

Sept. 7, 1937.

D. KROUT

2,092,458

COMBINATION ROAD MACHINE

Filed Nov. 15, 1934

4 Sheets-Sheet 1

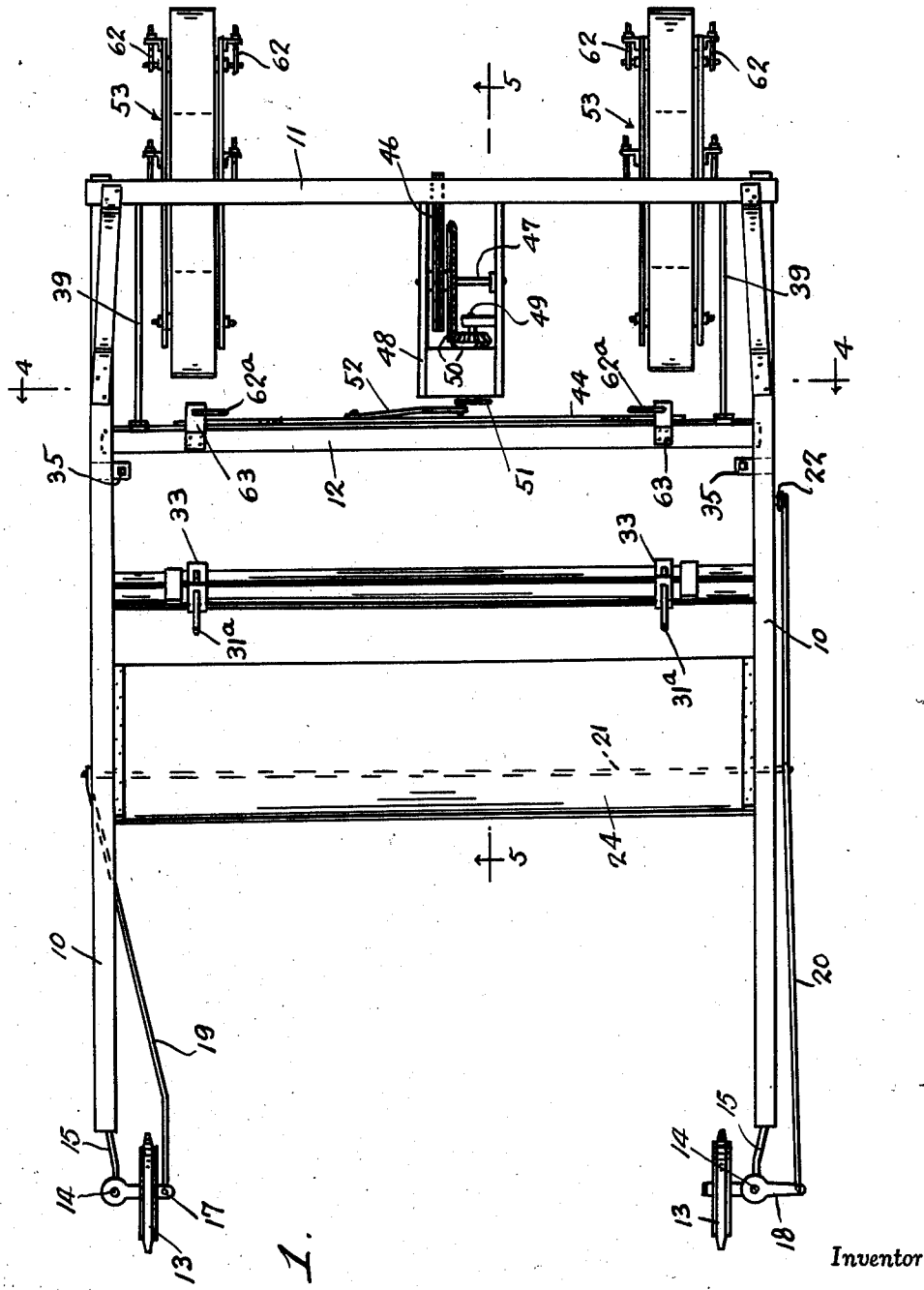


Fig. 1.

