

Jan. 16, 1940.

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2,187,448

MATERIAL SPREADING MACHINE

Filed May 9, 1939

4 Sheets-Sheet 1

Fig. 1.

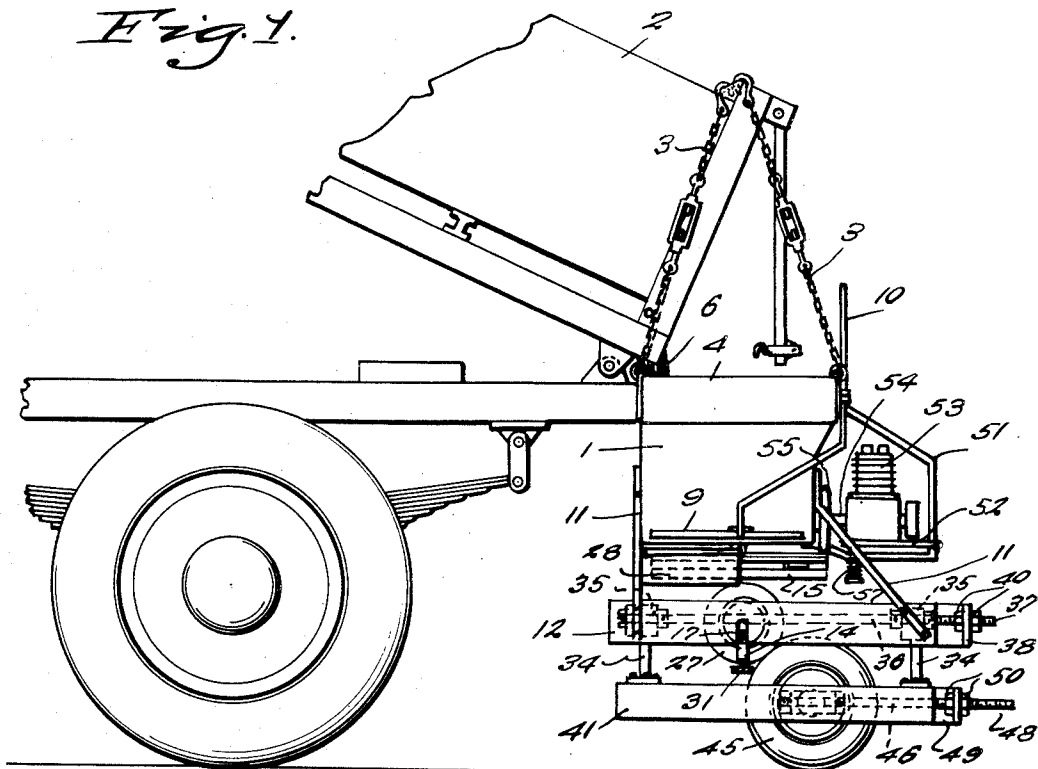


Fig. 5.

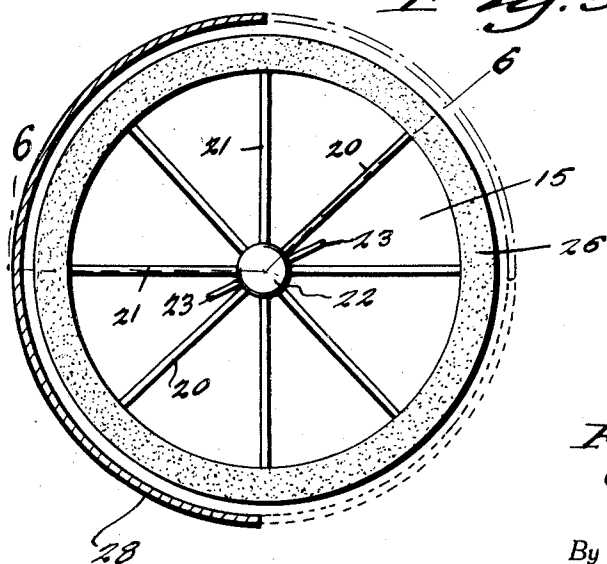
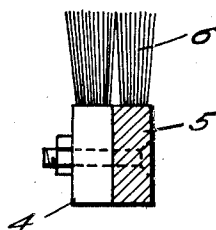


Fig. 13.



