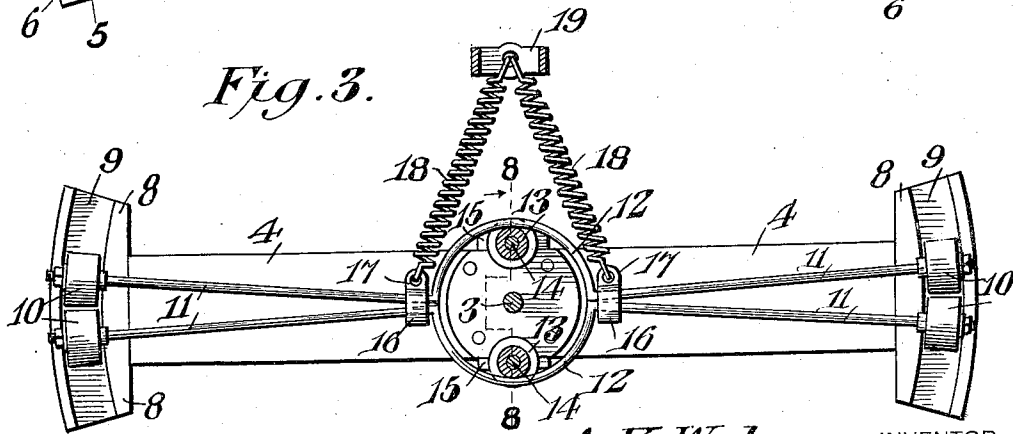
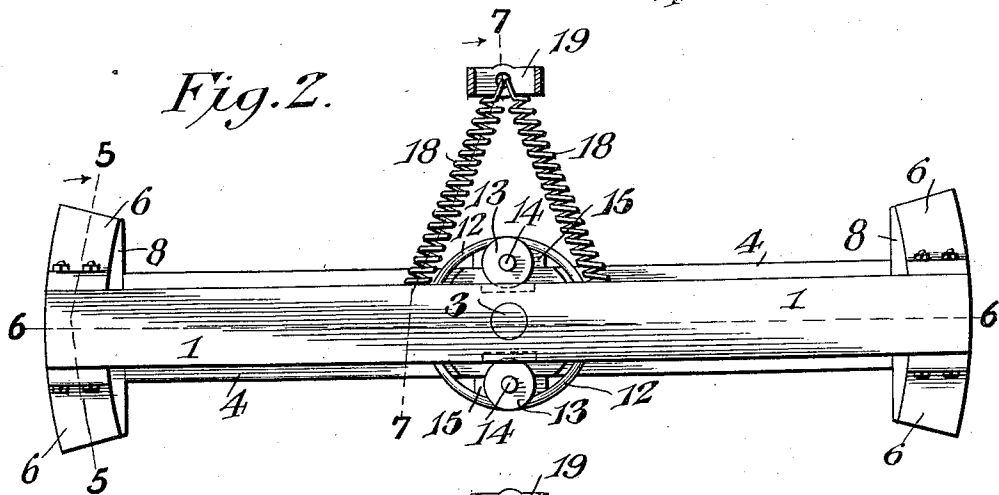
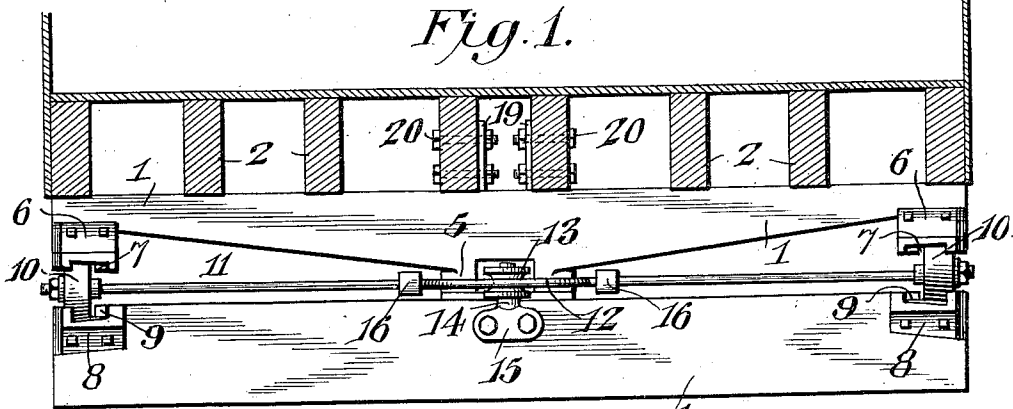


1,031,761.

