July 19, 1966 F. F. MOENCH 3,261,643

ASPHALT CUTTER ATTACHMENT FOR MOLD BOARDS

Filed Oct. 22, 1962 3 Sheets-Sheet 1

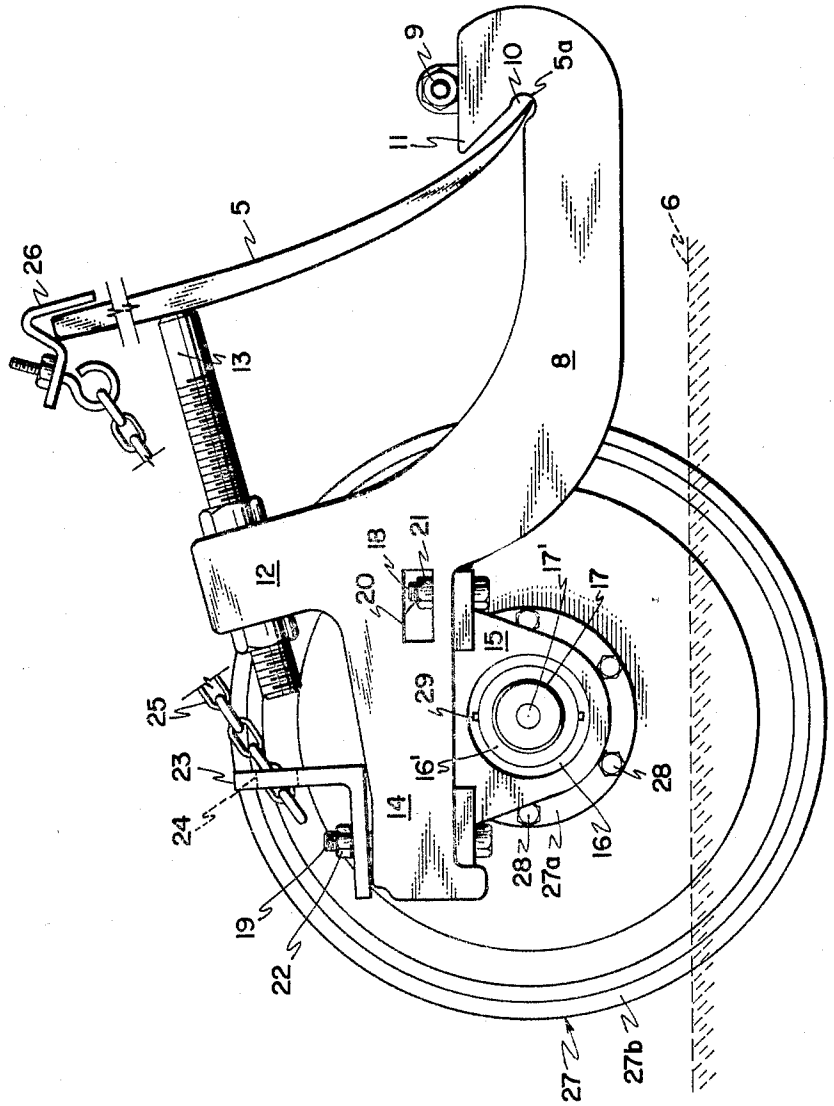


FIG. 1

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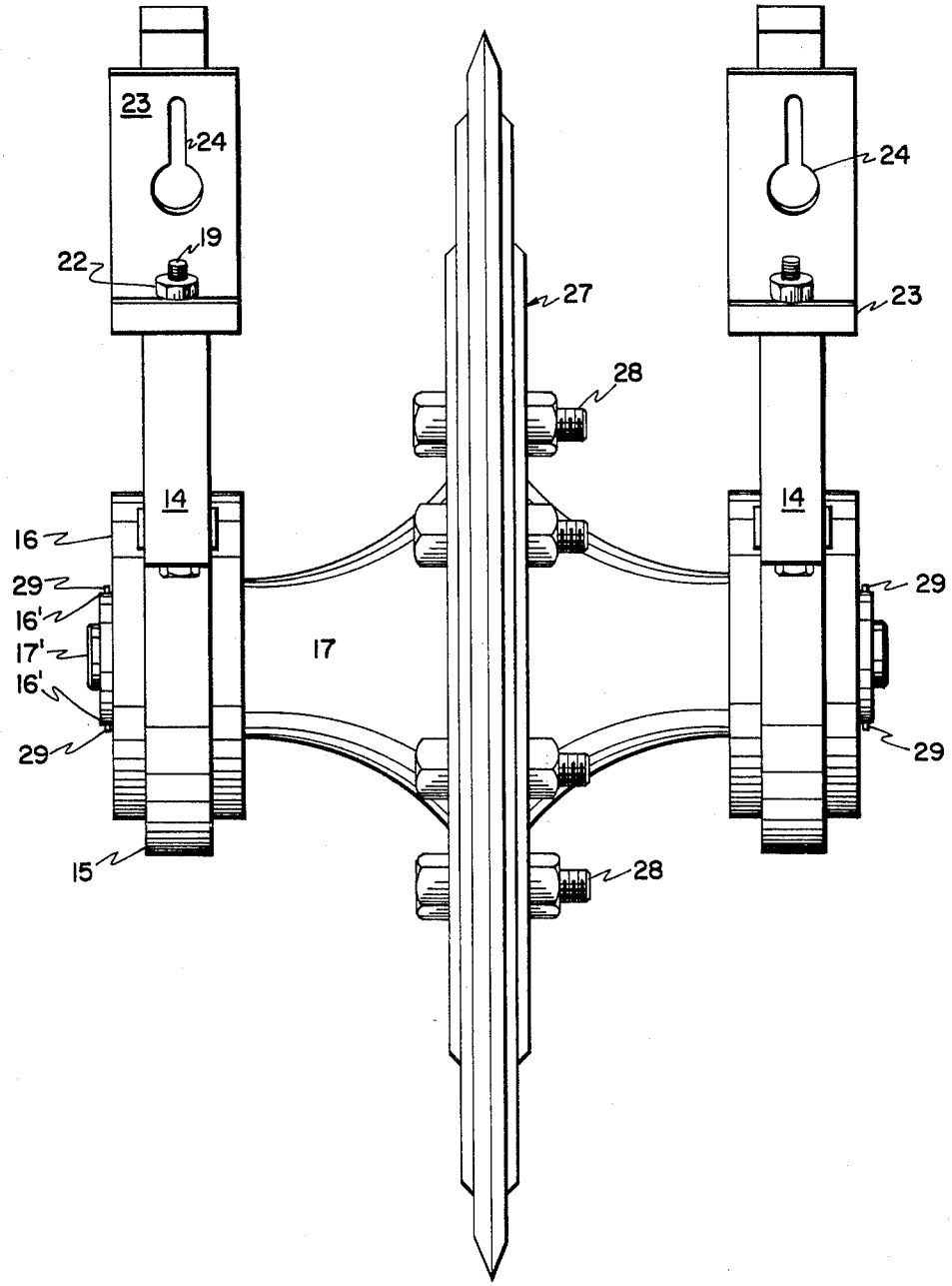


