Aug. 22, 1961 D. STULTZ ET AL 2,996,963

ROAD PAVING MACHINE ATTACHMENT FOR PLACING WIRE MESH IN PAVING MATERIAL

Filed May 28, 1958 2 Sheets-Sheet 1

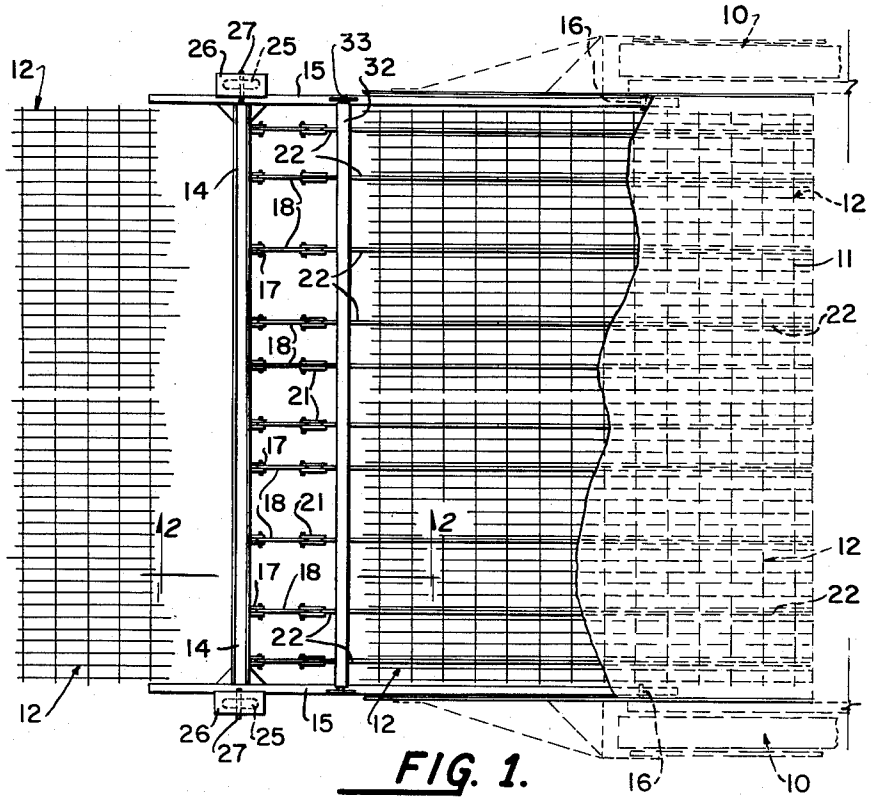



FIG. 1.

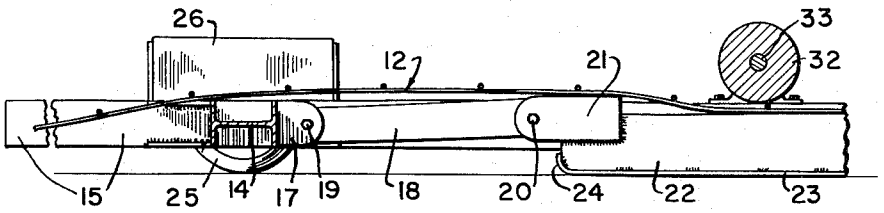



FIG. 2.

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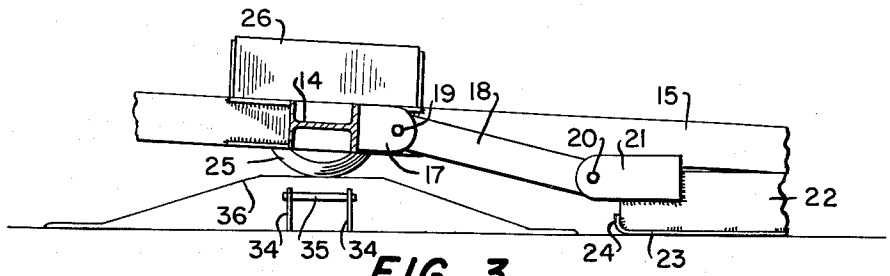



FIG. 3.

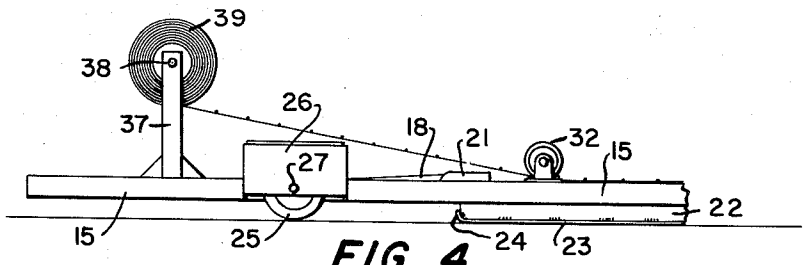



FIG. 4.

