Feb. 19, 1924. 1,484,459

F. E. ARNDT

STONE SPREADER

Filed Oct. 12, 1921 2 Sheets-Sheet 1

Fig. 1.

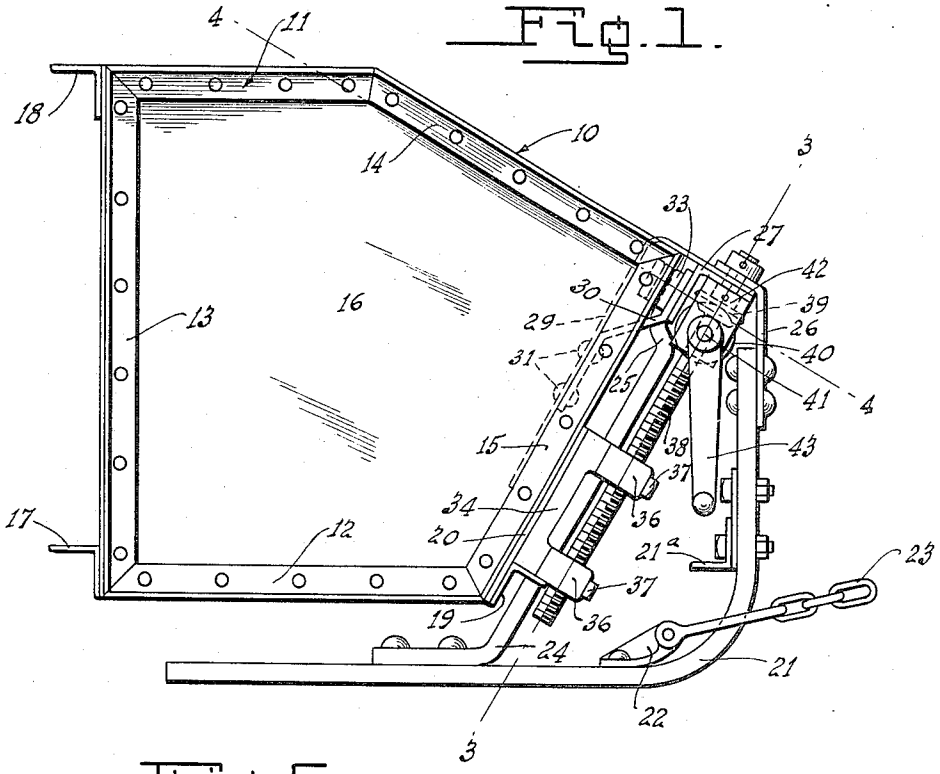


Fig. 5.

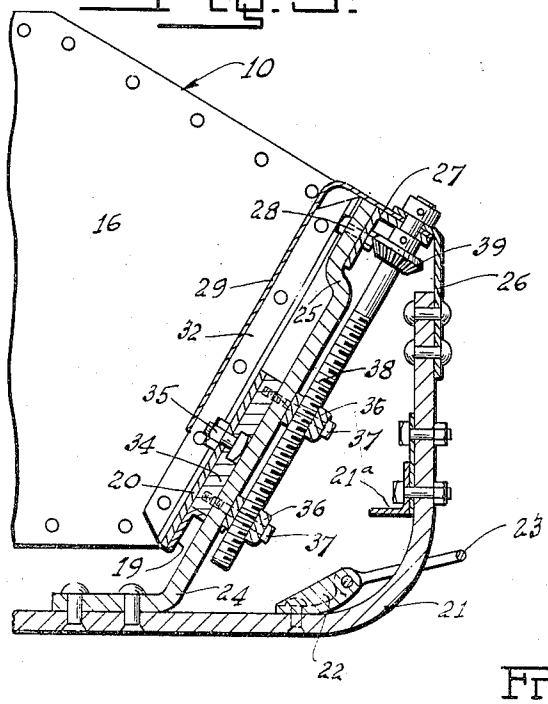
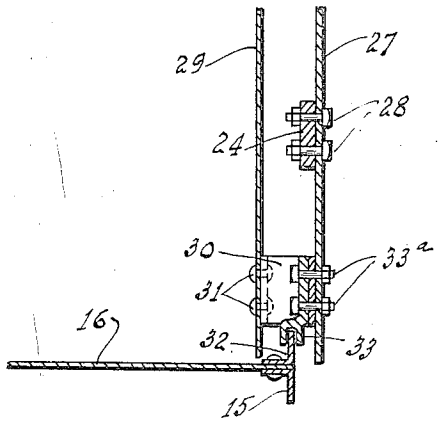


Fig. 4.



