ROAD GRINDING MACHINE

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ABSTRACT

A ridge in a lane of a roadway is ground away by providing a transverse beam carried on the support arms of a transport vehicle across a front of the vehicle, locating the vehicle longitudinally of the lane with the beam extending across the roadway and with the beam located by the vehicle in fixed position parallel to and above the ridge, moving a grinding assembly carried on the beam along the beam for grinding the ridge. The beam carries a gauge for a depth of grinding. The grinding assembly includes a toothed grinder rotatable about an axis transverse to the beam with a width transverse to the beam which is approximately equal to the width of the ridge.
ROAD GRINDING MACHINE

0001. This application claims the benefit of priority under 35 USC 119(e) of Provisional Application 61/445,368 filed Feb. 22, 2011.

0002. This invention relates to a road grinding machine.

BACKGROUND OF THE INVENTION

0003. Many roads particularly in cold environments develop transverse ridges in the asphalt which cross the pavement at spaced positions along the direction of travel. These cause severe undulations of travelling vehicles due to the periodic nature of the ridges and are a considerable source of discomfort for occupants. Up to now there has been no suitable dedicated machine for quickly and easily removing these ridges so that they need to be ground off by conventional machinery grinding the whole pavement or moved back and forth over the pavement.

SUMMARY OF THE INVENTION

0004. It is one object of the invention to provide a suitable dedicated machine for quickly and easily removing these ridges.

0005. According to one aspect of the invention there is provided an apparatus for grinding a ridge in a lane of a roadway comprising:

0006. a support assembly for attachment to support arms of a transport vehicle;

0007. a transverse beam carried on the support arms so that the transverse beam extends across a front of the vehicle whereby, with the vehicle standing longitudinally of the lane, the beam extends across the roadway;

0008. and a grinding assembly carried on the beam so as to be movable along the beam for grinding the ridge; whereby with the beam located by the vehicle in fixed position parallel to and above the ridge, the grinding assembly moves along the beam to grind the ridge.

0009. Preferably the beam carries ground engaging elements for locating a height of the beam above the ground whereby the gauge a depth of grinding.

0010. Preferably the grinding assembly includes a rotary member with an outer surface for engaging the ridge, the rotary member being rotatable about an axis transverse to the beam.

0011. Preferably the rotary member has a series of grinding teeth.

0012. Preferably the grinding member has width transverse to the beam which is approximately equal to the width of the ridge.

BRIEF DESCRIPTION OF THE DRAWINGS

0013. One embodiment of the invention will now be described in conjunction with the accompanying drawings in which:

0014. FIG. 1 is a schematic top plan view of an apparatus according to the present invention.

0015. FIG. 2 is a front elevational view of the apparatus of FIG. 1.

0016. In the drawings like characters of reference indicate corresponding parts in the different figures.

DETAILED DESCRIPTION

0017. The apparatus for grinding a ridge 16 in a lane 18 of a roadway 17 includes a support assembly 10 designed for attachment to support arms 12, 13 of a transport vehicle 14. The vehicle can be of the type such as a skid steer loader or back hoe or other commercial tractor which includes front lift arms which can be operated using tractor controls. The support 10 is designed to allow the apparatus to mount on the arms for movement by the arms, with the design being arranged to match the connections of the arms as is known to a person skilled in the art. The lane 18 is defined by side lines 18A.

0018. A transverse beam 11 is carried on the support arms so that the transverse beam extends across a front of the vehicle whereby, with the vehicle standing longitudinally of the lane, the beam extends across the roadway to or slightly beyond the ends 18A.

0019. A grinding assembly 20 is carried on the beam by a guide mounting 21 so as to be movable along the beam 11 driven by a drive motor 22. Thus the mounting 21 can form a sleeve mounted on suitable bearings which allows free movement along the beam between the ends of the beam bypassing the support 10. The grinding assembly is arranged for grinding the ridge 16 with the beam located by the vehicle in fixed position parallel to and above the ridge. Thus the grinding assembly 20 moves along the beam to grind the ridge back down to the level of the roadway 17.

0020. The beam carries ground engaging elements 27 engaging the roadway 17 for locating a height of the beam above the ground so as to gauge a depth of grinding down to the roadway 17 but no deeper. Thus the grinding assembly is at a constant height on the beam as it operates so that the height of the beam above the roadway 17 remains fixed with the vehicle stationary.

0021. The grinding assembly includes a rotary member 28 with an outer surface 30 of grinding teeth 29 for engaging the ridge, the rotary member being rotatable about an axis transverse to the beam.

0022. The grinding member has a width W transverse to the beam which is approximately equal to the width of the ridge, typically of the order of 12 to 18 inches and much less than the length of the ridge or the width of the lane so as to grind only the ridge as the grinding assembly moves across the beam.

1. Apparatus for grinding a ridge in a lane of a roadway comprising:

a support assembly for attachment to support arms of a transport vehicle;

a transverse beam carried on the support arms so that the transverse beam extends across a front of the vehicle whereby, with the vehicle standing longitudinally of the lane, the beam extends across the roadway;

and a grinding assembly carried on the beam so as to be movable along the beam for grinding the ridge; whereby with the beam located by the vehicle in fixed position parallel to and above the ridge, the grinding assembly moves along the beam to grind the ridge.

2. The apparatus according to claim 1 wherein the beam carries ground engaging elements for locating a height of the beam above the ground so as to provide a gauge for a depth of grinding.
3. The apparatus according to claim 1 wherein the grinding assembly includes a rotary member with an outer surface for engaging the ridge, the rotary member being rotatable about an axis transverse to the beam.

4. The apparatus according to claim 1 wherein the rotary member has a series of grinding teeth.

5. The apparatus according to claim 1 wherein the grinding member has a width transverse to the beam which is approximately equal to the width of the ridge.

6. A method for grinding a ridge in a lane of a roadway comprising:
   providing a support assembly attached to support arms of a transport vehicle;
   providing a transverse beam carried on the support arms so that the transverse beam extends across a front of the vehicle;
   locating the vehicle standing longitudinally of the lane with the beam extending across the roadway; with the beam located by the vehicle in fixed position parallel to and above the ridge, moving a grinding assembly carried on the beam along the beam for grinding the ridge.

7. The method according to claim 6 wherein the beam carries ground engaging elements for locating a height of the beam above the ground so as to provide a gauge for a depth of grinding.

8. The method according to claim 6 wherein the grinding assembly includes a rotary member with an outer surface for engaging the ridge, the rotary member being rotatable about an axis transverse to the beam.

9. The method according to claim 6 wherein the rotary member has a series of grinding teeth.

10. The method according to claim 6 wherein the grinding member has a width transverse to the beam which is approximately equal to the width of the ridge.

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