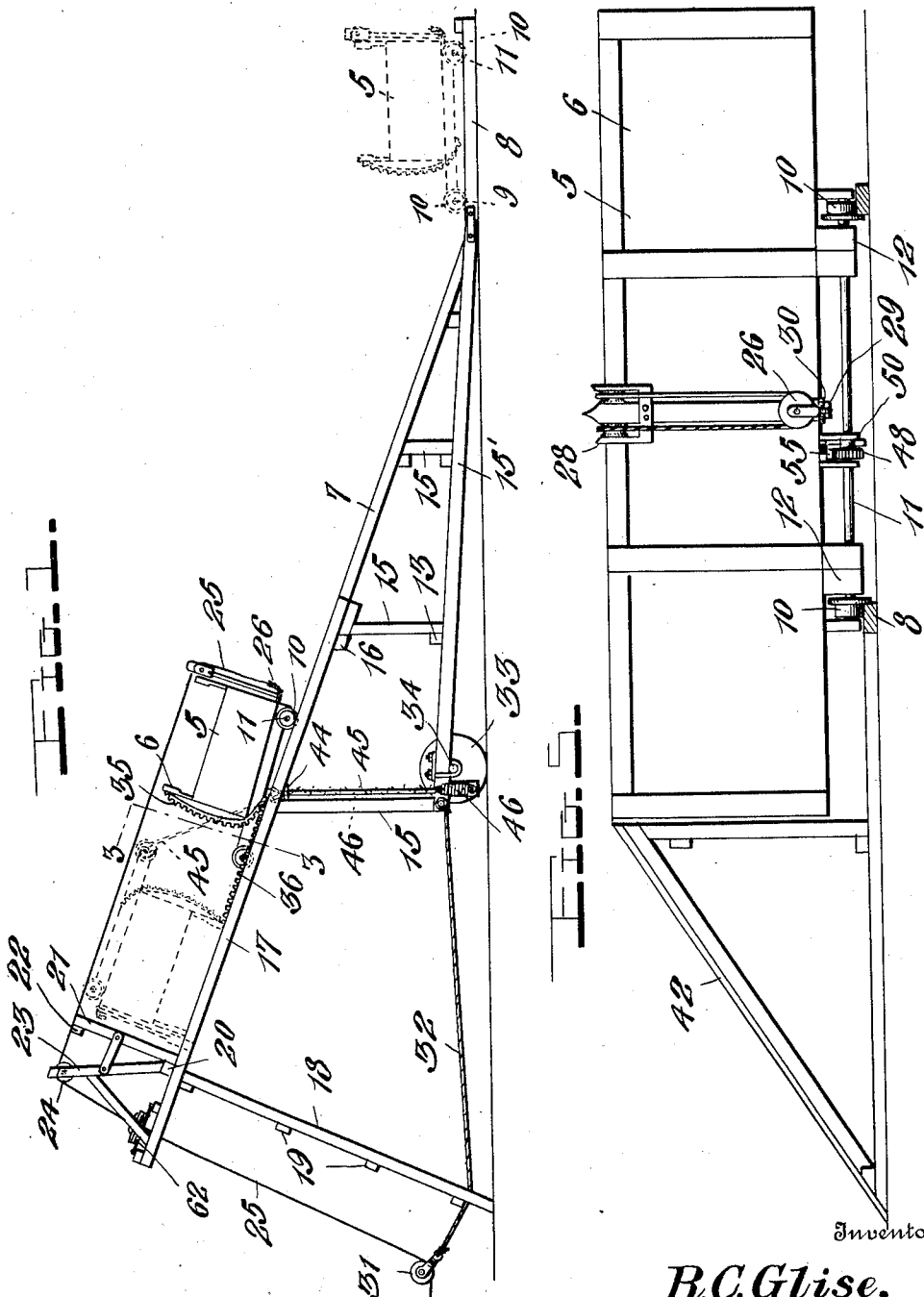


R. C. GLISE.
LOADING APPARATUS.
APPLICATION FILED MAY 14, 1910.

1,002,385.

Patented Sept. 5, 1911.

5 SHEETS—SHEET 1.



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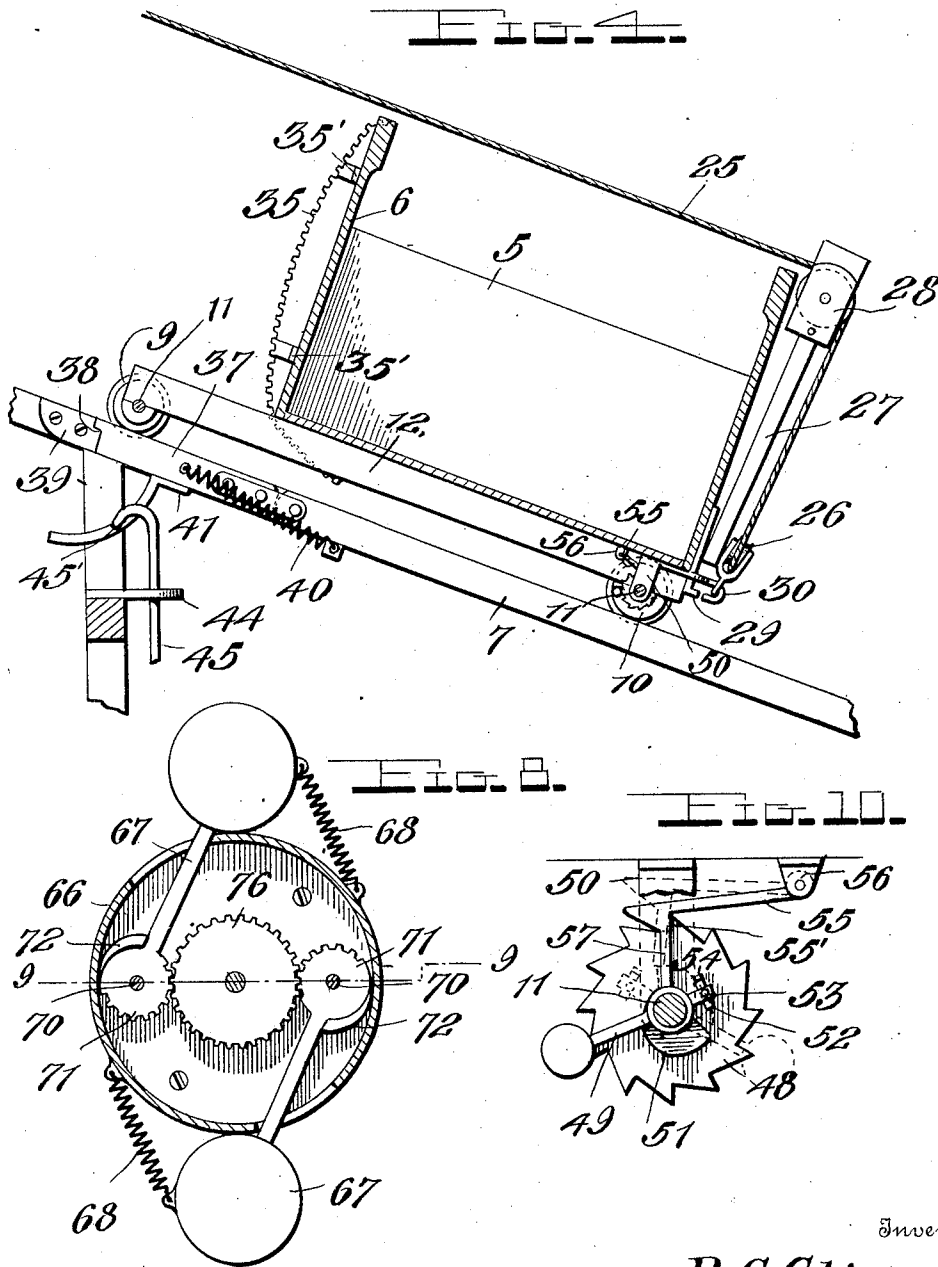
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6 SHEETS—SHEET 3.



