June 24, 1958 R. M. ROBINSON 2,839,975

WINDROW TYPE BOX

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Fig. 1

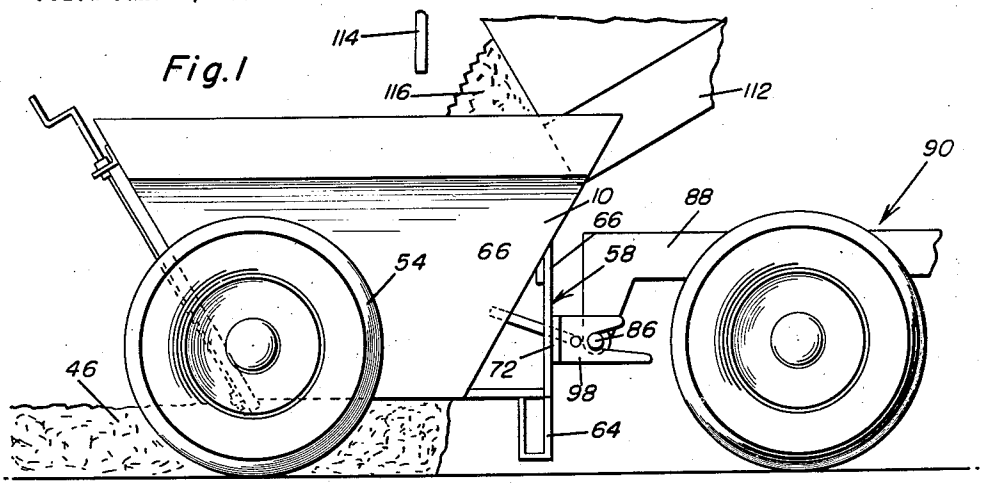


Fig. 5

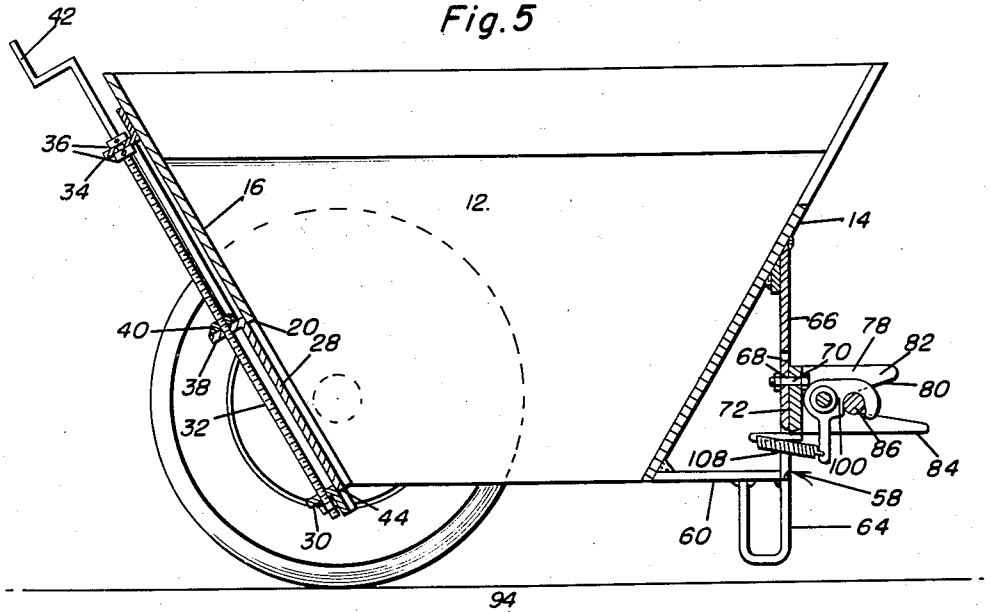
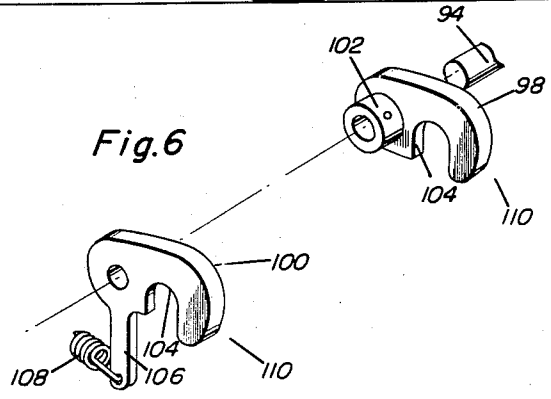