FIG. 2

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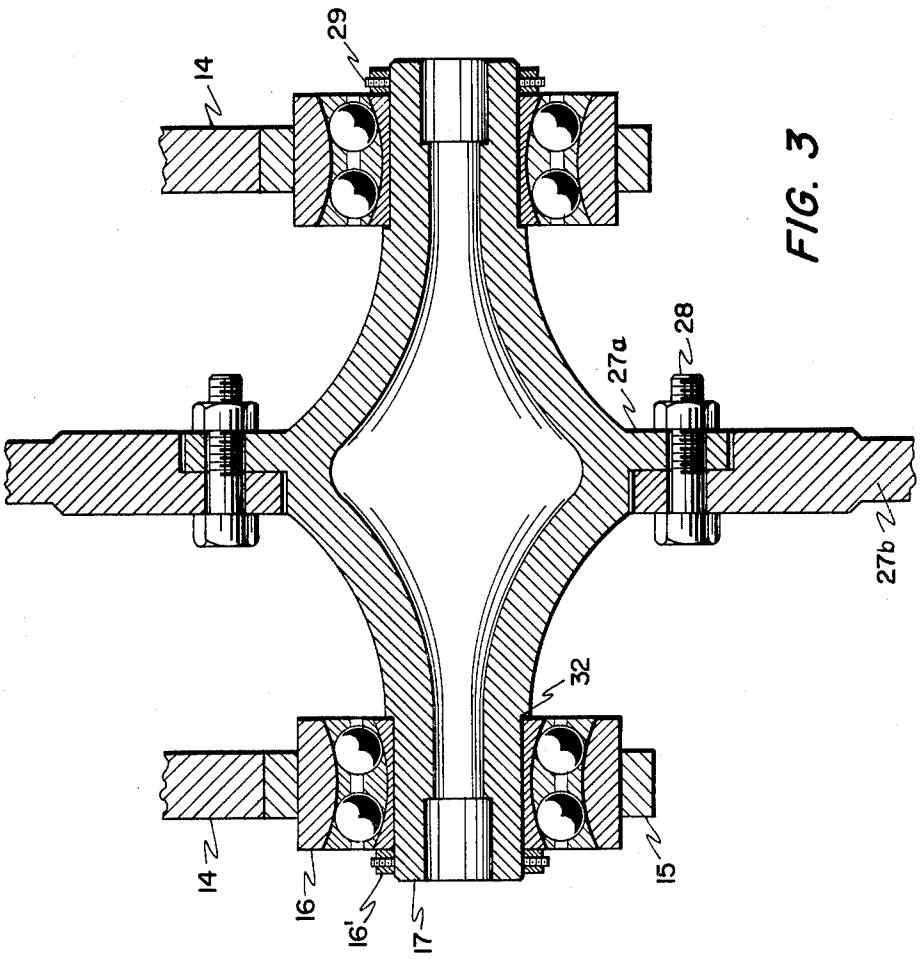


FIG. 3

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ASPHALT CUTTER ATTACHMENT FOR MOLD BOARDS

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6 Claims. (Cl. 299—40)

This invention relates to an asphalt cutter of the type adapted to be mounted on a grader or bulldozer blade.

Road graders and bulldozers are in general use in operations requiring cutting of asphalt paving and such cutting frequently is necessary as when lines or conduit are to be located in an underground position below asphalt paving. Special equipment in the nature of mobile cutters frequently is used for such purposes but most contractors prefer to have an attachment that is easily mounted and removed from self-propelled or mobile equipment being used on the same job. Various mounting arrangements have been provided for this purpose and where they are secured on such equipment, difficulty is encountered in replacing the cutter blades and bearings when repair and replacement become necessary.

It is an object of the present invention to provide a simple, durable and efficient asphalt cutter assembly which is adapted for mounting on road graders or bulldozer blades and which may be serviced or repaired without being removed from such mounting position.

Another object of the invention is to provide an asphalt cutter attachment for road grader and bulldozer blades which is securely held in an operating position thereon and which also is held against displacement when the blade is elevated to a position in which the cutter blade is out of contact with the pavement.

Other objects reside in novel details of construction and novel combinations and arrangements of parts, all of which will be fully set forth in the course of the following description.

The present invention provides several innovations in demountable asphalt cutters. One of the innovations involves the use of a sectional cutter wheel so arranged that the peripheral wear surfaces may be removed without requiring demounting of the entire cutter assembly from its installed location. Another innovation of the present invention resides in a special type of bearing block and bearing assembly permitting removal and replacement of bearings as required without a complete disassembly of the unit. Another innovation involves the mounting arrangement on a road grader or bulldozer blade which permits one size of attachment to be used with blades of varying size.

The practice of the invention will be best understood by reference to the accompanying drawings. In the drawings, in the several views of which like parts bear similar reference numerals:

FIG. 1 is a side elevation of an asphalt cutter attachment shown in mounted relation to a grader blade and its operative position indicated in relation to asphalt paving shown in dash lines;

FIG. 2 is a front elevation of the asphalt cutter assembly shown in FIG. 1 and drawn to an enlarged scale; and

FIG. 3 is a fragmentary section showing the sectional wheel assembly and bearing arrangement in an assembly of the type shown in FIG. 2.