Patented July 9, 1912.

2 SHEETS-SHEET 1.



WITNESSES

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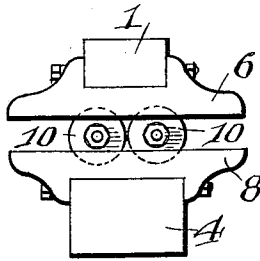
ATTORNEY

1,031,761.

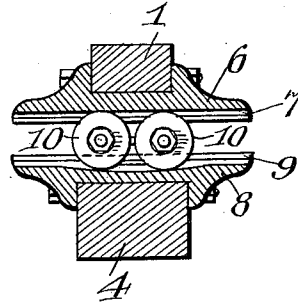
Patented July 9, 1912.

2 SHEETS-SHEET 2.

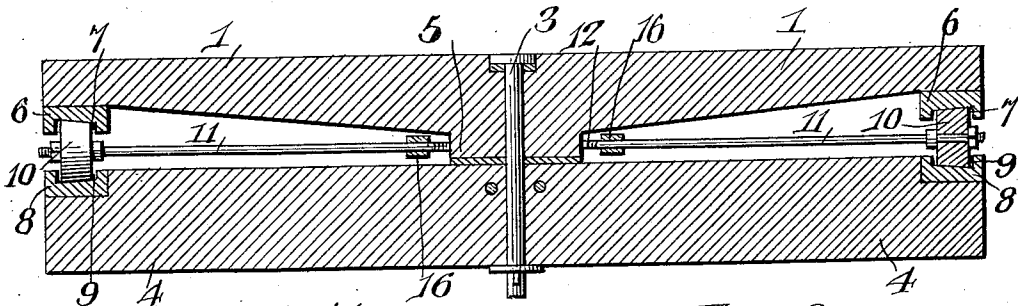
*Fig. 4.*



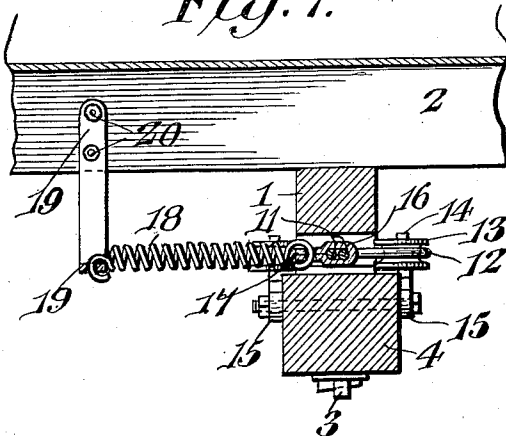
*Fig. 5.*



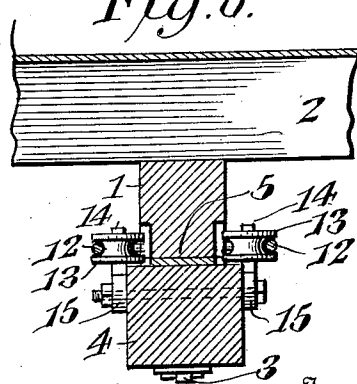
*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

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## SIDE BEARING.

1,031,761.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed December 30, 1911. Serial No. 668,733.

*To all whom it may concern:*

Be it known that I, ABNER K. WOLFE, a citizen of the United States, residing at Atchison, in the county of Atchison and State of Kansas, have invented a new and useful Side Bearing, of which the following is a specification.

This invention relates to railway trucks, especially that kind in which the weight is borne primarily by side bearings instead of by the center plate.

The invention has for its object the construction of improved side bearings and the combination therewith of anti-friction members to permit the truck to swing easily upon its pivot in rounding curves and to facilitate the return of the truck to its normal position after the passing of the curve.

Having these objects in view, the invention resides in the arrangement and construction of parts, particularly set out in the appended claims, and which will be described in detail in connection with the accompanying drawings, wherein:

Figure 1 is a front elevation of the bolster members with the car sills on the floor in vertical section. Fig. 2 is a top plan view of the bolsters. Fig. 3 is a similar view with the upper bolster removed. Fig. 4 is an end view of the bolsters. Fig. 5 is a vertical section on the line 5—5 of Fig. 2. Fig. 6 is a longitudinal vertical section through the bolster on the line 6—6 of Fig. 2. