

Feb. 5, 1963

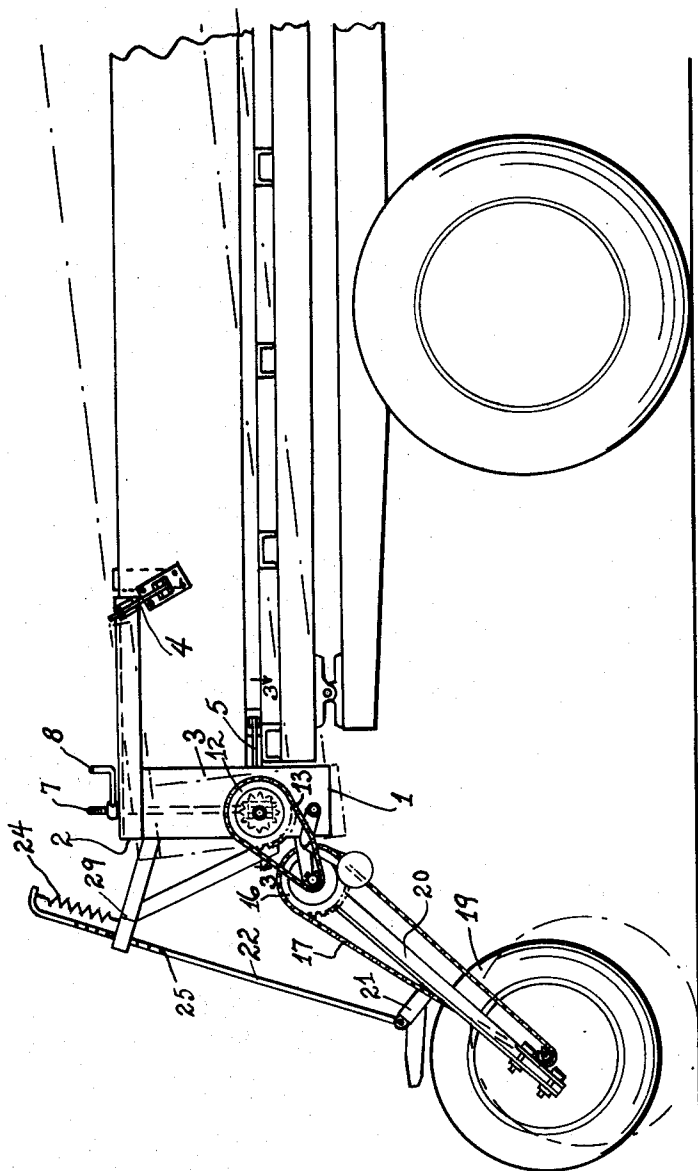
E. H. EKMAN
SPREADER APPARATUS

3,076,653

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2 Sheets-Sheet 1

FIG. 1



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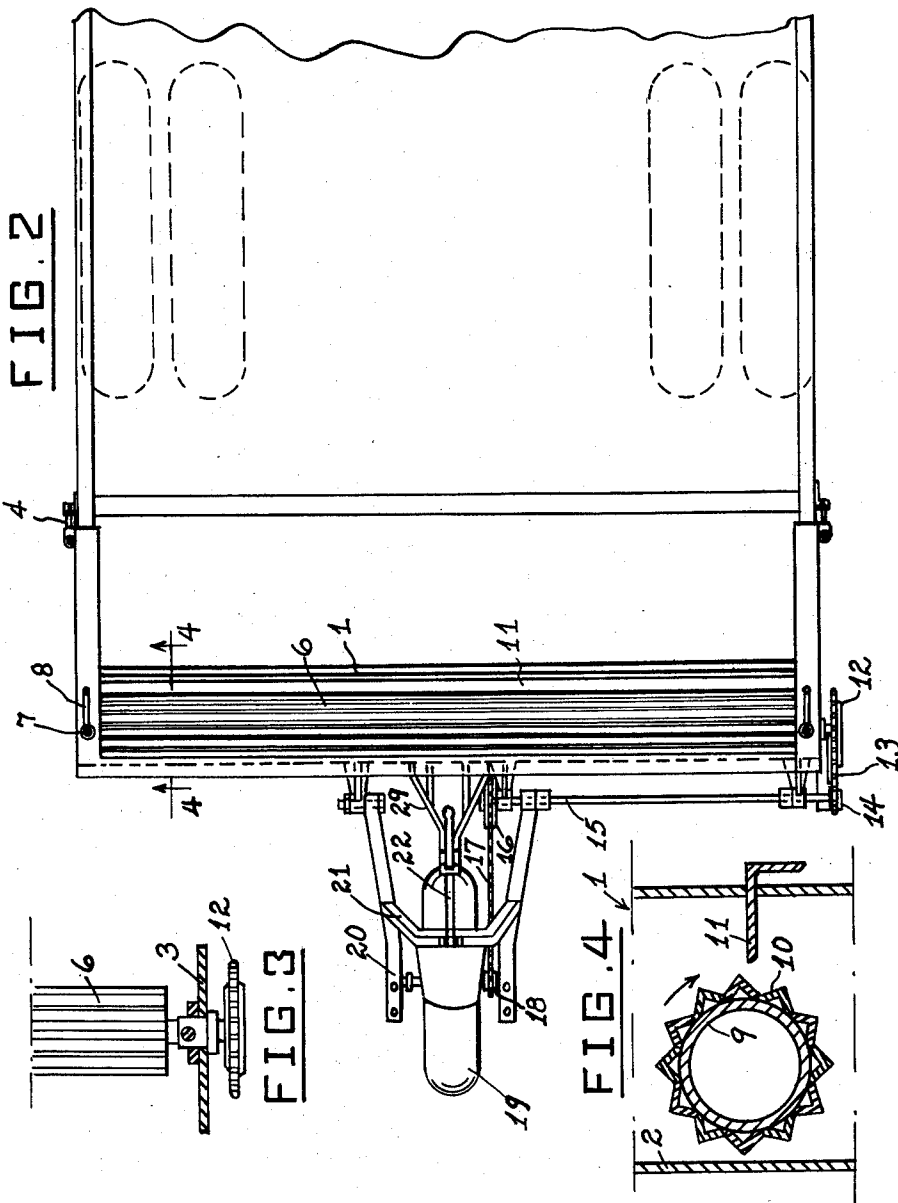
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SPREADER APPARATUS

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1 Claim. (Cl. 275—2)

This invention concerns a device for sowing and spreading sand, gravel, macadam, calcium chloride, rock salt and other similar materials applied on road surfaces, as well as materials for ameliorating the soil, on roads, fields, and similar surfaces, such as lime powder, dung, various fertilizers, and comparable materials, and which device can be attached to the rear end of the platform of a lorry, tractor, trailer, or corresponding vehicle, loaded with the material concerned, and which device is furnished with a feed roller for feeding the material from the platform to the ground, and which feed roller arrangement includes a wheel which transmits the motion to the feed roller while pressing on the ground.

The sanding device, according to the invention, is characterized in that the wheel of the feed roller arrangement is provided with a supporting means normally keeping the wheel at some distance from the ground and which presses the wheel against the ground in a flexible manner on tipping the platform.

One mode of performance of the invention, aiming particularly at spreading sand on roads, will be described in the following with reference to the enclosed drawings, in which:

FIG. 1 presents a side view of a lorry's rear part together with the sanding device attached to it, and

FIG. 2 the same from above.

FIG. 3 is a sectional view taken on line 3—3 of FIGURE 1, showing the end portion of the feed roller from above, and

FIG. 4 a vertical section of the feed roller, taken on line 4—4 of FIGURE 2.

In the case illustrated in the drawing the sanding device consists of a boxlike compartment 1 for attachment to the platform after the rear board has been removed. The boxlike compartment consists of a rear wall 2 with both ends joining vertically to side walls 3, as well as fixing devices by means of which the boxlike compartment is fixed to the rear of the platform. In the case illustrated in the drawing the fixing devices are composed of two upper bolts 4 and two lower bolts 5. By means of these bolts the boxlike compartment can be attached to the platform. Feed roller 6, of the same length as the width of the platform, is mounted between the side walls in such a way that the feed roller can be raised or dropped with the aid of bolts 7 and nut members 8.

