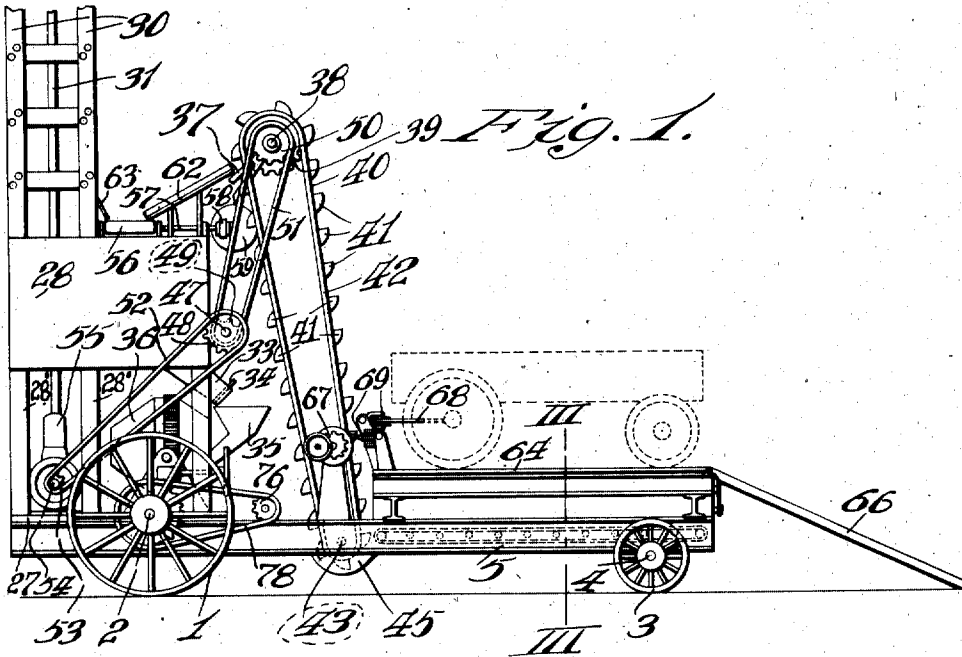
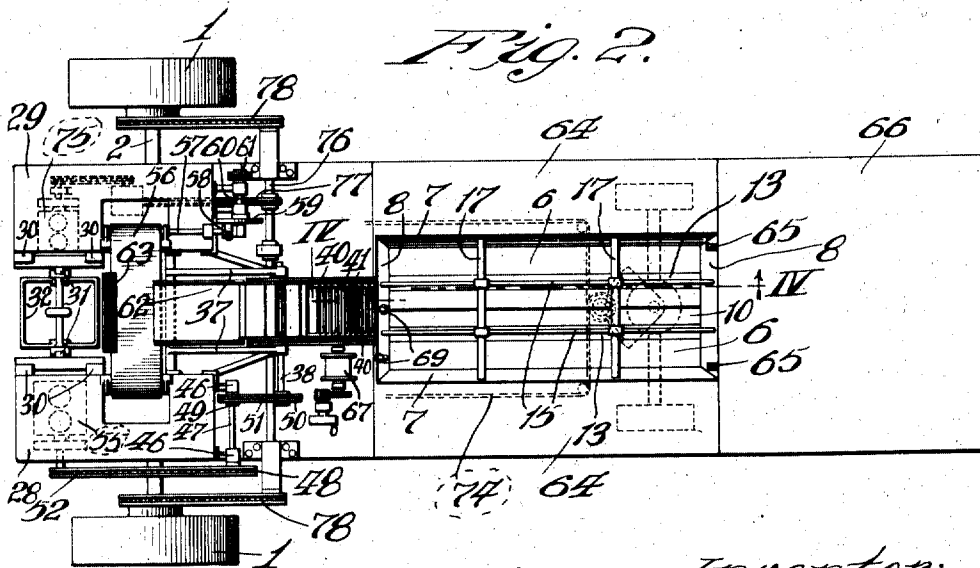


E. W. SHUTT.
 COMBINED RECEIVING, DISCHARGING, AND CONVEYING DEVICE.
 APPLICATION FILED NOV. 8, 1913.

1,218,908.

Patented Mar. 13, 1917.

4 SHEETS—SHEET 1.



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Fig. 3.