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Fig. 2.

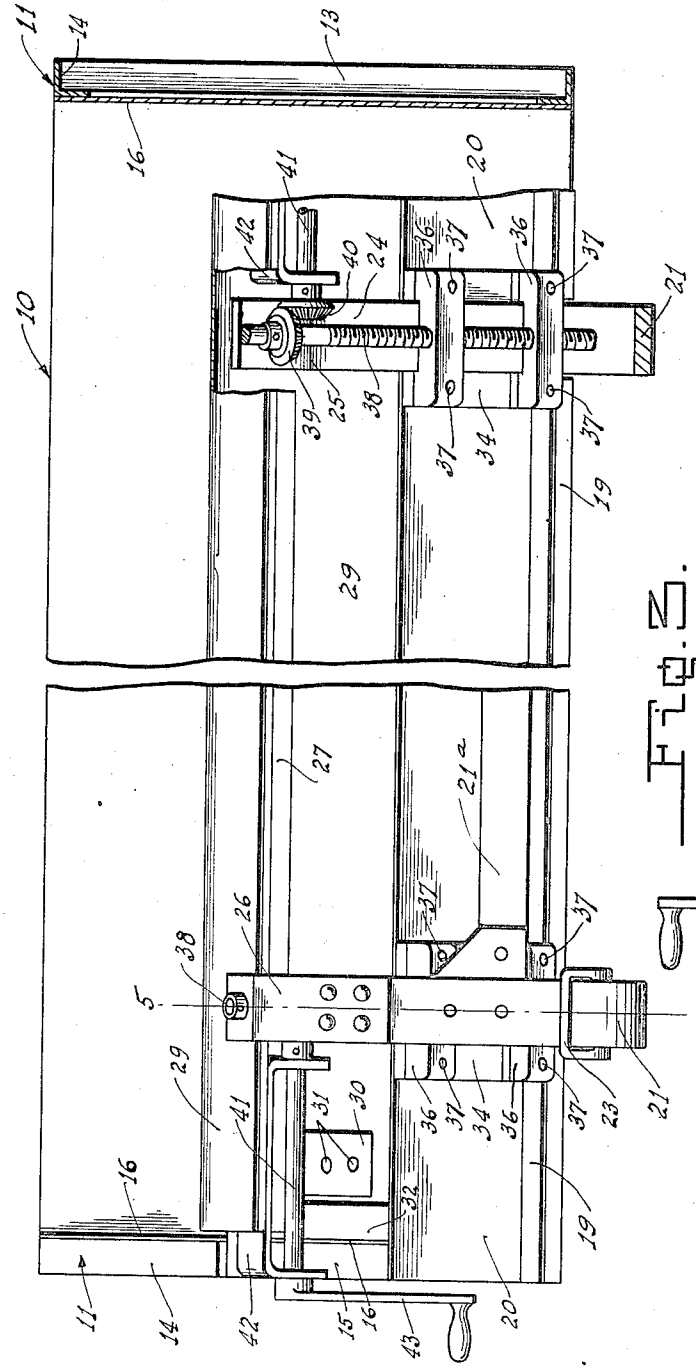
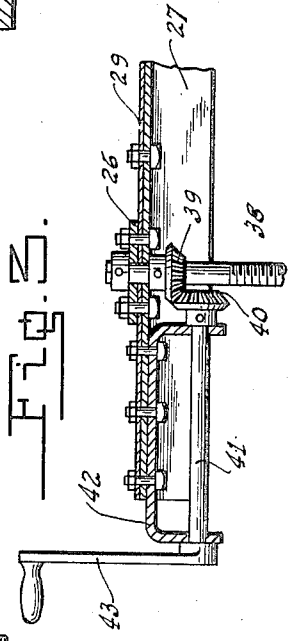


Fig. 3.



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Patented Feb. 19, 1924. 1,484,459

UNITED STATES PATENT OFFICE.

FRANKLIN E. ARNDT, OF GALION, OHIO, ASSIGNOR TO THE GALION IRON WORKS & MFG. CO., OF GALION, OHIO, A CORPORATION OF OHIO.

STONE SPREADER.

Application filed October 12, 1921. Serial No. 507,201.

To all whom it may concern:

Be it known that I, FRANKLIN E. ARNDT, a citizen of the United States, residing at Galion, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Stone Spreaders, of which the following is a specification.

