to the shaft 18 if it is so desired in lieu of the drum 19. Centrally of this drum is secured the looped end 21 of a rope or cable 22, the opposite ends of which being indicated as 23 and 24 are carried up and over the pulley heretofore indicated as 8, the end of said rope or cable 23 extending across the top of said jack and over the pulley 9, the end 24 passing down and around the pulley 8, and said ends 23 and 24 are adapted to be passed through the front wheels B of a wagon which is here indicated as A, and looped and secured about the hubs of said wheels, so that when the drum shaft 18 is operated for the purpose of winding the said rope or cable 22 about the drum 19, the front of said wagon will be elevated somewhat in the manner seen in Fig. 4 of the drawings. The manner of operating the drum shaft will now be described.

25 denotes a driving shaft, the opposite ends of which pass through and are journaled in boxings 26, secured to the uprights 3 of the standard 1, and the opposite ends of the said driving shaft are squared to allow for the connection therewith of a power shaft which is shown in dotted lines in Fig. 4 and indicated as 27; this shaft is adapted to have a suitable connection with some suitable source of power for operating the mechanism for raising the said wagon. Jacks for the purposes herein are known to the trade and several different forms of power appliances are in use, any one of which may be used. To the opposite end of the power shaft 25 may be connected a tumbling rod shown in dotted lines in Fig. 4 and indicated as 28, which said tumbling rod is designed to have a suitable connection with an elevator to which is connected a

drag or cross conveyer for receiving the material as it is discharged from the rear end of the wagon, said material being deposited in the lower end of the elevator, and it in turn, elevates the same into a barn, crib or other suitable receptacle. The elevator, drag, or cross conveyer, and power devices have not been shown, as they form no part of this invention and for this reason, it is not thought necessary to illustrate the same.

On the power shaft 25 is loosely carried a small pinion 29 which is provided with a clutch face 30; and feathered to have a slidable connection with the shaft 25 is a clutch part 31, having a clutch face 32 adapted to engage with the clutch face 30 of the pinion 29 for connecting the said pinion with the power shaft when it is desired to transmit motion from the power shaft to the drum shaft 18. For transmitting such motion I have provided an intermediate or counter shaft 33 which is disposed between the power shaft 25 and the drum shaft 18 and journaled at its opposite ends in boxings 34 secured to the uprights 3 on the standard 1. On such shaft is a large gear wheel 35 which meshes with the pinion 29 on the power shaft, and there is also provided on said intermediate or counter shaft a pinion 36 which meshes with the gear wheel 20 on the drum shaft 18. Thus, it will be seen that when the power shaft 25 is in motion, and the clutch 31 is thrown into engagement with the pinion 29, motion will be imparted from the power shaft through the pinion 29 and the gear 35 to the intermediate or counter shaft 33 and from the counter shaft through the pinion 36 to the gear 20, which will impart motion to the drum shaft 18 and the drum shaft in turn through the drum thereon and its connection with the rope or cable 22, will, if the ends of said cable are secured to the hubs of the front wheels of a wagon, elevate the front end of the said wagon, such operation being continued until the clutch 31 is disconnected from the pinion 29. I have provided in connection with such raising mechanism means, whereby the clutch may be automatically disengaged from the pinion 29 when the front end of the wagon reaches a predetermined height or said clutch may be manually disengaged from said pinion whenever the operator so desires such disconnection. And I have provided that when the clutch 31 is released or disengaged from the pinion 29, the mechanism may be locked for retaining the wagon in such elevated position until the operator again desires that the same shall be lowered, when, the locking means will be released and the wagon allowed to drop by gravity, at the same time the operator has control of such movement and may stop the wagon at will, all of which will be explained more fully in detail.