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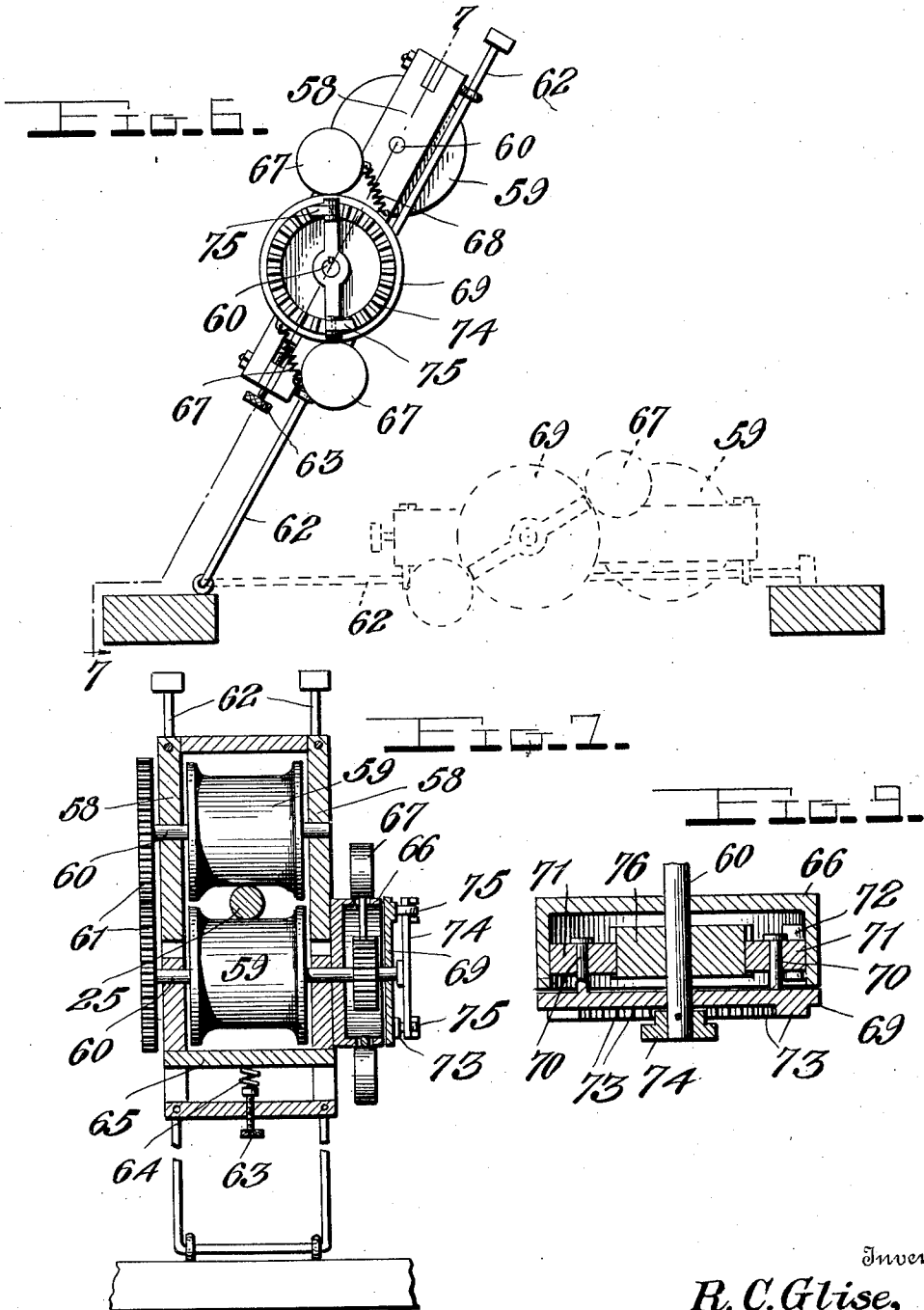
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5 SHEETS—SHEET 4.