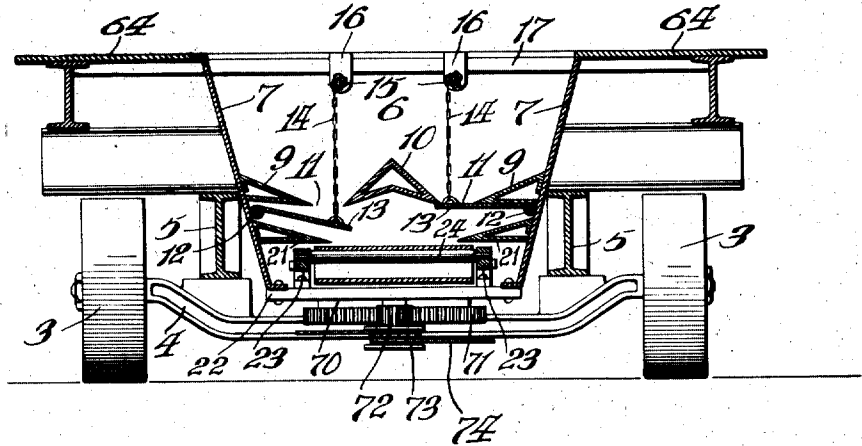
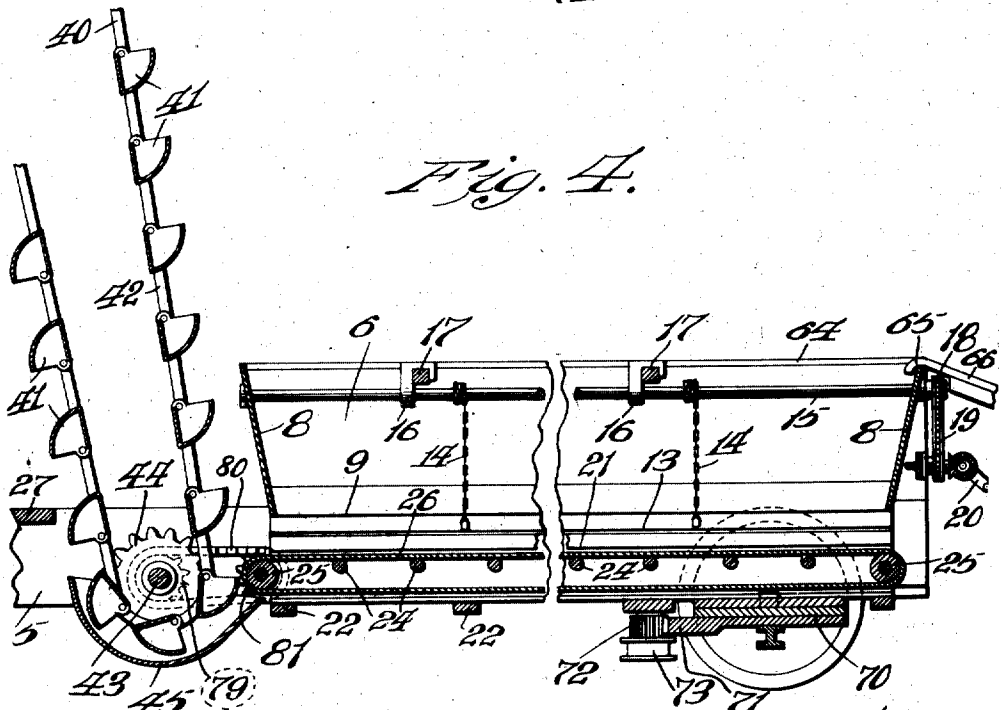


Fig. 4.