Referring first to FIG. 1, a road grader blade **5** is shown without representation of the associated structure by which it is supported and blade **5** is disposed with its cutting edge **5***a* elevated substantially above the top surface of asphalt paving **6**. The asphalt cutter assembly **7** comprises two castings **8** joined at one end as by bolts **9**. The casting **8** comprises an elongated body having a slotted recess **10** at its bolted end with an overhanging portion **11** acting as a guide for the cutting surface of the blade **5** on

which it is mounted. The body **8** has an upwardly extending portion **12** through which threaded bars **13** extend for pressing against a surface of blade **5** to hold it against relative movement in recess **5***a*. Body **8** has another extremity **14** which functions as the support for a bearing block **15** in which a bearing **16** is secured for the support of an axle **17** of the cutter wheel.

Bolts **18** and **19** secure the bearing block on extremity **14** of body **8** and a recess **20** is provided adjoining the upper end of bolt **18** to permit access to a nut **21**. A nut **22** on the upper end of bolt **19** secures an angle member **23** which is slotted at **24** to admit the end links of a chain **25** which carries at its upper end a lug **26** adapted to fit over the top of blade **5** and secure the chain thereon. The slot **24** as shown in FIG. 2 is a keyhole-type slot permitting any selected link of the same to be secured therein so that in the mounted position the chain may be drawn taut and secured against slippage to hold the cutter assembly **7** in a fixed position relative to blade **5**.

The foregoing arrangement provides an effective mounting of the unit on the mold board. No welding is necessary in such mounting and the assembly is securely held in any selected position for a predetermined penetration of the pavement by the rotary cutter assisted by the weight of the mold board on which it is supported in the cutting action.

As the cutting edge of the cutter wheel **27** receives far greater wear than the remaining portions of the wheel, I prefer to form the wheel of an inner section **27***a* and an outer section **27***b* suitably joined as a unit by bolts **28** which hold the sections against relative movement during operation, but permit quick disassembly when repair or replacement is required.

One of the innovations of the aforesaid mounting arrangement is the provision for removal of outer section **27***b* while the assembly remains secured on the mold board. To do so, the bolts **28** are removed to permit separation of the sections **27***a* and **27***b*. One of the bearing blocks **15** is unfastened by loosening a set screw **29** in an annular bearing retainer **16'** which abuts the bearing assembly **16** mounted on a shouldered seat **32** at the outer end of axle **17** (FIG. 3) at **17'** and loosening the lower nuts on bolts **18** and **19**, so as to permit the block to slide or to be drawn to a position in which the end of axle **17** will clear block **15** and section **27***b* may be tilted and withdrawn over the free end of the axle.

Inspection, repair or replacement of bearings are accomplished in the same way. The bearing unit **16** shown in FIG. 3 uses ball bearings, but it will be understood that any suitable type of ball bearing or roller bearing assembly may be provided in this arrangement, as all such units may be readily removed and replaced in the manner shown and described. As the bearings and cutter blade are the components of the cutter assembly most subjected to severe wear and which require rather frequent replacement, it is a distinct advantage to be able to remove and replace such components without dismounting the assembly from the mold board on which it is installed. This saves a considerable amount of time in making such replacements which frequently are required in the course of a period of operation. It also permits spare parts to be carried so that "on the job" repairs may be made.

For some operations, it may be desirable to cross connect the portions **12** of sections **8** to provide greater stability and this may be done conveniently by mounting a stiff strip or plate in straddling relation thereto, said plate having apertured depending portions to admit the bolts **13** by which it is clampingly secured on said assembly. The structural arrangement shown and described herein is intended as a typical embodiment for the practice of my invention and changes and modifica-

tions may be availed of within the spirit and scope of the invention as defined in the hereunto appended claims.

I claim:

1. A rotary paving cutter assembly, comprising an elongated body member formed of companion sections detachably joined at one end and carrying bearing blocks at their opposite ends for the joint support of an axle of a rotary cutter, a recess in each section adjacent its joined end for reception of the scraping edge of a depending blade of a road working machine, linkage means connected to the bearing-supporting end of each section and having means for attachment to an upper portion of said blade remote from its scraping edge for suspending the cutter for pavement cutting movement by the road working machine, and an extensible member supported from an elevated position on each section for engaging the blade to hold it against movement in said recess.