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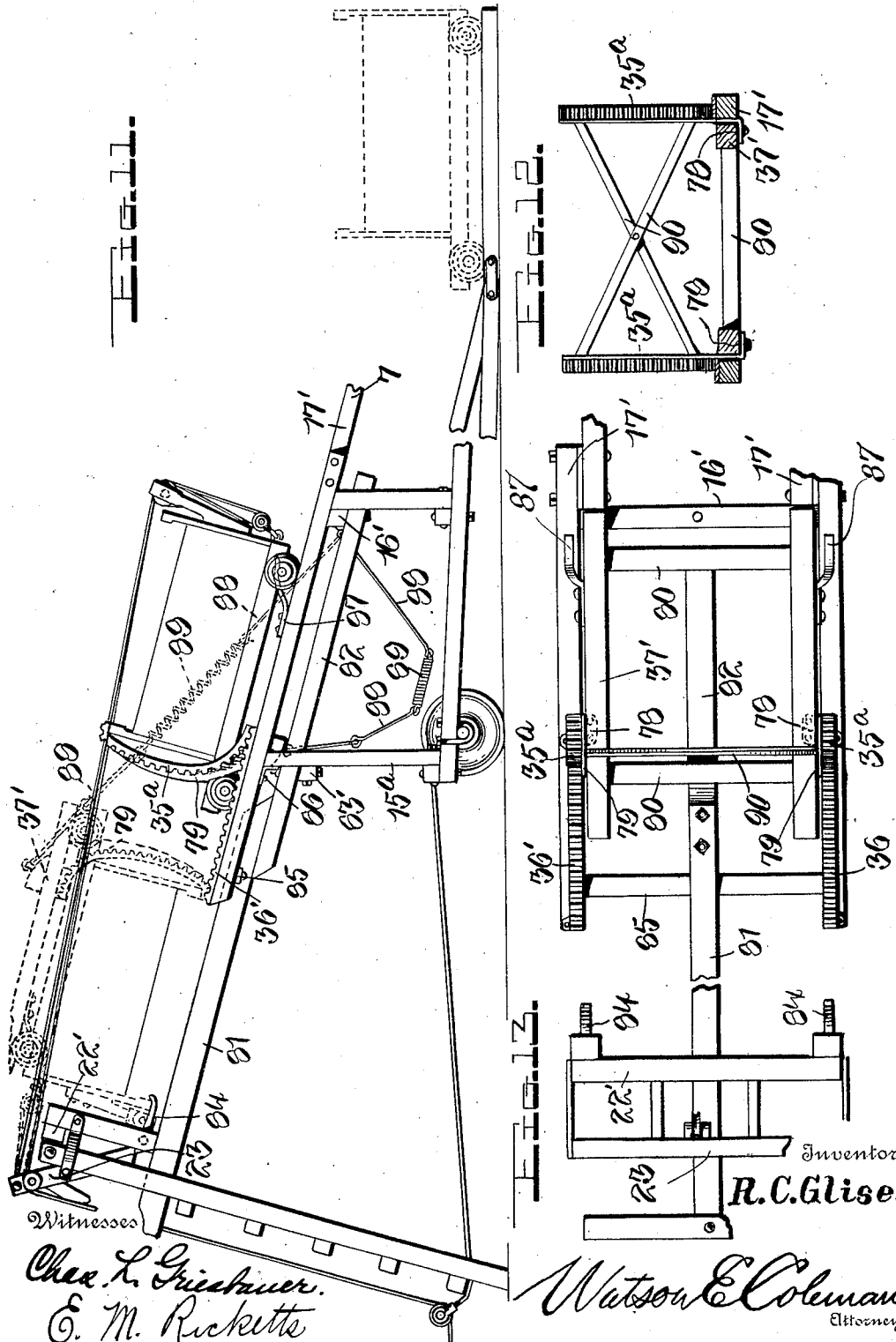
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5 SHEETS—SHEET 5.



UNITED STATES PATENT OFFICE.

ROY C. GLISE, OF PROSPER, MINNESOTA.

LOADING APPARATUS.

1,002,385.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed May 14, 1910. Serial No. 561,322.

To all whom it may concern:

Be it known that I, ROY C. GLISE, a citizen of the United States, residing at Prosper, in the county of Fillmore and State of Minnesota, have invented certain new and useful Improvements in Loading Apparatuses, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in hoisting and dumping apparatus and more particularly to a machine for loading fertilizer into fertilizer distributors and for other analogous purposes.

The object of the invention is to provide a machine of the above character of comparatively simple construction whereby the material may be quickly hoisted or elevated and dumped, suitable means being employed for automatically returning the dumping car or bucket to its normal position.

Another object resides in the provision of a practical and inexpensive dumping apparatus whereby the dumping of the material may be rapidly effected.

With these and other objects in view the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an improved loading apparatus constructed in accordance with the present invention, the dumping box or receptacle being shown in full lines in position upon the inclined rails before dumping, and in dotted lines after said box has been tilted or dumped, and also in position for loading at the foot of the elevated structure; Fig. 2 is a top plan view, the box being removed; Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1; Fig. 4 is an enlarged vertical longitudinal section showing the position of the box or receptacle upon the rails after the material has been dumped therefrom; Fig. 5 is an enlarged end elevation of the box; Fig. 6 is an elevation of the upper end of the elevator frame showing the means for controlling the descent of the box; Fig. 7 is an enlarged detail section taken on the line 7—7 of Fig. 6; Fig. 8 is a detail side elevation of the governor; Fig. 9 is a section taken on the

line 9—9 of Fig. 8; Fig. 10 is a detail view of the box axle brake. Fig. 11 is a side elevation illustrating a slightly modified construction of the apparatus; Fig. 12 is a section taken on the line 12—12 of Fig. 11; and Fig. 13 is a fragmentary top plan view of the rails and supporting frame.

The present invention has for its primary object to improve the construction of the loading apparatus set forth in Patent #947,902, granted to me February 1, 1910, whereby the efficiency of the machine is materially increased without increasing its cost of manufacture to any great extent.

The present invention comprises the box or receptacle 5 which may be of any desired form and construction but is preferably of such capacity that its load of manure or other fertilizer will be sufficient to fill the wagon body of a distributing machine. As in my former patent the end walls 6 of the box are of greater height than the side walls, but unlike the former construction this box is of the same area throughout its depth. Though not essential to the operation of the apparatus one of the side walls may be hinged or otherwise secured so that it may be opened for convenience in cleaning the box.