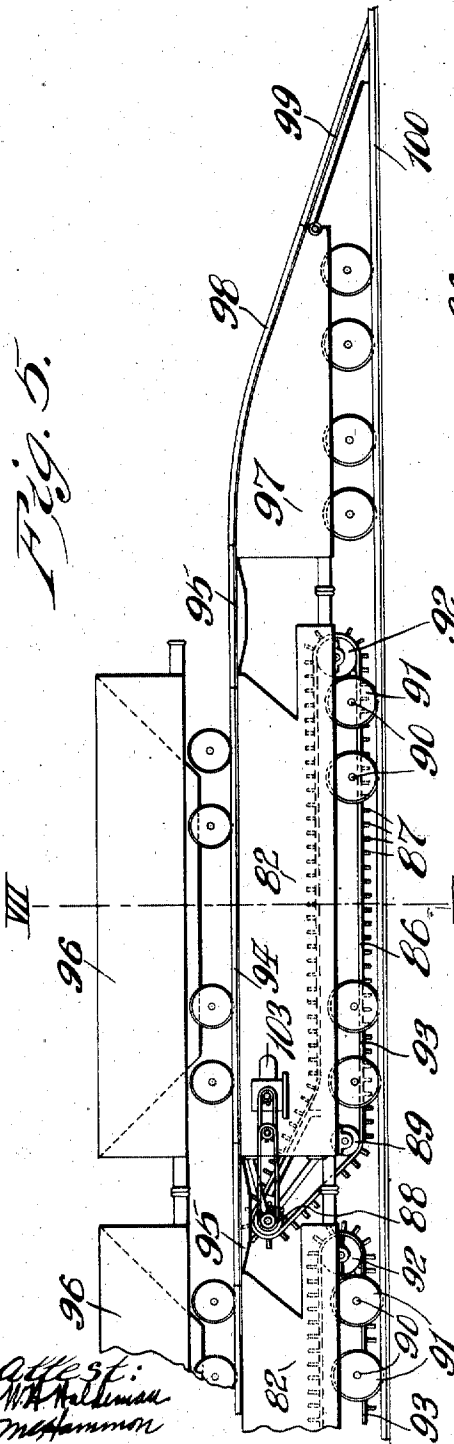
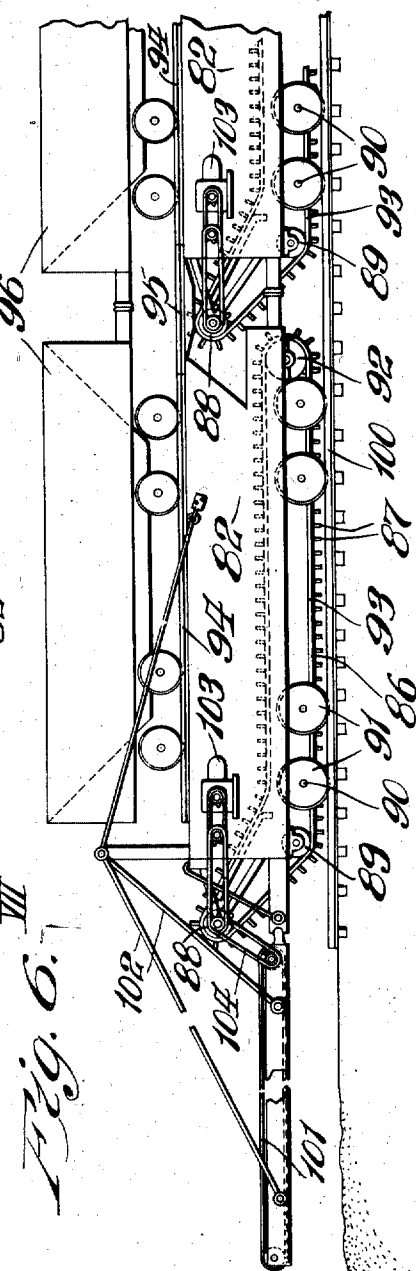


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 4 SHEETS—SHEET 3.