37 denotes a lever which is fulcrumed at 38 to one of the boxings 34, and the lower end of the said lever has suitable connection with the clutch 31, so that when the upper end of the lever is moved outwardly the clutch face 32 of said clutch will be caused to engage the clutch part 30 of the pinion 29, and when said lever is moved in a reverse direction, the clutch parts will be disconnected. The extreme upper end of the lever 37 has connected therewith one end of a slotted bar 39 which projects inwardly from the said lever and through the slot thereof is carried that portion of the rope or cable, which has been referred to as 24. The slot in the bar 39 is not shown in detail, but is indicated as 40 and may be seen in Fig. 4 of the drawings. The bar 39, I have preferred to make from a rod which is bent into the form of a U, although this is not necessary and may be constructed in any other manner; and one end thereof is turned up as best seen in Figs. 1 and 2, to allow for the connection therewith of a bar or rod 41; the inner end of which is connected with a bar or rod 42 which is slidably carried in boxings or brackets 43 secured to the uprights 3 of the standards 1; the opposite ends of said bar or rod 42 being provided with suitable perforations 44, to allow for connecting with either end of said bar, an operator's rod 46, best seen in dotted lines in Fig. 4, which extends back to within easy reach of the operator, who, it will be seen, is enabled to operate the lever 37 at will for the purpose of connecting or disconnecting the clutch 31 with the pinion 29 on the power shaft 25. For automatically operating the lever 37 and thereby connecting or disconnecting the clutch 31 with the pinion 29, I provide a collar 47 which may be adapted to have an adjustable connection with the portion 24 of the rope or cable which moves up and down through the slot 40 in the bar 39. When the operator throws the bar or rod 42 to the left (looking at Fig. 1), he will, through the connection of the rod 41 with the bar 39 throw the lever 37 also to the left, which will cause the clutch 31 to engage with the pinion 29 and slightly raise the inner end of said bar 39. This will cause the rope or cable to be wound on the drum 19 and will elevate the front end of a wagon in the manner hereinbefore stated, and when the wagon has reached a predetermined height, which is governed by the position of the collar 47 on the end 24 of the rope or cable 22, said collar will engage with the end of the bar 39 and forcing it downwardly will shift or throw the lever 37 into the position shown in Fig. 1 and cause the separation of the clutch face 32 of the clutch 31 from the clutch part 30 of the pinion 29 and check the upward movement of the said wagon.

I will now describe the mechanism for

locking the gearing which is employed for raising the wagon, so as to retain the wagon in such elevated position until the operator determines that he desires to again lower the said wagon. On the intermediate or counter shaft 33 is carried a smoothed face pulley or drum 48, which may be connected directly with said shaft or formed a part of the gear wheel 35, and carried around or encircling the periphery of said pulley or drum 48 is a strap or band 49, one end of which is secured about the drum shaft 18 and the opposite end thereof is secured at 50 to a lever 51, said lever having the short right angular portion 52 to which is pivotally connected a rod 53, the outer end of which is preferably reduced and passes through the portion of the strap or band 49, which extends up and is secured about the drum shaft 18, and on the outer reduced end of said rod are secured nuts 54 for retaining a connection between the rod 53 and the strap or band 49. To the outer free end of the lever 51 is connected a rod 55 which has its opposite end connected with one end of a lever 56 which is fulcrumed at 57 to one of the uprights 3 of the standard 1. The upper end of the lever 56 is positioned in proximity to and at the rear of the bar or rod 42 and said bar or rod has secured thereto a rod 58, see Fig. 3, the outer end of which is adapted, when the said bar or rod 42 is projected forwardly for the purpose of causing the clutch 31 to engage with the pinion 29, to engage with the upper end of the lever 56 and oscillate it to the right, looking at Fig. 3, which said movement will raise the outer end of the lever 51 and move the rod 53 to the right, looking at Fig. 5, which will release the band 49 from an impinging engagement with the peripheral face of the drum 48; such releasing of the band from the drum simultaneous with the engagement of the clutch part 31 with the pinion 29, will allow the gearing to operate to wind the rope or cable on the drum for the purpose of elevating the wagon in the manner hereinbefore stated. Upon the collar 47 on the rope or cable engaging with the outer end of the bar 39, which operates to automatically move the lever 37 to release the clutch parts, or should the operator desire to release the gearing which he would do through the shifting of the operator's rod 40 and by it move the lever 37, the bar or rod 42 will move into a direction just opposite to that above described, moving the end of the rod 58 from the lever 56 and permitting a coil spring 59 connected at one end to the lever 51 and at its opposite end to a frame part 60 secured to one of the uprights 3, to draw the lever 51 down into its normal position, and by such movement the rod 53 which is connected with said lever and with the band

