E. M. BOYNTON.

RAILROAD TRACTION MEMBER.

APPLICATION FILED FEB. 23, 1910.

976,543.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.

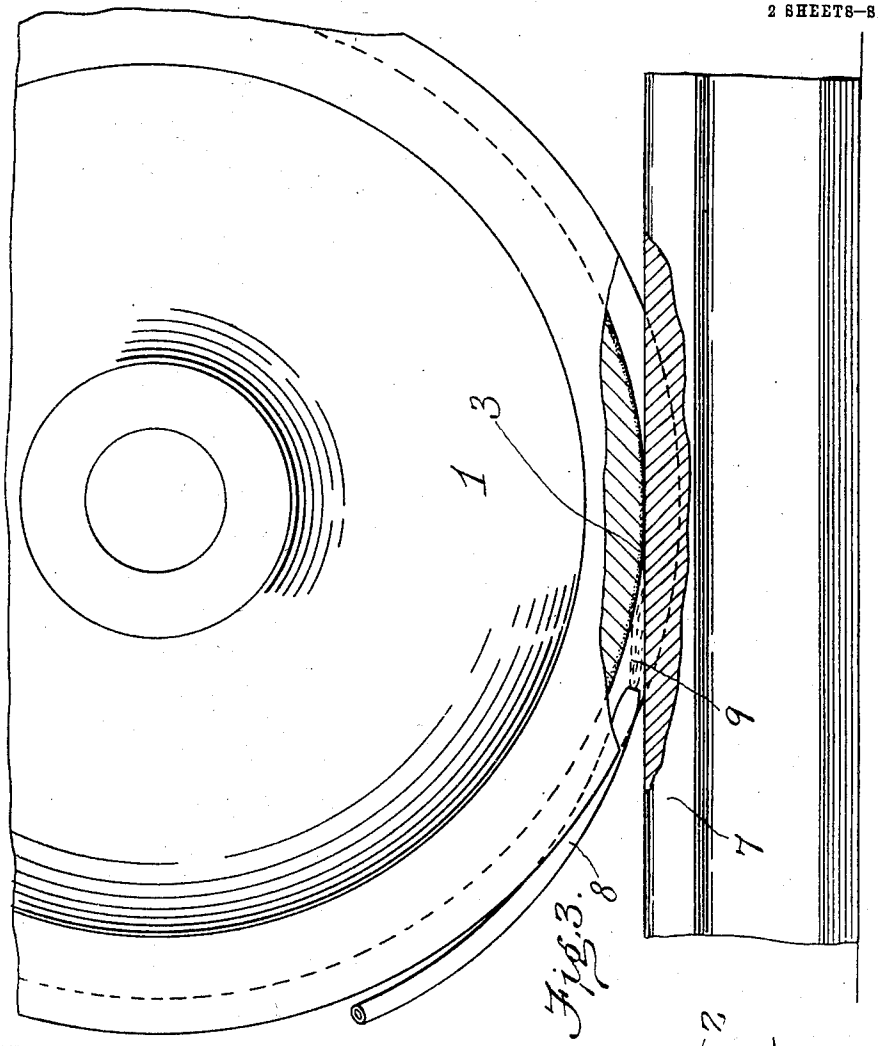

Fig. 3.

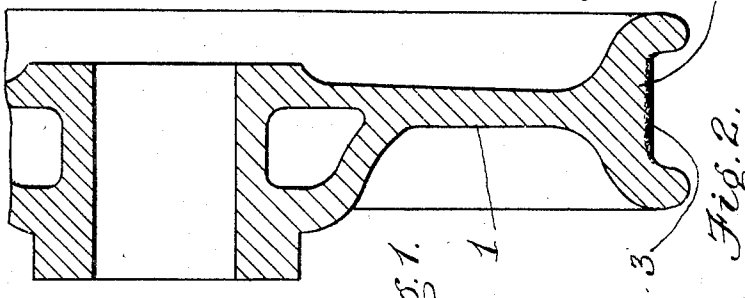

Fig. 1.

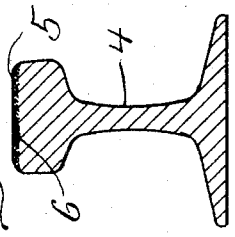

Fig. 2.

