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SEAL COATING MACHINE FOR HIGHWAYS

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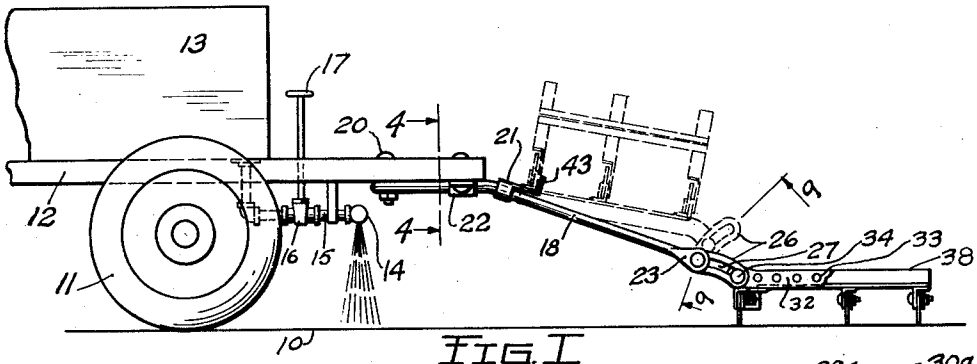


FIG. 1

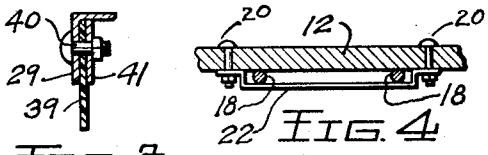


FIG. 3

FIG. 4

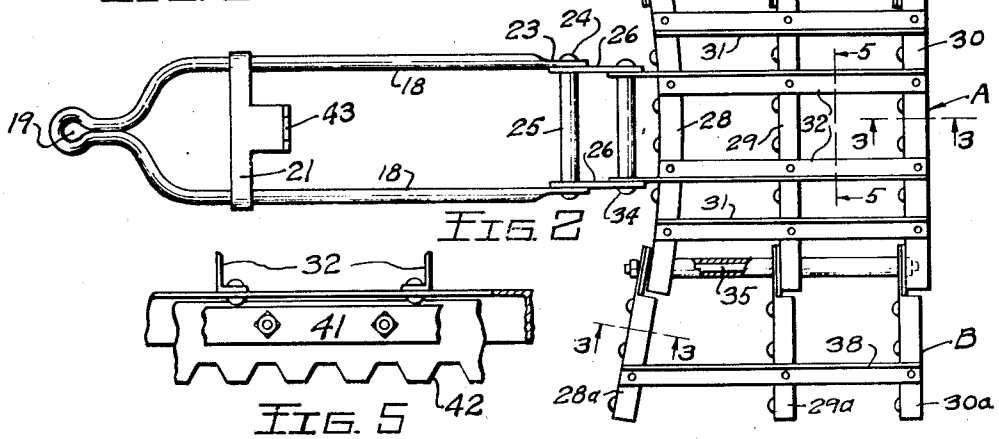


FIG. 2

FIG. 5



FIG. 6

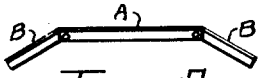


FIG. 8

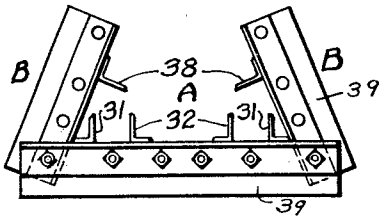


FIG. 7

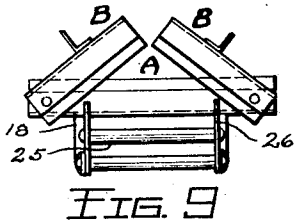


FIG. 9

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SEAL COATING MACHINE FOR HIGHWAYS

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Application February 6, 1939, Serial No. 254,920

6 Claims. (Cl. 94—44)

This invention relates to improvements in machines or devices for distributing seal coating on the surfaces of highways.

