

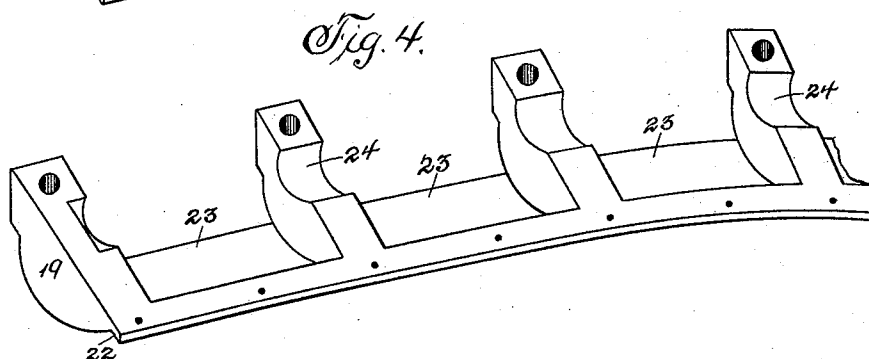
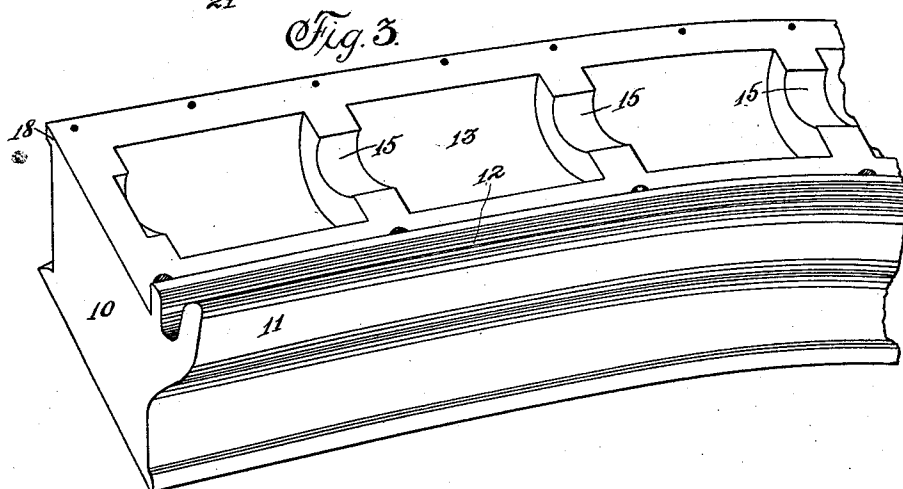
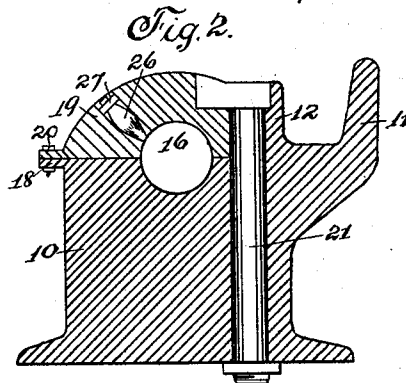
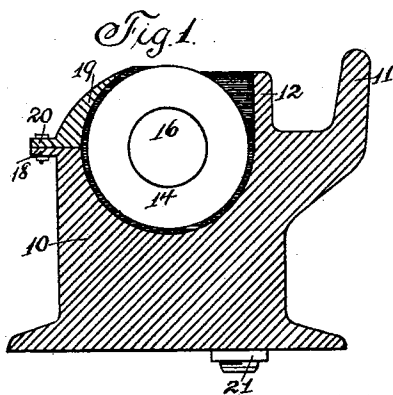
(No Model.)

2 Sheets—Sheet 1.

J. G. JORDAN.
RAILWAY RAIL CURVE.

No. 477,901.

Patented June 28, 1892.



