Oct. 20, 1936. A. C. BISSELL 2,057,759

ROAD SANDING MACHINE

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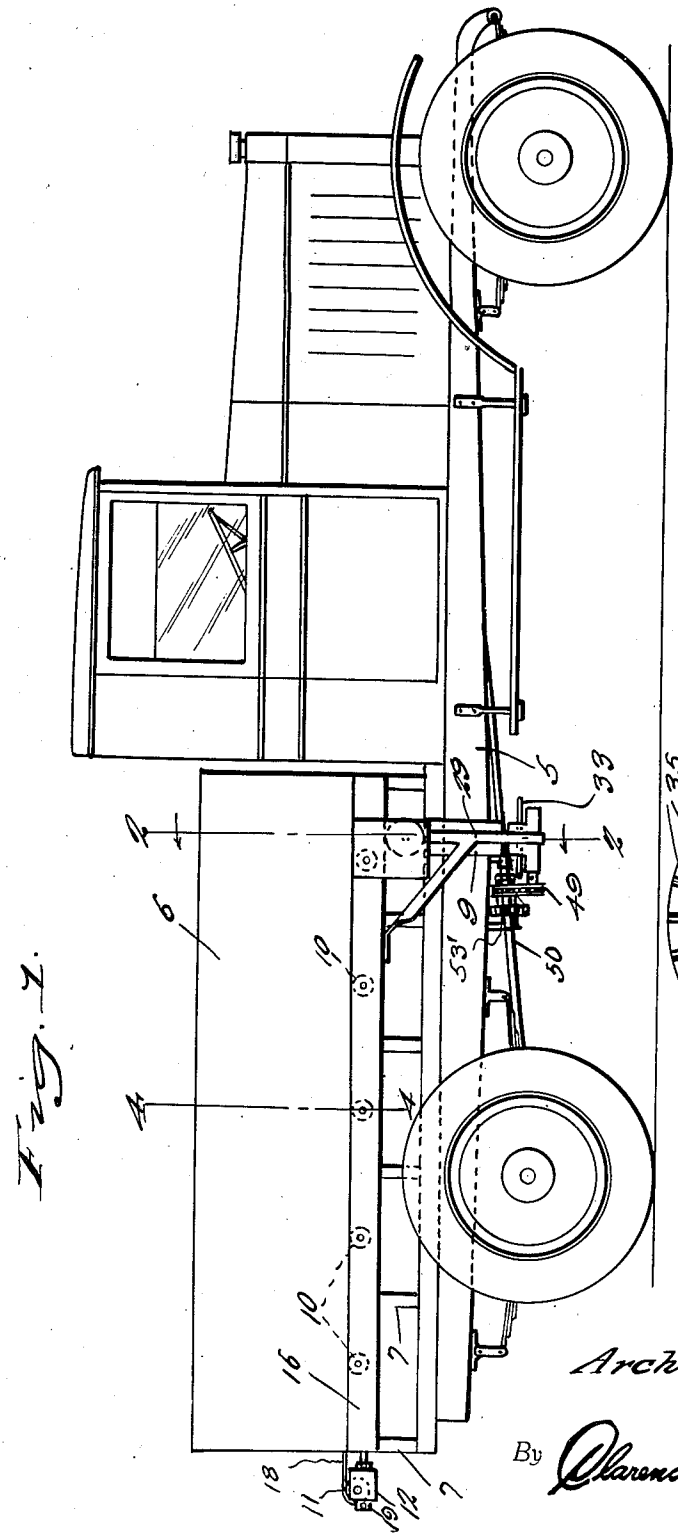


Fig. 1.

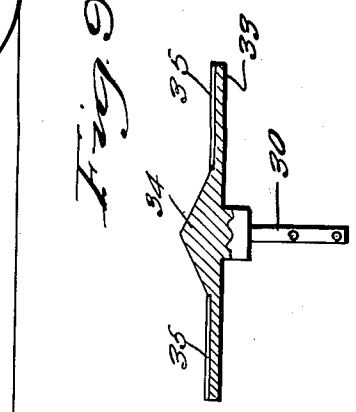


Fig. 9.