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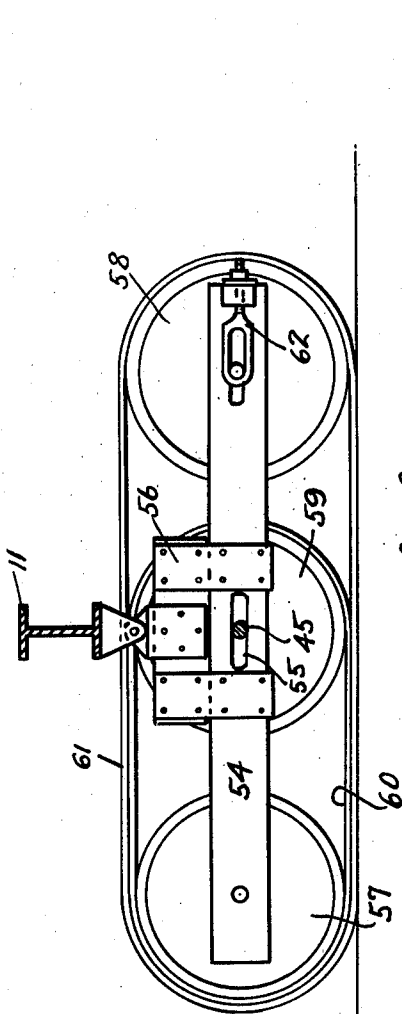


Fig. 3.

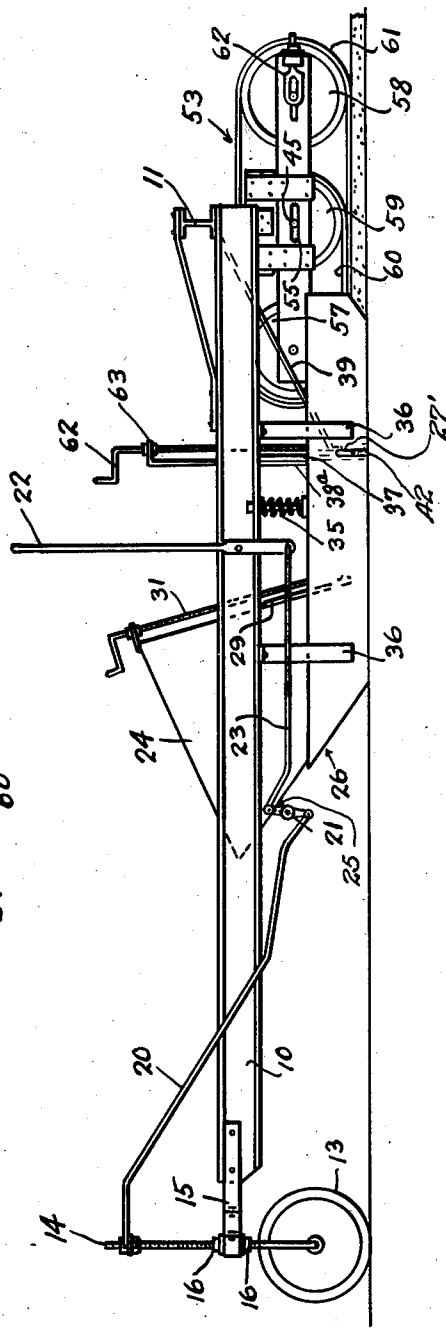


Fig. 2.