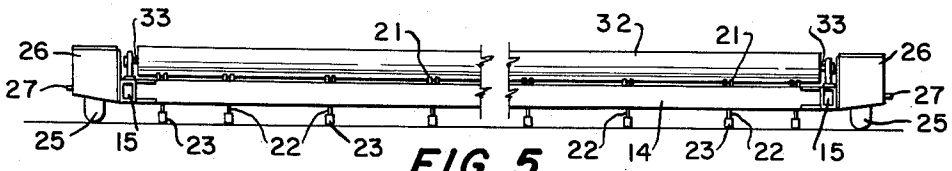



FIG. 5.

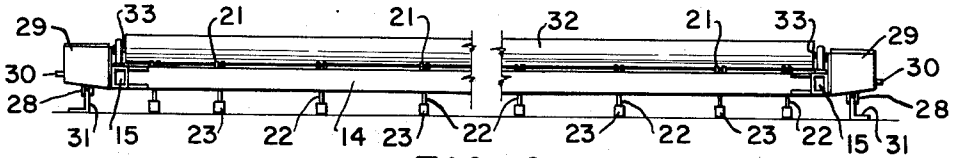



FIG. 6.

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# ROAD PAVING MACHINE ATTACHMENT FOR PLACING WIRE MESH IN PAVING MATERIAL

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This invention relates to road paving machine attachments for placing wire mesh in paving material while the road is being paved. The attachment is designed to be connected to conventional paving machines or spreaders such as are in use for paving roads with concrete and other materials.

The main object of the invention is to provide means whereby either flat or rolled wire mesh is placed in paving material while the material is being poured on the road bed, and is embedded in the paving material in a predetermined plane between the road bed and the top of the pavement. In an eight inch concrete road, the wire mesh usually is located two inches below the top surface of the pavement and six inches above the bed of the road.

Heretofore in the building of concrete roads it has been customary to pour concrete on a section of the road bed, then to manually place the wire mesh on the poured layer, followed by pouring a top layer of concrete over the mesh to embed it and bring the pavement to predetermined thickness or height. This procedure is costly and time consuming because the pouring of concrete is performed in two steps and manual labor is required for the placement of the wire mesh.

By the use of our attachment, the concrete can be poured to finished predetermined thickness and the wire mesh is placed in the desired plane and embedded in the paving material while it is being poured, all in one operation, and without the aid of manual labor for placing the mesh.

Our attachment for placing wire mesh in paving material can be attached to different types of machines including the "slip-form" type and those which employ separate forms for confining the poured material. The term "slip-form" is applied to paving machines which carry spaced apart parallel side forms located opposite and rearwardly of the concrete pouring and spreading mechanism, which travel with the machine and form the side surfaces of the pavement as the material is poured on the road bed. Paving machines not provided with "slip-form" type of forms require separate forms to be built on the road bed to confine the poured paving material and form straight side surfaces thereon. Our attachment, with slight modification, can be adapted for use with either type of paving machine.

An important feature of our invention is the provision of means whereby the wire mesh is laid in a horizontal predetermined plane and the attachment is able to travel over contraction joints and inequalities in the roadway without contact with the joints while at all times maintaining the support of the mesh in said predetermined plane.

Other objects and advantages of our invention will be apparent from the following specification and the drawings.

In the drawings:

FIG. 1 is a top plan view of a paving machine attachment embodying our invention, showing also in broken lines part of the paving machine to the forward end of which the attachment has been connected, and part of the pavement laid by the machine. The flat metal wire mesh is shown broken away over part of the attachment for clarity.



FIG. 2 is a longitudinal vertical sectional view, partly in elevation, on an enlarged scale, in the plane of the line 2—2 of FIG. 1.

FIG. 3 is a view similar to FIG. 2, showing a part of the attachment in the position it assumes when passing over a contraction joint in the pavement.

FIG. 4 is a side elevational view of a modification showing a part of the attachment provided with means for placing rolled wire mesh in paving material.

FIG. 5 is a front elevational view of the attachment adapted for connection to a "slip-form" type of paver.

FIG. 6 is a view similar to FIG. 5 showing our attachment modified for connection to the type of paving machine which employs separate forms for confining the paving material until it sets.

In FIG. 1 of the drawings, the forward part of a "slip-form" type of paving machine is shown in broken lines, indicated by the numeral 10. A section of concrete pavement 11 has wire mesh 12 embedded therein. Forwardly, that is, to the left of the concrete pavement 11, the wire mesh 12 is shown as resting on the attachment of our invention preparatory to being embedded in concrete as the paving machine moves forwardly.