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*Fig. 2.*

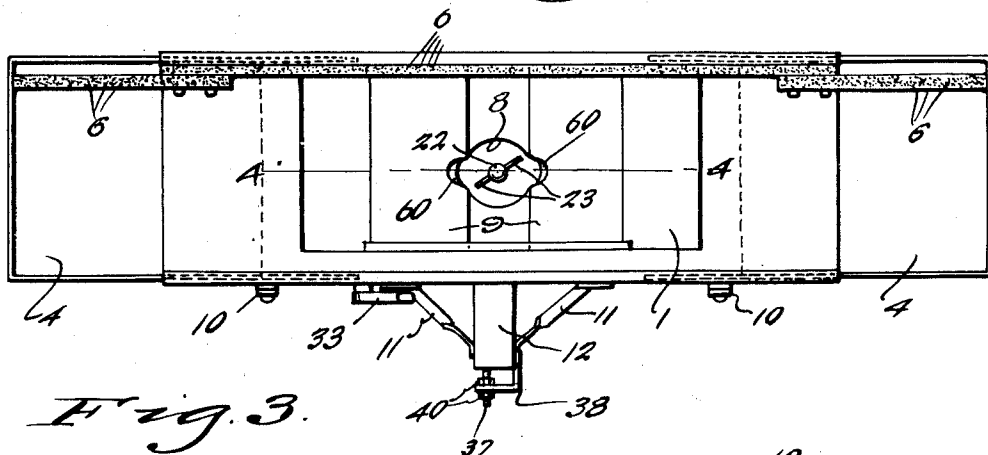


*Fig. 3.*

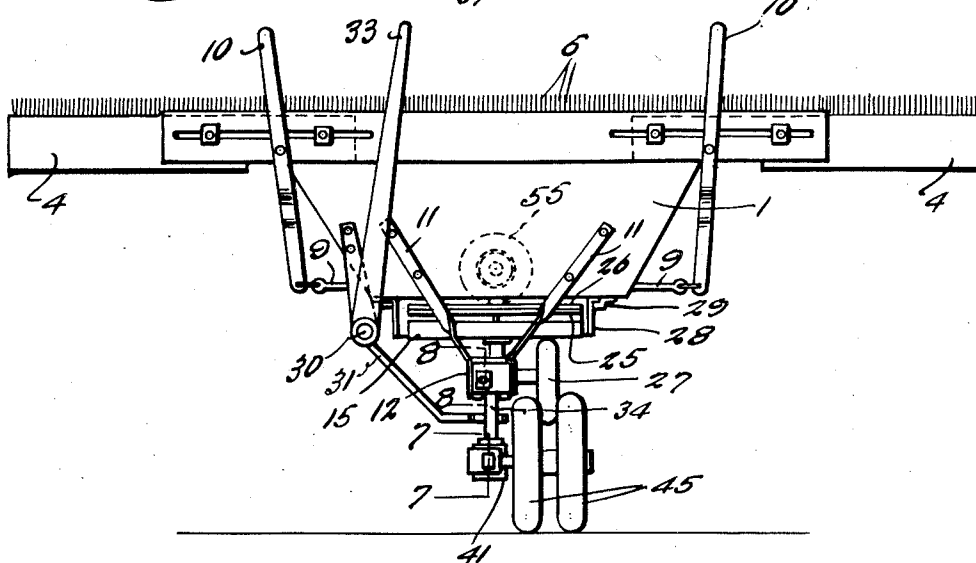
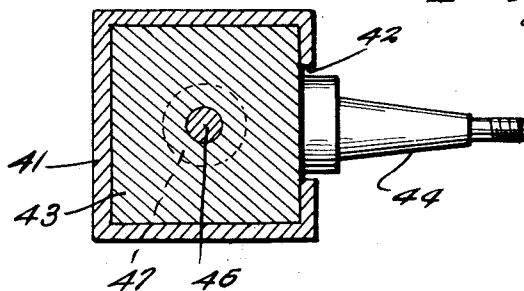