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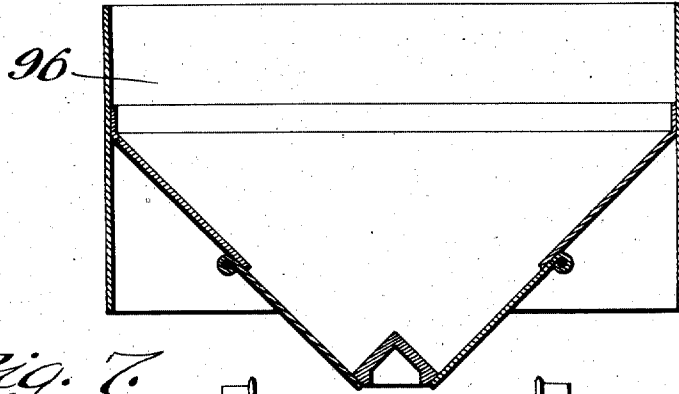
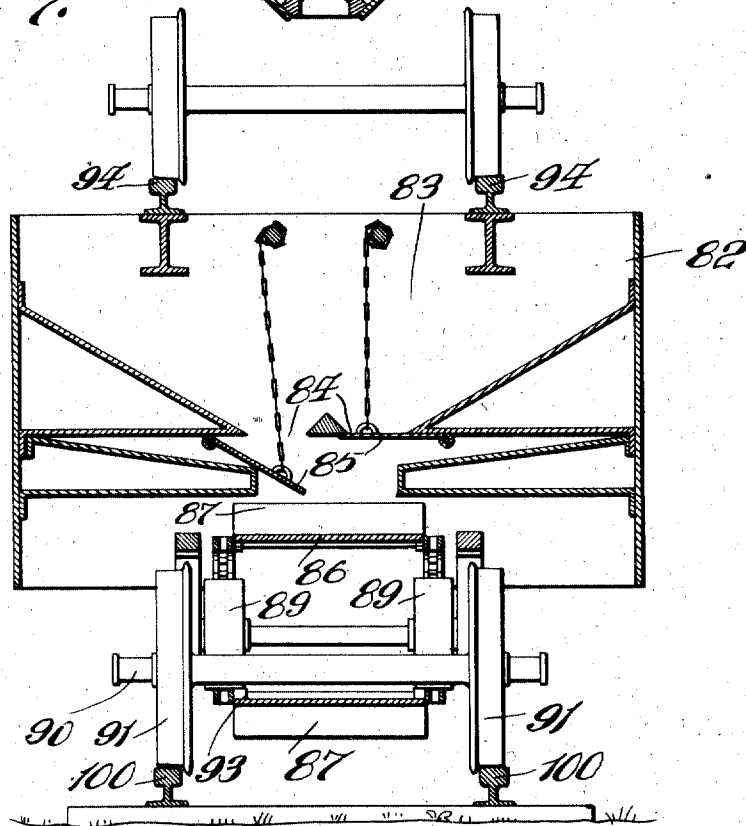


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWARD W. SHUTT, OF PUEBLO, COLORADO, ASSIGNOR TO AMERICAN CLAY PRODUCTS COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF ARIZONA.

COMBINED RECEIVING, DISCHARGING, AND CONVEYING DEVICE.

1,218,908.

Specification of Letters Patent.

Patented Mar. 13, 1917.

Application filed November 8, 1913. Serial No. 799,913.

To all whom it may concern:

Be it known that I, EDWARD W. SHUTT, a citizen of the United States of America, residing in Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in a Combined Receiving, Discharging, and Conveying Device for Concrete-Mixers and the like.

This invention relates more especially to labor saving devices which are used in construction work where large quantities of material are to be handled, said material being dumped into a receptacle which is provided with a regulated discharge outlet, said discharge being in communication with a moving platform whereby the material upon being received by the aforesaid receptacle can be conveyed in a properly regulated steady flow to its objective point.

Another object is to provide an elevator adjacent the discharge end of the receiving receptacle in which the material that has been discharged from the receiving receptacle is carried by said elevator to storage bins, or to places where the material is to be used.

A further object is to provide a receiving receptacle with a regulated discharge end, and a moving platform adjacent the discharge end, to receive the material when the material is discharged from the receiving receptacle.

Other and further objects will appear in the specification, and be specifically pointed out in the appended claims, reference being had to the accompanying drawings exemplifying the invention, and in which,

Figure 1 is a side elevation of this improved receiving and discharging receptacle mounted on a portable base, and having an elevator located thereadjacent, said elevator being for the purpose of discharging material from the receptacle to storage bins which are located above a concrete mixer.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is an enlarged transverse section on the line III—III, Fig. 1.

Fig. 4 is an enlarged longitudinal section taken on the line IV—IV, Fig. 2.

Fig. 5 is a view of the rear portion of a train of cars showing this improved device used in a different embodiment.

Fig. 6 is a view similar to Fig. 5, but showing the forward end of a train of cars.

Fig. 7 is an enlarged cross section on the line VII—VII, Fig. 5.

Referring to the drawings: 1 designates the rear wheels of a vehicle which are mounted on the rear axle 2, and 3 are front wheels which are mounted on the front axle 4. Suspended from the rear axle 2 at one end, and mounted on the front axle 4 at their opposite ends are a pair of side members 5.