The attachment comprises a frame having a front cross bar 14 which may be any suitable form of metal angle bar, such as the H form shown, and side bars 15 which extend longitudinally of the road, rigidly connected near their forward ends to opposite ends of the cross bar 14. The rearward ends of the side bars 15 are adapted to be pivotally connected to the paving machine by bolts 16 as shown in FIG. 1. In the embodiment shown, the cross bar 14 is twenty four feet long and the attachment is designed to support two sheets of wire mesh each 11'6" wide, placed side by side on the attachment as shown in FIG. 1. The dimensions of the frame members 14, 15 may be varied as required by the size of the pavement to be laid.

Between the two side bars 15, the cross bar 14 is provided with a plurality of ears 17 which are arranged in spaced pairs and are rigidly connected by welding or otherwise to the rearward or right side of the bar 14, as shown in FIGS. 2 and 3. The pairs of ears 17 are not equally spaced from each other but are arranged as may be required to avoid interference with contraction joints in the pavement as will be explained hereinafter. As shown in FIG. 1, ten pairs of such ears 17 extend rearwardly from the cross bar 14, longitudinally of the roadway, parallel to each other.

A link member 18 fits between the ears 17 of a pair and is pivotally connected at one end by a bolt 19 to each pair of ears. At its other end, each link 18 is pivotally connected by a bolt 20 to a sled rail which comprises a pair of plates 21 rigidly secured by welding or otherwise to opposite sides of one end of the rail member 22. The plates 21 of each pair are longitudinally aligned with the ears 17 of each pair, so the links 18 and rails 22 are also aligned with each other longitudinally of the pavement. The sled rails 22 are flat vertically and provided with widened treads 23 upwardly curved at 24 on their leading end. The sled rails 22 are longer than the frame side bars 15, to extend from their cross bar connecting links 18 rearwardly to and beneath the paving machine 10.

For use of the attachment with the "slip-form" type of paver, the cross bar 14 is provided at opposite ends with wheels adapted to travel on the road bed. As shown in FIGS. 1, 2 and 5, the wheels 25 are covered by housings 26 and rotatably mounted on shafts 27 so that the

wheel treads travel in the same plane as the treads 23 of the sled rails 22.

When the attachment is to be used with pavers other than the "slip-form" type mentioned, that is when separate forms are provided to confine the concrete or other material, wheels 28 as shown in FIG. 6 are rotatably mounted in housings 29 on shafts 30 so that the wheel treads travel on the forms 31. In this arrangement, the base of the forms 31 rests on the road bed in the same plane with the treads 23 of the sled rails 22.

A roller 32 extends transversely of the attachment, parallel to the cross bar 14 and located near the forward ends of the sled rails 22 but rearwardly of their connection to the links 18. The roller 32 is rotatable on a shaft 33 mounted on the side bars 15. The roller rests on the wire mesh 12 as shown in FIG. 2. In FIG. 1 the wire mesh has been broken away over the forward part of the attachment to more clearly show the construction of those parts.

The purpose of the hinged connection between the sled rails 22 and the front cross bar 14, comprising the described parts 17–21 inclusive, will be described by reference to FIG. 3. It is customary to provide contraction joints in road pavements by embedding chairs 34, in pairs, on which rest short lengths of metal rod 35, the latter extending longitudinally of the pavement, about six inches above the road bed in an eight inch thick pavement. A number of the parts 34, 35, is located in alignment across the pavement prior to the pouring of the paving material. As previously mentioned, the sled rails 22 of our attachment are spaced apart from each other to avoid contact with the chairs and rods which constitute the contraction joint. In order to avoid contact between the joint and the cross bar 14 of the attachment when the attachment travels forwardly with the paving machine, a mound may be built up at each side of the road bed opposite the ends of the contraction joint, as indicated at 36. The mound is higher than the contraction joint and so located that the wheels 25 of the attachment roll upwardly on the mound and lift the cross bar 14 up over the contraction joint, but due to the hinged link connection between bar 14 and sled rail 22, the latter slide on the road bed between the members forming the contraction joint, and thus at all times support the wire mesh 12 in a horizontal plane located a predetermined distance above the road bed and below the top surface of the pavement.

It is not absolutely necessary that a mound 36 be built to protect the contraction joint. The wheels 25 or 28 can be proportioned so that the cross bar 14 is supported sufficiently above the road bed to avoid contact with the contraction joint.

For an eight inch thick pavement, the sled rails 22 are made six inches high so that the wire mesh 12 located on top of the sled rails and beneath the roller 32 will be embedded two inches below the top surface of the pavement. Obviously the height of the sled rails 22 may be varied according to the thickness of the pavement and the specifications.

The attachment for placing wire mesh in paving materials may be provided with means for carrying rolls of wire mesh. Light weight wire mesh is obtainable in rolls whereas the heavier type of mesh is marketed in flat sheets. In FIG. 4, the side bars 15 have mounted on their forward ends upright members 37 in the upper ends of which is mounted a shaft 38 on which a roll 39 of wire mesh is carried to be unrolled as the machine travels forwardly. The unrolled portion of the mesh rests on the sled rails 22 with the roller 32 bearing thereon as previously explained.

