

May 29, 1934.

C. A. MILLER

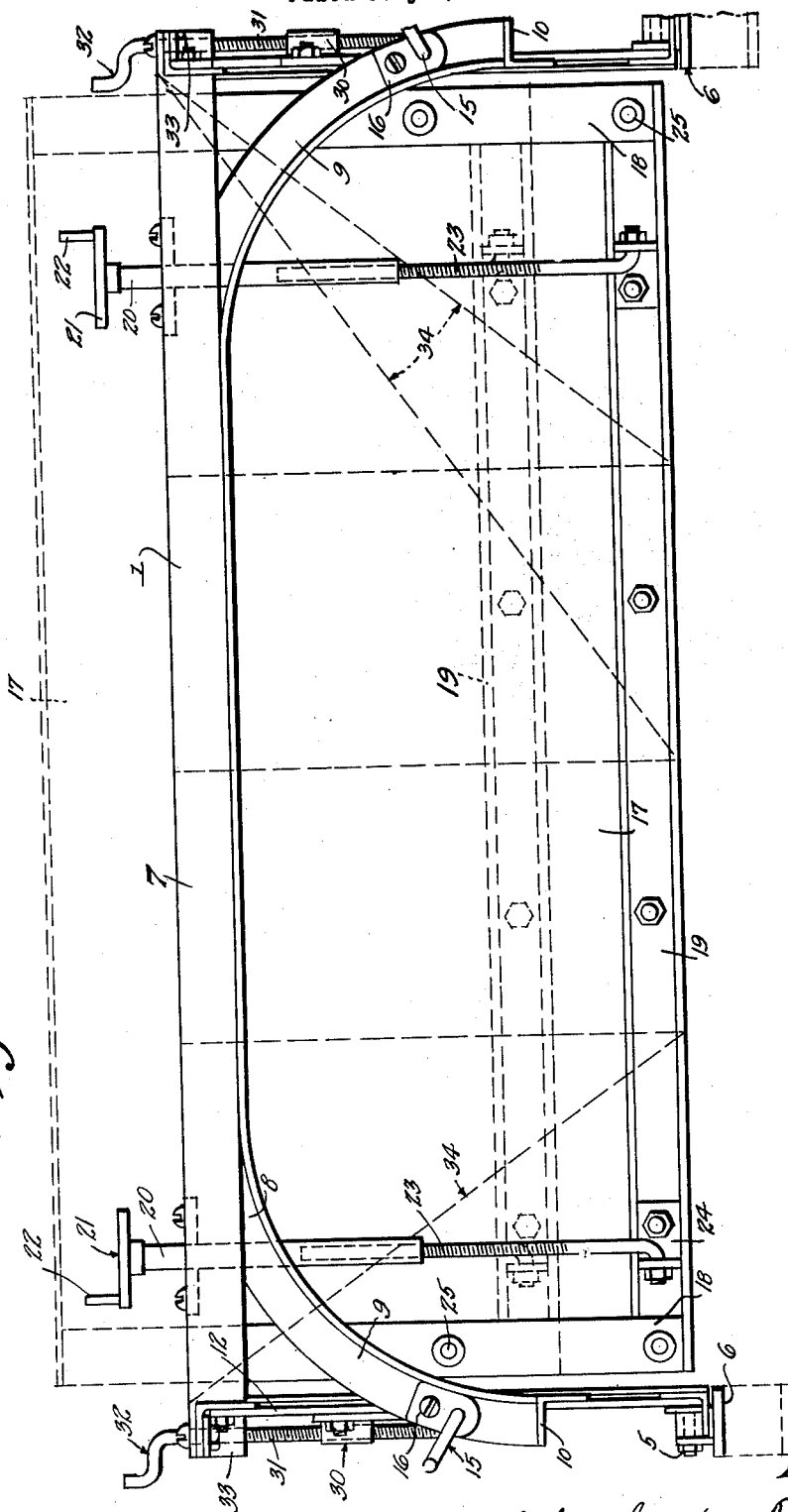
1,961,064

DIRT SPREADER AND GRADER

Filed July 6, 1931

3 Sheets-Sheet 1

Fig. 1.



Inventor.

Charles A. Miller

May 29, 1934.