The box 5 is mounted upon the track rails 7, said track consisting of the main inclined rails and the horizontally extending rails 8. The inclined and horizontal rails may be so connected that the comparatively short rail section 8 may be detached when the apparatus is taken down for transportation. The box 5 is supported upon the track rails by means of the front and rear pairs of flanged rollers or wheels 9 and 10 respectively. These rollers are journaled upon the transversely disposed shafts 11 which are mounted in the ends of the longitudinal beams 12 secured to the bottom of the box or receptacle 5. These beams project beyond the front end of the box 5 for a purpose which will be hereinafter more fully explained. The track rails 7 may be of any suitable form and construction, but as illustrated they consist merely of the bars or beams connected together by the transverse bars 16 and are arranged upon the upper ends of one or more upright bracing frames 15 and are connected by the transverse bars 13. The bars or rails 7 have secured to their upper ends and

extending in parallel relation thereto the bars 17. These bars are also disposed in the same transverse plane as the track rails and are adapted to support the box 5 when in dumping position, said box being of greater width than the space between the bars so that the same extends an appreciable distance beyond the same. The upper ends of the bars 17 are supported by the inclined uprights 18 which are connected by a plurality of transverse bars 19. The bars 17 are also connected adjacent to their ends by a transverse bar 20 to which are secured the uprights 21 connected at their upper ends by a bar 22. A frame 23 is also arranged between the bars 17 and is braced and supported from the uprights 21. In the upper end of this frame a pulley 24 is mounted over which a cable 25 extends, said cable passing around a sheave 26 which is adapted to be connected to the rear end and at the bottom of the box 5. The extremity of the cable 25 is secured to the frame 23 in which the pulley 24 is mounted. To the rear end of the box 5 a bar 27 is removably attached. This bar is mounted at one end between arms 28 and at its lower end is provided with a hook 29 which engages in an eye 30 secured to the bottom of the box. Upon this eye a hook is formed to which the sheave 26 is attached. The cable 25 extends over the pulley 24 and passes around a pulley block 31 which is connected to the end of a heavy cable 32, the other end of said cable being secured in any suitable manner to the supporting frame 15 of the track rails. As shown in the drawings this frame is preferably mounted upon the wheels 33, journaled upon an axle 34 secured to the longitudinally extending bars 15' of the supporting frame.

I have above described the manner in which the frame and the tracks are constructed and the means for hoisting the box upon the track rails. It will be understood that this frame construction may be variously modified. For instance the bars 17 may be dispensed with and the track rails 7 simply extended and secured to the inclined frame 23 and uprights 21. Also instead of providing the bars 17 at each side, a single central bar may be employed so that the material will be dumped on either side thereof, or the bars 17 may be positioned at the extreme ends of the box.

The manner in which the box is dumped and returned to its upright position will now be set forth in detail. This operation is accomplished by providing the forward end of the box 5 at each side with a toothed rack or rocker 35. It will be noted that this rocker is slightly curved from end to end and extends from the upper end of the end member 6 of the box to the bottom of said box from which point it is disposed beneath the same. This rearwardly extending por-

tion of the rocker is positioned angularly with relation to the main body portion thereof and is also slightly curved for engagement with the teeth of a rack bar or plate 36 secured to the bars 17. The toothed rockers are formed with lugs 35' whereby they may be readily secured to the end of the box. The rack bars 36 are also provided with similar lugs 36' to secure the same upon the bars 17. The upper ends of the rockers 35 are preferably countersunk in the edge of the end member 6 of the box to obviate the possibility of the same engaging with the rope or cable by means of which the box is elevated. The end of each of the rails 7 is provided with a tilting section 37 which is pivoted to the main rail at one end and has a shoulder 38 formed upon its free end. This shoulder is adapted to engage with a block 39 secured to the forwardly and upwardly extending bars 17. The bottom of this block is rounded for the engagement of the rollers 9 therewith as will be obvious from an inspection of Figs. 1 and 2 of the drawings. The tilting rail sections 37 are yieldingly held in longitudinal alinement with the main body portions of the rails by means of the springs 40. To each of the rail sections 37 a depending curved arm 41 is secured. In the dumping of the box the wheels 10 are adapted to engage upon the rail sections between the same and the arms 41. The box or receptacle 5 is dumped in the following manner: The box is arranged upon the horizontal portions 8 of the track rails where it is loaded with the manure or other fertilizer. For this purpose I employ an inclined skid or chute 42 which is arranged at one side of the track so that shovels or scrapers may be readily drawn up the same to discharge the material into the box. After the box has been thus loaded the power is applied to the cable 25 to draw the same over the pulleys 24 and 31 and thus move the box up the inclined track rails 7. As it approaches the tilting sections 37 of the track rails, the teeth of the rockers 35 engage with the teeth of the rack bars 36, and upon the continued upward movement of the box the forward wheels or rollers 9 move off of the blocks 39 which are disposed in the same plane with the track sections 37. It will be obvious that when the rollers leave the rails, upon the continued pulling of the cable they will move downwardly upon the curved edge of the block 39. The rollers 10 engage in the arms 41 secured to the track sections 37 and move the same upwardly, so that the spring 40 is disposed above the pivotal point of said sections whereby they are held in their raised positions by the contractile force of the springs. The car is prevented from leaving the elevated structure by the engagement of the teeth of the rockers 35 with the rack bars 36, and is finally com-

pletely inverted as shown in dotted lines in Fig. 1 and the material dumped into the body of a wagon or fertilizer distributor arranged below the upper end of the structure.

In order to return the box automatically to its upright position upon the rails and to cushion the downward movement of the box when the same is being dumped, I provide the following simple and efficient means: A guide arm 44 is secured to one of the transverse beams of the supporting frame 15 and has movably disposed therethrough a rod 45. To one end of this rod a heavy coiled spring 46 is loosely connected, the other end of said spring being rigidly fixed to the supporting frame. The upper end of the rod 45 is formed with a hook 45' which is normally disposed slightly below the inclined track rails 7. In the upward movement of the box 5, as the forward rollers 9 leave the rails and move downwardly and then upwardly beneath the same, the transverse axle 11 upon which the rollers are journaled engages in the hooked end of the rod 45 and draws the same upwardly and through the arm 44 as the box moves to its dumping position. In this movement of the rod 45 the spring 46 is expanded and placed under great tension so that when the power is released from the cable 25, the spring will contract and draw the rod 45 downwardly through the guide arm and return the box to its upright position upon the track rails. In this downward movement, when the rockers have been moved upon the rack bars to the point at which they are deflected beneath the box, the movement of the box will be accelerated and the liability of its stopping in its movement when it reaches a position at right angles to the track rails is entirely eliminated. It will be readily seen that as the major portions of the rockers are curved from top to bottom of the box and owing to the natural gravitation of the box, it will be impossible for the same to stop but its movement will be assisted by the deflected end portions of the rockers 35. As the rod 45 moves downwardly and the box 5 assumes its proper position, the hooked end 45' thereof disengages the transverse shaft 11 connecting the rollers and the spring 46 returns the same to its position below the track rails 7 to be again engaged upon the next dumping of the box. This downward movement of the rod is limited by a stop 47 secured thereto adjacent to its hooked end.