Fig. 6



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Fig. 2

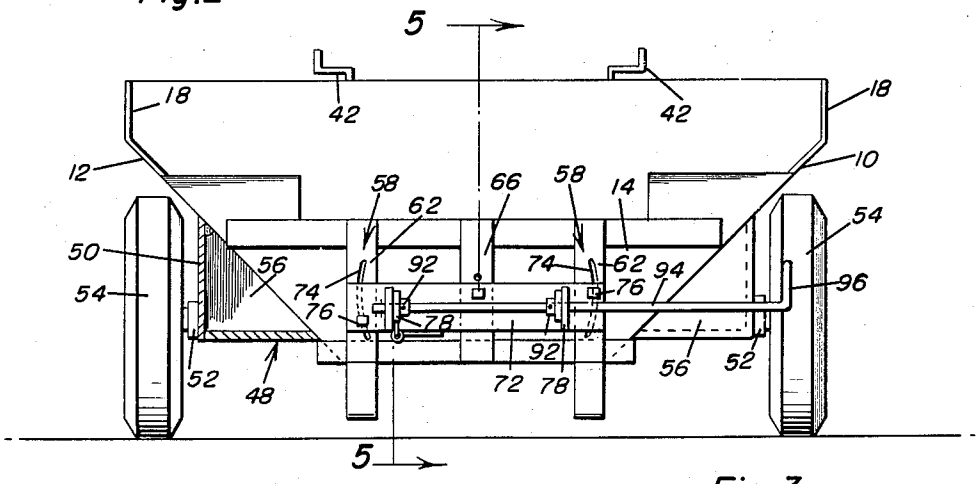


Fig. 3

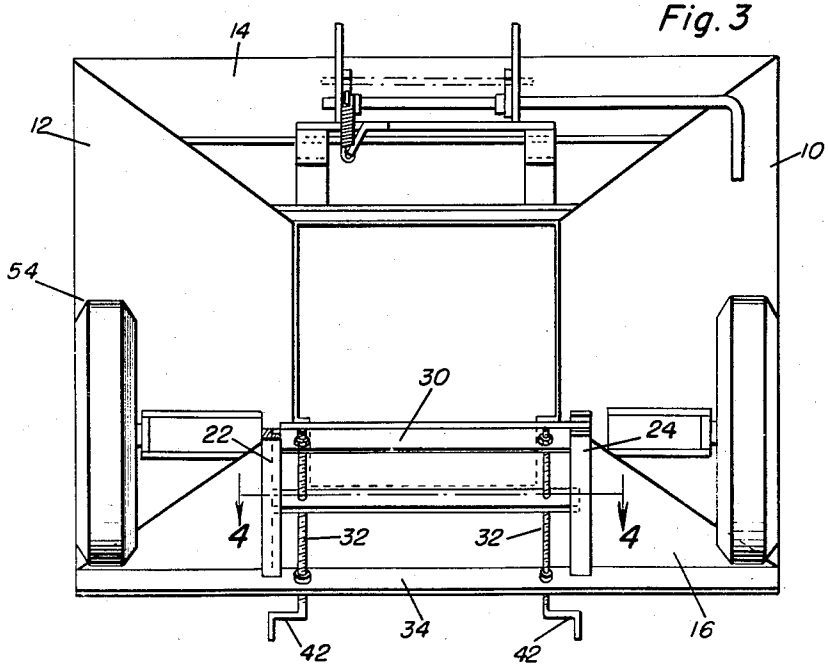
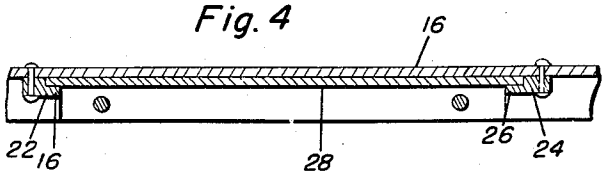


Fig. 4



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WINDROW TYPE BOX

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Application January 8, 1954, Serial No. 402,867

3 Claims. (Cl. 94—44)

This invention relates generally to equipment for use in paving or resurfacing roads, and pertains more particularly to an improved form of spreader box for distributing paving material such as crushed stone and the like on a surface to be paved or resurfaced.

A primary object of this invention is to provide a spreader box to be attached to the rear end of a dump truck which will evenly distribute paving material issued from the dump truck along the road surface, the mechanism being adjustable for varying the distribution per lineal foot in accordance with the requirements of the work to be done.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view showing the attachment in use;

Figure 2 is a front elevational view of the assembly;

Figure 3 is a plan view of the assembly;

Figure 4 is an enlarged vertical section taken substantially along the plane of section line 4—4 in Figure 3;

Figure 5 is an enlarged vertical section taken substantially along the plane of section line 5—5 in Figure 3; and

Figure 6 is a perspective view of a portion of the latching assembly.