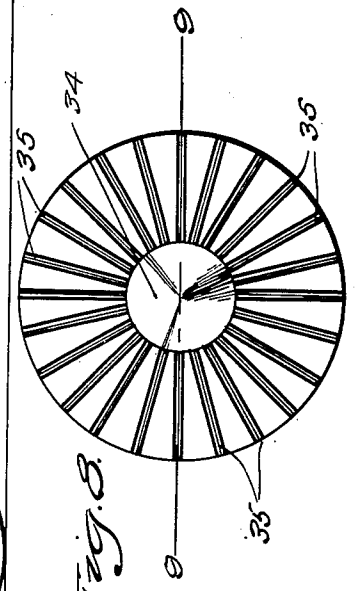


Fig. 8.

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ROAD SANDING MACHINE

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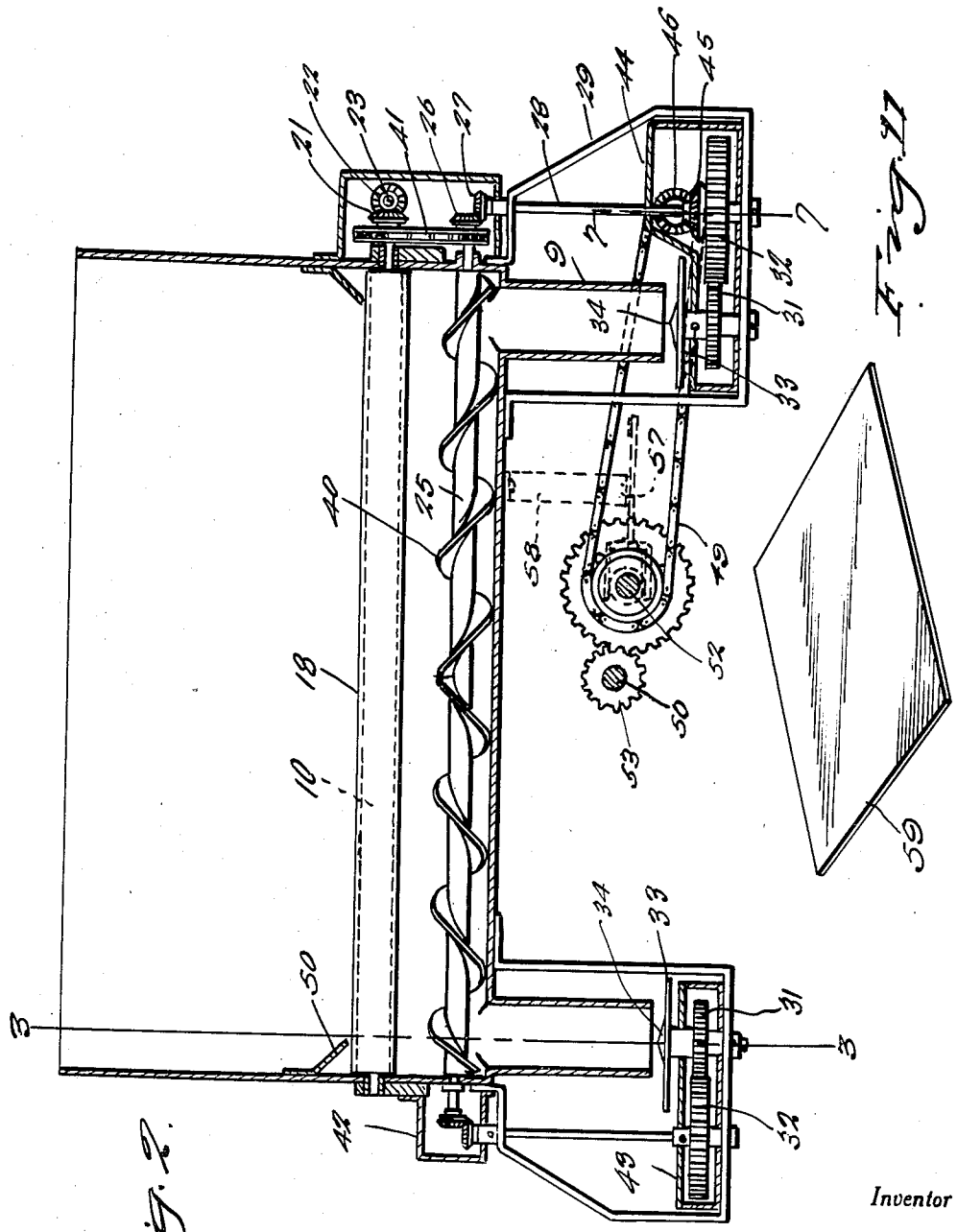