Witnesses
T. C. Tate.
G. R. Green

James Grant Jordan,
by Bulkley & Sweet,
his Attys

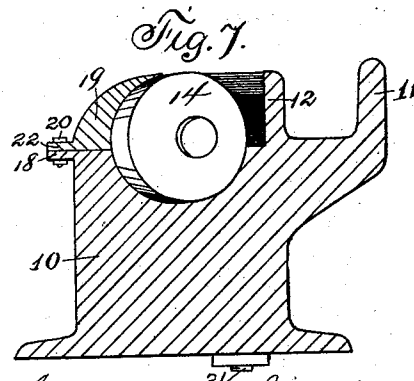
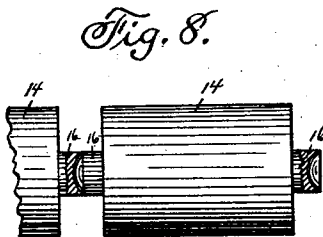
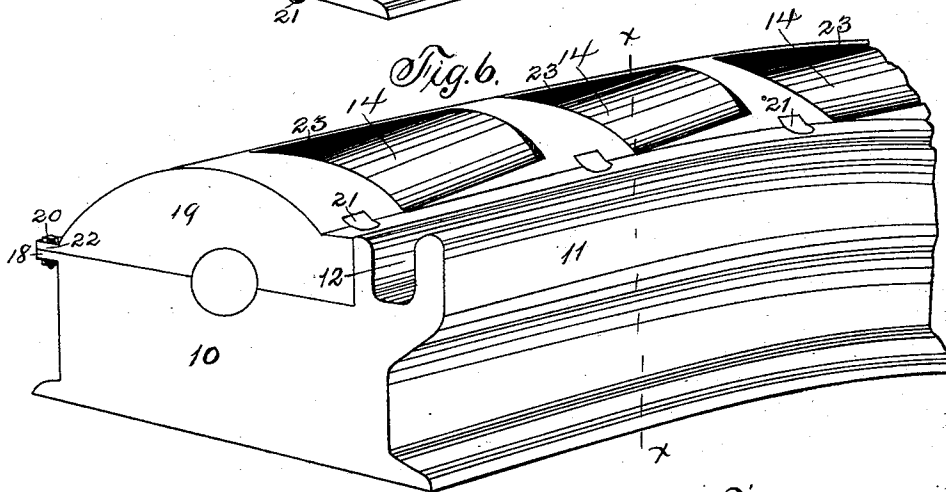
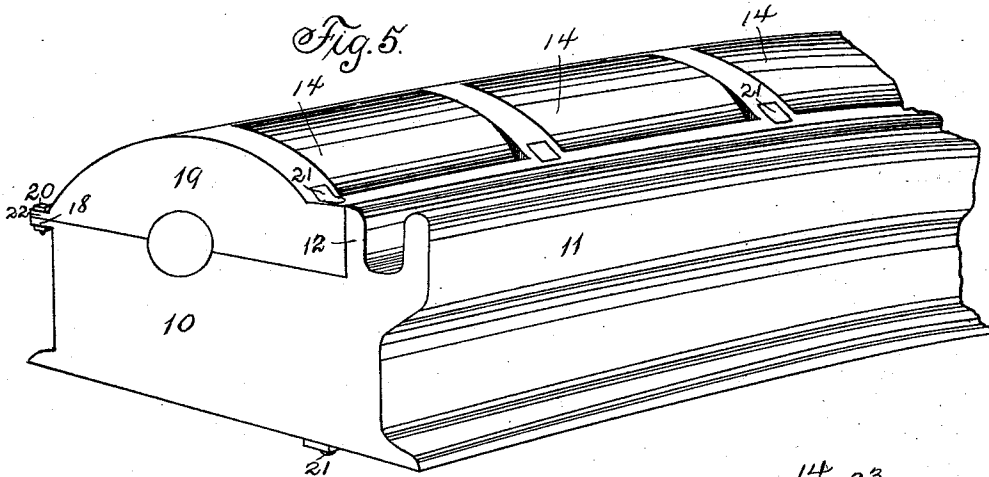
(No Model.)

2 Sheets—Sheet 2.

J. G. JORDAN.
RAILWAY RAIL CURVE.

No. 477,901.

Patented June 28, 1892.