*Fig. 9.*



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*Fig. 4.*

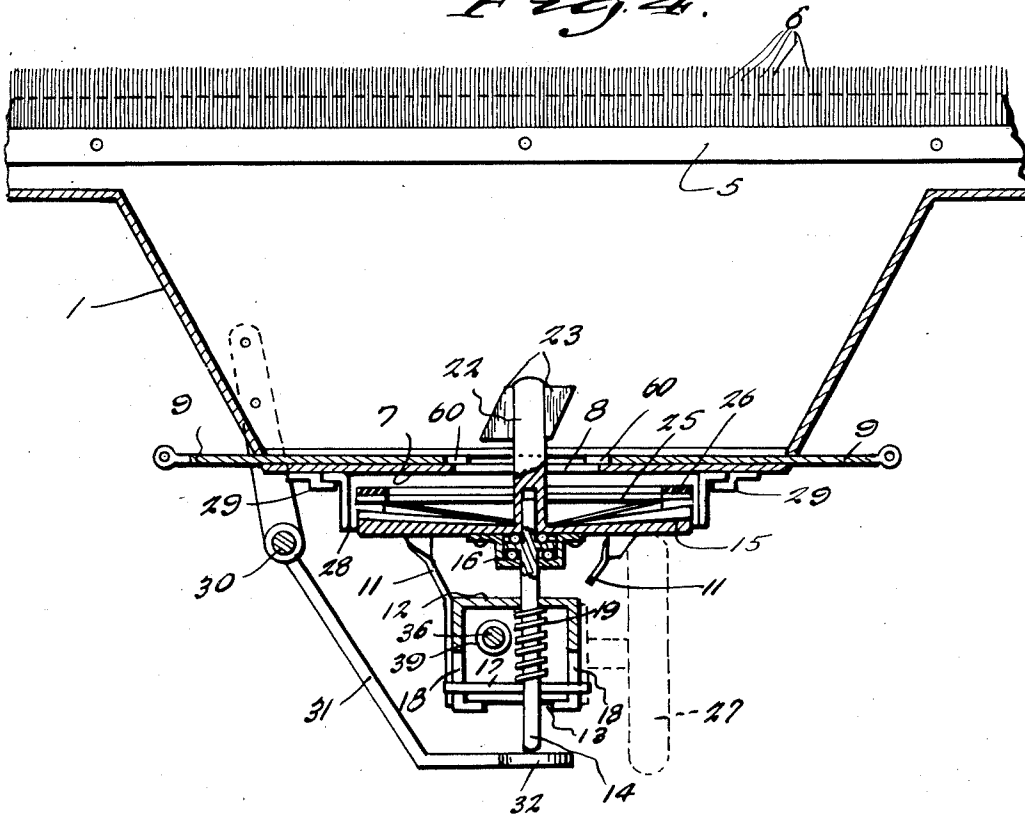


*Fig. 12.*

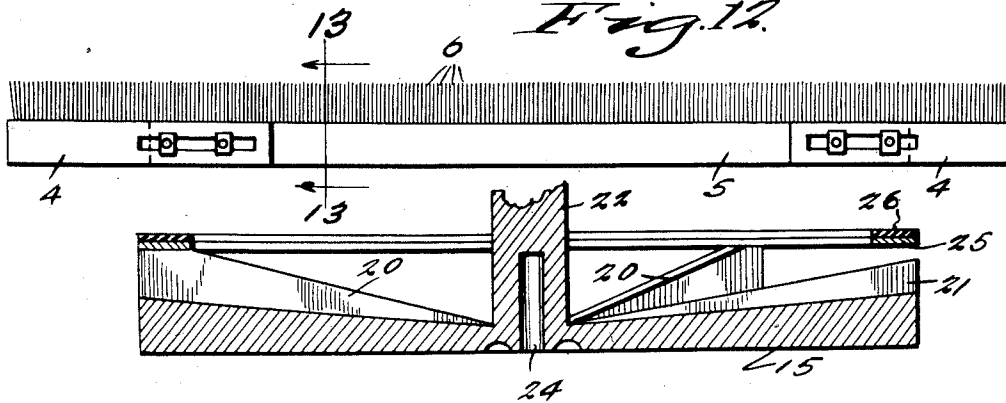


*Fig. 6.*

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*Fig. 7.*

