No. 735,743. PATENTED AUG. 11, 1903.

H. W. FOWLER.

SIDE BEARING FOR RAILWAY CAR TRUCKS.

APPLICATION FILED JUNE 15, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

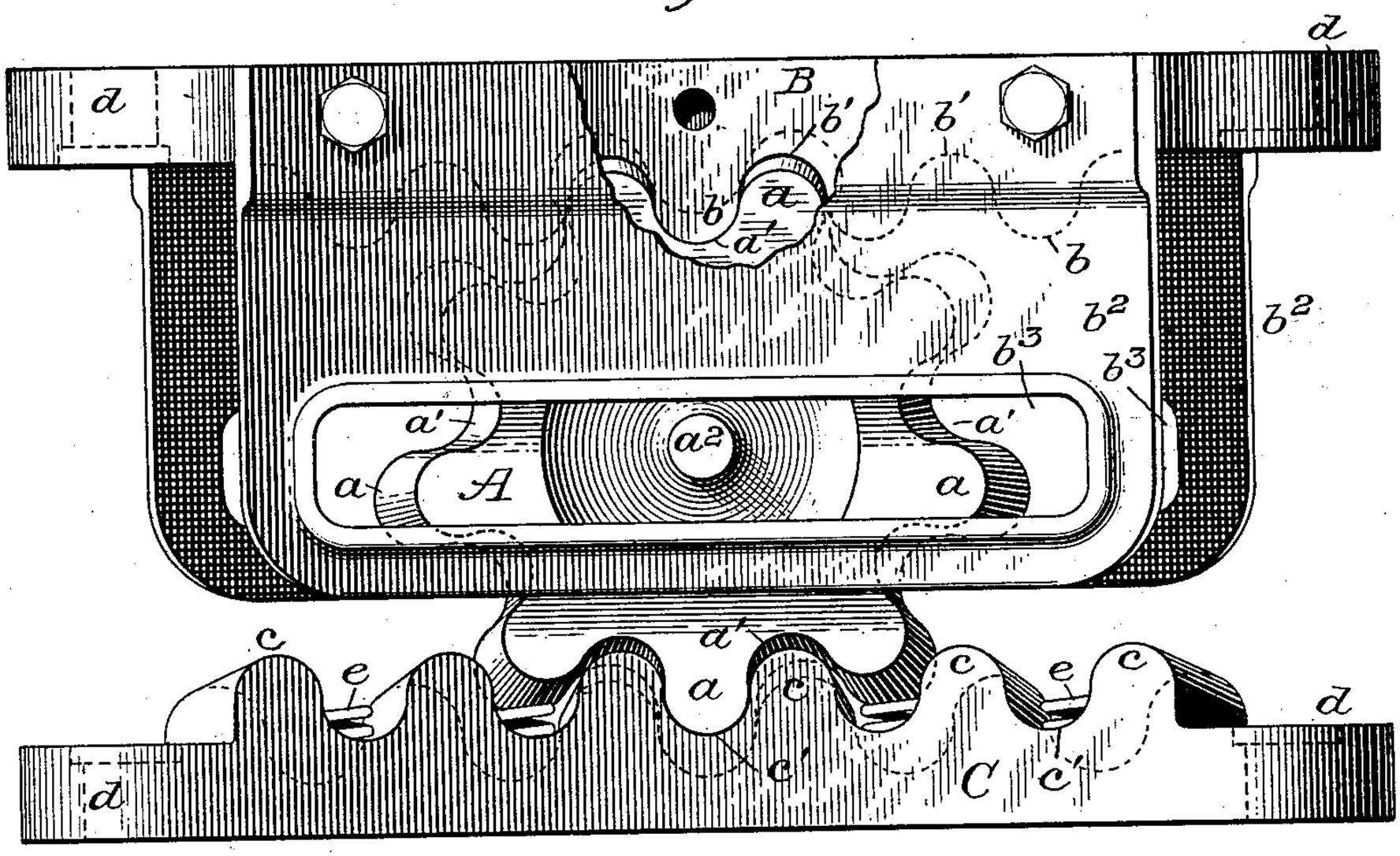
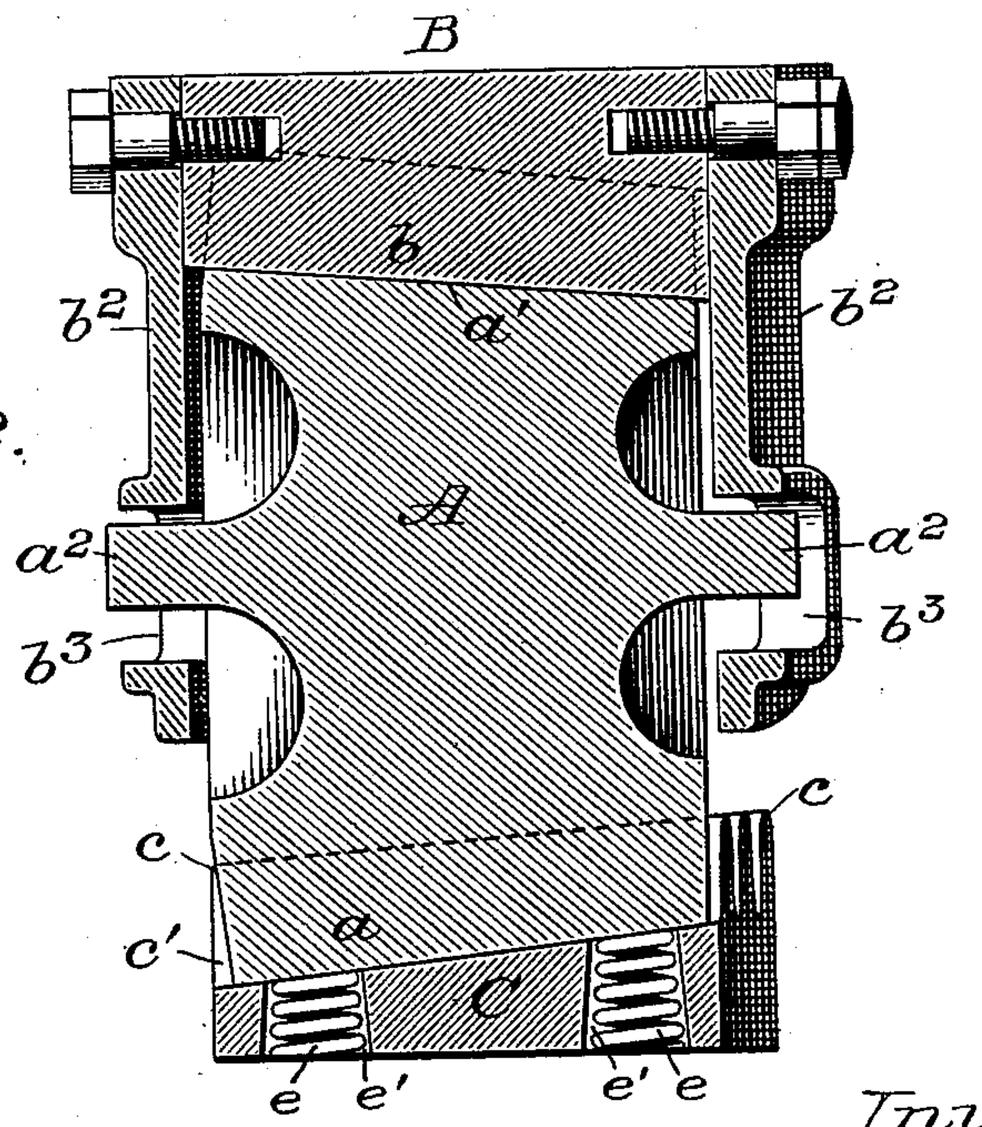