In our copending application, Serial No. 239,398, filed November 7, 1938, a machine has been shown and described which is intended to be attached to a tractor or truck that is provided with means for spraying the surface of the road with sealing material such as tar and whose function it is to uniformly distribute this sealing material over the road surface.

The invention comprising the subject matter of this application is similar in some respects to the one shown and described in the application above identified, but has several features that are improvements thereover.

It is the object of this invention to produce a seal coating distributing machine that can be attached to the truck, or tractor, by means of which the seal coating material is applied to the roadway, in such a way that the distributing device is free to move over the roadway and to adjust itself to the convexity or concavity of the road surface.

Another object is to provide a seal coating distributing device and attachment, both of which are connected to each other and to the tractor in such a way that the distributing device can be folded and supported on top of a pullbar during transportation so as to obviate the necessity of providing the seal coat distributing device with wheels for use during transportation from one place to another and so that the truck may travel at a high speed during such transportation.

The above and other objects that may become apparent as this description proceeds are obtained by means of a construction and an arrangement of parts that will now be described in detail, and for this purpose, reference will be had to the accompanying drawing in which the invention has been illustrated in its preferred form, and in which:

Figure 1 is a side elevation showing the rear end of the truck or tractor by means of which the seal coating material is applied to the roadway and the seal coat distributing device, the position of the seal coat distributing device during transportation being indicated by dotted lines;

Figure 2 is a plan view of the seal coat distributing device and the pullbar by means of which it is attached to the tractor;

Figure 3 is a section taken on lines 3—3, Figure 2;

Figure 4 is a section taken on line 4—4, Figure 1;

Figure 5 is a rear elevation looking in the direction of arrows 5—5, Figure 2 and shows a portion of the intermediate squeegee member;

Figure 6 is a section through a portion of the roadway showing how the serrated squeegee member serves to clean depressions in the roadway;

Figure 7 is a rear elevation of the distributing device showing the two end members folded upwardly into inoperative position for use on very narrow roads;

Figure 8 is a diagrammatic view showing how the three sections of the distributing device can be adjusted to fit the convex surface of a roadway; and

Figure 9 is a diagrammatic view looking in the direction of arrows 9—9, Figure 1, and shows the distributing device folded for transportation and supported on the pullbar.

In the drawing reference numeral 10 designates the surface of a roadway and 11 the supporting wheels of a truck or tractor. The truck or tractor is provided with the usual chassis frame 12 on which is supported a tank 13 that contains seal coating material such as hot tar. The tank is connected to a transverse seal coat distributing pipe 14 by means of suitable piping 15 which is provided with a valve 16 controlled by a hand wheel 17 that is positioned above the upper surface of the chassis so as to be convenient for operation by the operator. The parts already described are old and well known and are merely shown so as to illustrate the relationship between the tractor and the seal coat distributing device which will now be described.

Referring now more particularly to Figure 2, it will be seen that a pullbar has been provided which consists of two rigid members 18, which may be formed from round bars or pipes or from structural steel such as angle irons or T bars. In the embodiment shown, the two tension members 18 are parts of a single bar that is bent at its center point to form an opening 19 for the reception of a pivot bolt 20 by means of which the front end of the pullbar is attached to the under surface of the chassis frame. Directly back of the opening 19, the bars are spread apart until they merge with the parallel sides 18. A flat metal bar 21 connects the upper ends of the tension members directly back of the point where they start bending downwardly as shown in Figure 1. A loop or supporting member 22 of the shape shown in Figure 4, is attached to the under surface of the chassis frame 12 and provides

a space of a length somewhat greater than the width of the pullbar and this serves to support the pullbar so as to limit its downward movement. The rear ends of the tension members are flattened as designated at 23 and are perforated for the reception of a bolt 24, which connects the lower ends of the tension members and passes through a tubular spacer 25. Links 26 are pivotally attached to the lower ends of the tension members by the bolt 24, and these links are preferably provided with slots 27 in the manner indicated in Figure 1.