Witnesses
T. O. Tate.
G. R. Green.

James Grant Jordan,
by Bulkley & Sweet,
his Attys

UNITED STATES PATENT OFFICE.

JAMES GRANT JORDAN, OF DES MOINES, IOWA.

RAILWAY-RAIL CURVE.

SPECIFICATION forming part of Letters Patent No. 477,901, dated June 28, 1892.

Application filed July 22, 1891. Serial No. 400,379. (No model.)

To all whom it may concern:

Be it known that I, JAMES GRANT JORDAN, a citizen of the United States of America, and residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Railway-Curve Rail, of which the following is a specification.

The object of my invention is to be found in the provision of means for overcoming the friction between the flange of the car-wheel and the outer rail of the curve occasioned by the centrifugal tendency of said cars.

My invention consists in the combination, with a railway-curve rail, of rollers arranged longitudinally of and journaled in the tread of said rail, the path of rotation of said rollers being in a direction transversely of the said rail.

My invention consists, further, in the combination, with a curved rail and elongated rollers journaled in the tread of said rail, the path of rotation of which rollers is transversely of said rail; of a top-portion or keeper detachably connected to the rail, by means of which the said rollers may be securely held in position.

My invention consists, further, in the construction of a curve-rail horizontally separated into two sections and adapted to be joined and held together, elongated rollers inserted in the lower section and projecting flush with the top of the upper section, said rollers being disposed longitudinally relatively to the rail, and a guard-rail formed integral with the said lower section.

My invention consists, further, in the combination, with a curve-rail horizontally separated into two sections adapted to be joined and held together, of rollers journaled in the lower section longitudinally parallel therewith, said rollers being held in place by the upper rail-section and projecting upward through longitudinal openings in said latter section.

My invention consists, further, in certain details of construction and combination of parts hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a vertical transverse sectional view of the complete rail at the side of one of the rollers. Fig. 2 is a vertical transverse

sectional view on the same line as Fig. 1, looking in the opposite direction. Fig. 3 is a perspective of the top of the lower section of the rail. Fig. 4 is a perspective view of the bottom of the upper rail-section. Fig. 5 is a perspective view of a complete portion of the rail. Fig. 6 is a perspective view showing the rollers disposed diagonally in the rail. Fig. 7 is a vertical transverse sectional view on the indicated line *xx* of Fig. 6. Fig. 8 is a side view, partly in section, showing the journals of the anti-friction rollers in their relative positions.

In the construction of the device as shown the numeral 10 designates the lower section of the rail, which is provided with flanges of common form at its base. A guard-rail 11 is formed integral with the section 10 of the rail on the inner curved side thereof and projects a little above the top of the completed rail. A face-rail 12 is formed integral with that side of the section 10 adjacent to the guard-rail 11 and projects above the top of said section nearly to the plane of the top of the completed rail. Annular recesses 13 are formed in the section 10, in which the rollers 14 are inserted and revolve. Journal-bearings 15 are formed at either end of the recesses 13, in which the journals 16 of the rollers 14 are supported. A flange 18 is formed integral with and projects horizontally outwardly from the section 10 on the outer curved side of the latter. An upper section or keeper 19 is secured to the lower section 10 by means of bolts 20 and 21. A flange 22 is formed integral with and projects horizontally outwardly from the section 19 on the outer curved side thereof, which flange coincides with the flange 18 and is secured thereto by means of the bolts 20. The bolts 21 are passed through vertical perforations in both sections 10 and 19, the heads of said bolts being made to conform in shape with the tread of the section 19 and being placed flush therewith, so that the car-wheels may not be impeded. Annular recesses 23 are formed in the section 19, coinciding with the recesses 13 within the section 10, and journal-bearings 24 are formed at either end of the recesses 23, which journal-bearings form the upper portion of the boxes within which the journals 16 are confined and rotated. Slots 25 are formed in the section 19, leading from the re-

cesses 23 to the face-rail 12, in order that a portion of the surface of the rollers 14 may be exposed to the tread of the car-wheels. It will be seen that a solid portion of the section 19 is disposed above the journals 16, which solid portion, together with the rollers, presents a continuous and unbroken surface to the tread of the car-wheels. Oil-cups 26, shaped like a cone, are formed in the section 19, the lower ends of which oil-cups open just above and in the rear of the line of demarkation between the meeting journals 16. These oil-cups are closed by means of caps 27, of common form. The adjacent ends of the meeting journals 16 are respectively concave and convex in form, one fitting within the other, thus establishing a closer intimacy between the rollers and providing means for retaining the lubricant for a longer time, feeding the same more slowly to the bearings, and materially strengthening the construction.