Fig. 1.

Fig. 11.

Inventor

Archie C. Bissell

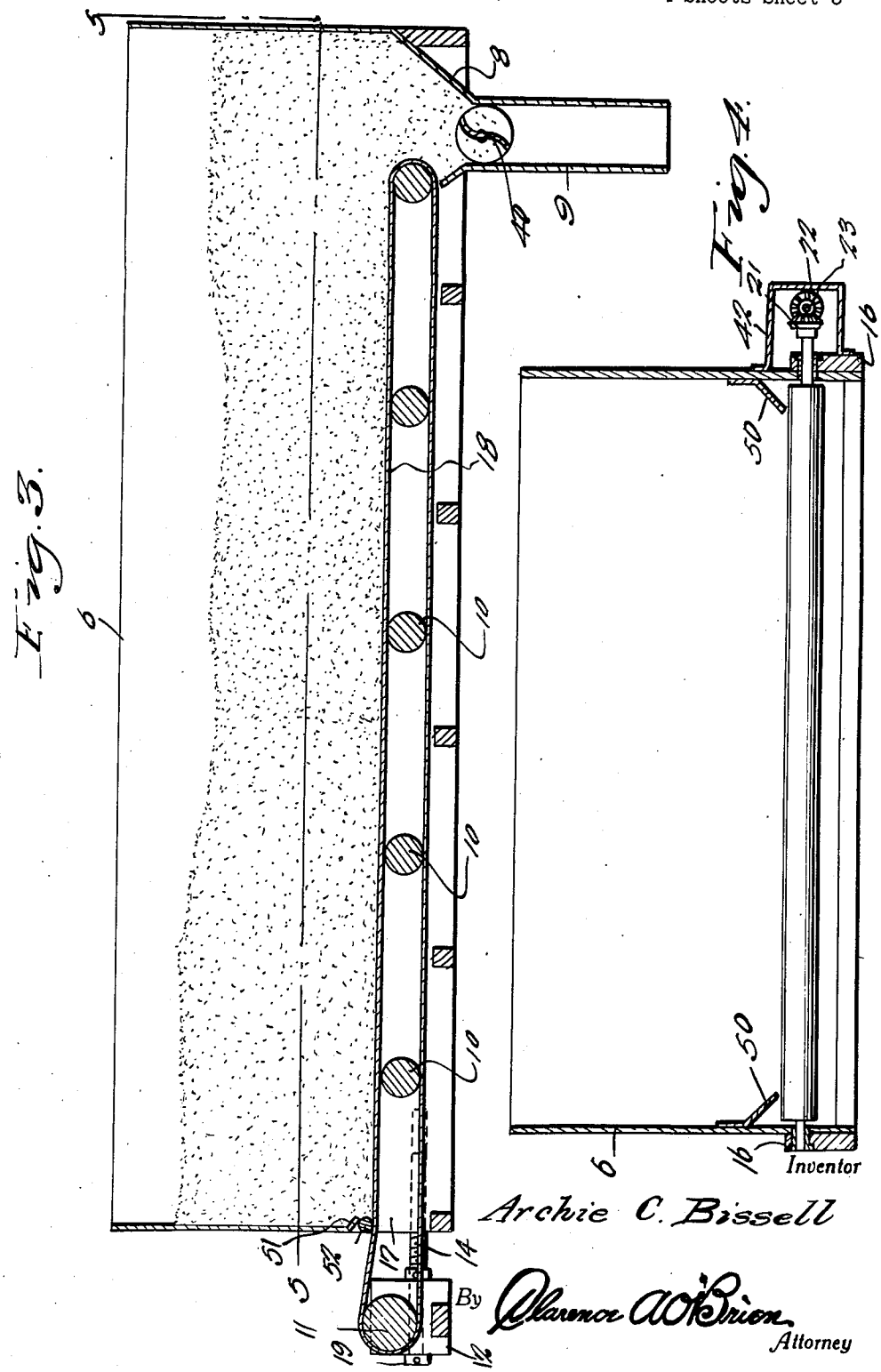
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ROAD SANDING MACHINE