From the foregoing description of the construction, it will be understood that the attachment embodying our invention is connected to travel with and forwardly of the machine to which it is attached, that the wire mesh to be embedded in the paving material dispensed by the machine is placed on the tops of the sled rails, between the side bars 15 and beneath the roller 32. When sheets of wire mesh are used, they are laced together, end for end, in advance of the machine and attachment, resting on the road bed preparatory to being supported by the sled rails of our attachment. As the paving machine and attachment move forwardly, paving material is poured from the machine to required height over the sled rails and wire mesh. As the sled rails are moved forwardly the embedded wire mesh remains in the poured paving material and new areas of the mesh become supported by the rails and are covered by the paving material as it passes out of the paving machine.

At all times, the wire mesh is supported in a substantially horizontal plane on the sled rails, and the rails maintain their positions on the road bed nothwithstanding the raising of the front cross bar 14 when crossing a contraction joint or inequality in the road bed. The pivotal connections 19 and 20 of the links 18 permit the cross bar 14 to be raised without interfering with the horizontal support of the sled rails on the road bed. Likewise, the pivotal connection 16 of the side bars 15 to the paving machine permit the forward end of the attachment to be raised to avoid contact with the contraction joints without affecting the horizontal disposition of the mesh supporting sled rails.

In describing the invention, reference has been made to particular examples embodying the same, but we wish it to be understood that the invention is not limited to the construction shown in the drawing and that various changes may be made in the construction and general arrangement of parts without departing from the invention.

We claim:

1. A road paving machine attachment for underlying and supporting reinforcing mesh above a road bed in advance of a paving machine and while the pavement is being laid by the machine, comprising a front cross bar, means movably supporting the cross bar at opposite ends, spaced apart rigid side bars connected at their forward ends to the cross bar, means on the rearward ends of the side bars adapted to pivotally connect the side bars to opposite sides of a paving machine, a plurality of spaced apart sled rails between the side bars, said rails having tread surfaces slidably bearing on the road bed and upper surfaces parallel to the tread surfaces adapted to support mesh between the side bars a predetermined uniform distance above the road bed, and means pivotally connecting the forward ends of the sled rails to the cross bar, said means comprising a plurality of parallel links, one for each sled rail, means having a horizontal axis pivotally connecting each link at one end to the cross bar and means having a horizontal axis pivotally connecting the opposite end of each link to the forward end of a sled rail, said links being of sufficient length to permit the cross bar to be raised by its supporting means to pass over contraction joints in the road bed without contacting them while the sled rail treads remain on the road bed and the upper rail surfaces support the mesh a predetermined uniform distance above the road bed.

2. The road paving machine attachment defined by claim 1 in which the sled rails are longer than the side bars and project rearwardly beyond said side bars.

3. The road paving machine attachment defined by claim 1 which includes a roller supported at opposite ends on the side bars, extending transversely across and above the sled rails for bearing on mesh resting on said rail upper surfaces.

4. A road paving machine attachment for underlying and supporting reinforcing mesh above a road bed in advance of a paving machine and while the pavement is being laid by the machine, comprising a front cross bar, means movably supporting the cross bar at opposite ends, spaced apart rigid side bars connected at their forward ends to the cross bar, means on the rearward

ends of the side bars adapted to pivotally connect the side bars to opposite sides of a paving machine, a plurality of spaced apart sled rails between the side bars, said rails having tread surfaces slidably bearing on the road bed and upper surfaces parallel to the tread surfaces adapted to support mesh between the side bars a predetermined uniform distance above the road bed, and means pivotally connecting the forward ends of the sled rails to the cross bar, said means comprising a plurality of laterally spaced apart pairs of ears rigidly connected to the cross bar, the ears of each pair being laterally spaced from each other, a plurality of parallel links, one for each sled rail, each link fitting at one end into the space between the ears of a pair, a bolt having a horizontal axis pivotally connecting each link and pair of ears, a pair of plates rigidly connected to opposite sides of the forward ends of each sled rail, the plates being spaced apart to receive between them the end of a link, and a bolt having a horizontal axis extending through said plates and link and connecting them pivotally, the plates and ears connected to one link being in alignment, and each sled rail and a link being in alignment longitudinally of the road bed, said links being of



sufficient length to permit the cross bar to be raised by its supporting means to pass over contraction joints in the road bed without contacting them while the sled rail treads remain on the road bed and the upper rail surfaces support the mesh a predetermined uniform distance above the road bed.

5. The road paving machine attachment defined by claim 4 in which the sled rails are longer than the side bars and project rearwardly beyond said side bars to underlie the paving machine in mesh supporting positions when the side bars are connected to a paving machine.

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