

[54] **BALLAST TAMPER BLADE**

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[51] Int. Cl. **E01b 27/16**

[58] Field of Search **104/11, 12, 13, 14; 94/48**

[56] **References Cited**

UNITED STATES PATENTS

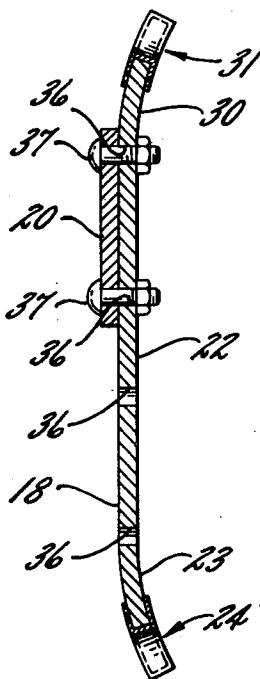
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3,396,671	8/1968	Roseberry	104/13
759,359	5/1904	Ferguson.....	104/13

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[57] **ABSTRACT**

A reversible tamping blade is provided for use with a railroad ballast tamping machine. The blade includes an elongated body adapted for attachment to the tamping machine. At one end of the body there is a curved shank and a tip which is notched and formed for tamping operations on a left side of a rail. Another curved shank and a tip notched and formed for tamping operations on the right side of the rail is provided at the opposite end of the blade body. By reversing the orientation of the blade, the blade may be installed for tamping operation on either side of the rail, thus providing a single replacement part for two previously required parts.

1 Claim, 3 Drawing Figures



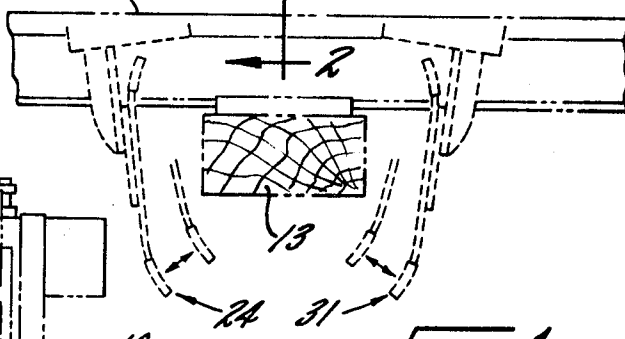
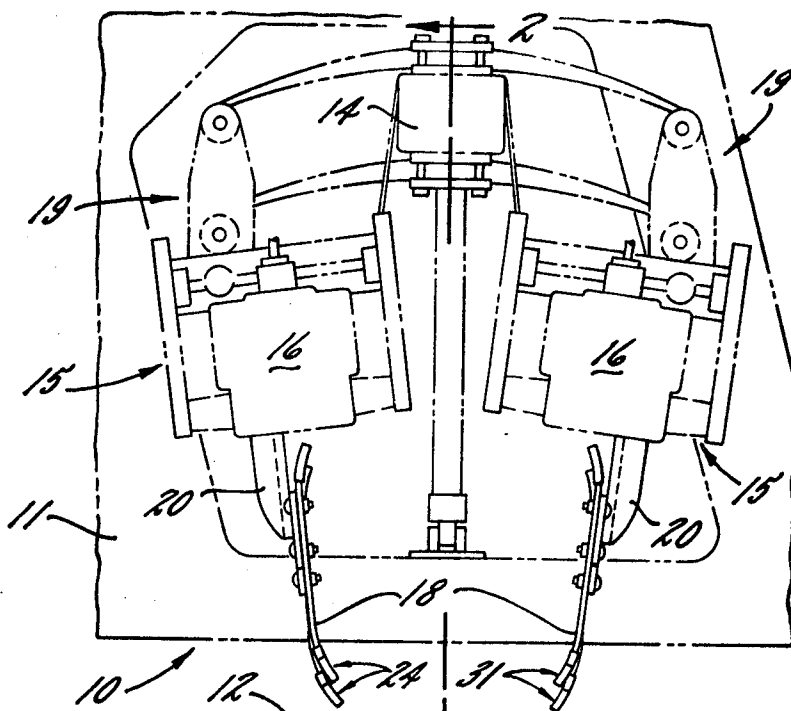


FIG. 3.