49, will draw said band tightly about the surface of the drum and by such impinging engagement will lock the drum and the shaft 33 against rotation and retain the wagon in its elevated position, or until the strap or band 49 has been again released from the drum 48 which will allow the wagon to drop by gravity. The operator again desiring to lower the wagon to the ground, will grasp the outer end of the lever 56 and throw the same to the right, looking at Fig. 3, and through the connections described, between the lever 56 and the band 49 he is enabled to release the band from the drum which will allow the wagon to drop and the drum shaft to operate to unwind the rope or cable therefrom; in this way the operator may allow the wagon to descend just as rapidly as possible and to check the movement thereof at any point he may desire, by releasing the lever 56 when the spring 59 will act, in the manner hereinbefore stated to cause the band 49 to impinge the peripheral face of the drum 48 and lock the gearing against rotation.

I have provided for locking the lever 37 after it is shifted, for the purpose of causing the clutch parts 30 and 32 to engage for transmitting motion from the shaft 25 to the drum shaft 18. To one of the uprights 3 of the standard 1, preferably the left upright looking at Fig. 1, is secured a plate 61 having the oppositely arranged U shaped portions 62 and 63 as shown. Into the U shaped portions 62 is adapted to have movement, the upper end of the lever 37 and into the U shaped portions 63 is adapted to have movement the lever 56. Operating through the matching walls of the plates 61 is a plunger 64 and one end thereof is adapted to be held projecting into the U shaped portions 62 by means of a coil spring 65 bearing at one end against the wall of the plate 61 and its opposite end against a pin 66 in the plunger 64. In the rear face of the lever 37 is provided a concave depression or seat 67, which, when the lever 37 has been shifted for the purpose of connecting the clutch parts, will ride over and allow the end of the plunger 64 to engage and seat itself in said depression 67 on the lever and temporarily lock the same in such position, for the purpose of preventing the clutch parts to become accidentally disengaged through any jar or vibration of the frame which would tend to return the lever 37 to its original position. When the collar 47 engages with the bar 39 or the operator moves the bar or rod 42, such movement will cause the lever to release itself from the plunger, all of which it is believed will be understood. Should it be desired, the rear face of the lever 56 may be provided with a depression similar to that shown at 67 in

the lever 37, and the plunger 64 made somewhat longer at its opposite end, so that when the lever 56 is shifted by the operator to release the band 49 from the drum 48, it could be temporarily locked in such a position until the wagon had been lowered to the ground. This arrangement has not been shown, but mention has been made of the same to show that it is contemplated in this construction.

It is obvious that various changes may be made in the make-up of the frame support and in the detail construction of the mechanism for operating to raise and lower the wagon; especially is this true of the rope or cable for which may be substituted a platform, also, that the rope or cable instead of being made of one piece may be made of two distinct parts or should it be desired, a chain may be substituted for the said rope or cable. And the construction of the cross-braces or sills may be modified as well as the manner of detachably connecting them with the upper ends of the standards.