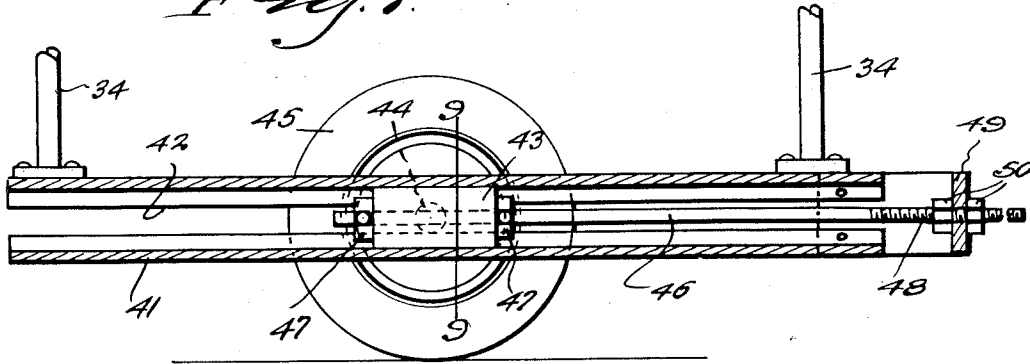


*Fig. 8.*

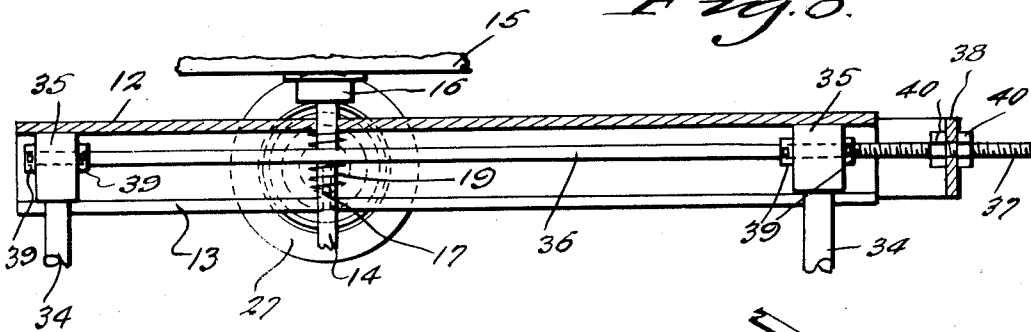


*Fig. 10.*

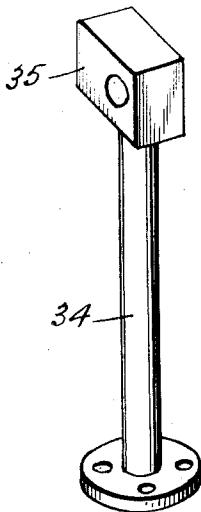
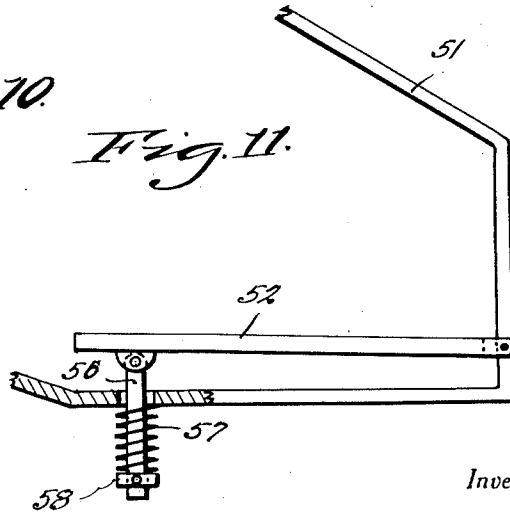


