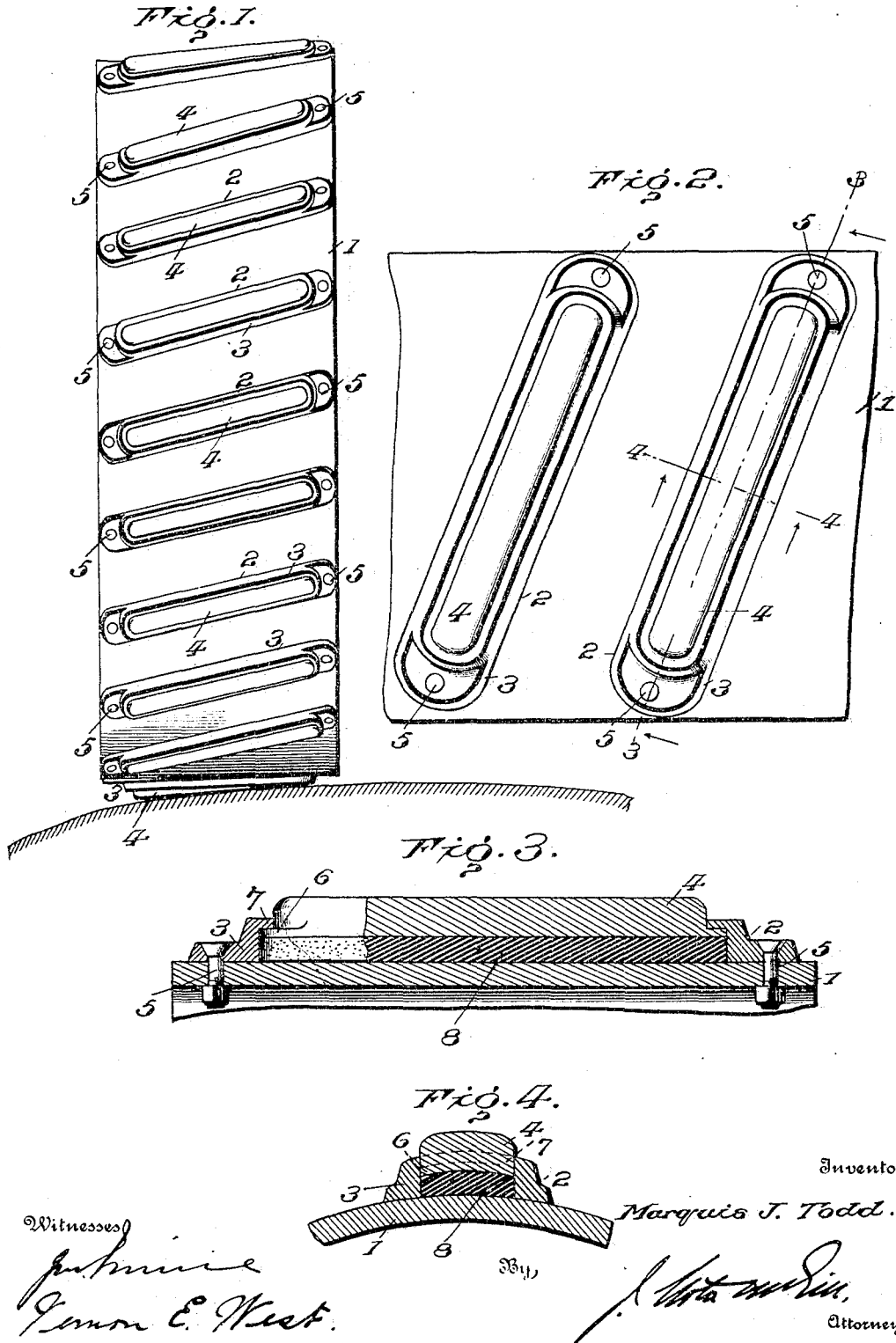


No. 781,572.

PATENTED JAN. 31, 1905.

M. J. TODD.
TRACTION WHEEL.
APPLICATION FILED APR. 21, 1904.



Witnesses

James E. West.

Inventor

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[Signature]

UNITED STATES PATENT OFFICE.

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TRACTION-WHEEL.

SPECIFICATION forming part of Letters Patent No. 781,572, dated January 31, 1905.

Application filed April 21, 1904. Serial No. 204,258.

To all whom it may concern:

Be it known that I, MARQUIS J. TODD, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful

Improvements in Traction-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to provide a lug for a traction-engine wheel which will allow the latter to conform to a crowning road-bed and at the same time insure the necessary bite between the lugs and the road throughout the full width of a wheel.

It is well known that with a broad traction-wheel all the weight of the engine is thrown upon the inner edge, resulting in cutting shoulders, which destroy the road-bed, and allowing only a very small portion of the pulling power of a lug to come in full contact with the road when the latter is crowned. Thus not only is the road injured, but the pulling power is impaired. Heretofore roller-wheels have often been made of less diameter at their inner than at their outer sides for the purpose of building crowning roads. By means of my invention the lugs themselves are so constructed that, the maximum weight being thrown upon their inner ends, a movable portion thereof will recede at such end to an extent sufficient to increase the face of the lug and minimize the cutting effect of the latter, the outer end of the movable portion being forced or held outwardly to secure a firm bite upon the crowning road the full width of the wheel.