The distributing device for the sealing material consists of three pivotally connected sections. The center section has been designated by letter A and the end sections by letter B. The center section consists of three angle iron bars 28, 29 and 30. Bar 28 is concave on its front side while bars 29 and 30 are preferably straight. The three angle iron bars just mentioned are connected by transverse bars 31 and 32. The two bars marked 32 are positioned equidistantly from the middle line of the center section and are provided with upwardly extending flanges which are provided with a plurality of openings 33 to receive the bolt 34 by means of which the links 26 are pivotally attached to the distributing device. The ends of bars 28, 29 and 30 are provided in their downwardly extending flanges with openings for the reception of long pivot bars 35 which pass through tubular spacers 36. Attached to the ends of each of the bars 28, 29 and 30 are other similar bars 28*a*, 29*a* and 30*a*, the upper webs of the last mentioned bars having been cut away as shown at 37 and they are pivotally connected to the center section by the bolts 35, as clearly shown in Figure 1. Transverse bars 38 serve to hold the bars of the end sections in assembled relation. The transverse bars may be secured to the longitudinal bars of the distributing device by bolts or rivets or may be welded thereto as may be found most desirable.

Referring now more particularly to Figure 3, it will be seen that there is attached to the rear surface of each of the longitudinally extending bars, a squeegee member 39 which is made from rubberized belting or some similar material. The downwardly extending flanges of the longitudinal bars and the squeegee members are provided with holes for the reception of clamping bolts 40 and these also pass through corresponding openings in the clamping bars 41; when the bolts are tightened the squeegee members 39 are securely attached to the longitudinal bars. Bars 28 and 30 have squeegee members provided with straight lower edges, but the squeegee member secured to bar 29 has its lower end serrated or scalloped so as to provide a plurality of teeth 42 in the manner shown in Figure 5. These teeth serve to enter depressions in the roadway in the manner shown in Figure 6 so as to remove dust and dirt from such depressions, thereby permitting the sealing material to wet the surface and come into actual contact with the roadway at such depressed points. The links 26 are independently movable and permit the distributing device to tilt relative to the tractor so as to follow the surface of the roadway at points where the surfacing may be irregular. Owing to the three-part hinged construction of the distributing device, it can accommodate itself to any degree of convexity or concavity of the road surface.

When the roadway is being coated with sealing material, the material is spread over the roadway in parallel lines from openings in pipe 14 and the truck or tractor travels at considerable speed. The distributing device being directly connected with the tractor, engages the sealing material while it is still in flowable condition and the concave surface of the first squeegee member tends to move the material towards the center of the road and to spread it somewhat while the intermediate squeegee member serves to clean depressions in the roadway and to distribute sealing materials therein and the squeegee member attached to bar 30 serves to complete the distribution of the sealing material.

When operating on a road that is narrow, or which, for some other reason, does not permit the entire width of the distributing device to be used, one or both end members B can be tilted upwardly in the manner shown in Figure 7.

It frequently happens that the work to be performed is at a considerable distance from headquarters and for the purpose of facilitating transportation of the sealing material distributor, the latter has been connected with the tractor by means of rigid pullbars of sufficient strength to support the distributing device and during transportation the distributing device is folded upwardly and laid on top of the pullbars in the manner indicated by dotted lines in Figure 1. The transverse bar 21 is provided with an upwardly extending anchor 43 that engages the bar 30 and holds the distributing member from sliding downwardly too far. It is evident that the links 26 will also serve to limit the downward movement of the distributing device, but if these alone are depended on, the device will project backwardly beyond the ends of the pullbars and it is therefore preferable to provide an anchor in the manner shown.

Attention is called to the fact that the transverse bars 32 have a plurality of openings so that the links may be positioned in such a manner that the best operation of the distributing device is obtained. Since the pullbars 18 are rigid, the force tending to pull the distributing device acts horizontally through the pivot 24 and there is therefore very little tendency to lift the front end of the distributing device.