*Fig. 11.*



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## UNITED STATES PATENT OFFICE

2,187,448

## MATERIAL SPREADING MACHINE

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Brattleboro, Vt.

Application May 9, 1939, Serial No. 272,700

2 Claims. (Cl. 275-8)

This invention pertains to new and useful improvements in material spreading machines of a type generally similar to that constituting the subject matter of our co-pending application bearing Ser. No. 254,121, filed on February 1, 1939, now Patent No. 2,179,483, issued November 14, 1939.

An important object of the present invention is to provide, in a manner as hereinafter set forth, a machine of the aforementioned character comprising a rotary spreading disc which is adapted to be selectively driven by ground engaging wheels or a power plant mounted on the apparatus.

Another very important object of the invention is to provide a material spreading machine of the character described comprising a novel construction and arrangement of parts whereby either of the aforementioned driving means may be expeditiously rendered inoperative when desired.

Still another important object of the invention is to provide a material spreader of the character set forth comprising unique means for controlling the material thrown from the rotating disc.

Still another very important object of the invention is to provide a material spreading machine comprising a hopper which is adapted to be suspended beneath the rear end of a truck body for receiving material therefrom, said hopper being adjustable for different widths of bodies.

Other objects of the invention are to provide a material spreading machine of the aforementioned character which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, light in weight and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation, with parts in section and other parts omitted, of a material spreader constructed in accordance with the present invention, showing the machine attached for operation to a truck.

Figure 2 is a top plan view of the machine.

Figure 3 is a view in rear elevation.

Figure 4 is a view in vertical section through an upper intermediate portion of the machine, taken substantially on the line 4-4 of Fig. 2.

Figure 5 is a top plan view of the rotary spreading disc showing, in horizontal section, the ad-

justable control device which is associated therewith.

Figure 6 is a vertical sectional view through the rotary spreading disc, taken substantially on the line 6-6 of Fig. 5.

Figure 7 is a view in vertical longitudinal section through the ground wheel mount, taken substantially on the line 7-7 of Fig. 3.

Figure 8 is a view in vertical longitudinal section through the supporting structure for the wheel which actuates the spreading disc, taken substantially on the line 8-8 of Fig. 3.

Figure 9 is a cross sectional view, taken substantially on the line 9-9 of Fig. 7.

Figure 10 is a detail view in perspective of one of the hangers which supports the ground wheels.

Figure 11 is a view in side elevation of the engine supporting structure, a portion thereof being broken away in section.

Figure 12 is a detail view in elevation of the means employed for closing the space between the hopper and the rear end portion of the truck body.

Figure 13 is a vertical sectional view, taken substantially on the line 13-13 of Fig. 12.

Referring now to the drawings in detail, it will be seen that the embodiment of the present invention which has been illustrated comprises a transversely elongated hopper 1 of any suitable metal which is adapted to be connected to the rear end portion of a truck body 2 through the medium of suitable chains 3 in a manner to receive the material therefrom. The hopper 1 includes adjustable end sections 4 for adapting said hopper to different widths of truck bodies. Mounted on the front wall of the hopper 1 is a longitudinally extensible supporting bar 5 having upstanding bristles 6 thereon which are engageable with the lower portion of the truck body 2 for closing the space between said truck body and said hopper.