Naturally, the feed roller 6 can be made in several different ways. In the case illustrated in the drawing the feed roller consists of tube 9 with angle irons 10 welded on its outer surface, as shown in FIG. 4. The feed roller is mounted close to rear wall 2, so that no sand to speak of is able to drop down past the rear wall and the feed roller. On the opposite side, and of the same length as the feed roller, there is a balk or platelike member 11, against which the feed roller crushes possibly existing lumps in the sand when the roller rotates in the direction of the arrow shown in FIG. 4.

The driving mechanism of feed roller 6 includes a chain wheel 12 obtaining its motion from the smaller chain wheel 14 by means of chain 13. The latter wheel is mounted on shaft 15, the opposite end of which is furnished with chain wheel 16. The last-mentioned wheel obtains its motion by means of chain 17 from the small chain wheel 18 located on the shaft of wheel 19. Wheel 19 is supported by arms 20, which in turn are supported by support 29 by means of connecting member 21 and

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rod 22. One end of spring 24 is fixed to support 29 while the other end is fixed to rod 22. Rod 22 is provided with holes 25 for a removable cotter.

FIG. 1 illustrates with unbroken lines such a position of wheel 19 where this is at some distance from the ground. In this position the wheel is supported by rod 22 and the cotter pressing against support 29. When driving with wheel 19 in this position it does not touch the ground and feed roller 6 does not rotate.

When sanding is started the platform is somewhat tipped, so that wheel 19 takes the position marked with dotted lines in FIG. 1 where it contacts the ground. This contact is flexible because spring 24 seeks to push wheel 19 against the ground. Driving in this position makes wheel 19 rotate, thus transmitting its motion by means of chain wheel 18, chain 17, chain wheel 16, shaft 15, chain wheel 14, chain 13 and chain wheel 12 to feed roller 6, which rotates in the direction indicated in FIG. 4 by the arrow.

When roller 6 rotates it feeds sand from the platform to the ground while at the same time crushing lumps possibly present in the sand.

The sanding device, according to the invention, has proved to be extremely good in actual practice. The lorry can be run at a speed of 25–30 km. while even and perfect sanding is accomplished. The sanding device makes also a considerable saving in sand consumption, which is about 0.33–0.40 m.³/km. The operation of the sanding device is not disturbed by irregularities in the road, because wheel 19 presses against the road surface in a flexible fashion. A further advantage of the sanding device is due to its light construction, and the fact that it can be quickly attached to and detached from the rear of the lorry. Also, the lorry can be driven backwards without this being in any way prevented by the sanding device.

The performance of the sanding device, according to the invention, has turned out to be reliable in practical work, and it may be used with advantage not only for spreading sand, but also for spreading calcium chloride on the roads.

The object of the description above, including the enclosed drawings, is only to illustrate the idea of the invention. Naturally, the invention is not only confined to the mode of performance presented here, which may be varied greatly within the scope of the patent claim presented below.

The device according to the invention may also be used in backing the platform with the device attached to it. Thus the device may well be used for spreading for instance macadam on the road surface. The device according to the invention is also suitable for spreading cement on the ground, e.g. on roads. The cement then may be dry powder, or it may be wet, ready-mixed with sand or other types of fillers.

If the device is used for paving roads, it is also of advantage to furnish it with reflectors and suitable signal lights at the rear, because the signal lights of the lorry itself, situated at the rear of the platform, are not visible from behind when the platform is in tipped position.

I claim:

In combination, a vehicle having a chassis, a platform pivoted to the chassis on a transverse horizontal axis adjacent the rear end of the chassis, a transversely extending boxlike compartment adapted to receive comminuted material rigidly secured to the rear end of the platform, a transversely extending feed roller having a corrugated surface journaled in said compartment and being substantially coextensive with the transverse width of the compartment, a downwardly and rearwardly extending supporting frame pivotally connected to the rear wall of said compartment, rearwardly extending bracket means on

the rear wall of the compartment, a supporting rod connected to said supporting frame and extending slidably through said bracket means, said rod having a top end spaced above said bracket means, a spring connecting said top end to said bracket means and biasing said supporting rod downwardly, stop means on the rod above said bracket means and being engageable with the bracket means to limit downward movement of the rod relative to said bracket means, a ground-engaging wheel journaled to the lower end of said supporting frame and being located so as to engage the ground when the forward portion of the platform is elevated, platelike flow-restricting means in the compartment extending adjacent the corrugated surface of the feed roller, and means drivingly coupling said ground-engaging wheel to said feed roller.

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