Referring now more particularly to the drawings, the spreader box will be seen to consist of a pair of side wall members **10** and **12**, a front wall member **14** and a rear wall member **16**. The several walls **10—16** are rigidly secured together at their mating edges and are mutually convergent in the manner shown such that the spreader box is formed with a relatively larger open top and with a relatively small open bottom. The upper edges **18** of the side walls **10** and **12** are vertically disposed, as seen most clearly in Figure 2, to help maintain material dumped thereinto to be retained therein, as will be readily apparent.

It will be noted that each of the walls **10—16** is of generally rapezoidal configuration and that the rear wall **16** is cut away at its smaller or lower end such that its lower edge **20** is positioned vertically above the lower edge of the front wall **14**. A pair of track members **22** and **24** are secured to the rear wall **16** and extend between the top and bottom edges thereof in the manner shown. Each track member has an offset longitudinal edge portion **26** spaced from the outer surface of the rear wall providing trackways within which the opposite sides of a panel member **28** are slidably received. A plate member **30** secured at its opposite ends to the track members **22** and **24** and disposed at right angles to the plane of the rear wall **16** forms a guide for the lower ends of the adjusting screws **32** whose upper ends project through the lateral leg **34** of an angle member secured adjacent the upper edge of the

rear wall. Thrust collars **36** are rigidly affixed to the adjusting screws **32** on opposite sides of the flange **34** to longitudinally affix this member. The adjusting screws also project through the upper lateral flange **38** of the panel **28** and through a nut member **40** secured to flange **38** such that upon rotation of the adjusting screws by means of the cranks **42** at their upper end portions, the panel **28** will be adjusted vertically within the confines of the tracks **22** and **24**. In this manner, the lower edge **44** of the plate member **30** forms an extension for the lower edge **20** of the rear wall **16** and will control the height of the windrow **46** formed as the spreader box is moved along the ground surface.

For movably supporting the assembly, an L-shaped bracket **48** is secured to the sloping undersurface of each side wall **10** and **12** such that the vertical legs **50** thereof form vertical supporting surfaces to which spindles **52** are secured and upon which the wheels **54** are journaled. The brackets may be boxed in by suitable gussets **56** in the manner shown.

L-shaped supporting brackets **58** are secured to the front wall **14** in a manner shown most clearly in Figure 5, with the horizontal legs **60** thereof extending forwardly from the lower edge of the front wall. The lower ends of the vertical legs **62** project below the horizontal legs **60** in the looped stirrup portion **64** which forms supporting feet for the spreader box when the same is detached from a towing vehicle. A plate member **66** depends from the front wall **14** intermediate the brackets **58** and is provided with a plurality of vertically spaced apertures **68** for receiving a pivot bolt **70** by means of which the drawbar member **72** is pivotally attached to the spreader box along a longitudinal axis thereof. The opposite ends of the drawbar **72** overlie portions of the vertical legs **62** which are provided with arcuate slots **74** to guidably receive bolt members **76** projecting through opposite ends of the drawbar in a manner shown most clearly in Figure 2 and guide the same for relative swivelling movement between the drawbar and the spreader box.

Guide plates **78** are secured at right angles to the drawbar **72** and project forwardly therefrom, as seen most clearly in Figure 5, and it will be noted that the forward or free ends of the guide plates are notched, as at **80**, such that upper and lower prongs **82** and **84** are provided for guidably receiving therebetween an attaching bar **86** secured to the rearward ends of the frame rails **88** of the dump truck assembly indicated generally by the reference character **90**.

The guide members **78** journal, in conjunction with the thrust bearing members **92**, a release rod **94** having a laterally offset end portion **96** disposed at one side of the spreader box and the latch members **98** and **100** are rigidly affixed to the release rod **94** in any suitable manner, as by a setscrew projecting through the collars **102** thereof and it will be noted that the undersurface of each of the latching members is provided with a U-shaped notch **104** to partially surround the attaching bar **86** and, in conjunction with the guide plate **78**, attach the spreader box to the rear end of the dump truck **90**. One of the latching members **100** is provided with a depending arm **106** having an apertured lower end for receiving one end of a tension spring **108** connected at its other end to the spreader box such as to normally urge the latching members and the rod **94** to the latching position, unlatching action being effected by movement of the rod **94** through manipulation of its offset end portion **96**, as will be readily apparent.

It is to be appreciated that the preferred embodiment of the invention utilizes two of the actuating screw members **32** previously described, one each being provided

adjacent the opposite sides of the panel **28** in the manner illustrated most clearly in Figure 3 of the drawings.