2. A rotary paving cutter assembly, comprising an elongated body member formed of companion sections detachably joined at one end and carrying bearing blocks at their opposite ends for the joint support of an axle of a rotary cutter, a recess in each section adjacent its joined end for reception of the scraping edge of a depending blade of a road working machine, linkage means connected to the bearing-supporting end of each section and having means for attachment to an upper portion of said blade remote from its scraping edge for suspending the cutter for pavement cutting movement by the road working machine, adjustable means for varying the effective length of said linkage means, and an extensible member supported from an elevated position on each section for engaging the blade to hold it against movement in said recess.

3. A rotary paving cutter assembly, comprising an elongated body member formed of companion sections detachably joined at one end and carrying bearing blocks with bearings fitted therein at their opposite ends for the joint support of a rotary axle of a rotary cutter, a recess in each section adjacent its joined end for reception of the scraping edge of a depending blade of a road working machine, linkage means connected to the bearing-supporting end of each section and having means for attachment to an upper portion of said blade remote from its scraping edge for suspending the cutter for pavement cutting movement by the road working machine, detachable means for securing said bearing blocks on said sections, means for holding said axle in the bearings in said blocks, whereby said bearings may be inspected or replaced without removal of the assembly from its supported position on the blade, and an extensible member supported from an elevated position on each section for engaging the blade to hold it against movement in said recess.

4. A rotary paving cutter assembly, comprising an elongated body member formed of companion sections detachably joined at one end and carrying bearing blocks at their opposite ends for the joint support of an axle of a rotary cutter, a recess in each section adjacent its joined end for reception of the depending blade of a road working machine, linkage means connected to the bearing-supporting end of each section and having means for attachment to an upper portion of said blade for suspending the cutter for pavement cutting movement by the road working machine, detachable means for securing said bearing blocks on said sections, means for holding said axle in bearings in said blocks, said rotary cutter having inner and outer detachably joined sections, whereby on

separation of said cutter sections and removal of a bearing block, the separated outer section may be removed and replaced without removal of the assembly from its supported position on the blade, and an extensible member supported from an elevated position on each section for engaging the blade to hold it against movement in said recess.

5. A rotary paving cutter assembly, comprising an elongated body member formed of companion sections detachably joined at one end and carrying bearing blocks at their opposite ends for the joint support of a rotary axle of a rotary cutter between the sections, a recess in each section adjacent its joined end for reception of the scraping edge of a depending blade of a road working machine, linkage means of adjustable length connected to the bearing-supporting end of each section and having means for attachment to an upper portion of said blade remote from its scraping edge for suspending the cutter for pavement cutting movement by the road working machine, and means supported from an elevated position on at least one of said sections for engaging the blade so as to hold it against movement in said recess.

6. A rotary paving cutter assembly, comprising an elongated body member formed of companion sections detachably joined at one end and carrying bearing blocks with bearings fitted therein at their opposite ends for the joint support of an axle of a rotary cutter, the rotary cutter including a disc-like body of varying cross-section formed of inner and outer sections having lapping shoulder portions, the outer section being of narrower cross-section than the inner section, and a plurality of spaced bolts extending through the lapping portions for holding the inner and outer sections as a unitary assembly, the axle having a central portion arranged for the support of the cutter and end portions of reduced section, each providing an inwardly shouldered seat for a bearing, a flange portion on each seat outwardly of each bearing, and at least one set screw extending through the flange portion for holding the bearing in thrust engagement with the shoulder portion of the seat, said companion sections having a recess in each section adjacent its joined end for reception of the depending blade of a road working machine, linkage means connected to the bearing-supporting end of each companion section having means for attachment to the upper portion of said blade for suspending the cutter for pavement cutting movement by the road working machine, detachable means for securing said bearing blocks on said companion sections whereby said bearings may be inspected or replaced without removal of the assembly from its supported position on the blade, and an extensible member supported from an elevated position on each section for engaging the blade to hold it against movement in said recess.

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