One of the many advantages found in the operation of my device is that the mechanism on the jack is positively actuated by some suitable power for elevating the wagon, but when it is desired to lower the wagon the power may be cut off and the wagon allowed to drop by gravity, the operator by means of the clutch controlling the descent of the wagon. This is of great advantage when using a power operated by horses as it will be seen there is no need to use the horses for lowering the wagon and the power may stand at rest.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent of the United States, is:—

1. A frame support for a wagon dump lifting jack, comprising a pair of standards composed of uprights converging toward their upper ends, braces between each of the uprights of each standard, braces connecting the upper ends of the uprights of each of said standards and retaining them suitably spaced apart, and means for detachably connecting the last mentioned braces with said standards, comprising reaches pivoted at one end to the standards and detachably connected at their opposite ends with said braces.

2. A frame support for a wagon dump lifting jack, comprising a pair of standards composed of uprights converging toward their upper ends, braces between each of the uprights of each standard, braces connecting the upper ends of the uprights of each of said standards and retaining them suitably spaced apart, a grooved pulley journaled between the opposite ends of the last mentioned braces, and means for detachably connecting said braces with said standards, comprising reaches pivoted at one end to the

standards and detachably connected at their opposite ends with said braces.

3. A frame support for a wagon dump lifting jack, comprising a pair of standards composed of uprights converging toward their upper ends and provided with slots, a pair of braces connecting the upper ends of the uprights of each of said standards and holding the same suitably spaced apart, said braces provided with means adapted to engage the slots in the uprights aforesaid, and reaches pivotally connected with the uprights of each standard and adapted to have a detachable connection with said last mentioned braces.

4. A frame support for a wagon dump lifting jack, comprising a pair of standards composed of uprights converging toward their upper ends and provided with slots, a pair of braces adapted to connect the upper ends of the corresponding uprights of each standard and for holding the standards suitably spaced apart, grooved rollers journaled on spindles having a bearing in the opposite ends of said braces and projecting through the same, said spindles adapted to be seated in the slots aforesaid of the uprights, and reaches pivotally connected with the uprights of each standard and adapted to have a detachable connection with said braces.

5. A frame for a wagon dump lifting jack, comprising a pair of standards composed of uprights converging toward their upper ends, braces having a detachable connection with the upper ends of the said standards and for holding the same suitably spaced apart, grooved rollers having a bearing in the opposite ends of said braces, a drum shaft and drum suitably supported in connection with one of said standards, and a one piece cable having two acting ends the looped portion of which is fixedly connected with the drum aforesaid, the two ends of said cable adapted to ride each over one of said pulleys, and one end of said cable adapted to ride over both of said pulleys.

6. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, a friction brake, and means for simultaneously disconnecting the clutch from the gearing and for setting said brake.

7. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, mechanism for locking said gearing upon the release of the clutch from connection therewith, and means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism.

8. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, a friction brake, and means automatically actuated by said elevating means for disconnecting the clutch from the gearing and simultaneously setting said brake.

9. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, a friction brake, and means adapted to be automatically or manually operated for disconnecting the clutch from the gearing and simultaneously setting said brake.

10. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, a friction brake, means connected with said elevating means for automatically disconnecting the clutch from the gearing and simultaneously setting said brake, and manually operated means connected with said clutch and said brake whereby the same may be operated at the will of the operator.

11. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch controlling the connection of said gearing with a suitable power, a friction brake, and means adjustably connected with said elevating means for automatically disconnecting the clutch from the gearing and simultaneously setting said brake.

12. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing the locking mechanism to allow the elevating means to be lowered.

13. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means attached to the elevating means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually

operated means for releasing the locking mechanism to allow the elevating means to be lowered.

14. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism and manually operated means for releasing and controlling the locking mechanism, whereby the wagon may drop of its own weight and be stopped at the will of an operator.

15. In a wagon dump lifting jack, the combination of means for elevating the front end of a wagon, gearing for raising said elevating means, a clutch for controlling the connection of said gearing with a suitable power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means adjustably attached to the elevating means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing and controlling the locking mechanism, whereby the wagon may drop at the will of an operator.

16. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, a friction brake, and means for simultaneously disconnecting the clutch from the gearing and for setting said brake.

17. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise the said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, mechanism for locking said gearing upon the release of the clutch from connection therewith, and means for simultaneously disconnecting the clutch from the gearing and for operating said locking means.

18. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, a

friction brake, and means adapted to be automatically actuated by said cable for disconnecting the clutch from the gearing and simultaneously setting said brake.

19. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, a friction brake, and means adapted to be automatically or manually operated for disconnecting the clutch from the gearing and simultaneously setting said brake.

20. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, a friction brake, means connected with said cable for automatically disconnecting the clutch from the gearing and simultaneously setting said brake, and manually operated means connected with said clutch and said brake whereby the same may be operated at the will of an operator.

21. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, a friction brake, and means adjustably connected with said cable for automatically disconnecting the clutch from the gearing and simultaneously setting said brake.

22. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise the said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism and manually operated means for releasing the locking mechanism to allow the cable to unwind from said drum.

23. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise the said wagon, a

clutch for controlling the connection of said gearing with a suitable source of power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means attached to the cable for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing the locking mechanism to allow the cable to unwind from said drum.

24. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing and controlling the locking mechanism, whereby the cable may be unwound from the drum and the wagon drop of its own weight and be stopped at the will of an operator.

25. In a wagon dump lifting jack, the combination with a frame support, a cable adapted to be secured to a wagon for elevating and lowering the same, a drum on which said cable may be wound, gearing for actuating said drum to raise said wagon, a clutch for controlling the connection of said gearing with a suitable source of power, mechanism for locking said gearing upon the release of the clutch from connection therewith, means adjustably attached to the cable for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing and controlling the locking mechanism whereby the cable may be unwound from the drum and the wagon drop of its own weight and be stopped at the will of an operator.

26. In a wagon dumping lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling said clutch, a friction brake, and means for simultaneously operating said lever to disconnect the clutch from the gearing and for setting said brake.

27. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling said clutch, mechanism for locking said gearing upon the release of the clutch

from connection therewith, and means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism.

28. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling said clutch, a friction brake, and means automatically actuated by said raising means for disconnecting the clutch from the gearing and simultaneously setting the said brake.

29. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling said clutch, a friction brake, and means adapted to be automatically or manually operated for disconnecting the clutch from the gearing and simultaneously setting said brake.

30. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling said clutch, a friction brake, means connected with said raising means for automatically disconnecting the clutch from the gearing and simultaneously setting the said brake, and manually operated means connected with said clutch and said brake whereby the same may be operated at the will of an operator.

31. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling said clutch, a friction brake, and means adjustably connected with said raising means for automatically disconnecting the clutch from the gearing and simultaneously setting said brake.

32. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling the said clutch, mechanism for locking said gearing upon the release of the clutch from connection therewith, means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing the locking mechanism to allow the raising means to be lowered.

33. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect the said gearing with said shaft, a lever for controlling the said clutch, mechanism for locking said gearing upon the release of the clutch from connection therewith, means attached to the raising means, for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing the locking mechanism to allow the raising means to be lowered.

34. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect said gearing with said shaft, a lever for controlling said clutch, mechanism for locking said gearing upon the release of the clutch from connection therewith, means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing and controlling the locking mechanism, whereby the wagon may drop of its own weight and be stopped at the will of an operator.

35. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said elevating means, a drive shaft and a clutch slidable thereon adapted to connect said gearing with said shaft, a lever for controlling the said clutch, mechanism for locking said gearing upon the release of the clutch from connection therewith, means adjustably attached to the elevating means for simultaneously disconnecting the clutch from the gearing and for operating said locking mechanism, and manually operated means for releasing and controlling the locking mechanism, whereby the wagon may drop of its own weight and be stopped at the will of the operator.

36. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking said lever when said gearing and clutch mechanism are connected, and means for operating said lever to disconnect the clutch mechanism from the gearing.

37. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, a

means for temporarily locking the said lever when said gearing and clutch mechanism are connected, and means connected with the raising means for operating said lever to disconnect the clutch mechanism from the gearing and check the upward movement of the wagon.

38. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when said gearing and clutch mechanism are connected, and means for automatically actuating the lever when the wagon has reached a predetermined height, for disconnecting the clutch mechanism from the gearing to check the movement of said wagon.

39. In a wagon dump lifting jack, the combination of means for raising the front end of wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when said gearing and clutch mechanism are connected, means connected with the raising means for operating the said lever, to disconnect the clutch mechanism from the gearing and check the upward movement of the wagon, and manually operated means by which said lever may be under the control of an operator.

40. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when said gearing and clutch are connected, and means adjustably connected with the raising means for automatically operating said lever to disconnect the clutch mechanism from the gearing and check the upward movement of the wagon.

41. In a wagon dump lifting jack, the combination of means for raising the front end of wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when the said gearing and clutch are connected, means connected with the raising means for operating said lever to disconnect the clutch mechanism from the gearing to check the upward movement of the wagon, and friction brake mechanism operating to lock said gearing when the clutch mechanism and gearing are disconnected.

42. In a wagon dump lifting jack, the

combination of means for raising the front end of a wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when the said gearing and clutch are connected, means adjustably connected with the raising means for automatically operating said lever to disconnect the clutch mechanism from the gearing to check the upward movement of the wagon, and friction brake mechanism operating to lock said gearing when the clutch mechanism and gearing are disconnected.

43. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising the said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when the gearing and clutch are connected, means for automatically actuating the lever when the wagon has reached a predetermined height, for disconnecting the clutch mechanism from the gearing to check the upward movement of the wagon, and friction brake mechanism operating to lock said gearing when the clutch mechanism and gearing are disconnected.

44. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when the said gearing and clutch are connected, means connected with the raising means for operating said lever to disconnect the clutch mechanism from the gearing and check the upward movement of the wagon, manually operated means whereby said lever may be under the control of an operator, and friction brake mechanism operating to lock said gearing when the clutch mechanism and gearing are disconnected.

45. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising the said raising means, clutch mechanism for controlling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when the said gearing and clutch are connected, means for operating said lever to disconnect the clutch mechanism from the gearing, and mechanism for locking the said gearing upon the release of the clutch mechanism therefrom.

46. In a wagon dump lifting jack, the combination of means for raising the front end of a wagon, gearing for raising the said raising means, clutch mechanism for con-

trolling the operation of said gearing, a lever for controlling the clutch mechanism, means for temporarily locking the said lever when the said gearing and clutch are connected, means for operating the said lever to disconnect the clutch mechanism for locking said gearing upon the release of the clutch mechanism, therefrom, and means for simultaneously disconnecting the clutch mechanism from the gearing and for operating said locking mechanism.

47. In a wagon dump lifting jack, the combination of a drum shaft and drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, means in operative connection with the drum shaft for controlling the disconnection of the clutch with the gearing, and gear locking means actuated simultaneously with the release of the clutch from the gearing.

48. In a wagon dump lifting jack, the combination of a drum shaft and drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, means in operative connection with the drum shaft for controlling the disconnection of the clutch with the gearing, and means in operative connection with said interposed gearing adapted to be simultaneously actuated upon the release of the clutch from the gearing for locking the drum against rotation.

49. In a wagon dump lifting jack, the combination of a drum shaft and drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, means in operative connection with the drum shaft for controlling the disconnection of the clutch with the gearing, and a friction brake connected with said interposed gearing adapted to lock said gearing against rotation upon the release of the clutch therefrom.

50. In a wagon dump lifting jack, the combination of a drum shaft and a drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, a lever for controlling the movement of the clutch, means in operative connection with the drum shaft, for operating the said lever, and gear locking means actuated simultaneously with the operation of the lever.