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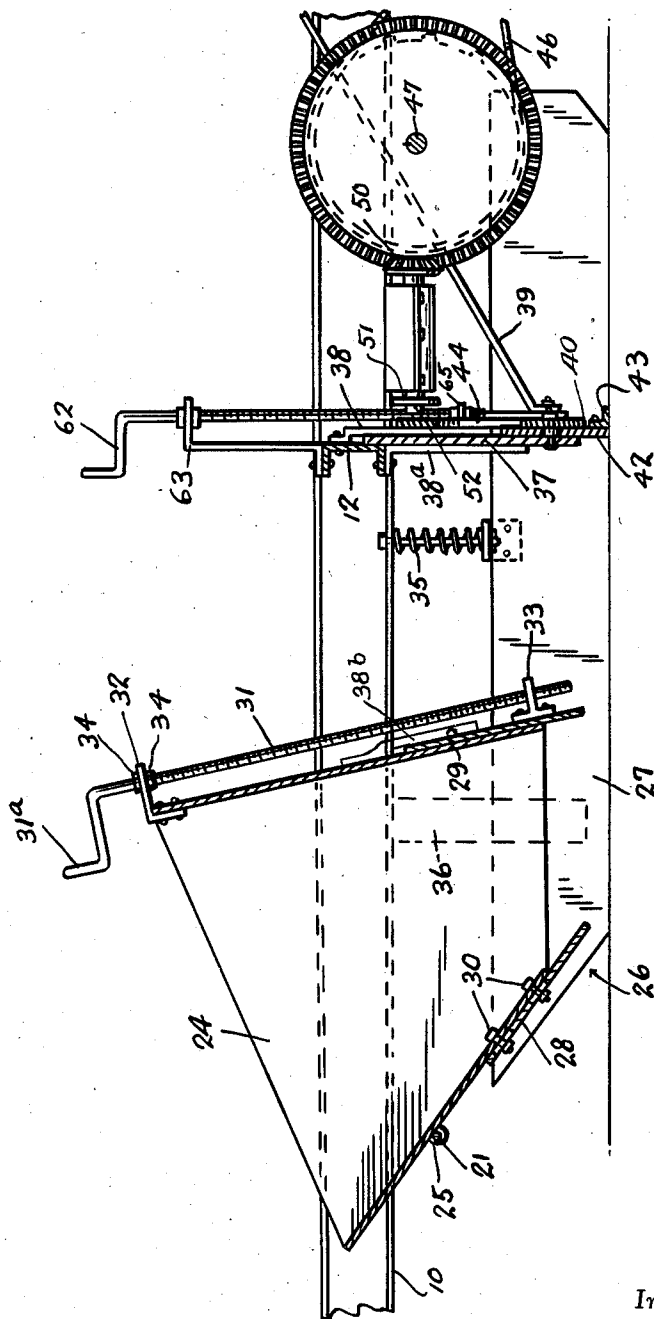
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Fig. 5.



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COMBINATION ROAD MACHINE

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Application November 15, 1934, Serial No. 753,224

2 Claims. (Cl. 94-44)

This invention is a combination road machine for use on any type of macadam road as a stone spreader or finishing machine, being especially adapted for use in the spreading of stone or laying the mix in place to provide a black top or plant mixed top for the road.

A further object of the invention is to provide a road machine of this character which may be used as a trailer for the truck carrying the material that is to be spread by the machine on the road bed.

A further object of the invention is to provide in a machine of the character above mentioned a hopper and adjustment means therefor whereby the depth of the material being spread on the road may be regulated.

A still further object of the invention is to provide in a machine of this character an improved strikeoff blade together with means for driving the blade from the rear axle.

Other objects and advantages of the invention will be apparent from a study of the following description taken in connection with the accompanying drawings wherein:

Figure 1 is a top plan view of the machine.

Figure 2 is a side elevational view thereof.

Figure 3 is a side elevational view of an endless track.

Figures 4 and 5 are detailed sectional views taken substantially on the lines 4-4 and 5-5 respectively of Figure 1.

Referring to the drawings by reference numerals it will be seen that the machine comprises a frame consisting of side members 10 connected at their rear ends by a cross bar 11 and inwardly from said rear ends by a cross bar 12 that serves to brace the side members 10.

The front of the frame is supported by rollers 13 and these rollers or wheels 13 are journaled on axles carried by vertical screw threaded bars 14. The bars or rods 14 extend vertically through the eyes formed in brackets 15 that are secured to and extend forwardly from the side members 10 of the frame. Upper and lower lock nuts 16 are provided for securing the screw rods 14 at the desired vertical adjustment. The rods 14 are loose in the eyes of the brackets 15 so as to rotate to permit a turning of the wheels 13 either to the right or left. Suitably connected with the rods are the arms 17 and 18 and connecting rods 19 and 20 connect the arms to arms connected with a transverse shaft 21, suitably mounted in a manner hereinafter made manifest, so that when the shaft 21 is rocked the wheels 13 will be turned toward the right or left as found de-

sirable. For rocking the shaft 21 to change the direction of travel of the device toward the right or left there is provided a hand lever 22 pivotally mounted on one frame side 10 and connected with an arm on the shaft 21 through the medium of a link 23.