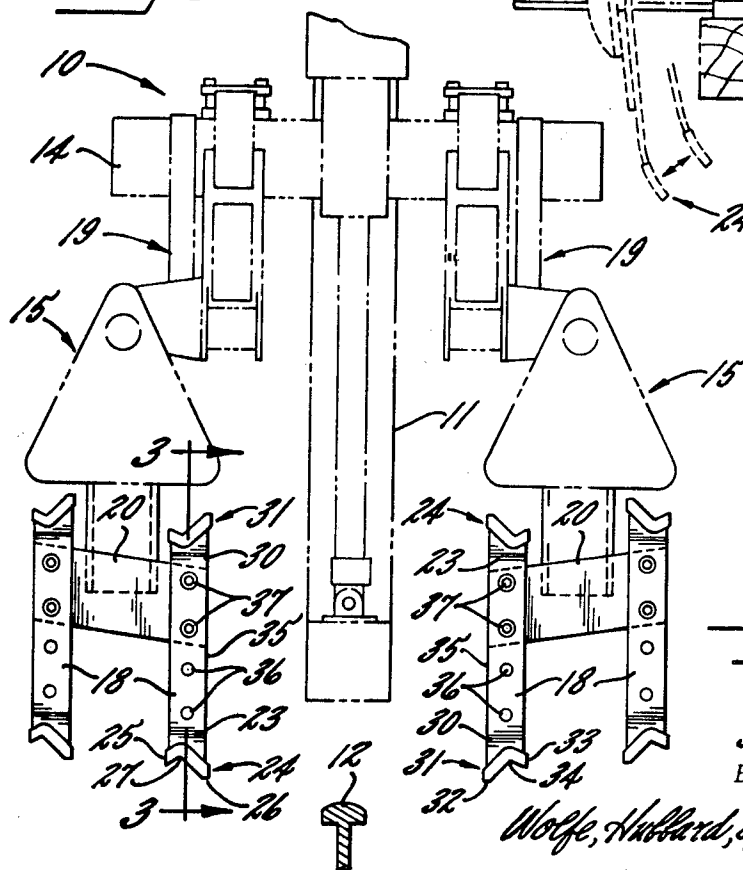


FIG. 2.

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BALLAST TAMPER BLADE**DESCRIPTION OF THE INVENTION**

This invention relates to tamping blades for use with railroad track ballast tamping machines.

Railroad operations require that road bed ballast be carefully positioned and interfitted under railroad ties to provide a solid base for the tie and the supported rail. To accomplish this ballast positioning and fitting, or tamping, hand held ballast working implements of the type disclosed in U.S. Pat. No. 2,137,842 issued Nov. 22, 1938, have been provided. This implement was provided with at least one straight blade having a blunt end which was vibrated by the implement in order to tamp the ballast. To work the ballast located directly under the tie, it was necessary to tip or cant the implement. To work the ballast located on an opposite side of the rail, it was necessary to remove and relocate the implement in the newly desired position. If it became necessary to loosen the ballast rather than to tamp it, the blades could be reversed and a pick-shaped blade point brought to bear in a working position.

More recently, ballast tamping machines such as that disclosed in U.S. Pat. No. 3,119,346 issued Jan. 28, 1964, have been provided. This device is provided with a plurality of tamping blades having curved shanks and formed and notched tips for tamping operations. To engage the gravel directly under the tie from both the right and the left side of the rail, right-hand blades and left-hand blades have been provided with appropriately shaped shanks and tips. As these blades are vibrated in the ballast, the curved shanks and formed and notched tips cause the blades to work their way under the tie and rail.

Since tamping blades are forced into relatively hard ballast with considerable force, these blades tend to wear rapidly. It has been noted that blade use of three to five days duration causes the blade tips to wear so extensively that the blade becomes inefficient and virtually inoperable. A replacement stock of right-hand blades and a stock of left-hand blades has thus been rather continuously required.

It is therefore the object of the invention to provide a tamping blade which may be used in a ballast tamping position on either the right side or the left side of a rail. Such blade can be stocked as a single replacement part for two previously required parts. An associated object is to provide a tamping blade having an extended useful life.

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings, in which:

FIG. 1 is a fragmentary elevational view of a ballast tamping machine utilizing the novel ballast tamping blades;

FIG. 2 is a developed view taken substantially in the plane of line 2—2 in FIG. 1 and showing in further detail the novel tamping blades, the blade mounting apparatus and the rail; and

FIG. 3 is a sectional view taken substantially in the plane of line 3—3 in FIG. 2 showing in still further detail the novel ballast tamping blade.

While the invention will be described in connection with a preferred embodiment, it will be understood that it is not intended to limit the invention to that embodiment. On the contrary it is intended to cover all alter-

natives, modifications and equivalents as may be included within the spirit and scope of the invention.

