

Oct. 4, 1927.

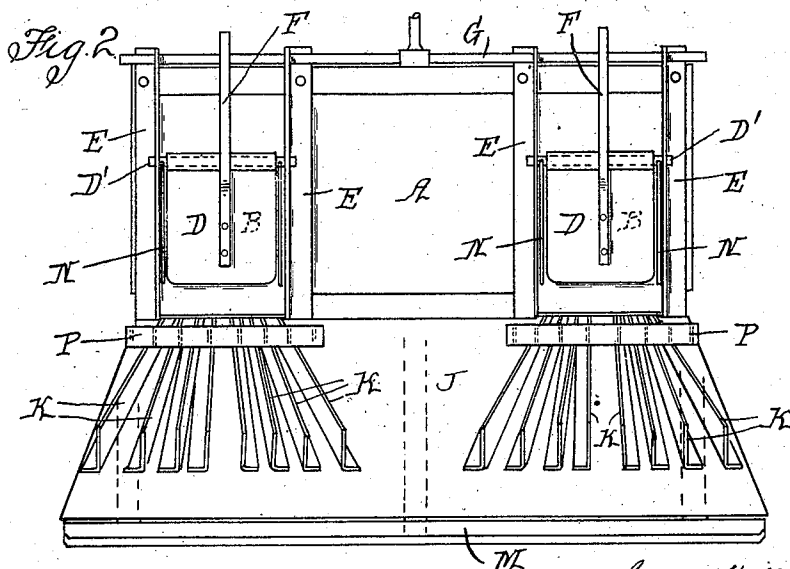
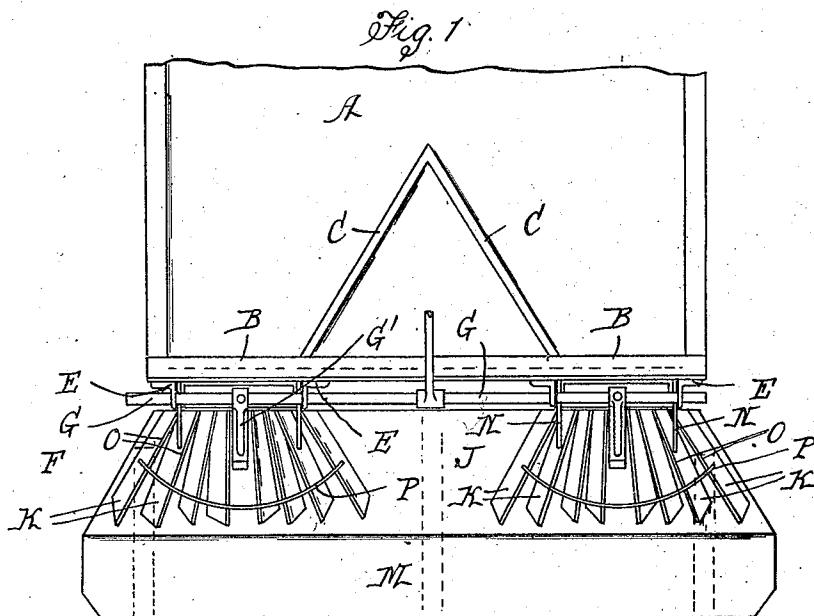
M. E. W. FITZ GERALD