Witnesses:
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F. R. Ronlstone

Inventor.
E. M. Boynton

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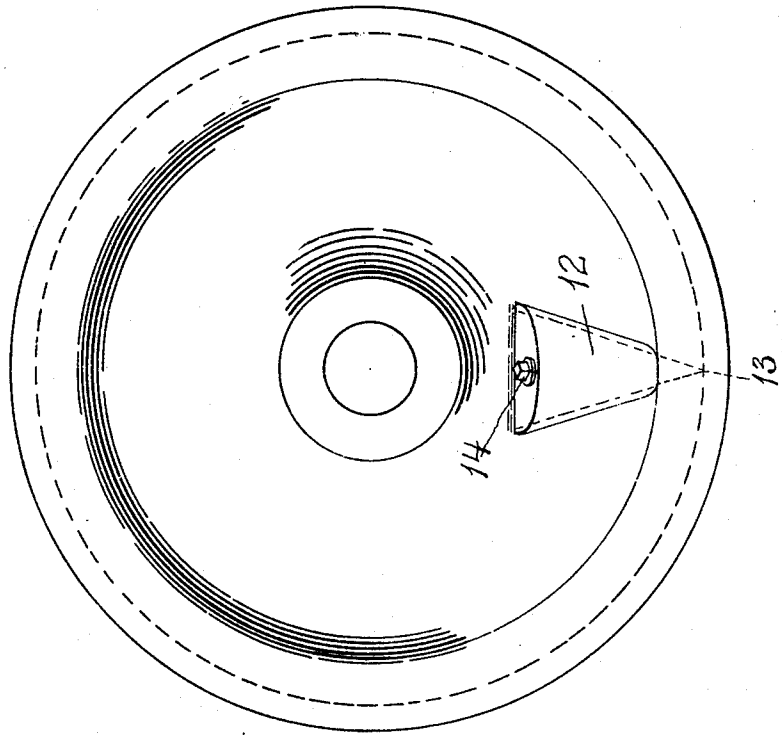

Fig. 5

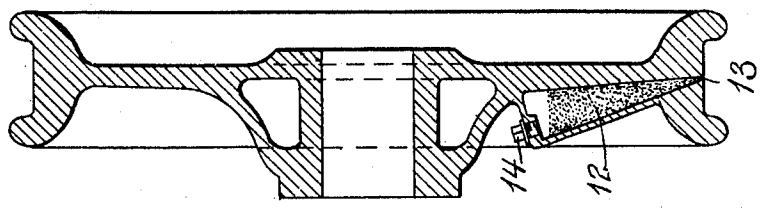

Fig. 4

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UNITED STATES PATENT OFFICE.

EBEN MOODY BOYNTON, OF WEST NEWBURY, MASSACHUSETTS.

RAILROAD TRACTION MEMBER.

976,543. Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed February 23, 1910. Serial No. 545,312.

To all whom it may concern:

Be it known that I, EBEN MOODY BOYNTON, of West Newbury, in the State of Massachusetts, have invented certain new and useful Improvements in Railroad Traction Members, of which the following is a specification.

This invention relates to an improvement in railroad wheels and traction members and in constructing the traction face of the wheel or rail of soft, tough metal, and comminuted friction material.

My invention concerns primarily the construction of wheels and rails for railroads, and while I have designed said invention particularly for use in connection with the Boynton single rail system, so called, I do not wish to be understood as limiting my invention to such system, as it may be applied to any single or multiple rail system.

In carrying out my invention, I construct the traction face of the wheel of open hearth steel, or other metal, that is tough and non-fracturable, that should be sufficiently soft to permit friction material to be embedded therein. In order to provide a wheel in its entirety that is non-fracturable I may construct the entire wheel of said soft, tough, non-fracturable steel or metal, as open hearth steel, or any other metal or alloy having such characteristics. Into the traction face of the wheel composed of said soft, tough steel, I force by pressure, or otherwise, comminuted friction material, such, for instance, as hard sand, or like particles of a metallic nature. When completed, the traction face of the wheel comprises the said tough metal and the comminuted friction material, which acts to prevent slipping of the wheel and resists the wear, to which latter action the soft metallic traction face would be peculiarly liable but for this friction element of the traction face referred to. The said surface of the wheel may be so prepared before the wheels or rails are placed in position, or said traction face may be prepared or repaired while the wheel is in use, by applying a blast of sand or other friction material employed, between the wheel and rail, when the wheel is in motion over the rail, if pressure of the wheel on the rail be sufficient to force the said comminuted material into the traction face of the wheel.