Turning first to FIG. 1, there is shown a portion of a tamping machine 10 having a frame 11. The machine is adapted by a carriage mechanism, not shown, to travel along a railroad track which includes a rail 12 mounted upon a tie 13. The frame 11 supports a vertically movable cross head 14 which carries a plurality of tamping units 15. These tamping units 15 provide the motion necessary to tamp the ballast anchoring the tie 13. To this end, each tamping unit 15 includes an electrically driven vibration motor 16 to which depending tamping blades 18 are rigidly fixed.

In the preferred machine, a second cross head, not shown, supports tamping units and is similarly arranged on the frame 11 over the opposite rail of the track. In operation, the vibration motors 16 are energized and the cross heads 14 are lowered, thereby bringing the tamping blades 18 into contact with the ballast. The blades are disposed at right angles to eccentrically weighted motor shafts so that the rigid motor and blade assembly vibrates substantially in the plane of the blades, thereby imparting to the blades 18 a rapid, short stroke, vibratory working action. The tamping units include support assemblies 19 which allow the motors 16 to swing and tilt during operation. This swinging and tilting operation allows the vibrating blades 18 to work their way under the tie 13 and toward the rail 12 and allows the blades 18 to effectively tamp the ballast located directly under the tie. During such operation, the blades may ultimately reach the positions shown in phantom lines in FIG. 1.

For attaching the blade 18 to the vibratory motors 16, mounting means 20 are provided, and disposed to carry blades 18 on a right and on a left side of the rail 12. It will be understood that "right" and "left" as here used are merely arbitrary terms of orientation, and are applied to the blades and associated structure as viewed in FIG. 2. Other orientational terms can be applied without altering the spirit or scope of the invention.

In accordance with the invention, the novel blades 18 are constructed to be employable on either the right side or the left side of the rail 12. To this end, each blade is formed with an elongated straight body portion 22 which terminates at one end in a curved shank portion 23 and a left hand tip 24. This left hand tip 24 is notched and formed as illustrated to perform tamping operations on the left side of the rail 12. To accommodate the wear caused to the blade tip 24 by the tamping operations, the tip 24 is formed with two lobes 25 and 26, and a notched portion 27 is formed between the lobes. One lobe 26 is slightly larger than and extends slightly past the opposite lobe 25 causing the blade to be urged in the direction of the larger lobe 26 when vibratory tamping motion is imparted to the blade in the ballast. Thus, when the blades are installed upon the mounts 20 as illustrated in FIG. 2, the vibratory motion imparted by the motors 16 will cause the blades 18 to work toward the rail 12.

At the opposite end of the blade body 22, there is formed a second curved shank 30 and a right hand tip 31 notched and formed to perform tamping operations on the right side of the rail. This right hand tip 31 is also provided with two lobes 32 and 33, and a notched portion 34 is formed between the lobes. It is a feature of the invention that a right hand tip 31 and a left hand tip

24 are formed on each blade; that is, the large lobes 26 and 32 are formed upon the same side or edge 35 of the blade. Thus, only the novel blade 18 of the present invention need be stocked as a replacement part for the previously required separate right hand and left hand blades. Should one tip of the novel blade become worn or damaged, the blade may be removed and returned to stock until such time as a blade is required for use on an opposite side of the rail. The blade may then be installed and used in its reversed or opposite-hand position, and a second service life may be obtained from the single blade.

The blade body 22 is adapted for attachment to the mounting means 20 so as to position either the right hand tip 31 or the left hand tip 24 in a ballast tamping position on the appropriate side of the rail 12. In the illustrated embodiment of the invention, a series of bolt holes 36 is formed in the body 22 to accommodate bolts 37 carried by the mounting means 20. These bolts 37 provide secure mounting attachment of the blade 18 to the mounting means 20 while allowing the blade to be easily and rapidly removed and a replacement blade

installed.

The following is claimed as invention:

1. A reversible tamping blade for use with a railroad ballast tamping machine, the machine having at least one mounting means for carrying at least one tamping blade on a right side of a rail and at least one tamping blade on a left side of the rail, said blade having an elongated straight body terminating at one end in a curved shank and a right hand tip notched and formed for tamping operations on a right side of the rail, the blade body terminating at its opposite end in a curved shank and a left hand tip notched and formed for tamping operations on a left side of the rail, the blade body being adapted for attachment to the mounting means to position the right hand notched tip and shank in a ballast tamping position on the right side of said rail, the blade body being further adapted for alternative attachment to said mounting means to position the left hand notched tip and shank in a ballast tamping position on the left side of said rail.

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