In order to prevent the downward movement of the box upon the rails by the breaking of the cable 25 or other accident, I provide an emergency brake which is arranged upon the roller shafts 11. This brake comprises a ratchet 48 rigidly secured upon the roller shaft. A weighted arm 49 is loosely disposed upon the shaft between the ratchet

48 and a depending arm 50 secured to the bottom of the box. The weighted arm 49 has a cam 51 formed thereon and is also provided with a lug 52 upon which a slotted plate 53 is adjustably secured. This plate may be fixed by means of a set screw 53' threaded into the lug and has its end disposed at an angle as shown at 54 for engagement with the arm 50 secured to the bottom of the box 5. A dog 55 is pivoted at one end between the ears 56 secured to the bottom of the box and is formed on its upper end with a depending finger 57 which engages with the cam 51. This dog 55 is provided with a straight flat face 55' for engagement with the teeth of the ratchet 48 while the end of said dog is rounded so that the engagement of the inclined edges of the ratchet teeth therewith in one direction of movement of the ratchet will raise the dog so that the ratchet may freely move beneath the same. Any retrograde movement of the box is, however, rendered impossible as the teeth of the ratchet engaging with the flattened face 55' of the dog will securely hold the roller shaft from turning, thus causing the rollers to frictionally engage with the track rails. When the box 5 is moved to its dumping position, the weighted arm 49 will be swung over to the position indicated in dotted lines in Fig. 10 so that the engagement of the cam 51 with the finger 57 will raise the dog 55 out of engagement with the ratchet teeth thereby permitting of the forward or backward movement of the rollers. This brake may of course be variously modified and utilized in carrying out the purposes of the present invention.

In order to prevent too rapid descent of the box after the same has been dumped, I provide a friction brake which is applied to the cable 25. This brake is movably arranged in the supporting frame 23 and comprises a frame 58 in which the friction rollers 59 are mounted, said rollers being secured upon the transverse shafts 60. Inter-meshing gears 61 are secured upon one of the ends of these shafts. The frame 58 is slidably mounted upon the parallel rods or bars 62 which are pivotally secured at one end upon one of the transverse bars of the frame structure 23 and are adapted to engage upon a parallel frame bar in said structure. The peripheries of the friction rollers 59 are spaced to receive the cable 25. One of the rollers 59 is slidably mounted in the frame and is adapted to be adjusted by means of a screw 63 which is threaded in one end of the frame and is adapted to regulate the tension of a spring 64 disposed between said screw and the sliding bar 65 secured to the ends of the roller. In this manner the friction of said rollers upon the cable may be increased or decreased as desired. A governor is also arranged upon

one of the roller shafts 60 and comprises a flanged disk 66 which is rigidly secured to the sliding frame section 65. Oppositely extending weighted arms 67 are removably arranged upon the flanged disk 66, the weighted ends of said arms extending beyond the flange and yieldingly held upon the same by means of the springs 68. These weighted arms are adapted to be actuated by a disk 69 loosely mounted upon the end of the shaft 60, said disk being provided upon its inner face with inwardly extending pins 70. The inner ends of the weighted arms 67 are formed with pinions 71 and are adapted to be arranged upon the pins 70. The pinions 71 at their point of connection with the arms 67 are formed with the cams 72 which are adapted to frictionally engage the inner periphery of the flange of the disk 66 as will later appear. The outer face of the disk 69 is formed with a circular rack 73. An arm 74 is rigidly secured upon the shaft 60 and carries the spring pressed dogs 75 which are engaged with the teeth of the rack 73 and lock the arm and disk 69 upon the shaft in one direction of its movement. A gear 76 is loosely mounted upon the shaft 60 between the pinions 71 whereby said pinions are held in spaced relation and are allowed a certain amount of rotation upon the studs 70 without affecting the operation of the brake.

When the box 5 is pulled up the inclined track and has been dumped, the power applied to the cable is released so that the box may start upon its downward movement. The frame 58 and the brake mechanism will be moved to an inclined position in the frame 23 as clearly shown in the drawings and will bend the cable as it passes between the rollers 59, the increased friction of the rollers upon the cable which is thus provided effectually checking the descent of the box. It will be obvious that as the rollers 59 rotate in the frame, the arm 74 which is rigidly secured to the shaft will also be rotated and as this arm is securely locked to the disk 69 by means of the dogs 75, the weighted arms which are carried by said disk are also caused to move around the loosely mounted gear 76. This movement throws the weighted ends of the arms outwardly and causes the cams 72 to bind upon the flanged disk 66 and thus check the movement of the box and allow the same to slowly descend the inclined elevator track. The speed at which the box is allowed to move downwardly upon the track may be regulated by simply adjusting the screw 63 which moves the roller 59 in the frame whereby the friction of the rollers upon the cable is increased or decreased. When the car is being drawn up the track, the brake device will be positioned as shown in dotted

lines and disposed upon the transverse bars of the frame 23 so that the cable may freely move between the rollers 59.

In Figs. 11, 12 and 13 I have illustrated a slightly modified construction of the apparatus which is a combination of the subject matter of my prior patent hereinbefore referred to and a modification of the supporting frame above set forth, a slightly different construction of the cushioning and box returning device being also employed. In this modified construction it will be noted that the rails 17' terminate at the rear ends of the rack plates 36'. These rails 17' are secured at their forward ends to the main track rails 7' upon which the box or receptacle is mounted. The rails 17' and the tracks are supported by means of a frame 15^a similar to the frame 15 in the preferred form of the apparatus. A tilting track section 37' is arranged in alinement with the main track rails 7'. Upon the rear ends of the rails of the track section 37', a vertical curved rack bar 35^a is secured. These rack bars are each formed at their lower ends with a flange 78 by means of which they are secured to the rails, said flanges extending beneath the rails and providing braces for the rack bars. These rack bars are similar to the bars 35 and provide rockers. The upper ends of these rockers are bent at an angle and are disposed in recesses in the upper end of the body wall of the box or receptacle. At their lower ends the rockers are sharply curved forwardly so that when the box or receptacle engages with the rockers these curved lower ends extend a considerable distance beneath the same. The rockers are each formed with a longitudinally extending flange 79 which prevents any transverse movement of the tilting track section 37' between the rails 17'. The teeth of the rockers 35^a are engaged with the teeth of the rack plates 36' whereby the tilting track section is supported in its proper position between the rails 17'.

The rails 17' are connected and braced adjacent to their point of connection to the main rails 7' by means of a transverse bar 16'. This bar is also secured to vertical uprights of the supporting frame 15^a. The rails of the track section 37' are also connected adjacent to their ends by the transverse bars 80. The bar 16' extends beneath the rails of the tilting section and serves as a support for the rear end thereof.