Fig. 2.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

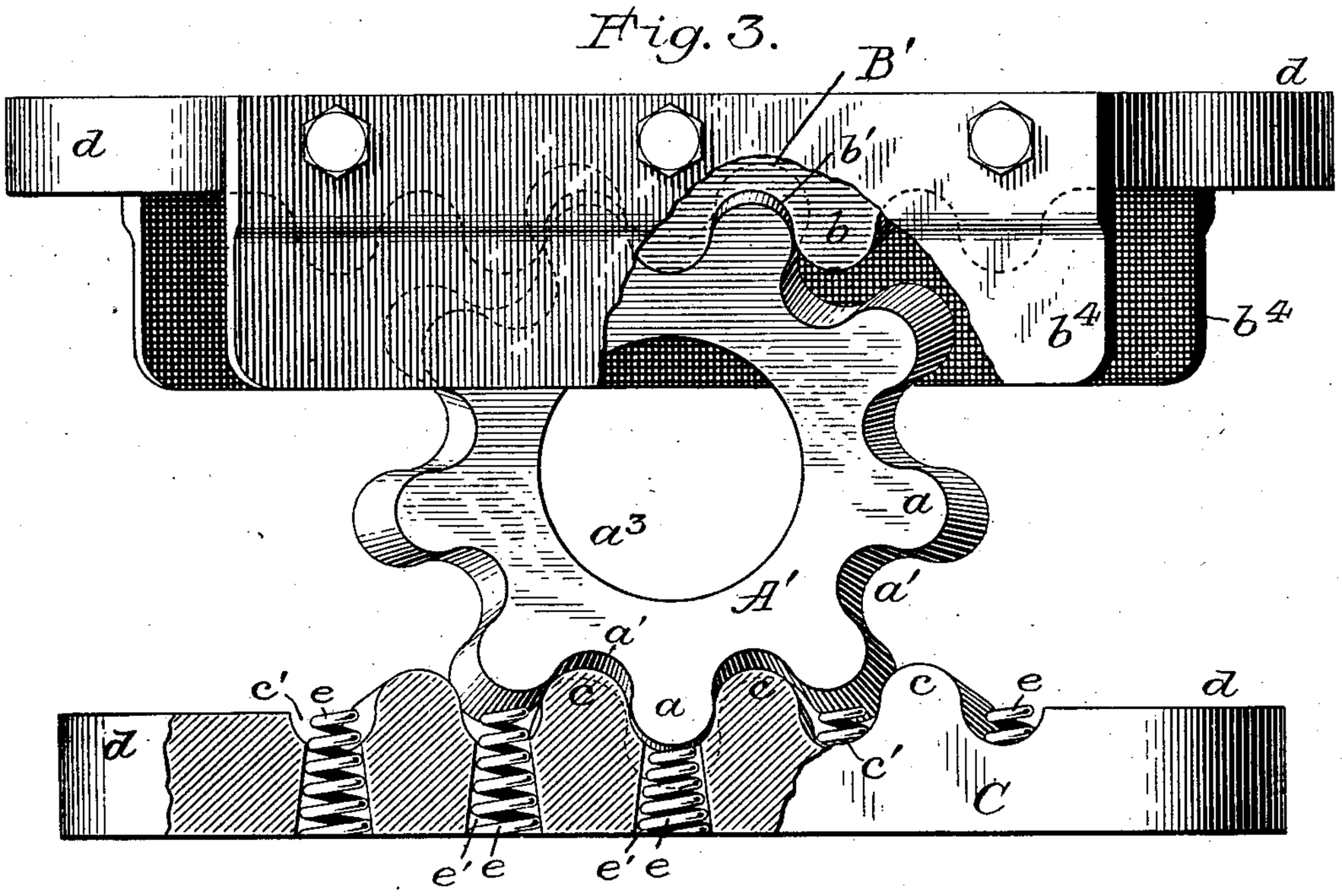
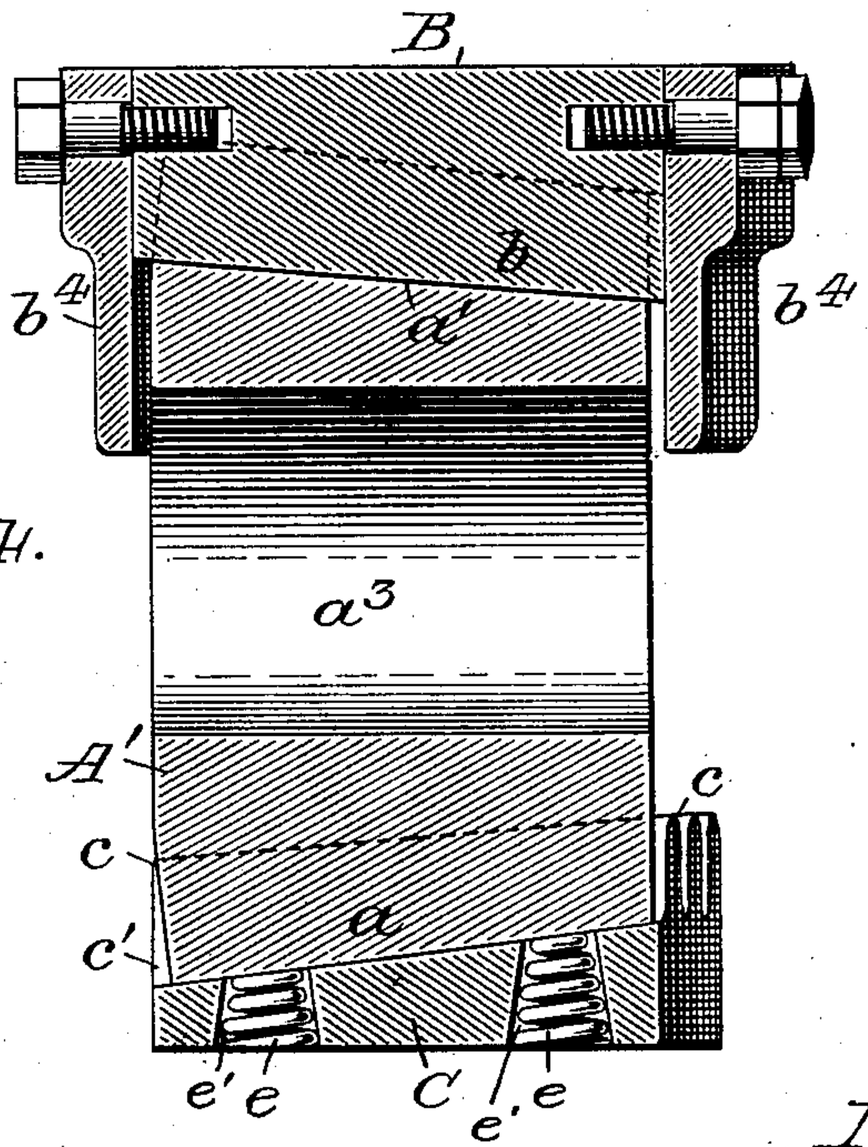