This invention relates to road making devices, particularly to machines for spreading crushed rock, gravel and the like upon a roadway, and has for its object the provision of a device for this purpose which is trailed behind a truck which dumps material into a distributing hopper.

The essential feature of the present invention is the provision of novel means not only for adjusting the position of the hopper so that its bottom will be at the desired distance above the ground, but also for tilting the hopper to one side or the other so that the thickness or depth of the layer of material distributed will be thicker at one side than at the other, this being particularly advantageous as facilitating the making of a road having a crown.

Another object is the provision of a device of this character in which the hopper is bodily movable, cooperating with an overhanging deflector plate which is stationary, peculiar guide means being provided for insuring proper movement of the hopper during adjustment.

An additional object is the provision of a mechanism of this character which will be simple and inexpensive in construction, highly efficient in use, durable in service and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the device;

Figure 2 is a front view thereof with portions broken away and in section;

Figure 3 is a detail sectional view on the line 3—3 of Figure 1;

Figure 4 is a detail sectional view on the line 4—4 of Figure 1; and

Figure 5 is a section on the line 5—5 of Figure 2.

Referring more particularly to the drawings, I have shown my device as comprising a hopper of suitable dimensions designated broadly by the numeral 10 and consisting of end frames 11 each including a lower angle bar 12, an upright angle bar 13, an upper angle bar 14 formed of sections extending somewhat at an angle to each other, and also a forward upwardly inclined bar 15. These end frames are covered with sheet metal 16, preferably steel of suitable gauge. The bars 13 are connected at their lower ends by transverse reinforcing angle bars 17 and at their upper ends by a similar bar 18 while the lower ends of the bars 15 are connected by an angle bar 19. The hopper is open at its top and bottom and also has the major portion of its front open, the lower portion only being closed by a plate or wall 20.

The supporting means for the hopper comprises a plurality of L-shaped runners 21 connected by an angle bar 21^a and upon which are secured brackets 22 for the attachment of draft chains 23 or the like whereby the device may be drawn along the ground. Secured upon the horizontal portion of each runner is an upwardly and forwardly inclined bar 24 which has its upper end offset, as indicated at 25, and terminating at the upper forward edge of the hopper. Secured to the upper end of the vertical portion of each runner is an angle bracket 26, these brackets being connected by a transverse angle bar 27 which extends the full width of the machine and which has the upper ends of the bars 24 secured thereto as by means of bolts 28. Secured between the angle bar 27 and the upper ends of the angle brackets 26 is a deflector plate 29 which is L-shaped in cross section and which extends into the hopper in parallel relation to the front thereof and in overlapping relation to the plate or wall 20. Secured to the rear portion or flange of the angle bracket 27 is a bracket arm 30 which is of angular shape, as shown, and which is secured to the deflector plate 29 as by means of rivets 31 or the like. Secured to the edges of the metal sheet 16 are angle bars 32 which extend in the opposite direction to the angle bars 15 and which are slidably engaged within slotted guides 33 secured to the angle bar 27 and to the bar 24 by means of suitable bolts 33^a, the purpose being to guide the hopper when it is adjusted by the means above described.

In order that the hopper may be raised or lowered for varying the depth or thickness of the layer of material spread thereby, I provide brackets 34 which are located at the front of the hopper near the ends thereof and which are pivotally mounted, as indicated at 35. Each bracket 34 is formed of separable sections secured together by bolts 37 and includes spaced arms 36 which are formed with threaded holes for the passage of a threaded shaft 38 which is journaled through the angle bar 27 and the upper end of the associated bracket 26. Secured upon the upper end of each shaft 38 is a bevel pinion 39 which meshes with a bevel pinion 40 secured upon a shaft 41 which is journaled through an inverted U-shaped bracket 42 mounted upon the bar 27. The upper end of each shaft 41 carries a crank handle 43 by means of which it may be rotated for effecting turning of the associated shaft 38.