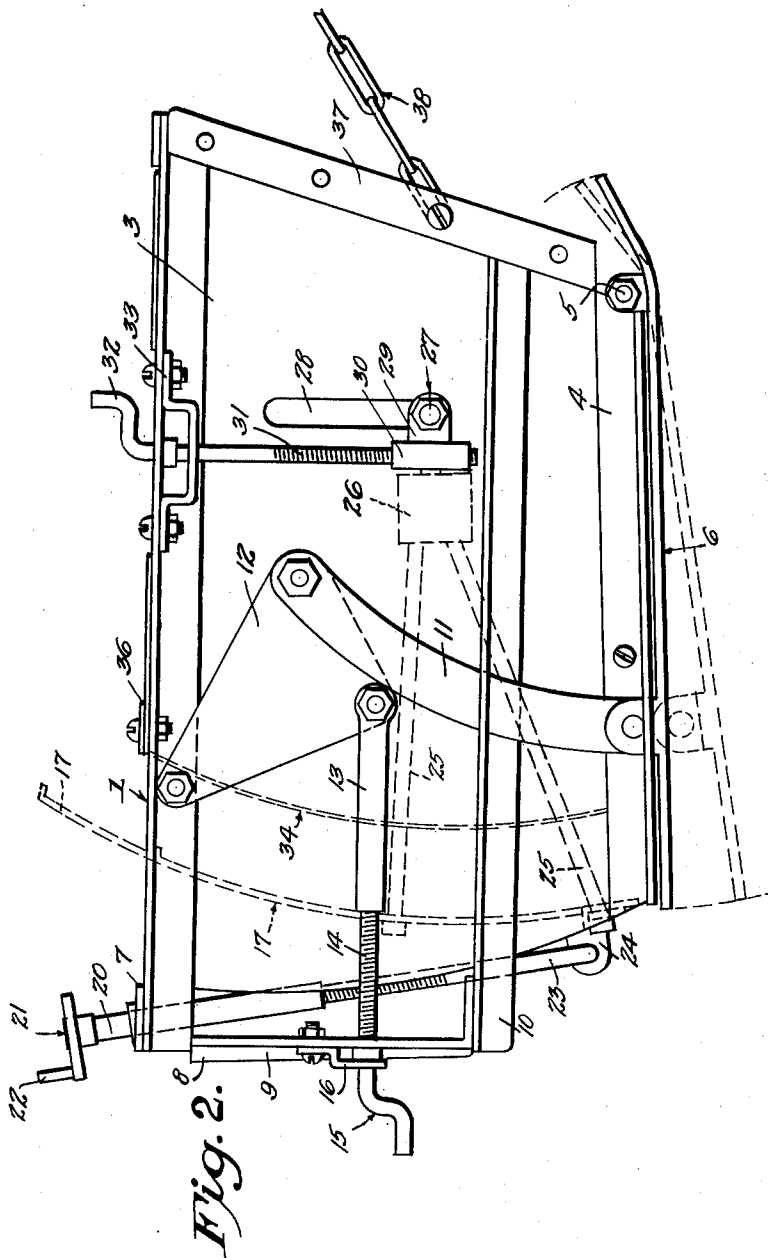
C. A. MILLER

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Inventor:
Charles A. Miller

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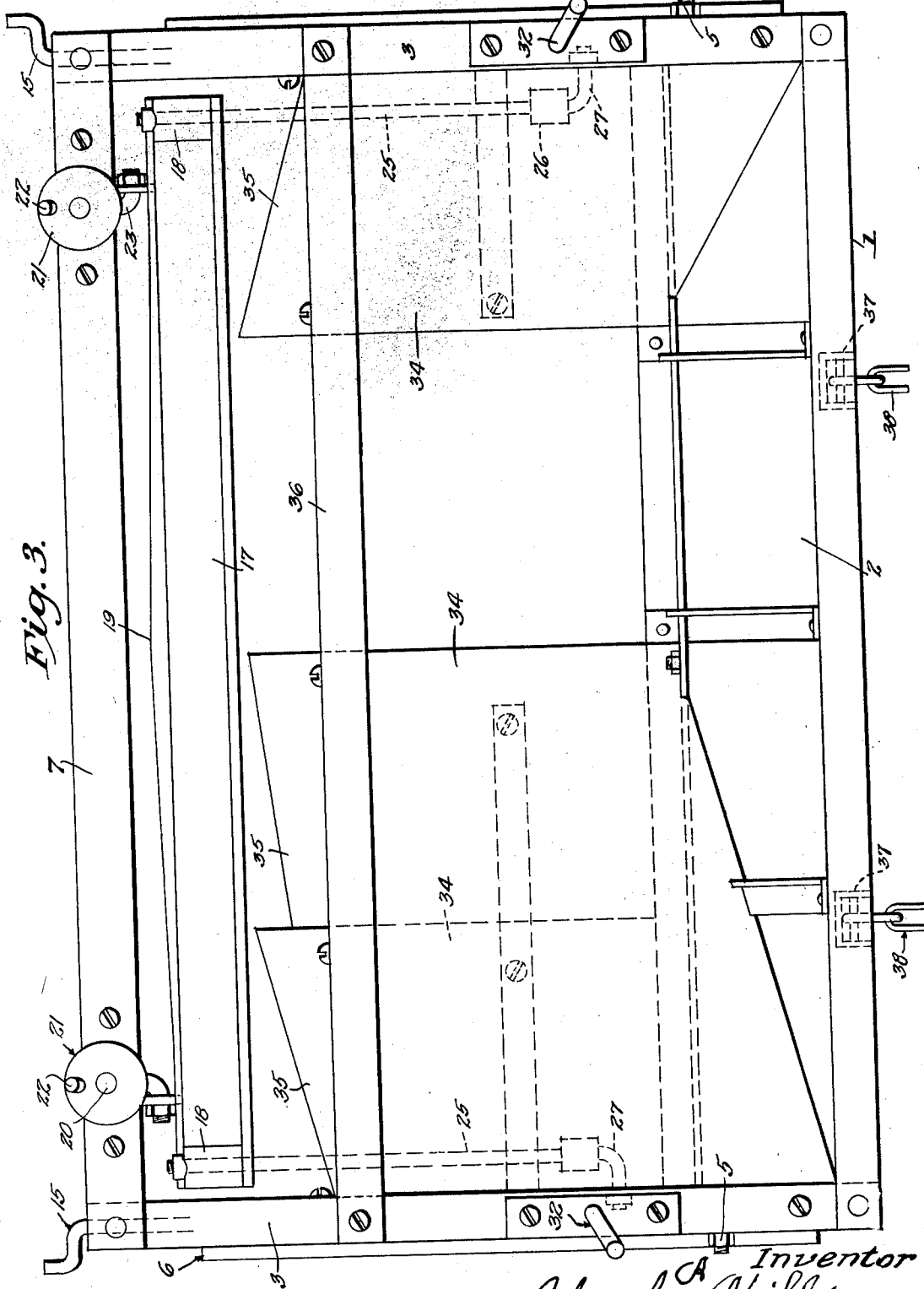
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3 Sheets-Sheet 3



Inventor
Charles A. Miller

UNITED STATES PATENT OFFICE

1,961,064

DIRT SPREADER AND GRADER

Charles A. Miller, Portage, Ohio

Application July 6, 1931, Serial No. 548,803

4 Claims. (Cl. 94—44)

This invention relates to road building machines, and its general object is to provide a material spreading and road scraping device that is adapted to be attached to the rear of a truck having road building material therein, so as to be drawn thereby, and to receive the material therefrom while in motion for distribution on the roadway.

A further object of the invention is to provide a road building machine that is capable of distributing material in layers and strips which can be varied with respect to width and height while the machine is in motion, in that the machine is adjustable for that purpose.

Another object of the invention is to provide a road building machine that likewise includes an adjustable scraping means, which is not only capable of varying the height of the strips of material during the spreading operation, but also can be used for cutting and grading.

A still further object of the invention is to provide a road building machine that is primarily designed for providing shoulders along the sides of the roadway, is capable of adjustment in various respects, while in motion, is simple in construction, easy to operate, inexpensive to manufacture, and extremely efficient in operation and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a rear view of the machine which forms the subject matter of the present invention with the discharge gate or scraping blade disposed in its lower position in full lines and in its upper position in dotted lines.

Figure 2 is an end view thereof with parts in dotted lines.

Figure 3 is a top plan view with parts in dotted lines.