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MEANS FOR USE IN SPREADING DISCRETE ROAD FORMING MATERIALS

Filed June 1, 1923

2 Sheets-Sheet 1



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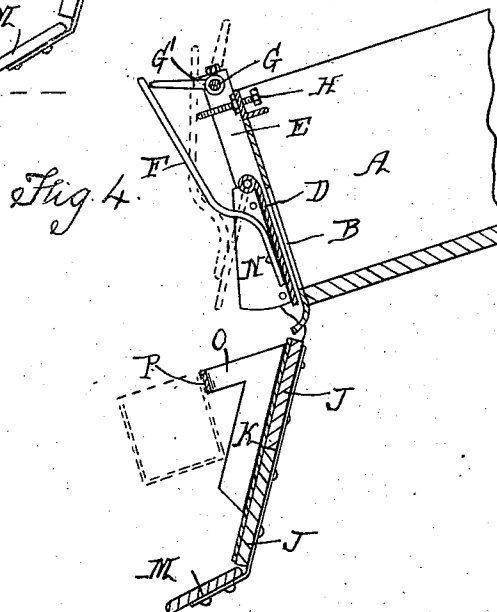
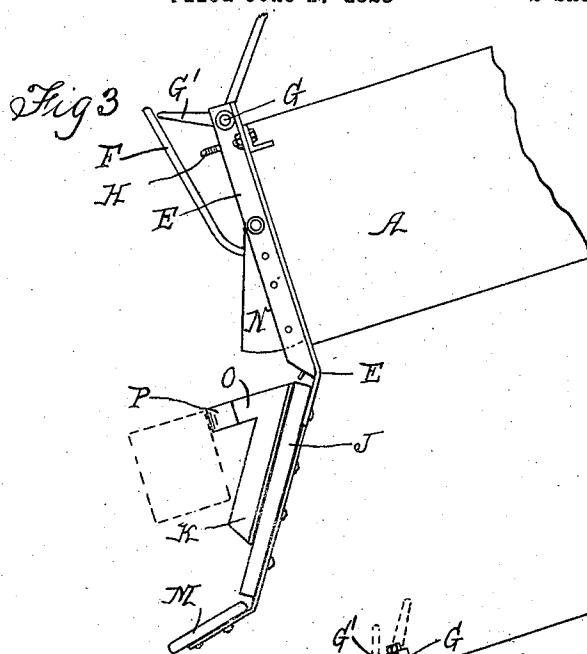
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MEANS FOR USE IN SPREADING DISCRETE ROAD FORMING MATERIALS

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UNITED STATES PATENT OFFICE.

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MEANS FOR USE IN SPREADING DISCRETE ROAD-FORMING MATERIALS.

Application filed June 1, 1923, Serial No. 642,857, and in New Zealand November 20, 1922.

This invention has reference to means that have been devised for use in the formation and surfacing of roads and like formations, and especially to means that are adapted to the formation of tar and bitumen sealed roads and in which sand, gravel and like discrete materials are required to be spread in an even manner over surfaces covered by the liquid tar or bitumen while it is still hot so as to be incorporated therewith. The means may, however, be used in other analogous circumstances.

The invention consists broadly in the combination with a lorry, waggon or like vehicle having one or more discharge openings, of a spreader formed by a number of passages or channels disposed beneath each of such openings, constructed and arranged to diverge outwards and downwards therefrom. The material fed through the opening is delivered into these passages or channels and, by them, divided into a number of streams spread over the width of the spreader and which streams then gravitate down in a fanwise manner.

There may be combined with the spreader, a grid that is disposed over its top, and which serves to screen off any large boulders such as would block the said channels, or that may be undesirable on the road or other surface.

Also combined with the spreader are means disposed across the bottom of the spreader that are designed to engage the streams of material falling through the channels, to break them up and scatter the material over the surface across which these means extend.

The invention is illustrated in the accompanying drawings as applied to a lorry having two discharge openings, but it will readily be understood that the same features of construction may be applied to a lorry having a single discharge opening, or more than two openings.

In such drawings:—

Figure 1 is a plan of the back end of a lorry body showing the attachments in position thereon.

Figure 2 is a back end elevation thereof.

Figure 3 is a side elevation, and

Figure 4 a sectional side elevation through one of the openings, these being shown in the tipped operating positions.

A is a lorry body of any desired type that

is constructed to hold the material to be spread and to be tipped down more or less at its rear end while being propelled over the surface to be treated.

The back end of the lorry is formed with two discharge openings B disposed at the level of the lorry bottom and one near each side edge thereof. Guide plates C of inverted V form are arranged within the lorry to guide the material evenly towards both openings when the lorry is tipped to cause such material to gravitate through such openings. The space between these plates may be used by an attendant when assisting the flow of the material to the openings.