Extending between and supported from the sides 10 of the frame and about the center of the frame is a hopper 24 which on its forward wall is provided with bearing brackets 25 in which is journaled the aforementioned shaft 21. Material from the hopper 24 gravitates to the ground to be spread upon the road bed within the confines of a form indicated generally by the reference numeral 26. The form 26 includes opposed side members 27 supported for vertical movement by the guides 36 depending from the side members of the frame, each side member 27 is yieldingly held with its lower edge against the road surface by a spring 35.

As will be seen both the front and rear walls of the hopper slope downwardly and towards the rear, with the front wall having a greater slope than the rear wall. A plate 28 is supported from the lower edge of the front wall for adjustment towards and away from the road surface by the bolt and slot connections shown generally at 30, the plate forming a continuation of the front wall of the hopper and a plate 29 forms a continuation of the rear wall of the hopper and is adjustable towards and away from the road surface by a screw shaft 31, supported for rotary movement in a bracket 32 at the upper end of the rear wall of the hopper and held against longitudinal movement by the collars 34. The lower end of the shaft passes through a threaded hole in the bracket 33 attached to the plate 29 so that by rotating the shaft 31 by means of its handle 31-A, the plate 29 can be raised or lowered. As will be understood, these plates 28 and 29 provide means for regulating the amount of the material discharging upon the road surface from the hopper. As will be seen from Figure 1, two of the shafts 31 are provided for adjusting the plate 29.

Disposed vertically and at one side of the brace member 12 is a plate 37, and rearwardly of the plate 37 there are secured to and extend downwardly from the member 12 guide plates 38 that are suitably braced by rods 39. Disposed rearwardly of and in spaced parallelism to the lower portion of the plate 37 is a plate 40 that is secured to the plate 37 through the medium of bolt and nut means 41. On the bolts 41 are spacer sleeves that serve to space the plates 37 and 40, 55

which latter accommodate therebetween a reciprocating strikeoff blade 42. The blade 42 extends transversely of the form 26 between the sides 27 of the form and has reduced ends which pass through slots 27' in the said side members 27. As will be seen, each form member 27 is of elongated shape and extends from a point adjacent the front side of the hopper to a point well in rear of the spreader assembly, and the front portions of these side members are held between the front guides 36 and the side walls of the hopper. At its lower edge the blade is provided with an angle piece 43 secured thereto by bolts and other suitable fastening means and serving as a shoe. Also secured to the blade 42 is a yoke-like member or frame 44. Said blade 42 is provided with slots 43' for accommodating the bolts 41 through the medium of which the blade 42 is supported for reciprocatory movement transverse to the line of travel of the machine.

For reciprocating the blade 42 the rear axle 45 of the machine has a chain and sprocket drive connection 46 with a shaft 47 mounted in a frame 48 that extends inwardly or forwardly from the rear frame member 11. Also mounted in the frame 48 is a shaft 49 that is driven from the shaft 47 through the medium of gearing 50. On the free end of the shaft 49 is a disk 51 provided with an eccentric pin. Connecting the eccentric pin of the disk 51 with the frame 44 of the blade 42 is a connecting rod 52. Thus it will be seen that power from the axle is transmitted to the shaft 47 and from the shaft 47 to the shaft 49 for causing through the eccentric means just described continuous reciprocatory movement of the blade 42 for leveling the material as it discharges onto the road bed within the confines of the form 26.