Heretofore it has been found impossible to so construct curve rails as to overcome the tendency of the advancing cars to crowd the outer rail of the track by reason of the centrifugal force, thereby creating friction between the flanges of the outer car-wheels and the outer track-rail and also between the flanges of the inner wheels and the guard-rail on the inner track-rail, by reason of this crowding and consequent friction abnormally wearing the tread of the rail and the flanges and treads of the car-wheels causing the trucks of the car "to get out of square," and, in a case where the trucks support and carry power-transmitting gearing, displacing the alignment of said gearing. My invention overcomes this crowding of the outer rail and consequent friction by the disposition of the rollers adapted to rotate transversely of the rail in the path of the advancing car-wheels, so that when the treads of the wheels encounter the rollers in the advancement of the car around a curve the car will be moved laterally relatively to the curve and toward the inner rail, providing a constant separation between the outer rail and the guard-rail and the flanges of the wheels. By this means the wheels are caused to travel smoothly around the curve, the jerking intermittent motion resulting from the old construction of the rails being entirely overcome.

Heretofore it has been found necessary to apply a lubricant to those portions of the rails engaged by the wheel-flanges to reduce the friction resulting from such contact, thus rendering necessary the expenditure of considerable labor and a great waste of lubricating material. In the practical use of my invention this waste of lubricating material is avoided and less labor is required in the care of the rail, since the roller-lubricant need not be applied so frequently nor in such large quantities as formerly.

By the use of my improved device the ordinary, constant, and usual flattening and

brooming of the inner edge of the inner curved rail is overcome, thus lengthening the life of the rail.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. In a railway-curve rail, the combination, with the tread of the rail, of rollers arranged longitudinally of and journaled in said rail, the rotary path of which rollers is in a transverse plane of the rail.

2. In a railway-curve rail, the combination, with a rail horizontally divided into two sections, of a guard-rail formed integrally with one of said sections and elongated rollers journaled between said sections and projecting through slots in the top section longitudinally of said rail.

3. The combination, in a railway-curve rail, of rollers journaled beneath the tread of said rail, the adjacent meeting ends of the journals of said rollers being respectively convex and concave, one fitting within the other, and means for holding said rollers in position, as set forth.

4. The combination, with a railway-curve rail horizontally divided into two sections and means for connecting the same, of rollers journaled between said sections and extending upwardly through slots in the upper section, their peripheries being in the plane of the tread of the rail, said rollers rotating on a fixed axis in a direction transversely of said rail, as set forth.

5. The combination, in a railway-curve rail, of a rail having rollers arranged longitudinally of and journaled in the tread thereof and a face-rail disposed between said rollers and the path of advancement of the wheel-flanges, whereby said rollers are guarded against injury by said flanges.

6. The combination, in a railway-curve rail, of a rail formed in two sections, a guard-rail formed integral with one of said sections, rollers arranged longitudinally of and journaled between said sections and projecting upward flush with the top of the upper section, a face-rail formed integrally with one section and projecting upwardly between the guard-rail and the rollers, and means for joining the said sections.

7. The combination, in a railway-curve rail, of a rail formed in two sections, a guard-rail formed integral with one of said sections, rollers arranged longitudinally of and journaled between said sections, a face-rail formed integral with one of said sections, and oil-cups formed in the upper one of said rail-sections, which oil-cups lead from the exterior of the rail to the journal-bearings of said rollers.

JAMES GRANT JORDAN.

Witnesses:

FRANK TATE,
S. C. SWEET.