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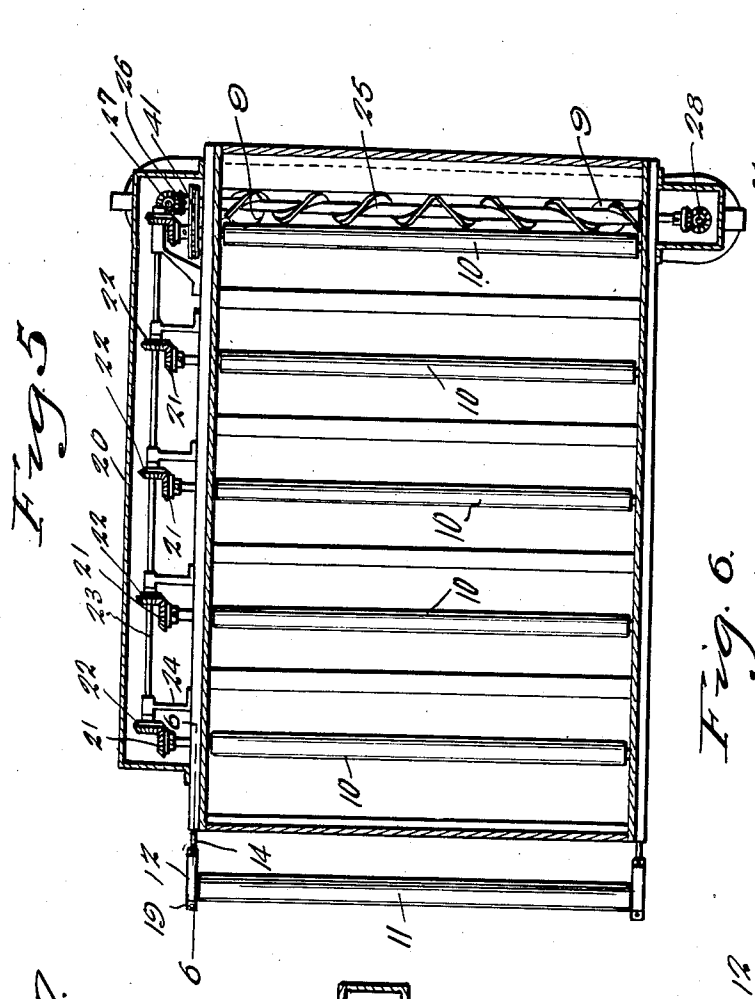


Fig. 5

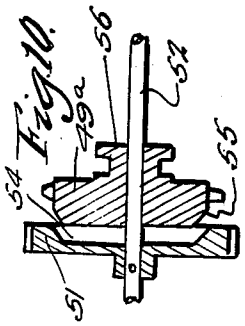


Fig. 10.

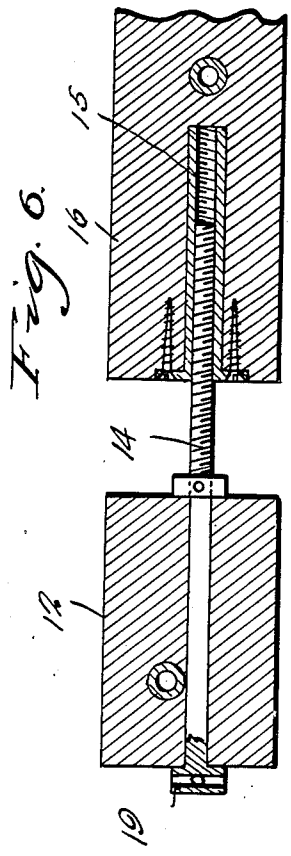


Fig. 6.