The bottom 7 of the hopper 1 has formed therein a material discharge opening 8. The opening 8 is controlled by slides 9 on opposite sides of said opening. Angular hand levers 10 are pivotally mounted on the hopper 1 and operatively connected to the slides 9 for actuating said slides.

Suspended by supports 11 beneath the hopper 1 in spaced relation thereto is an enlarged, longitudinally extending metallic housing 12 which is substantially square in cross section, said housing having a longitudinal slot 13 in the bottom thereof. Extending vertically through the housing 12 at an intermediate point is a slidable shaft 14 having mounted on its upper end portion a

spreading disc 15. The spreading disc 15 is rotatably secured to the shaft 14 through the medium of a suitable thrust bearing 16. Mounted transversely in the lower portion of the shaft 14 is a pin 17 which is operable in vertical slots 18 provided therefor in the housing 12 for securing said shaft 14 against rotation. A coil spring 19 encircles the shaft 14 in the housing 12 and is engaged with the pin 17 for yieldingly urging said shaft 14 with the spreading disc 15 thereon downwardly.

Referring now to Figs 5 and 6 of the drawings, it will be observed that the spreading disc 15 comprises alternately high and low vanes 20 and 21, respectively. Rising from the central portion of the disc 15 and extending through the opening 8 into the lower portion of the hopper 1 is a stem 22 having agitator blades 23 thereon. A socket 24 in the lower portion of the stem accommodates the upper end portion of the shaft 14. Mounted on the comparatively high vanes 20 of the disc 15 is a ring 25 the purpose of which will be presently set forth, said ring having fixed thereon a friction face 26 of rubber or other suitable material. Rotatably mounted on one side of the housing 12 is a rubber tired wheel 27 which is frictionally engaged with the disc 15 for rotating said disc.

The reference numeral 28 designates a substantially semi-circular baffle which is associated with the disc 15 at the periphery thereof for controlling the discharge of the material therefrom. The baffle 28 is rotatably secured by suitable means, as at 29, beneath the hopper 1 for manual adjustment about the disc 15. Two of the positions to which the baffle 28 may be adjusted if desired are indicated in broken and dotted lines in Fig. 5 of the drawings. Of course, the material is prevented from being thrown from the disc 15 in the direction in which the baffle 28 is located.

Mounted beneath the lower portion of the hopper 1, adjacent the disc 15, is a shaft 30. Fixed on the shaft 30 is an angular arm 31 comprising an enlarged foot 32 on its free end engageable beneath the lower end of the shaft 14 for raising said shaft against the tension of the coil spring 19, thus elevating the spreading disc 15. A hand lever 33 is fixed on the shaft 30 for raising and lowering the disc 15.

Suspended from the housing 12 are hangers 34 which are operable in the slot 13. The hangers 34 include blocks 35 on their upper ends (see Figs. 8 and 10) which are slidable in the housing 12. Mounted longitudinally in the housing 12 and journaled in the blocks 35 is a rod 36 having a threaded end portion 37 extending slidably through an angular bracket 38 which is fixed on the corresponding end of said housing. Collars 39 secure the blocks 35 against longitudinal movement on the shaft 36. Nuts 40 are threaded on the end portion 37 of the shaft 36 on opposite sides of the angular bracket 38 for adjusting said shaft longitudinally with the hangers 34 thereon.

Mounted on the lower ends of the hangers 34 is an elongated, longitudinally extending metallic housing 41, said housing 41 also being substantially square in cross section and having a longitudinal slot 42 in one of the side walls thereof. Slidably mounted in the housing 41 is a block 43 having projecting laterally therefrom a spindle 44 which is operable in the slot 42. Journaled on the spindle 44 are dual rubber tired ground wheels 45 which, when engaged

therewith, are adapted to frictionally drive the wheel 27.

Mounted longitudinally in the housing 41 is a rotary shaft 46 having one end portion journaled in the block 43. Collars 47 secure the shaft 46 to the block 43. The shaft 46 includes a threaded end portion 48 which passes slidably through an angular bracket 49 which is fixed on one end portion of the housing 41. Nuts 50 are threaded on the end portion 48 of the shaft 46 for adjusting the ground wheels 45 longitudinally on the housing 41.