A further object is to provide a metallic lug capable of yielding at any point of its length, as upon contact with a stone or the like, and thus relieve, in part at least, the jar on the wheel, and also to entirely incase the cushion of the yielding member, so as to prevent wear thereof, as well as lateral displacement or injury thereto.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a

face view of a wheel equipped with my improved lugs, showing a lug engaging in the crown of a road-bed. Fig. 2 is a face view of a portion of the wheel-rim. Fig. 3 is a transverse section on line 3 3, Fig. 2. Fig. 4 is a longitudinal section on line 4 4, Fig. 2.

Referring to the drawings, 1 designates a traction-wheel, and 2 the lugs secured diagonally on the face of the wheel-rim. Each lug comprises a rigid base member 3 and a protruding yielding member 4. The former, which is secured directly to the wheel-rim by nutted bolts 5, has a longitudinal opening to accommodate the yielding member 4, the outward movement of the latter being limited by shoulders 6 at its ends engaging corresponding shoulders 7 of the base member. Between the yielding member and the face of the wheel-rim is a cushion 8, preferably of solid rubber, entirely filling the space of the central opening of the base member not normally occupied by the yielding member, thus holding the latter projected outwardly with its shoulders 6 against stop-shoulders 7.

The two lug members are of metal, and the two longitudinal sides of the base member are slightly tapered toward the front face of the lug, while the longitudinal sides of the other member are slightly rounded, as are also its ends. The advantage of this construction is that as the several lugs approach the vertical center of the wheel just before taking the greatest weight thereof one of the rounded edges of the yielding member bites against the road-bed with but little recession; but as the wheel moves forward, bringing the lugs around to the exact vertical center under the greatest weight thereof, the yielding member moves inwardly, allowing the bite to be taken up by the approaching tapered side of the non-yielding or base member, the retraction of the yielding member providing a broadened surface on the face of the lug to prevent undue cutting into the surface of the road-bed under the maximum weight of the machine. In the event of one end of the protruding or yielding member contacting with a stone or other obstruction it will partially take up the jar, and thereby minimize the jar

on the wheel, and while one end of such member may be forced inwardly the remaining protruding portion may project sufficiently to secure the necessary initial bite to partly relieve the base member. This is specially true when on a crowned road, as before pointed out and as shown in Fig. 1. In this way I also secure the same advantage as if each wheel of a roller were of varying diameter, since the maximum weight will be thrown upon the inner ends of the lugs and the latter throughout their lengths will readily conform to the road-bed and prevent injury thereto.

It will be noticed that the entire exposed portion of the lug is of metal, that the base member is secured directly to the wheel-rim, and that the cushion for the yielding member being positioned within the base member and between the yielding member and the wheel-rim is protected from wear and lateral displacement thereof upon the recession of the yielding member is rendered impossible. It will also be noted that the bite of the lug is taken up by the rounded edge of the yielding member—that is, by the first acting set of biting edges—and that by the time the bite is had by the second set the approaching tapered face of the base member, the former, will have commenced to recede, being forced into the housing formed by the base member, as the maximum weight is on the tread of the lug, thereby presenting a broad face for contact with the road-bed and preventing any undue cutting of the latter, as occurs where the weight is thrown entirely upon narrow edges.

I claim as my invention—

1. In combination with a traction-wheel having a solid rim, a series of lugs secured on the rim and bearing against the face thereof, each lug having two sets of biting edges, one set being normally projected beyond the plane of the other set, such lug presenting a broad flat contact-surface when under maximum weight, one set of biting edges being then wholly within the plane of the other set.

2. A traction-wheel having a solid rim, a series of lugs extended transversely, and secured to the face, of such rim, each lug having a non-yielding road-engaging base member and a yielding broad-faced member normally projected beyond, and designed to move inwardly within, the plane of the face of the former member, such yielding member being

also capable of so moving inwardly at one end while its other end remains projected to conform to a crown road-bed.

3. A traction-wheel lug comprising a non-yielding road-engaging metallic base member having biting edges, and a yielding metallic broad-faced member intermediate said biting edges and normally projected beyond the face of the base member and capable of being forced within the plane of such face, such yielding member also having biting edges.

4. A traction-wheel having a solid rim, a series of lugs comprising each a broad non-yielding metallic base member having biting edges and secured to the wheel-rim, a second metallic broad-faced member normally projected beyond and designed to move inwardly within the plane of the face of such base member, and a cushion inclosed by said base member located between said wheel-rim and said second member serving to hold the latter in its normal position.

5. In combination with a traction-wheel having a solid rim, a series of lugs secured to the wheel-rim, each lug comprising a non-yielding road-engaging metallic base member having biting edges and a central opening intermediate said edges, a metallic member fitted in said opening and normally projected beyond and capable of moving inwardly within the plane of the face of said base member, a rubber cushion inclosed by said base member and fitted between the wheel-rim and the inner face of the second member, and means for limiting the outward movement of such second member.

6. A traction-wheel lug comprising an approximately oblong road-engaging metallic base member having a central opening and tapered sides, a second approximately oblong metallic member fitted in said opening, and a rubber cushion inclosed by said base member in rear of said second member, said second member being capable of moving inwardly within the plane of the face of such base member.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MARQUIS J. TODD.

Witnesses:

E. A. HOWARD,
H. S. CUNNINGHAM.