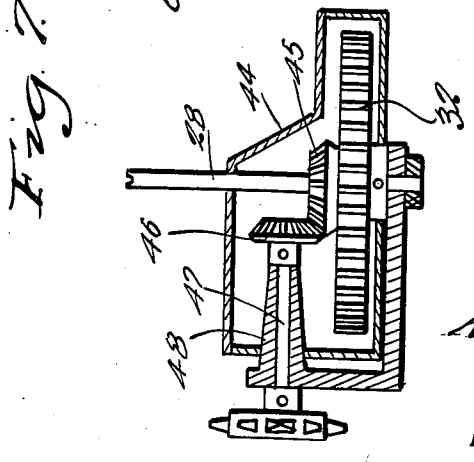


Fig. 7.

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Patented Oct. 20, 1936 2,057,759

UNITED STATES PATENT OFFICE

2,057,759

ROAD SANDING MACHINE

Archie Carl Bissell, Ludington, Mich.

Application June 1, 1934, Serial No. 728,578

9 Claims. (Cl. 275—8)

The present invention relates to a road sanding machine and has for its object to provide a truck having incorporated therein means whereby sand may be spread on icy and slippery roads when necessary in a quick and effective manner.

A further very important object of the invention resides in the provision of a machine of this nature which is positive in its action, reliable in its operation, thoroughly efficient and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention consists in certain novel features of construction, and in the combination and arrangement of parts as will hereinafter be more fully described and claimed.

In the drawings:

Figure 1 is a side elevation of a machine embodying the features of my invention.

Figure 2 is a vertical transverse section taken substantially on the line 2—2 of Figure 1.

Figure 3 is a vertical longitudinal section through the bin or body taken substantially on the line 3—3 of Figure 2.

Figure 4 is a vertical detail section taken substantially on the line 4—4 of Figure 1.

Figure 5 is a horizontal section taken substantially on the line 5—5 of Figure 3.

Figure 6 is a detail section taken substantially on the line 6—6 of Figure 5.

Figure 7 is a detail section taken substantially on the line 7—7 of Figure 2.

Figure 8 is a top plan view of one of the spreading disks.

Figure 9 is a sectional view taken substantially on the line 9—9 of Figure 8.

Figure 10 is a detail sectional view through a clutch hereinafter more fully referred to and

Figure 11 is a perspective view of a floor plate for the wagon box.

Referring to the drawings in detail it will be seen that the numeral 5 denotes a truck chassis on the rear portion behind the cab of which is built a box like bin or body 6 with an open bottom and resting on cross beams 7. In the front of the bin is a trough 8 disposed transversely of the bin and at the ends having depending outlet sleeves 9. These sleeves 9 form spouts out of which sand in the bin is to gravitate. A plurality of rollers 10 are journalled across the bottom portion of the bin. A roller 11 is mounted to the rear of the bin being journalled in blocks 12 which are mounted on rods 14 threaded into sleeves 15 which are embedded in side rails 16 extending along the lower edge portions of the side walls of the bin. The rear wall of the bin has a slot or opening 17. An imperforate endless belt 18 is trained over the roller 11 and the rollers 10, the forwardmost roller 10 being located immediately above the rear portion of the trough 8. The rods 14 are rotatable through the blocks 12 and terminate at their rear ends in sleeves 19 through which a suitable implement may be inserted to turn the rods for tightening the endless belt 18 when necessary.