Referring to the drawings in detail, the reference numeral 1 indicates the material receiving container of my machine and which as shown is elongated in formation, and includes an open top, bottom and rear portions, a front wall 2, and side walls 3.

Secured to the lower edges of the side walls 3 and being co-extensive with the length thereof

are angle strips 4 which have pivotally secured to the forward portions thereof, through the instrumentality of suitable hinge means 5, runners 6, the latter having upturned forward ends as clearly shown in Figure 2.

Bridging the rear end of the open top portion is an angle bar 7 that has its ends fixed to the upper rear ends of the side walls, and the angle bar is provided with a brace or reinforcing bar 8 which is provided with downwardly curved ends 9. The ends 9 have forwardly directed portions formed thereon that are secured to angle strips 10, the latter being fixed to the side walls 2 and extend to the forward portion of the container, as shown in Figure 2, for the purpose of cooperating with the bar 8 in reinforcing the container as will be apparent.

In order to adjust the height of the container with respect to the runner 6, I provide an adjusting means which includes links 11 that have one of their ends secured to the runners 6 while their upper or opposite ends are pivotally secured to one of the corners of substantially triangular shaped plates 12 that have their upper corners pivotally secured to the side walls of the container at their upper ends, as shown in Figure 2. Pivotally secured to the remaining corners of the triangular shaped plate 12 are sleeves 13 which are interiorly screw threaded to threadedly receive the threaded shank portions 14 of crank members 15 which extend through the downwardly curved ends 9 and are mounted in brackets 16 secured to the curved ends. By that construction, it will be obvious that when the crank members 15 are rotated, the container will be raised or lowered with respect to the runners 6, for the purpose of cooperating with means to be later described for varying the discharge opening of the container.

Extending across the open rear portion of the container, is a discharge gate 17 that is in the form of a scraping blade, and in fact closes the open rear portion as will be noted upon inspection of Figure 2. The discharge gate is vertically curved and has reinforcing strips 18 secured to its ends as well as an angle bar 19 which is fixed to its lower longitudinal edge as clearly shown in Figure 1 and may be used as a cutting blade for grading, cutting off high places and filling in holes.

The discharge gate is adjustable from its full line position in Figure 1, to its dotted line position, and for that purpose, I provide adjusting means which includes sleeves 20 that extend through and mounted for rotation in the bar 7,

with disk wheels 21 fixed to the upper ends thereof and rising from adjacent the periphery of the disk wheels are handles 22 whereby the sleeves 20 can be rotated as will be apparent. The sleeves are interiorly threaded for the purpose of receiving threaded rods 23 which have their lower ends bent upon themselves and secured to the outstanding ears of brackets 24, the latter being fixed to the angle bar 19 so that upon rotation of the sleeves 20, the discharge gate will be raised and lowered as will be apparent. The adjusting means just described makes it possible to cant the discharge gate or in other words dispose the same at an inclination, and in order to prevent binding when one end of the discharge gate is higher than the other, and also to allow for maximum inclination, I provide an additional adjusting means for the discharge gate which includes forwardly extending converging arms 25 that have their rear ends secured to the discharge gate adjacent the ends thereof, and their forward ends are formed on or otherwise fixed to blocks 26 that have extending therefrom angled members 27 that pass through slots 28 arranged vertically in the side walls 3 as clearly shown in Figure 2. The outer ends of the angled members have secured thereto ears 29 and the ears have formed therewith interiorly threaded sleeves 30, the latter having threaded therein the threaded shank 31 of crank members 32 that are mounted for rotation in brackets 33 which are fixed to the flanged upper ends of the side walls, as clearly shown in Figure 2. By rotating the crank members 32, it will be obvious that the discharge gate is moved forwardly and rearwardly in the arc of a circle, and is thereby capable of adjustment vertically and horizontally accordingly.

Disposed within the container are removable hopper forming members 34 which are used to vary the width of the discharge opening provided by the gate and the arrangement of the container with respect to the runners, and while any number of the members 34 may be employed, I have shown three, one of which is relatively larger than the other two, and is disposed in overlapped relation with respect to one of said members, as clearly shown in Figure 3. Each of the members 34 include inclined walls and the members are disposed within the container in a manner whereby the inclined walls are arranged in converging relation with respect to each other. The members 34 are each provided with rear walls 35 which as shown in Figure 3 are curved rearwardly and the upper edges thereof are secured to the cross member 36 that bridges the side walls 3, while the upper edges of the inclined walls are fixed to the flanged upper ends of the side walls 3.