While my invention is not restricted to any particular construction of wheel, I have shown, for the sake of illustration, a wheel and rail particularly adapted for the single rail system referred to.

Figure 1, in a vertical sectional view, shows a wheel constructed in accordance with my invention, composed preferably of tough, non-fracturable metal, having comminuted friction material embedded in its traction face. Fig. 2 is a like view of a rail. Fig. 3 is a side elevation of the wheel and rail, showing the application of the friction material to the traction face and the incorporation of the friction material into the traction face of the wheel, while the wheel is in motion over the rail. Fig. 4 is a sectional view, showing a wheel provided with a reservoir of comminuted material. Fig. 5 in front elevation, shows a wheel provided with a reservoir of comminuted material.

The drawings show only a part of a wheel and rail, as these are general, well known constructions. Further, I have not attempted to show the parts of a motor, or engine, or a car, and any form of motive power may be employed.

Referring to Fig. 1, 1 represents a wheel that may be composed of relatively soft, tough, non-fracturable metal, such as open hearth steel, although other materials having like characteristics may be employed for the wheel. The traction face 2 of the wheel is composed of said soft, tough, non-fracturable metal, such as open hearth steel, or some metal having like characteristics, 3 represents comminuted friction material, such as sharp sand, or other metallic composition, having like characteristics, embedded by pressure, or otherwise, into the traction face 2, so that the traction face of the wheel is composed of said tough metal and said comminuted friction material 3.

It will be seen by this construction that I produce a wheel non-fracturable, with face non-wearable and practically non-slippable, by reason of the compound character of the surface, comprising, as stated, a non-fracturable metal and the friction material.

Referring to Fig. 2, 4 represents a rail, into the traction face 5 of which is embedded comminuted friction material 6. If it be desired to construct the rail in this form, the metallic surface of the rail should be of said soft, tough, non-fracturable material, in order to permit the comminuted friction material to be embedded into the surface thereof.

In Fig. 3, I show an ordinary rail 7, the

wheel 1 and a pipe 8, for conducting comminuted friction material, as 9, between the traction face of the rail and the surface of the wheel to embed said friction material into the traction face of the wheel, where that has not been done, or to supply additional material to be embedded into the traction face of the wheel by the pressure of the wheel upon the rail.

While, for many purposes, I prefer the stated arrangement of traction members where the surface of the rail is hard and not provided with friction material, as in Figs. 1 and 3, it may sometimes be desirable to use the stated form of traction members where the surface of the rail is soft and the friction material is embedded therein as in Fig. 2.

In Fig. 4, I have shown a reservoir, 12, carried by the wheel, having a passageway 13, leading to the surface of the wheel. This reservoir is adapted to contain comminuted material that can be supplied to the surface of the rail between the wheel and the rail while the wheel is in motion. A screw-plug 14 is provided to close the opening through which the sand or comminuted material may be supplied to the reservoir. This and many other expedients for supplying comminuted material to the surface of the wheel while the latter is in motion, will suggest themselves to one skilled in the art.

A wheel or traction member made in accordance with my invention is practically non-slippable, non-wearable and non-fracturable.

While I have shown a pipe 8 as a means for supplying friction material to be embedded in the surface of the wheel, I do not wish to be understood as limiting myself to such means, as any other desired means may be employed for storing, carrying and applying comminuted material between the wheel and the rail.

I believe myself to be the first to construct a traction unit for railways wherein the wheel or the traction face of the wheel is composed of soft, non-fracturable metal, in which traction face is embedded friction material so that the traction face of the wheel is composed of relatively soft, tough, non-fracturable metal and friction material, and I desire to claim the same in the broadest possible legal manner.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, what I claim and desire to secure by Letters Patent is:—

1. A wheel composed of soft, tough metal, and hard friction material embedded in the traction face thereof.

2. A wheel comprising a rim of soft, tough metal, and formed with a traction face composed of said metal and hard friction material embedded therein.

3. A wheel, the traction face of which is composed of soft, non-fracturable metal and hard friction material embedded therein.

4. A traction member, the working face of which is composed of soft, non-fracturable metal and hard friction material embedded therein.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EBEN MOODY BOYNTON.

Witnesses:
H. L. Robbins,
William Quinby.