On one side of the bin there is provided an elongated longitudinally disposed casing 20 and the shafts of the rollers 10 extend thereinto and on the ends of these shafts are beveled pinions 21 meshing with beveled pinions 22 on a shaft 23 journalled in suitable brackets 24. An auger 25 is located in the upper portion of the trough 8 and is journalled through the sides of the bin as shown clearly in Figure 2 and on the ends of its shaft are beveled pinions 26, 26 meshing with beveled pinions 27, 27 on the upper ends of vertical shafts 28, 28. These shafts 28 are journalled through hangers 29, 29. Shafts 30 are vertically disposed and journalled through the lower portions of the hangers 29. Gears 31 are fixed to the shafts 30 and mesh with gears 32 on the lower portions of the shaft 28. On the upper ends of the shafts 30 are formed spreading disks 33 on the upper surfaces of which are centrally located cone shaped humps 34 from which radiate grooves 35. These disks are located immediately below the spouts 9. It is to be noted that the rib 40 on the auger 25 is in two sections starting from the center and reversely spiralled. A sprocket and chain mechanism 41 operatively connects the forwardmost roller 10 with the auger. There is a casing 42 for the gears 26 and 27 on the other side of the bin from the casing 20. A casing 43 is provided for the gears 31 and 32 under the casing 42 and a casing 44 is provided for the gears 31 and 32 below the casing 20. This casing 44 is best shown in Figure 7 and it will be noted that the shaft 28 which extends into this casing 44 has a beveled pinion 45 thereon meshing with the beveled pinion 46 on shaft 47 journalled in bearing 48. A chain and sprocket mechanism 49 operatively connects the shaft 47 with the drive shaft 50 of the truck.

On the inner lower portions of the side walls are inwardly and downwardly inclined baffles 50. On the rear wall immediately above the opening or slot 17 is an inwardly and downwardly inclined baffle 51 below which is a circular antifriction roller 52 above the upper run of the endless belt 18.

With the bin full of sand and the truck moving along the road it will be seen that the endless belt urges the sand forwardly so that it may gravitate into the trough 8 from which it is moved laterally and outwardly to gravitate down the spouts 9 on to the rotating disks 33 to be scattered and spread on the roadway.

Referring again to the chain and sprocket mechanism 49 it will be seen that the same includes a clutch mechanism consisting of a gear 51 secured to a suitably mounted stub shaft 52 journalled in depending brackets 53'. The gear 51 is in constant mesh with a pinion gear 53 provided on the drive shaft 50 to turn with the shaft. One face of the gear 51 is formed as at 54 to provide a clutch element with which is cooperable a clutch element 55 formed integral with one side of the sprocket 49*a* forming part of the aforementioned chain and sprocket connection 49. The sprocket 49*a* is formed on the face thereof opposite to the clutch member 55 with a grooved collar 56 with which is engaged a shifting fork 57. The fork 57 may be operated manually through any suitable mechanism and is pivotally supported by a suitable bracket 58 as suggested in Figure 2.

In this connection it will be apparent that when the clutch members 54, 55 are disengaged, that is to say, are in the position shown in Figure 10 there will be an interruption of drive between the shafts 50 and 52. However when it is desired to set the parts of the sanding mechanism into operation fork 57 is manipulated to shift the gear 49*a* to the left in Figure 10 to engage the clutch members 54, 55. With the clutch members thus engaged drive is transmitted from the shaft 50 to the shaft 52, and from the shaft 52 to the shaft 47 for driving the auger and the spreader disks. It will thus be seen that these elements may be driven from the motor of the truck as and when found desirable.

When it is not desired to use the sanding mechanism the box body 6 of the truck may be used as an ordinary or conventional truck body or box by placing therein the removable floor or bottom plate shown in Figure 11 and indicated by the reference numeral 59. The plate 59 will sit in the bottom of the box over the conveyor as is thought apparent.

It is thought that the construction, operation, utility and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof.

It will be apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

1. In combination with a truck chassis, a box-like bin on the chassis having storage capacity, an endless conveyor constituting a bottom in the bin for moving sand in the bin forwardly, a trough across the forward portion of the bin and having at its ends depending spouts, an auger in the trough having a rib thereon in sections spiralled oppositely from the center of the auger, and means for operating the endless conveyor and the auger.