In the operation of the device it will be seen that when it is trailed along behind a dumping truck material discharging from the truck into the hopper 10 will pass out through the bottom thereof and be deposited upon the roadway to a uniform depth or thickness. When it is desired to adjust the hopper for varying the thickness of such a layer it is necessary that the crank handles 43 be turned so as to rotate the shafts 38 whereupon the latter, owing to their threaded engagement within the threaded holes 37, will cause the brackets 34 to be moved up or down as the case may be, carrying with them the entire hopper. In some instances it is desirable to have the surface of the layer of material distributed horizontal, in which event both of the crank handles 43 are turned to the same extent so that both sides of the hopper will be correspondingly moved an equal distance. When it is desired to form a crowned road, that is one which is higher at the center than at the sides, one of the crank handles 43 should be turned more than the other whereupon the corresponding side of the hopper will be elevated to a greater extent than the other so that a layer will be distributed which has an inclined upper surface. This lateral tilting of the hopper is permitted without any danger whatever of binding owing to the pivotal mounting of the brackets 34 with respect to the front wall of the hopper, the shafts 38 always remaining in their same positions and only the brackets swinging.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a simply constructed device for distributing road material of any kind in a very efficient manner, ample means being provided for varying the depth of the layer spread, such variation being either uniform throughout the area of the spread material or being of uniform variation from side to side for forming a crown. Owing to the simplicity of the construction and the efficient bracing and supporting means provided it will be apparent that the device will have great strength and durability so that it should have a long life and satisfactorily perform all the functions for which it is intended.

While I have shown and described the preferred embodiment of the invention, it is of course to be readily understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A road material distributing machine comprising a hopper having an open top and bottom, ground engaging supports, the hopper being slidably associated with said supports, screw means for adjusting the position of the hopper with respect to said supports, each screw means being independently operable, and gear operated means for independently actuating each of said screw means.

2. A road material distributing device comprising a plurality of ground engaging supports, guides carried thereby, a hopper slidably mounted with respect to said guides, and gear operated means associated with each side of the hopper and simultaneously operable for effecting raising and lowering thereof and independently operable for effecting tilting.

3. A road material distributing device comprising a plurality of ground engaging runners, guides carried thereby, a hopper movably mounted along said guides, brackets pivoted upon the front of the hopper and screw members associated with the upper ends of the runners and having threaded engagement through said brackets, said screw means being simultaneously operable at both sides of the device for effecting raising and lowering of the hopper and being independently operable for effecting tilting.

4. A road material distributing machine comprising a pair of connected ground engaging runners, upwardly and forwardly inclined guides carried thereby, a hopper disposed rearward of said guides and open at its lower end, a pair of brackets pivoted upon the front of the hopper, screw members operatively mounted upon said runners and having threaded engagement through said brackets, and independently operable means for operating each of said screw members.

5. A road material distributing machine comprising a pair of connected ground engaging runners, upwardly and forwardly inclined guides carried thereby, a hopper

disposed rearward of said guides and open at its lower end, a pair of brackets pivoted upon the front of the hopper, screw members operatively mounted upon said runners and having threaded engagement through said brackets, a beveled gear wheel mounted upon each screw member, a transverse shaft associated with each screw member and carrying a beveled gear wheel engaging the first named beveled gear wheel, and an operating crank on the end of each transverse shaft.

6. A road material distributing device comprising a pair of ground engaging runners, upwardly and forwardly extending guides carried thereby, a hopper disposed rearward of said guides and open at its top and bottom, the hopper having a front wall extending upward from its lower end but terminating short of the upper end of the hopper, means connected to said front wall having sliding engagement with the guides, a deflector plate operatively connected to the upper end of the runner and extending downward in overlapped spaced relation to the upper end of the front wall of the hopper, a transversely extending angle iron operatively carried by the runner and having downwardly extending brackets connected to said deflector plate, said angle iron at its ends having inwardly projecting members formed with upwardly and forwardly inclined grooves, the side walls of the hopper carrying inwardly turned flanges engaging in said grooves.

7. A road material distributing device comprising a pair of ground engaging runners, upwardly and forwardly extending guides carried thereby, a hopper disposed rearward of said guides and open at its top and bottom, the hopper having a front wall extending upward from its lower end but terminating short of the upper end of the hopper, means connected to said front wall having sliding engagement with the guides, a deflector plate operatively connected to the upper end of the runner and extending downward in overlapped spaced relation to the upper end of the front wall of the hopper, a transversely extending angle iron operatively carried by the runner and having downwardly extending brackets connected to said deflector plate, the side walls of the hopper having sliding operative engagement with the ends of said angle iron.

8. A road material spreading device comprising ground-engaging members, a hopper movably mounted thereon, and adjusting means associated with each side of the hopper, said means being operable at both sides simultaneously for raising or lowering the hopper and being independently operable for effecting lateral tilting of the hopper.

In testimony whereof I affix my signature.

FRANKLIN E. ARNDT.