Referring now to Figs. 1 and 11 of the drawings, it will be seen that the reference numeral 51 designates a frame structure which is mounted on the rear of the hopper 1. Pivotally mounted for swinging movement in a vertical plane on the frame structure 51 is a platform 52. Mounted on the platform 52 is a suitable engine 53. Mounted on the shaft 54 of the engine 53 is a rubber tired pulley wheel 55 which is engageable with the facing 26 of the ring 25 for driving the spreading disc 15. Pivotally suspended from the free end portion of the platform 52 is a rod 56 which passes slidably through an opening provided therefor in the lower portion of the frame structure 51. A coil spring 57 encircles the rod 56 and has one end engaged beneath the frame structure 51 and its other end engaged with a collar 58 on said rod for yieldingly urging the platform 52 with the engine 53 thereon downwardly for frictionally engaging the wheel 55 with the ring 25.

It is thought that the operation of the machine will be readily apparent from a consideration of the foregoing. Material from the hopper 1 flows by gravity to the disc 15 through the opening 8 and is thrown by centrifugal force from said disc. As hereinbefore stated, the direction in which the material may be spread may be controlled as desired through the medium of the rotatably adjustable baffle 28. Of course, the volume of material flowing to the spreading disc 15 is controlled through the medium of the slides 9. When the ground wheels 45 are in use the engine 53 is swung upwardly with the pivoted platform 52 against the tension of the coil spring 57 in a manner to disengage the wheel 55 from the ring 25. A suitable block, wedge or the like may then be inserted between the platform 52 and the lower portion of the frame structure 51 for supporting the motor 53 in inoperative position. Or, if desired, a suitable mechanism may be provided for swinging the engine 53 upwardly to inoperative position. The frictional engagement of the wheels 45 with the wheel 27 may be conveniently regulated as desired by shifting the hangers 34 through the medium of the shaft 36. When desired, the spreading disc 15 may be rendered inoperative while the machine is in operation by lifting said disc out of engagement with the wheel 27 through the medium of the hand lever 33, the arm 31 etc. When the engine 53 is being used as the source of power for driving the spreading disc 15 the ground wheels are shifted entirely out of engagement with the wheel 27 through the medium of the shaft 46. Or, if desired, the assembly consisting of the members 41, 43, 44, 45, 46, etc., may simply be removed from the machine. Likewise, the engine 53 may, if desired, be removed from the machine when it is not in use. The ground wheels 45, being mounted on the single block 43 in the housing 41, are capable of greater longitudinal adjustment than

the blocks 35 thereby permitting complete disengagement of said ground wheels from the wheel 27. The inner ends of the slides 9 are notched, as at 60, to accommodate the stem 22 when said slides are in closed position. By moving the end portions 4 of the hopper 1 inwardly or outwardly the length of said hopper may be conveniently adjusted to conform to various widths of truck bodies.

10 It is believed that the many advantages of a material spreading machine constructed in accordance with the present invention will be readily understood and although a preferred embodiment of said machine is as illustrated and described, it is to be understood that changes  
15 in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

20 What is claimed is:

1. A material spreading machine comprising

a hopper, means for securing said hopper to a vehicle body for receiving material therefrom, a spreading disc rotatably mounted beneath the hopper for receiving the material therefrom, an engine mounted for swinging movement on the hopper, and a wheel mounted on the engine for actuation thereby and frictionally engageable with the spreading disc for rotating said disc.

2. A material spreading machine comprising a hopper, means for securing said hopper to a vehicle body for receiving material therefrom, a spreading disc mounted beneath the hopper and adapted to receive the material therefrom, a ring fixed on said disc, an engine mounted for swinging movement on the hopper, and a wheel mounted on the engine and driven thereby, said wheel being frictionally engageable with the ring for driving the disc.

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