Mounted between said side members 5, from their forward ends to a point intermediate, is a receiving receptacle 6, said receptacle having inclined side walls 7, and inclined end walls 8. Mounted longitudinally on each side wall 7 is an inclined ledge 9, and secured to each end wall 8 is one end of a diverging member 10, said diverging member being in approximate horizontal alignment with the ledges 9.

Formed between each ledge 9 and the diverging portion 10, is a longitudinal opening 11. Pivotally mounted at 12 to each side wall 7 is a closure 13, said closures extending longitudinally of the receptacle 6, and being located adjacent the under sides of the ledges 9. Secured to each closure 13 is one end of a pair of cables 14, each of said pair of cables having their opposite ends secured to a horizontally arranged shaft 15, said shafts being supported at their ends in the end walls 8, and being supported immediately of their ends by brackets 16, said brackets being mounted on transverse bars 17, said bars being supported in the side walls 7.

Mounted on one end of each shaft 15, adjacent the forward end of the receptacle 6 is a sprocket 18, each sprocket having mounted thereon an endless chain 19, each chain being geared to a handle 20. Mounted on each side wall 7, beneath each closure 13 is an inclined ledge 21, said ledges 21 adapted to serve as supports to said closures 13 when said closures have been fully opened. Connecting said side walls 7, adjacent their lower ends are a series of transverse bars 22, and mounted across said bars are a pair of roller supports 23, in which is revolvably mounted a series of rollers 24. Mounted in said supports adjacent each end is a return roller 25, said return rollers having an endless belt 26 mounted thereon, the under side of the upper ply of said belt being supported by said rollers 24.

Mounted on the side members 5, adjacent

their rear ends, is a platform 27, and mounted on said platform are a series of vertical uprights 28', said uprights being for the support of storage bins 28 and 29. Vertically mounted between said storage bins are uprights 30, said uprights being for the purpose of supporting a pair of vertical guides 31, and slidably mounted on said guides is a hoisting bucket 32. Depending from the under side of each of said storage bins 28 and 29 are discharge spouts 33, only one being shown, each spout having a slide damper 34.

Located adjacent said spouts is a receiving trough 35, said trough leading to a concrete mixer 36, which is located on the platform 27. Mounted on top of each storage bin 28 and 29, is a bracket 37, said brackets being for the support of a horizontal shaft 38. Mounted on said horizontal shaft are a pair of sprockets 39, each of said sprockets having an endless chain 40 mounted thereon. Mounted between said chains and spaced at equal distances apart are a series of buckets 41, said buckets and chain forming an elevator 42. Mounted beneath the platform 27 is a horizontal shaft 43, said shaft having a pair of sprockets 44 mounted thereon, which sprockets engage the lower ends of the endless chains 40.

Located below said sprockets 44 is a receiving chamber 45. Secured to one of the side walls of the storage bin 28 is a pair of brackets 46, in which is mounted a horizontal shaft 47, said shaft having sprockets 48 and 49 mounted thereon, and mounted on one end of the shaft 38 is a sprocket 50, said sprockets 49 and 50 being linked together by the endless chain 51. Mounted on the sprocket 48 is an endless chain 52, said endless chain engaging at its opposite end a sprocket 53, said sprocket 53 being mounted on the shaft 54 of a motor 55.

The storage bins 28 and 29 being spaced apart as shown more clearly in Fig. 2, have a conveyer 56 located thereabove, and extending thereacross, said conveyer being operable by a shaft 57, having a friction drum 58, mounted thereon, said drum being in frictional contact with a disk 59 mounted on a shaft 60, said shaft being operable by a chain belt 61. Mounted to one side of said conveyer 56 adjacent the center thereof, is an inclined chute 62, and mounted on the opposite side of said conveyer, and oppositely disposed from the chute 62 is a deflector plate 63.

Formed on each side of the receiving receptacle 6, and at the top thereof, is a horizontal extension 64, said extensions forming a platform for the reception of wagons loaded with material to be dumped into said receptacle 6. Secured to one of the end walls 8 of said receptacle 6 by hooks 65, is an inclined runway 66. Mounted to one side of

the elevator 42 on the platform 27 is a windlass 67, said windlass having a cable 68 secured thereto, said cable upon being placed around the pulleys 69 for the purpose of drawing a wagon on to the extensions 64 of the receptacle 6. Mounted on the front axle 4 is a turn table 70, said turn table and axle having a segment 71 secured thereto, said segment being in mesh with the pinion 72, and mounted on the under side of said pinion is a pulley 73 on which is wound a cable 74.