In order to secure a clean and complete dumping of the receptacle, I provide a single central support for the same when in its dumping position. This support comprises the forward longitudinal bar 81 and a rear bar 82. The forward end of the bar 82 is disposed beneath the rear end of the bar 81, said bars being connected and rig-

idly secured together by means of bolts or other suitable fastening devices. The bar 82 is also secured to a transverse beam 83 connecting the rear uprights of the supporting frame 15^a and at its forward end extends beneath the bar 16' and is bolted thereto. From reference to Fig. 12 it will be noted that the forward end of the bar 81 terminates a sufficient distance in advance of the tilting rail section 37' to permit of the free downward movement of the wheels of the receptacle. The rear end of the bar 81 is supported by the inclined frame 18', the upper end of said inclined frame being rigidly secured to the transverse bar 22' of a frame arranged upon said central longitudinal bar 81. Upon this upright frame a suitable bumper or cushion 84 is arranged to receive the end of the dumping box or receptacle as it is moved to its dumping position. The frame 23 is also arranged upon the rear end of the bar 81 and the manner of connecting the cable to the box is similar to that previously described. A transverse bracing plate 85 is secured to the forward end of the bar 81 and to the ends of the rails 17' thereby providing an additional means of support for said rails. The rails are further braced and supported by means of the plates 86 which are secured to the blocks 86' secured to the rear uprights of the frame 15^a and to said rails.

As the box or receptacle is drawn up the inclined rails on to the tilting track section 37', resilient retaining members 87 which are secured upon the tilting track section engages over the forward axle and retains said receptacle in position upon the tilting track section. This spring also acts as a stop to limit the continued upward movement of the receptacle and at the same time the rear end of the receptacle engages the rockers 35^a and forces the teeth of the same into engagement with the teeth of the rack plates 36'. As the rockers are rigidly secured to the movable track section, it is obvious that this section together with the box arranged thereon will be swung upwardly between the inclined rails 17'. Upon continued pull of the hoisting cable, the box will be moved to an inverted position upon the rear centrally disposed longitudinal bar 81, the track section being carried with the box in its dumping movement. As the upper ends of the rockers 35^a are extended into a seat in the edge of the box body, the teeth of the rockers and the rack plates 36 will still be engaged after the box has been completely inverted, thus obviating the possibility of the box moving transversely out of its proper position upon the rails 17'. Owing to the fact that there is a single central bar which supports the box in its inverted position, it will be obvious that all of the material may be dumped therefrom

except the very small part which would be caught by said bar. The transporting vehicle in which the material is dumped is positioned between the rear inclined support 18' and the forward support 15^a in a similar manner to the preferred form of the apparatus.

A slightly modified form of the cushioning and box returning device is employed in connection with this second form of the apparatus and comprises a plurality of rods 88 which are loosely connected. Between the ends of the intermediate rods 88 a spring 89 is disposed, the ends of the spring being secured to the ends of said rods. One end of the connected series of rods is secured to the cross bar 80 which connects the rails of the tilting section 37, and the other end of said series of rods is loosely connected to the transverse supporting bar or beam 16'. Thus as the box and track section move together between the rails 17', the rods will be moved by said track section into alinement with each other, and the spring 89 expanded as clearly shown in dotted lines in Fig. 11. After the material is discharged and the cable released, the spring 89 will contract and return the box from its inverted to its upright position upon the inclined track, the movable rail section being likewise returned to its proper position. The box or receptacle then moves downwardly upon the rails by gravity to the bottom of the incline and is again filled.

By the above construction and arrangement of parts, I am enabled to use the apparatus as illustrated in my former patent and secure better dumping connection and a quicker return of the box or receptacle to its upright position. The rockers 35^a are provided with lugs to which are secured the ends of the crossed bars 90 which rigidly connect said rockers and serve to minimize the effect of the contact of the box with the same. The emergency brake carried by the box will also preferably be used in this form of the apparatus.

From the foregoing it is believed that the construction and operation of my improved hoisting and dumping apparatus will be readily understood. The machine is comparatively simple in construction and is admirably adapted for the purposes in view. The dumping of the box is very quickly performed to discharge the contents thereof and it is quickly righted upon the track without requiring any manual operation of the mechanism. By means of my improved apparatus manure and other fertilizer may be very quickly elevated and dumped into suitable distributors.

While the embodiments of the invention above described and illustrated in the accompanying drawings is especially adapted for the loading of fertilizer material, it will

be obvious that it may also be used for various other purposes and it will be understood that numerous minor modifications in the form, proportions, and details of construction may be resorted to without departing from the essential features or sacrificing any of the advantages of the invention.

Having thus described the invention what is claimed is:—

1. In a loading device, the combination of an elevated inclined track, a dumping receptacle to travel upon said track, means carried by the receptacle adapted for engagement with means arranged in advance of the upper end of the track to cause said receptacle to move to an inverted position, means for supporting the receptacle in its inverted position, and means engaged by said receptacle in its movement whereby the receptacle is automatically returned to its normal position upon the track after being dumped.

2. In a loading device, the combination of an elevated inclined track, a dumping receptacle to travel upon said track, means for moving said receptacle, rockers arranged upon one end of the receptacle and extending beneath the same, means arranged adjacent to each of the track rails for engagement by said rockers whereby said receptacle is automatically moved to an inverted position, and means arranged beneath the track and engaged and moved by the receptacle in its movement to its inverted position to cushion the receptacle in such movement and automatically return the receptacle to its upright position upon the track after the same has been dumped.

3. In a loading device, the combination of an inclined track, a dumping receptacle to travel upon said track, means for moving said receptacle, a longitudinally extending bar arranged adjacent to each of the track rails and disposed in the same transverse plane therewith, said bars extending beyond the rails, rockers secured to the forward end of the receptacle, said receptacle being adapted to be moved off of the track rails to engage the rockers upon said bars and cause the receptacle to move to an inverted position thereupon, means for cushioning the dumping movement of the receptacle and automatically returning the same to its upright position upon the track after the same has been dumped.

4. In a loading device, the combination of an elevated inclined track, a wheeled dumping receptacle to travel upon said track, means for moving the receptacle, bars extending forwardly of the track rails and in the same plane therewith, rockers secured to the forward end of the receptacle, said rockers having deflected end portions extending beneath the receptacle, the movement of said receptacle off of the track rails

being adapted to engage the deflected ends of the rockers upon said bars and cause the receptacle to be dumped and arranged in an inverted position upon said bars, and a spring held element adapted to be engaged and moved by the receptacle to cushion the dumping movement of the same and automatically return the receptacle to its righted position upon the track after the same is dumped.