In operation of the assembly, the dump truck **90** is backed toward the stationary spreader box assembly, the drawbar **72** being disposed in vertical adjustment on the plate **66** at such a height that the legs **82** and **84** of the plate **78** will normally receive the bar **86**. By virtue of the fact that the forward undersurfaces **110** of the latching members **98** and **100** are arcuated in the manner shown, the bar **86** will engage thereagainst and will be guided by the converging legs **82** and **84** such as to effect latching engagement between the truck and the spreader box. The specific construction of the bar assembly **86** forms no part of this invention, and suffice it to say that it is merely necessary that a horizontal portion thereof be of sufficient length as to extend between the plates **78**. With the spreader box thus attached, the dump box **112** is raised, the tail gate **114** thereof being released such that the material **116** in the truck is dumped into the spreader box assembly. The truck is then moved along the road surface and as a result of such movement, the material in the spreader box will be distributed therefrom through the open bottom thereof in the windrow **46**, the vertical height of which is determined by the vertical height of the lower edge **44** of the panel **28**. Of course, to effect a greater or lesser weight distribution of material per lineal foot, the panel **28** is accordingly vertically adjusted by means of the screws **32**. Should the truck and spreader box assembly be stopped at any time before complete distribution of the load is effected, by virtue of the fact that the lower edges of the front and side walls are disposed in closely spaced relation to the ground surface, very little outward flow and uneven distribution of the material will result, the already distributed windrow, of course, also serving to obviate outward flow, piling up or uneven distribution.

Another important consideration in regard to the invention resides in the positioning of the wheel members and their axles with respect to the panel **28**. That is, it will be noted that the wheel axles are located very close to the panel so that as the rear of the dump truck rises, due to dumping the material therefrom as the truck moves along the ground surface, the vertical height of the bottom of the panel from the ground, and consequently the depth of the windrow, will change only a minimum amount so that the windrow will be of nearly uniform depth. In other words, the arc of travel of the bottom edge of the panel due to rotation of the box counterclockwise as viewed in Figure 1 about its wheel axis as the load on the truck is lightened, will effect very little vertical movement to the bottom edge of the panel.

When one load has been emptied, the release rod **94** is actuated to release the truck assembly, and the next truck is backed up to the spreader box and hitched thereto for further distribution of material.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A device for distributing paving material in windrows, said device comprising a spreader box having a front wall, a pair of side walls, a rear wall that slopes downwardly and inwardly of the box, an unobstructed and open bottom, said front wall having a lower edge, said rear wall having a lower edge which is higher than said edge of said front wall to define a single discharge opening both on the bottom and rear of the box, a panel disposed at the rear of said opening and controlling the part of the discharge opening which is formed in said rear wall, a pair of tracks secured to said rear wall and in which said panel is mounted for movement, means connected to said panel to adjust said panel to vary the size of the opening which it controls, a pair of wheels to at least partially support the box, means connected to said side walls and mounting said wheels for rotation about a horizontal axis which is in a vertical plane that passes through the part of the discharge opening which is in said rear wall so that rocking motion of the box about said axis has minimal effect on the depth of the windrow being formed by the spreader box.

2. A device for distributing paving material in windrows, said device comprising a spreader box having a front wall, a pair of side walls, a rear wall that slopes downwardly and inwardly of the box, an unobstructed and open bottom, said front wall having a lower edge, said rear wall having a lower edge which is higher than said edge of said front wall to define a single discharge opening both on the bottom and rear of the box, a panel disposed at the rear of said opening and controlling the part of the discharge opening which is formed in said rear wall, a pair of tracks secured to said rear wall and in which said panel is mounted for movement, means connected to said panel to adjust said panel to vary the size of the opening which it controls, a pair of wheels to at least partially support the box, means connected to said side walls and mounting said wheels for rotation about a horizontal axis which is in a vertical plane that passes through the part of the discharge opening which is in said rear wall so that rocking motion of the box about said axis has little effect on the depth of the windrow being formed by the spreader box, a bracket secured to said front wall, a hitch secured to said bracket and protruding in advance thereof, and a supporting foot secured to said bracket to partially support the box, said foot being located in advance of said wheels and protruding below said discharge opening a distance smaller than said wheels.

3. The device of claim 2 wherein said front wall is inclined downwardly and inwardly of said box, the first mentioned bracket having a vertical and a horizontal leg, a second bracket having a vertical and a horizontal leg secured to said front wall, a second foot carried by said horizontal leg of said second bracket, and said hitch being secured to said vertical legs of said brackets.

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