51. In a wagon dump lifting jack, the combination of a drum shaft and a drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, a lever for controlling the movement of the clutch, means in opera-

tive connection with the drum shaft for operating said lever, and means in operative connection with said interposed gearing adapted to be simultaneously actuated upon the operation of the lever for locking the drum against rotation.

52. In a wagon dump lifting jack, the combination of a drum shaft and a drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, a lever for controlling the movement of the clutch, means in operative connection with the drum shaft for operating said lever, and a friction brake connected with said interposed gearing adapted to lock said gearing against rotation upon the operation of said lever.

53. In a wagon dump lifting jack, the combination of a drum shaft and a drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, a lever for controlling the movement of the clutch, gear locking means, and mechanism for simultaneously operating said lever to release the clutch from the gearing and setting said gear locking means.

54. In a wagon dump lifting jack, the combination of a drum shaft and a drum, a power shaft, gearing interposed between the power and drum shafts, a clutch slidable on the power shaft adapted to connect the gearing with said shaft, a lever for controlling the movement of the clutch, gear locking mechanism, an operative lever connected with said lever and with said gear locking mechanism, and means in operative connection with the drum adapted to operate said lever and said gear locking mechanism.

55. In a wagon dump lifting jack, the combination of a drum shaft and drum, a power shaft, a counter shaft, gearing interposed between the counter shaft and said drum and power shafts, a clutch for controlling the transmission of power from the power shaft to the gearing, means for operating said clutch and gear locking means adapted to be actuated simultaneously with the release of the clutch from the gearing.

56. In a wagon dump lifting jack, the combination of a drum shaft and drum, a power shaft, a counter shaft, gearing interposed between the counter shaft and said drum and power shaft, a clutch for controlling the transmission of power from the power shaft to the gearing, means for operating said clutch, and a friction brake in operative connection with said counter shaft adapted to be actuated simultaneously with the release of the clutch from the gearing.

57. In a wagon dump lifting jack, the combination of a drum shaft and drum, a power shaft, a counter shaft, gearing in-

terposed between the counter shaft and said drum and power shaft, a clutch for controlling the transmission of power from the power shaft to the gearing, means for operating said clutch, a friction brake carried on the counter shaft adapted to lock the gearing upon the release of the clutch therefrom, and means connected with the lever operating means whereby the brake and lever are actuated simultaneously.

58. In a grain dump lifting jack, the combination of means for elevating the front end of a wagon, mechanism for positively actuating said elevating means, a brake for locking said mechanism when the wagon has reached a predetermined height, and means under the control of an operator for releasing said brake and thereby allow said wagon to drop by gravity.

59. In a grain dump lifting jack, the combination of means for elevating the front end of a wagon, mechanism for positively actuating said elevating means, a brake for locking said mechanism when the wagon has been raised, and means automatically operated by said elevating means for setting said brake, and means under the control of an operator for releasing said brake and thereby allow said wagon to drop by gravity.

60. In a grain dump lifting jack, the combination of a drum shaft and drum, means

operated by said drum for raising the front end of a wagon, a drive shaft, a clutch and clutch controlled means for operating the drum shaft from the power shaft, a lever for controlling said clutch, a brake for locking the clutch controlled means when released from the clutch, an operator's lever and means for simultaneously operating the clutch lever and brake therefrom, and means under the control of an operator whereby he may operate the brake independent of the operation of said clutch lever.

61. A frame support for a wagon dump lifting jack, comprising a pair of standards composed of uprights converging toward their upper ends, which are slotted, a pair of parallel spaced brace bars, means connecting said bars to maintain them in such relation, spindles carrying pulleys journaled in the opposite ends of said bars and adapted to have a bearing in the slots of the uprights, and diagonal connections between said bars and said uprights, said connections having a detachable relation with said bars.

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

BENJAMIN M. STEELE.

Witnesses:

CHAS. W. LA PORTE,
ROBT. N. MCCORMICK.