Fig. 4.

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# UNITED STATES PATENT OFFICE.

HERVEY W. FOWLER, OF CHICAGO, ILLINOIS.

## SIDE BEARING FOR RAILWAY-CAR TRUCKS.

SPECIFICATION forming part of Letters Patent No. 735,743, dated August 11, 1903.

Application filed June 15, 1903. Serial No. 161,405. (No model.)

*To all whom it may concern:*

Be it known that I, HERVEY W. FOWLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Side Bearings for Railway-Car Trucks, of which the following is a specification.

My invention has for its object the production of an improved antifriction side bearing for railway-car trucks, and relates to that class of side-bearings in which an antifriction-roller is interposed between an upper and a lower bearing-plate, secured, respectively, to the transom and bolster of the truck. In prior devices of this character the roller and bearing-plates have been provided with substantially plane or smooth contact-surfaces, and although in many instances means have been provided for insuring a proper rotation of the roller when the relative positions of the transom and bolster of the truck are varied or changed, as when rounding a curve, such means have not prevented the roller from becoming flattened and worn at those points which are most constantly in contact with the bearing-plates, the flattening and wearing tendency being due to the constant jar and oscillations of the car-body. When flattened, the roller must perform the task of raising a portion of the weight of the car-body at each variation in the line of draft, which necessitates an increase in the power required to pull the car around a curve, besides increasing the grinding action between the flanges of the wheels and the rail, such grinding action being proportionate to the resistance offered to the swinging movements of the truck. To overcome the tendency of the roller to become flattened from the hammering action of its bearing-plates, I provide the contact or bearing surfaces of the roller and its bearing-plates with transverse corrugations, the corrugations of the roller meshing with the corrugations of the bearing-plates, thus securing a very much larger surface contact between the roller and bearing-plates than is possible with smooth or plane bearing-surfaces, besides preventing the metal of the roller from spreading in peripheral lines. For maintaining the roller in proper position relatively to the bearing-plates when the latter are moved apart by the oscillating movements of the car-body and for preventing damage to the roller, which would ordinarily result from such movements, I have devised other features of invention, which will be hereinafter described.

Referring to the drawings furnished and forming a part of this specification, Figure 1 is an elevation of a device embodying my invention, said device being viewed from the side which faces the king-bolt of the car-truck to which it is to be applied, a portion of one of the side plates being broken away for disclosing the corrugated surface of the upper bearing-plate. Fig. 2 is a central vertical section of said device. Fig. 3 is a view similar to that of Fig. 1, showing a slightly-modified form of my invention; and Fig. 4 is a central vertical section of the device illustrated in Fig. 3.

Referring to Figs. 1 and 2, A represents an antifriction-roller which is preferably made conical, so that it will travel in the arc of a circle of which the king-bolt of the truck is the center. The bearing-surface of said roller is transversely corrugated to form alternate projections $a$ and depressions $a'$, which give to the roller the appearance of an ordinary bevel-pinion, the only difference being that said projections and depressions are formed on true semicircular lines projected above and below the pitch-line.