In the embodiment shown in the drawings, this improved device is mounted on a vehicle so that it is portable, and can be moved about to the most advantageous points in following construction work. When it is desired to move this improved device from place to place, the motor 75 is started, and motor power is applied to the driving shaft 76 by the chain belt 77, and power will be transmitted to the rear wheels 1 by the chain belts 78, and the vehicle is guided by manipulating the cable 74 by means not shown.

After this improved device has been properly installed relative to the work, the runway 66 is secured to the forward end of the receptacle 6 by engaging the hooks 65 on one of the walls 8. The wagons that convey the material which is to be handled by this improved device are drawn up adjacent the runway 66, and the cable 68 of the windlass 67 is let out and is attached to the rear axle of a wagon, and the windlass is then manipulated, and the wagon drawn up the runway, the wheels of the wagon riding on the extensions 64.

The contents of the wagon is then deposited into the receiving receptacle 6, the closures 13 of said receptacle of course being previously closed. In order to convey the material from the receptacle 6, the motor 55 is started, and power is transmitted to the vertical conveyer 42 by the endless chain 52 transmitting power to the shaft 47, and the endless chain 51, which is mounted on the sprockets 49 and 50, said sprocket 50 being mounted on the shaft 38, which shaft operates said conveyer. When the elevator 42 is in motion, the endless belt 26 is also put into operation by the sprocket 79, which is mounted on one end of the shaft 43, and the link belt 80, which is mounted on said sprocket 79, and a sprocket 81, which is mounted at one end of one of the rollers 25 of the endless belt 26. The closures 13 of the receptacle 6 are then allowed to open by turning the shafts 15 in an unwinding direction, thereby unwinding the cables 14 from said shafts.

The material that has been dumped into the receptacle 6 will pass through the openings 11 on to the upper ply of the endless belt 26, and as the upper ply of said endless belt travels toward the conveyer 42, the ma-

terial that has been deposited on said belt, will be in turn deposited into the receiving chamber 45, and the buckets 41, as said buckets ride through said chamber.

5 The loaded buckets are then carried upwardly and are deposited on the chute 62, and on to the horizontal conveyer 56. This conveyer is put in operation simultaneously with the conveyer 42, and is for the purpose
10 of depositing the material therefrom into either of the storage bins 28 or 29, as is desired by the will of the operator.

Assuming that material such as gravel or crushed rock is desired to be deposited into
15 the bin 28, the friction drum 58, which is slidably mounted on the shaft 57 is moved on the face of the friction disk 59 to a position which will operate the conveyer 56 toward the bin 28. If material such as cement
20 has been deposited in the receptacle 6, and it is desired to deposit said material into the storage bin 29, then the friction drum 58 is moved on the face of the friction disk 59 to a
25 point opposite its former position on said disk relative to the unloading of the material from the conveyer 56 to the bin 28, and the conveyer 56 will then be moved in the direction toward the bin 29, so that the cement
30 which has been deposited on said conveyer will be deposited in said bin 29. When it is desired to deposit material into the mixer 36 from either or both of the bins 28 or 29, the slide dampers 34 of the discharge spouts 33
35 are manipulated, and the material is deposited into the receiving trough 35. After the material has been mixed in the mixer, the product therefrom is then deposited into the hoisting bucket 32, and the material is then carried to its place of discharge. The
40 discharge openings 11 of the receiving receptacle 6, being regulated by the closures 13, provide means for allowing the requisite amount of material to be deposited on the endless belt 26, which amount of material
45 conveyed by said belt is the amount to be carried by the elevator 42. This regulating of the amount to be discharged from the receptacle 6 is very essential, owing to the fact that some materials weigh very heavy as per
50 quantity, and the lifting or conveying load can thus be thereby regulated.

As shown in Figs. 5, 6 and 7, this improved device can be used on railway cars,
55 and will be very desirable in railroad construction work such as the building of roadbeds, the filling up of ditches. In connection with this work, the cars 82 have a receiving receptacle 83 formed therein. At the lower end of each receptacle of each car is
60 formed a pair of discharge openings 84. Pivotaly mounted to each of said openings is a closure 85.