The front wall 2 has secured thereto channel bars 37 which are adapted to have adjustably secured with respect thereto, draft means in the form of chains or the like 38, whereby the machine can be fixedly associated to the rear end of a truck, to receive road building material therefrom, while in motion, as it will be obvious that the body of the truck can be disposed to dumping position whereby the material will be dumped within the container for distribution on the roadway.

While my machine is capable of distributing road building material in accordance with the desires of the user, it is extremely useful and efficient in making shoulders on the sides of a roadway, as it will be obvious that the discharge open-

ing of the machine can be varied to meet existing conditions and to provide shoulders of various widths. The discharge gate can likewise be used for scraping purposes in cutting and grading, with the result my machine is capable of performing the functions of various machines used in road building and will do so in an efficient manner with very little effort on the part of the operator, and the machine is likewise capable of adjustment while in motion.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

I claim:

1. A spreader and grader comprising a container having side walls and an open rear portion, runners supporting the container and pivotally secured to the forward end of the lower portion thereof and extending rearwardly therefrom, a curved discharge gate in the form of a scraping blade for closing the open rear portion, brackets secured to said discharge gate and extending from the rear face thereof, screw means having connection with said brackets for adjusting the discharge gate vertically to vary the flow of material from the container, adjustable supporting means for said discharge gate and extending forwardly therefrom, said adjustable supporting means cooperating with the first mentioned means to change the height of said gate and both of said means being capable of canting the gate by vertically moving either end thereof, means for moving the container on the pivots of the runners to adjust the height of the container with respect to the runners and removable hopper forming means in said container; and being changeable to vary the width and position of the discharge opening provided by the gate and arrangement of the container with respect to the runners.
2. A spreader and grader comprising a container having side walls and an open rear portion, runners supporting the container and pivotally secured to the forward end of the lower portion thereof and extending rearwardly therefrom, a forwardly curved discharge gate in the form of a scraping blade for closing the open rear portion, brackets secured adjacent the opposite ends and rearwardly from the bottom of the discharge gate, screw means having connection with said brackets for adjusting the discharge gate vertically, screw brackets slidably and pivotally mounted on said side walls, pairs of converging arms secured to and extending forwardly from the discharge gate and having connection with the screw brackets, screws for the screw brackets and adapted for adjustably supporting the discharge gate through the medium of the arms, the vertical adjusting means and the adjusting supporting means being capable of canting said gate by vertically moving either end thereof, means for moving the container on the pivots of the runners and cooperating with the movement of said gate, to vary the flow of material from said container and removable hopper forming means in said container.
3. A spreader and grader comprising a container having an open rear portion, a discharge gate in the form of a scraping blade for closing the open rear portion, means for adjusting the

gate vertically and for canting the gate by moving either end thereof, runners supporting the container and pivotally secured to the forward end of the lower portion thereof and extending rearwardly therefrom, substantially triangular plates having their upper ends pivotally secured to the sides of the container, links having one of their ends pivotally secured to one of the lower corners of the substantially triangular plates and their opposite ends pivotally secured to the runners, screw sleeves pivotally secured to the other lower corners of the substantially triangular plates, screws for the screw sleeves and cooperating with the plates and links for moving the container on the pivots of the runners to cooperate with the adjusting means of the gate to vary the flow of material from the container, and removable hopper forming means in said container.

4. A spreader and grader comprising a container having an open rear portion, a discharge gate in the form of a scraping blade for closing the open rear portion, means for adjusting the discharge gate vertically, said means being capable of canting the gate by vertically moving either end thereof, runners supporting the container and pivotally secured to the forward ends of the lower portions thereof and extending rearwardly therefrom, means for moving the container on the pivot of the runners and cooperating with the gate adjusting means to vary the flow of material from the container, and removable hopper forming means in said container, and being adapted to vary the width of the discharge opening provided by the gate and arrangement of the container with respect to the runners.

CHARLES A. MILLER.

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25	100
30	105
35	110
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50	125
55	130
60	135
65	140
70	145
75	150