2. In combination with a truck chassis, a box-like bin on the chassis having storage capacity, an endless conveyor constituting a bottom in the bin for moving sand in the bin forwardly, a trough across the forward portion of the bin and having at its ends depending spouts, an auger in the trough having a rib thereon in sections spiralled oppositely from the center of the auger, scattering disks under the spouts, means for mounting the disks, and means for rotating the disks.

3. In combination with a truck chassis, a box-like bin on the chassis having storage capacity, an endless conveyor constituting a bottom in the bin for moving sand in the bin forwardly, a trough across the forward portion of the bin and having at its ends depending spouts, an auger in the trough having a rib thereon in sections spiralled oppositely from the center of the auger, and means for operating the endless conveyor and the auger, said endless conveyor extending through an opening in the rear end of the bin and including an endless belt, a plurality of rollers journalled across the bin, a roller disposed rearwardly of the opening and journalled in a pair of blocks, and means for mounting the blocks rearwardly of the bin so that they may be adjusted to and fro with respect thereto.

4. In combination with a truck chassis, a box-like bin on the chassis having storage capacity, an endless conveyor constituting a bottom in the bin for moving sand in the bin forwardly, a trough across the forward portion of the bin and having at its ends depending spouts, an auger in the trough having a rib thereon in sections spiralled oppositely from the center of the auger, and means for operating the endless conveyor and the auger, said endless conveyor extending through an opening in the rear end of the bin and including an endless belt, a plurality of rollers journalled across the bin, a roller disposed rearwardly of the opening and journalled in a pair of blocks, and means for mounting the blocks rearwardly of the bin so that they may be adjusted to and fro with respect thereto, said last mentioned means comprising a pair of rods rotatable through the blocks and threadedly engaged in sleeves mounted on the rear portions of the bin.

5. In combination with a truck chassis, a box-like bin on the chassis having storage capacity, an endless conveyor constituting a bottom in the bin for moving sand in the bin forwardly, a trough across the forward portion of the bin and having at its ends depending spouts, an auger in the trough having a rib thereon in sections spiralled oppositely from the center of the auger, and means for operating the endless conveyor and the auger, including a stub shaft, gearing operatively connecting the stub shaft with the drive shaft of the truck, a chain and sprocket connection between the stub shaft and the endless conveyor and auger, and clutch means operatively connecting the chain and sprocket mechanism with the gear on the stub shaft.

6. In combination with a truck chassis, a box-like bin on the chassis having storage capacity, an endless conveyor constituting a bottom in the bin for moving sand in the bin forwardly, a trough across the forward portion of the bin and having at its ends depending spouts, an auger in the trough having a rib thereon in sections spiralled oppositely from the center of the auger, and clutch controlled means for operating the endless conveyor and the auger.

7. In combination with a truck chassis, a storage bin carried by the chassis, a movable bottom in the bin for urging material in the bin in one

direction, a trough across the bin beneath the movable bottom and formed with an opening, a scattering member mounted beneath the opening in the trough, a conveyor in the trough for urging the material to the opening, and operating mechanism for the bottom, conveyor and the scattering member.

8. In combination with a truck chassis, a bin having side and end walls providing storage capacity, and an open bottom, an imperforate endless conveyor in and substantially conforming in shape to the configuration of the bin and constituting a movable bottom, a trough across one end of the bin beneath the movable bottom and having at its ends depending spouts, an auger in the trough having a rib therein in sections spiralled oppositely from the center of the auger, and means for operating the endless conveyor and auger.

9. In combination with a truck chassis, a bottomless storage bin fixed to the chassis and having storage capacity, an endless conveyor carried by the bin and constituting a movable bottom for the bin for urging material in the bin in one direction, a trough across the bin beneath the movable bottom at one end of the movable bottom and formed with an opening to discharge material deposited therein by the movable bottom, a scattering member mounted beneath the opening to broadcast material gravitating through the opening in the trough, and operating mechanism for the bottom, conveyor, and the scattering member.

ARCHIE CARL BISSELL.