Over the outside of each opening B, a flap door D is hinged, such door being hinged along its top edge upon a hinge rod D' carried in angular bars E extending vertically up the back of the lorry, one on each side of the door. The bottom edge of the door is thus left free to swing in and out to cover or open the opening B. Means are provided for locking the door in the closed position and also for regulating the amount of its opening range, and consequently the rate of discharge, when the lorry is tipped, and the material thereon by its weight, gravitates through the opening. These means, as shown in the drawings, comprise a bar F that is fixed to the outside of the door and is carried upwards and rearwards at an incline towards its upper end. A spindle G is mounted in the angle irons E to extend across the lorry back at the top thereof and this spindle has, for each door, a crank arm G' fixed to it, which arm, when the spindle is turned, is designed to engage the inside of the bar F and to force its upper end rearwards, as shown by the full lines in Figure 4, and thereby hold the door from opening. When the spindle is turned to throw the crank arm over, as shown by the dotted lines in Figure 4, the door will be free to swing open. The amount of its opening is regulated by the set screw pin H that is arranged to pass through the upper end of the lorry back to project rearwards in the line of movement of the bar F. The bar will thus engage the end of this pin and will then prevent the door opening further. Thus the adjustment of the pin to project more or less will allow for less or more opening of the door.

Fixed to extend downwards from the back

end of the lorry is the frame J. This is supported in position by any approved means as for instance by extending the angle irons E downwards and securing the frame to the front thereof. It is also disposed at such an angle to the lorry bottom that when the lorry is tipped to discharge its contents, the frame will extend at a slight incline rearwards. In the form shown in the drawings this frame is made of boards that extend across the full width of the lorry and upon its rear surface beneath each opening B, a number of deflector plates K are fixed. These plates are arranged edge on upon the frame so that they project from its surface to an approved distance, and they are so disposed relatively that their upper ends extend to just below the opening at intervals apart across the width thereof, while their lower ends extend to near the bottom edge of the plate but diverge transversely from one another in a fan like manner. A number of channels are thus formed between these plates and the boards of the frame and these channels serve to divide up the material falling through the opening B and to spread it in a number of diverging streams. These channels may however, be formed by plates bent into the required shape to constitute a self contained unit that may be fixed to supports forming the frame J, or may be made in any other approved manner.

A plate M is attached to the bottom edge of the frame J so that it projects rearwards from such edge beneath the bottoms of the channels and then inclines slightly downwards to its rear edge. This plate catches the streams of material spread by the two sets of channels, and by the impact of the falling material thereon serves to break up the streams and to distribute the material in an even fine manner over the edge of the plate, on to the surface of the ground beneath. A separate plate may however be provided for each set of channels, or each single channel may be shaped to form its own inclined foot.

The thickness of the layer of the material thus distributed will be regulated by the rate of travel of the lorry over the surface, combined with the amount of opening allowed the doors D.

The material passing out through each opening B is prevented from falling sideways, and the doors are prevented from being blocked from closing, by providing wing plates N to project rearwards for a distance

one on each side of the door opening. Such plates are held in position by being secured to the corresponding angle irons E.

Above the top end of each set of plates K, a grid is formed. This is formed by shaping the plates K to form bars O extending above each plate, and in the same respective general transverse planes. The edges of these bars may be encircled by the plate P. The material coming from the opening B therefore falls through this grid into the channels beneath. Any matter too large to pass through the channels will be held back by the grid and will fall over its edge by reason of its angular inclination when the apparatus is working, on to the ground clear of the channels, or it may be collected into receptacles carried on the tray and indicated by dotted lines in Figures 3 and 4.

It will thus be seen therefore, that the appliance may be used for the distribution and spreading of discrete material of any kind over a surface across which the lorry is caused to travel. When spreading sand, gravel, or stone chippings upon a tarred surface, the lorry will be driven rearwards so that its wheels will travel over the material spread thereby. The action of the distributor is, however, the same whether the lorry travels forwards or rearwards.

It will be apparent that the distributing apparatus forming this invention may be used with equal effectiveness upon any other form of lorry or waggon than the tipping form herein referred to, the apparatus being designed for use by attachment to a delivery opening through which the material is discharged in any manner or by the employment of any means.

We claim:—

A vehicle body of the class described having a discharge opening and a spreader arranged below said opening, said spreader comprising a series of downwardly and rearwardly extending and downwardly diverging plates having upstanding flanges forming channels between said plates and also having bars extending outwardly at an angle to the plates and forming a transversely arranged grid, a frame on the front side of said plates and a spreader below and extending downwardly and rearwardly from the frame.

In testimony whereof, we affix our signatures.

MAURICE EDWARD WILLIAM FITZ GERALD.
FREDERICK FOSTER MAYNARD.