5. In a loading device, the combination of an elevated inclined track, a dumping receptacle to travel upon said track, means for moving said receptacle, bars arranged adjacent to and extending forwardly of the track rails, said track having a tilting section, means normally holding said tilting section in alinement with the main track section, rockers secured upon the forward end of the receptacle, said receptacle being adapted to move off of the upper ends of the track rails and beneath the same and to engage under and tilt the tilting section, said receptacle being moved to an inverted or dumping position upon the forwardly extending bars, the rockers carried by the receptacle engaging upon said bars, and a spring actuated means adapted to be engaged and moved by the receptacle in its dumping movement, said means automatically returning the receptacle to its righted position upon the track after being dumped.

6. In a loading device, the combination of an inclined track, a wheeled dumping receptacle movable upon said track, means for moving said receptacle, forwardly extending bars arranged adjacent to the track rails, said track rails each having a tilting forward end section, blocks secured to said bars to support said tilting section, springs normally holding said rail sections in alinement with the main rails, rack plates secured upon said bars, toothed rockers secured to the end of the receptacle and extending rearwardly beneath the same, said receptacle being adapted to move off of the upper end of the rails and downwardly beneath the tilting section, said rockers engaging with the rack bars, the dumping movement of the receptacle engaging the wheels with the under side of the tilting rail sections and moving the same upwardly, and means engaged and actuated by the receptacle in its movement to its dumping position whereby said receptacle is automatically returned to its normal position on the track after being dumped.

7. In a loading device, the combination of an elevated track, a dumping receptacle to travel upon said track, means for moving said receptacle, a tilting track section at the upper end of said track, bars extending forwardly of the track rails and in the same plane therewith, means normally holding the tilted track section in alinement with

the main track section, the movement of the receptacle off of the ends of the track rails engaging the supporting wheels of the receptacle beneath the tilting track section to
 5 move the same and permitting the continued movement of the receptacle to an inverted position upon said bars, and means actuated by said receptacle in its movement whereby the same is returned to its normal position
 10 on the track after being dumped, said tilting track section being engaged and returned by said receptacle to its normal position in alinement with the track rails.

8. In a loading device, the combination of
 15 an elevated track, a dumping receptacle to travel upon said track, means for moving the receptacle, a tilting track section arranged in the upper end of the track, said receptacle being adapted to be moved off of
 20 the track rails and engaged with the under side of the tilting section to tilt the same, means for yieldingly holding said track section in its normal and tilted positions, supporting means for said receptacle extending
 25 beyond the tilting track section adapted to support the receptacle in its dumping position, and means controlled by the movement of the receptacle to its dumping position whereby said receptacle is automatically returned to its normal position on the track
 30 after being dumped.

9. In a loading device, the combination of an elevated track, a dumping receptacle to travel upon said track, means for moving
 35 said receptacle, a tilting track section arranged in the upper end of the track, a supporting bar extending beyond the tilting track section to support the receptacle in its dumping position, said receptacle being
 40 adapted to be moved off of the tilting track section and beneath the same, whereby in the movement of the receptacle to its inverted position said track section is tilted, a spring yieldingly holding said track section in its
 45 tilted position, means for automatically returning the receptacle to its normal position upon the track after being dumped, and means carried by the tilting track section to be engaged by the receptacle whereby said
 50 track section is moved to its normal position in the return movement of the receptacle to an upright position on the track.

10. In a loading device, the combination of an elevated inclined track, a wheeled
 55 receptacle to travel upon said track, a cable adapted to move the receptacle to its dumping position, means controlled by the dumping movement of the receptacle to automatically return said receptacle to its normal
 60 position upon the track, a friction brake pulley engaging the cable, and a governor adapted to regulate the friction and control the descent of the receptacle upon the track.

11. In a loading device, the combination
 65 of an elevated inclined track, a wheel sup-

ported dumping receptacle to travel upon said track, means for moving the receptacle upon the track, a brake controlling said means, forwardly extending supporting bars adapted to support the receptacle in its
 70 dumping position, means for automatically returning the receptacle to its normal position upon the track, and an emergency brake carried by the receptacle to prevent retrograde movement of the same. 75

12. In a loading device, the combination of an elevated inclined track, a wheeled
 dumping receptacle to travel upon said track, means for moving said receptacle, a
 80 forwardly extending support adapted to support the receptacle in its dumping position, means for returning the receptacle to its normal position upon the track, a ratchet secured to one of the wheel shafts of the receptacle, a dog engaging with the teeth of
 85 said ratchet to prevent retrograde movement of the receptacle upon the track, and a cam carrying weighted arm loosely mounted upon the wheel axle adapted to engage said dog and move the same out of engagement with
 90 the ratchet teeth to permit of the free movement of the supporting wheels as the receptacle is moved to its dumping position.

13. In a loading device, the combination of an inclined track, a tilting section in said
 95 track, a wheeled dumping receptacle adapted to be moved upon the tilting track section, means for moving said receptacle, rack plates extending beyond the tilting rail section, toothed rockers carried by the recep-
 100 tacle adapted to engage said rack plates, the rear wheels of said receptacle being adapted to move off of the tilting track sections, means carried by said sections adapted to be engaged by the wheels, said wheels engaging
 105 under the rails of the tilting section to lift the same, means for supporting the receptacle in an inverted position, means for returning the receptacle automatically to an upright position, the wheels of said recep-
 110 tacle being again engaged by the means carried by the tilting track section to return said track section to its normal position, and a spring yieldingly holding the track section in alinement with the main track rails. 115

14. In a loading device, the combination of an elevated inclined track, a tilting section in said track, a dumping receptacle to travel upon said track and means for moving
 120 the same, bars extending forwardly of the tilting track section, said receptacle being adapted to move off of the tilting section into an inverted position, said receptacle having rocking movement upon the bars, the movement of the receptacle off of
 125 the tilting track section engaging the supporting wheels of the receptacle beneath the rails of said section, depending curved arms carried by the rails of the tilting sections adapted to receive the wheels between them 130

and the rails, means for returning the receptacle to its normal position, the wheels thereof again engaging with said arms to return the tilting track section to its normal position, and means for holding said track section in alinement with the main rails.