In Figure 9 the appearance of the distributing device, when supported on the pullbars, has been indicated in a more or less diagrammatic manner. The position of the squeegee members shows that the device is upside down during transportation. With both of the end sections folded, the width of the distributing device during transportation is approximately that of the truck or tractor and it does not therefore interfere with traffic during transportation and can be moved from place to place at a high speed.

Having described the invention what is claimed as new is:

1. In a machine for uniformly distributing seal coating material over a highway surface, comprising, in combination, a tractor having a chassis frame, a pullbar attached at its front end to said frame by means which limits vertical movement thereof, a device for evenly distributing sealing material over the highway surface, comprising a plurality of squeegee members resting on the surface of the highway, links pivoted to the end of the pullbar and to the distributing device for connecting the two, said links serving also as hinges permitting the distributing device to be positioned upsidedown on the top of the pullbar for transportation, and means for limiting rearward movement of the distributing de-

vice relative to the pullbar when supported by the latter.

2. In a machine for uniformly distributing seal coating material over a highway surface, comprising, in combination, a tractor having a chassis frame, a pullbar attached at its front end to said frame by means which limits vertical movement thereof, a device for evenly distributing sealing material over the highway surface, comprising a frame having a plurality of squeegee members resting on the surface of the highway, links pivoted to the end of the pullbar and to the distributing device for interconnecting the two, said links serving to maintain a connection between the distributing device and the pullbar while the former is moved to inverted position on the top of the pullbar for transportation, and an anchor member projecting upwardly from the pullbar for holding the distributing device in position during transportation.

3. In a machine for uniformly distributing seal coating material over the surface of a highway, comprising, in combination, a tractor having a chassis, a rearwardly extending pullbar pivotally attached at its front end to the chassis to permit a limited transverse movement, a supporting device engaging the under surface of the pullbar to the rear of the pivot for limiting its downward movement, the pullbar comprising two spaced tension members lying in the same plane and downwardly inclined, the pullbar serving to support the distributing device during transportation, links pivoted to the ends of the tension members, a seal coat distributing device resting on the roadway to the rear of the pullbar and attached to the pullbar by the links, the latter permitting relative movement between the pullbar and the distributing device, sufficient to permit the latter to be moved to inverted position on the pullbar, and means for holding the distributing device on the pullbar during transportation.

4. In a machine for uniformly distributing seal coating material over a highway surface, comprising, in combination, a tractor having a chassis frame, a pullbar attached at its front end to said frame and projecting downwardly and rearwardly therefrom, means for limiting downward movement of the pullbar relative to the chassis frame, transversely spaced links pivoted to the rear end of the pullbar, a seal coating distributing device having a plurality of squeegee members resting on the surface of the roadway, said device comprising three sections hingedly connected, means for pivotally attaching the other ends of the links to the central section whereby the tractor can pull the distributing device over the highway, the distributing device being movable into inverted position on top of the pullbar, the end sections being foldable through an angle of more than ninety degrees so as to project upwardly and inwardly when the device is supported on the pullbar for transportation.

5. A device for evenly distributing sealing material over the surface of a highway, comprising an elongated frame having a plurality of spaced squeegee members, frame members extending transversely of the squeegee members, two of which are symmetrically positioned with respect to the middle points of the squeegee members, a pullbar comprising two spaced tension members, and means for supporting the pullbar at a predetermined height and links connecting the ends of the tension members with the two symmetrically positioned transverse members, whereby the pullbar and the distributing device can effect relative adjustment permitting the latter to follow the road surface during operation and whereby the distributing device can be moved to inverted position on the pullbar without disconnecting it therefrom.

6. A device for distributing sealing material over the surface of a highway comprising a frame having a plurality of spaced bars, each formed from a center section and two end sections pivotally connected for relative movement through an angle of over 180 degrees, transverse bars interconnecting the bars of each section, a squeegee member of bendable material attached to each of the spaced bars for engagement with the surface of the roadway, one of said squeegee members having its lower edge serrated whereby it can project into depressions in the roadway surface for cleaning the latter, said serrated squeegee member being positioned intermediate two unserrated members and a pullbar attached to the center section.

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