The roller A is interposed between two bearing-plates B and C, the former being designed to be secured to the under side of the transom and the latter being designed to be secured to the upper surface of the bolster of a car-truck, both of said plates being provided with suitable perforated lugs $d$ for receiving the attaching bolts. The bearing-surfaces of said plates are corrugated to correspond with the corrugations on the bearing-surface of the roller A, the projections $b$ and depressions $b'$, formed by the corrugations on plate B, and the similar projections $c$ and depressions $c'$ on the plate C being shaped to closely mesh with the corrugations on said roller. If the corrugations be properly formed, the actual area of contact of the roller with each of the bearing-plates will equal the area of one of the projecting corrugations, which in the rollers designed by

me is from three to six square inches, while with the ordinary smooth-faced roller the area of contact will be represented by a single line extending across the face of the roller.

In addition to the increased surface contact secured by means of the corrugations the metal of the roller is prevented from spreading in peripheral lines by the corrugations at each side of the actual points of contact between the roller and bearing-plates, said roller being thereby prevented from flattening to any appreciable extent.

The plates B and C should be mounted on the transom and bolster of the truck, so that there will be a play of about one-fourth to three-eighths of an inch between the roller and the surfaces of said plates, this being desirable in order that there may be as little resistance as possible to the swing of the truck. This play between the roller and bearing-plates would ordinarily result in the roller being hammered by the constant jar and oscillations of the car-body, and to prevent this I provide springs *e*, two of which are mounted in each of the lower corrugations or depressions *c'* of the plate C, said springs acting as buffers and under ordinary conditions serve to maintain the roller in constant contact with the upper bearing-plate. These springs may be made in any suitable form and may be mounted in the plate C in any manner best suited to the form adopted. As shown, the springs *e* are spiral in form and occupy holes *e'* in the plate C, the springs and holes being made slightly tapering from the bottom upward to prevent the springs from being jolted out of their seats.

The upper bearing-plate B is provided with side plates or flanges $b^2$, which prevent the endwise displacement of the roller and also serve as the means for coupling the roller to said plate. The roller A is provided with trunnions $a^2\ a^2$, which travel in slots $b^3\ b^3$ in the flanges or plates $b^2\ b^2$, said slots being sufficiently wide to permit the upper bearing-plate to be raised a limited distance without lifting the roller A.

The springs *e* are designed to lift the roller a distance less than would be required to lift its corrugated surface out of engagement with the corrugations on the bearing-surface of the plate C, and as the slots $b^3\ b^3$ in the flanges $b^2\ b^2$ permit the same limited movement of the upper bearing-plate B with respect to the roller A a very wide range of movement of the two plates is provided for without liability of the roller becoming disengaged from either of said plates.

In Figs. 3 and 4 I show an organization similar to that illustrated in Figs. 1 and 2, except that the roller A' is not directly coupled to the upper bearing-plate B', the latter being simply provided with shroudings or side plates $b^4\ b^4$ for confining the roller against endwise displacement. This admits of the roller being cored out, as at $a^3$, to lessen its weight, and if the corrugations on the bearing-surfaces of the roller and bearing-plates be made a proper depth a sufficient range of movement between said plates will be provided for to meet all practical requirements.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a side bearing for railway-car trucks, the combination of an antifriction-roller having its bearing-surface transversely corrugated, and upper and lower bearing-plates having their bearing-surfaces corrugated to mesh with the corrugations on said roller, substantially as described.

2. In a side bearing for railway-car trucks, the combination of an antifriction-roller having its bearing-surface transversely corrugated, upper and lower bearing-plates having their bearing-surfaces corrugated to mesh with the corrugations on said roller, and springs mounted on one of said plates and serving as cushions for the roller, substantially as described.

3. In a side bearing for railway-car trucks, the combination of an antifriction-roller having its bearing-surface transversely corrugated, upper and lower bearing-plates having their bearing-surfaces corrugated to mesh with the corrugations of said roller, and springs mounted in the lower corrugations of the lower bearing-plate, substantially as and for the purpose described.

4. In a side bearing for railway-car trucks, the combination of an antifriction-roller having its bearing-surface transversely corrugated, upper and lower bearing-plates having their bearing-surfaces corrugated to mesh with the corrugations of said roller, and means for coupling the roller to the upper bearing-plate and permitting a limited movement of said plate toward and from said roller, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HERVEY W. FOWLER.

Witnesses:
WM. H. FOWLER,
CHARLES E. COYKENDALL.