Supporting the rear end of the frame of the machine are spaced endless flexible tracks indicated generally by the reference numeral 53. Each of the tracks 53 comprises a suitable frame structure 54 provided as at 55 to receive the axle 45. The frame structures 54 are suspended from the end frame member 11 by suitable suspension devices indicated generally by the reference numeral 56. Suitably journaled in the frames 54 are front and rear wheels or rollers 57, 58 and an intermediate wheel 59 that is mounted on the axle 45. Trained over the wheels 57 and 59 is an inner endless belt 60 while an outer tread belt 61 is trained over the wheels 57 and 58.

For taking up slack in the tread belt 61 each endless track has the axle for its wheel 58 slidably as well as rotatably mounted in the frame 54 and engaged with the ends of the axle are suitable adjusting devices 62 as best shown in Figure 3.

It will be apparent that in actual practice the material to be spread on the road bed is placed in the hopper 24. As the machine is drawn behind a truck or other suitable draft device the material by gravity will pass from the hopper 24 onto the road bed within the confines of the form 26. As the machine is moved over the road bed drive is transmitted from the axle 45 to the blade 42 through the mechanism herein described in detail so that the blade will be continuously reciprocated in a line across the path of travel of the machine for spreading the material evenly to provide an even surface.

It is to be understood that the side members 27 hereinbefore described are held against the guide 36 by conventional bolt and slot connections similar to the bolt and slot connection

illustrated near the left hand end of Figure 5; and it is also to be understood that the plate 29, Figure 5, is held against the rear wall of the hopper by guide plates 38b similar to the before mentioned guide plate 38.

For adjusting the elevation of the blade 42 relatively to the ground there are provided adjusting screws or shafts 62 that have ends 62a equipped with handles as shown. The screws 62 are supported for rotary movement and held against longitudinal movement in the upper ends of brackets 63 rising from the frame member 12, by the collars 64. The lower ends of the screws 62 pass through threaded openings in brackets 65 provided on one side of the vertically moveable plate 37. Obviously by rotating the members 62 the plate 37 may be raised or lowered for adjusting the elevation of the blade 42 and for securing the same at the desired adjustment. Plate 37, it will be understood, is trained to move vertically between the guide members 38 and 38a that are secured to and depend from the frame member 12.

It will also be apparent that in actual practice the wheels 13 at the front end of the machine may be adjusted so that one side of the device may run in a trench while the other rides on the old pavement as would be necessary for example in the widening of old pavements. Also, the front wheels 13 may be reversed or swung outwardly so as to permit the machine to run close to the curb and at the same time so spaced from the curb as to guard against the strikeoff blade striking forcibly against the curb. Also, the form 26 serves to hold the material in place and to prevent undue spreading of the material as it gravitates from the hopper onto the road bed.

As will be seen from Figure 5, the lower end edges of the sides of the hopper are spaced above the road surface, but these spaces are closed by the front portions of the form members 27. It will also be seen that the spreader assembly is located well in rear of the hopper, so that the spreader blade will not contact the material being deposited upon the road from the hopper until it has had time to settle after being agitated by the lower edge of the member 29.

Having thus described the invention, what is claimed as new is:

1. In an apparatus for spreading road material upon roads, a supporting frame, a hopper supported therein and extending therefrom and having its lower end spaced above the road surface, a pair of elongated form members located, one at each side of the frame, and having their front ends arranged slightly in front of the front of the hopper, with the members extending rearwardly well beyond the rear of the hopper, guide means carried by the frame for guiding said form members for vertical movement, yieldable means for normally holding the form members with their lower edges against the road surface, and the front guide members holding the front portions of the form members against the side walls of the hopper.

2. An apparatus for spreading road material upon roads, comprising a wheel supported frame, a hopper carried by the frame and depending therefrom and having its lower end spaced above the road surface, a pair of elongated form members extending from a point adjacent the front of the hopper to a point well beyond the rear of the hopper, guide members depending from the frame for guiding the form members for vertical movement, said guide members holding the front

5 portions of the form members against the lower portions of the side walls of the hopper, spring means for normally holding the form members with their lower edges in contact with the road surface, a screed extending transversely below the frame and spaced a considerable distance in

rear of the rear part of the hopper, said form members having vertical slots therein through which the ends of the screed pass, and means for reciprocating the screed.

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