Mounted in each car 82, and arranged horizontally between the discharge openings
65 is an endless chain belt 86 on which is

mounted a series of buckets 87. Said chain, at one end of the car to which it is mounted, is inclined upwardly and over a pair of sprockets 88, then downwardly and under
70 idle sprockets 89, passing in an approximate horizontal plane beneath the axles 90 of the car wheels 91, then passing upwardly around another pair of sprockets 92 mounted at the
75 opposite end of the car to said sprockets 89.

When a number of cars having this improved construction applied thereto are coupled together, the upwardly inclined end of
80 each conveyer 93, which conveyer is formed by the chain belt 86 and buckets 87, will overlap the horizontal portion of the conveyer in the preceding car. These cars 82
85 have mounted thereon trackways 94, and when a number of these cars are coupled together auxiliary trackways 95 are mounted between the cars so as to span the space
90 formed therebetween. These trackways 94 are for the purpose of shunting loaded hopper cars, such as 96, thereupon so that the material which is conveyed in these cars, such as fill-in material, can be dumped into
95 the conveyer cars 82.

In order to form an approach for the cars 96 to be mounted on the cars 82, an approach
car 97 having inclined trackways 98 is coupled to the last car 82. Said approach car
95 has an inclined extension 99 which is adapted to rest at one end on the main rails 100.

The forward car 82 has mounted thereto by supporting rods 102, at its forward end,
100 a distributing conveyer 101. One end of said conveyer 101 is adapted to be under the upwardly inclined end of the conveyer 93 of said forward car 82.

It is now readily seen that when a number
105 of loaded hopper cars 96 have been shunted on top of a number of conveyer cars 82, the contents of said hopper cars are dumped into the receptacles 83 of said cars 82. The
110 closures 85 of the forward car are then opened and the material is conveyed onto the conveyer 93 of said forward car, said conveyer, of course, being set in motion by a motor, such as 103. The conveyer is moved
115 upwardly and over the sprockets 88, and the contents therefrom are dumped onto the distributing conveyer 101. This conveyer 101 has power applied thereto by the chain belt 104.

When the first car has been emptied, the
120 second car can be operated upon, and the material conveyed therefrom will be dumped onto the conveyer 93 of the preceding car. When the second car has been emptied, the third car can be worked on in like manner,
125 and so on until the entire number of cars which are coupled together can be emptied from one conveyer to another until the material is finally deposited on the distributing
conveyer 101.

As the embankment of the railroad bed is 130

extended from the dumping of material from the distributing conveyer 101, the main rails 100 are laid out on the embankment so the conveyer cars and distributing conveyer can be moved up in order that the unloading end of the distributing conveyer will always be adjacent the edge of the embankment.

This improved device, as applied to railway cars, will facilitate the unloading of the hopper cars and their material as the loaded hopper cars, when shunted on top of the conveyer cars, can be immediately emptied into the conveyer cars, and can be immediately removed and taken to the place of refilling. The conveyer cars thus serve as a temporary place of storage for the material until it is finally discharged onto the distributing conveyer.

What I claim is:

20 1. In a combined receiving and discharging receptacle, a regulated discharge opening therefor, a door for said discharge opening, a support for said door, and a movably mounted platform located below said discharge opening, said door when swung wide open adapted to rest on said support.

25 2. In a combined receiving and discharging receptacle, a discharge opening therefor, a downwardly swinging door for said opening, means for regulating the swinging movement of said door, a moving platform

located beneath said discharge opening, and a support adapted to support said door and prevent said door from being swung wide open.

3. In a vehicle, a combined receiving and discharging receptacle, a regulated discharge opening for said receptacle, a door for said discharge opening, a movable platform located beneath said opening, a support located beneath said door, said door when being opened adapted to swing downwardly and engage said support, and trackways located above said receptacle, said trackways being for the reception of a loaded vehicle.

4. In a vehicle, a combined receiving and discharging receptacle, a regulated discharge opening for said receptacle, a door swingingly mounted beneath said opening, means for regulating the swinging of said door, a movable platform located beneath said opening, a support for limiting the movement of said door, an operably mounted distributing conveyer having one end engaged beneath said platform, and trackways located above said receptacle, said trackways being for the reception of a loaded vehicle.

EDWARD W. SHUTT.

In the presence of—

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H. G. FLETCHER.