15. In a loading device, the combination of an elevated inclined track, a forward supporting frame for the track rails, a movable section in said track, bars secured to the main rails extending beyond the movable section, rack plates secured to the upper ends of said bars, a wheeled dumping receptacle to travel upon said track and means for moving the same, rockers fixed upon the movable track section and engaging with the rack plates, said receptacle being movable upon the track section to engage the rockers and move the same upon the rack plates, retaining means carried by the track section engaging the receptacle whereby said track section is moved therewith to an inverted position, means for returning the receptacle and track section to their normal positions, and a central longitudinally extending supporting bar extending rearwardly of the rack carrying bars to support the receptacle in its inverted position.

16. In a loading device, the combination of an elevated inclined track, and a supporting frame therefor, a central longitudinally disposed bar secured to said frame and extending beyond the track rails, a dumping receptacle to travel upon said track and means for moving the same, said last named bar being adapted to support the receptacle in its inverted position, rockers carried by the receptacle, bars arranged adjacent to the track rails adapted to be engaged by said rockers whereby the receptacle is moved to its inverted position, and a spring movably arranged between the frame and said receptacle and adapted to be placed under tension by the movement of said receptacle to its dumping position whereby the receptacle is automatically returned to its normal position upon the track after being dumped.

17. In a loading device, the combination of an inclined track, a forward supporting frame therefor, a longitudinally disposed supporting bar extending beyond the upper ends of the track rails and rigidly secured in the frame between said rails, bars supported by said frame adjacent to the track rails, said bars extending forwardly of the rails and disposed in the same transverse plane therewith, means arranged on the receptacle for movement with the same adapted to engage upon said bars to cause the receptacle to move to an inverted position upon said supporting bar, a plurality of loosely connected rods connected to said

frame and to the receptacle, said rods having a spring interposed therein adapted to be placed under tension by the movement of said receptacle to its dumping position whereby the receptacle is automatically returned to its normal position upon the track after being dumped.

18. In a loading device, the combination of an inclined track, a dumping receptacle arranged upon said track, means for moving said receptacle, a tilting track section arranged in the upper end of the track, a spring normally holding said track section in alinement with the track rails, rack bars extending beyond the tilting track section, toothed rockers carried by the receptacle for movement therewith to engage said rack bars in the upward movement of the receptacle whereby the same is moved to an inverted position, supporting means for said receptacle extending beyond the track rails, said tilting track section carrying means for engagement by the receptacle whereby the same is tilted in the dumping movement of the receptacle, and a plurality of loosely connected rods having a spring interposed therein, said rods being connected to the frame and to said receptacle whereby said spring is placed under tension in the movement of the receptacle to its dumping position to automatically return the receptacle to its normal position upon the track rails after the same is dumped.

19. In a loading device, the combination of an inclined track, a dumping receptacle to travel upon the track and means for moving the same, a movable section in the track, means carried by said section adapted to retain the receptacle thereon, rearwardly extending supporting bars extending beyond the movable track section, rockers adapted to engage said bars in the movement of the receptacle to its dumping position, a supporting frame for the track, a plurality of rods loosely connected between said frame and the movable track section, and means carried by said rods adapted to return the receptacle to an upright position upon the track.

20. In a loading device, the combination of an inclined track, a dumping receptacle to travel upon the track and means for moving the same, supporting frames for the track, a bar supported by said frames extending centrally between the track rails and forwardly thereof to support the receptacle in its dumping position, a movable track section adapted to be carried by the receptacle in its dumping movement, a series of rods loosely connected and secured at one end to the supporting frame and at the other end to the movable track section, and a spring interposed in the series of rods adapted to return the receptacle to an upright position upon the track.

21. In an apparatus of the character described, an inclined track and supporting frame therefor, a dumping receptacle movably arranged on the track, a cable connected to said receptacle and to suitable operating means whereby the receptacle is moved, and a pivotally mounted brake device arranged on the supporting frame and frictionally engaging said cable whereby upon the downward movement of the receptacle on the inclined track, said brake device is automatically moved in the frame to frictionally engage said cable.

22. In an apparatus of the character described, an inclined track and supporting frame therefor, a receptacle movable upon the track and a cable connected thereto for moving the same, in combination with a brake device including a frame pivotally mounted on said supporting frame spaced friction rollers movably arranged in the frame, said cable extending between the rollers, and means automatically controlled in the descent of the receptacle upon said track for increasing the friction of the rollers upon said cable.

23. In an apparatus of the character described, an inclined track and supporting frame therefor, a dumping receptacle mounted on the track and a cable connected thereto for moving the receptacle, in combination with a brake device including a U-shaped frame pivotally mounted on the track supporting frame, spaced friction rollers rotatably mounted in the pivoted frame and longitudinally movable therein, said rollers being spaced to receive the cable between them, and a governor arranged on one of the roller shafts and automatically actuated by increase in the gravity movement of the receptacle whereby the friction of the rollers upon said cable is also increased.

24. In an apparatus of the character described, an inclined track and supporting frame therefor, a dumping receptacle mounted on said track and a cable for moving said receptacle, in combination with a brake de-

vice movably arranged on the frame, said device including spaced friction rollers adapted to receive a cable between them, said device being moved in the downward movement of the receptacle on the track to frictionally engage the rollers upon the cable, and a governor arranged on one of the roller shafts automatically actuated by increase of the gravity movement of the receptacle whereby the friction of the rollers upon the cable is also increased.

25. In an apparatus of the character described, an inclined track and supporting frame therefor, a receptacle mounted on the track, a cable connected to the receptacle for moving the same, in combination with spaced friction rollers pivotally mounted on the supporting frame for bodily movement upon the descent of the receptacle, said cable extending between the rollers, a gear train connecting the roller shafts, a governor arranged on one of the roller shafts comprising a loosely mounted gear, a rack plate loosely mounted on the shaft in spaced relation to the gear, pins carried by said plate, pinions on said pins, weighted arms carried by the pinions, said pinions being each formed with a cam, means normally holding said weighted arms yieldingly against movement, an annular brake plate adapted to be engaged by the cams of said pinions, said pinions being engaged with the teeth of the gear on the roller shaft, and an arm arranged on the outer end of the shaft carrying pawls for engagement with the teeth of the rack plate to lock the same on the shaft and engage the cams with the brake plate, said governor being automatically actuated by increase in the gravity movement of the dumping receptacle.

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

ROY C. GLISE.

Witnesses:

W. M. LEONHART,
T. E. ROBERTS.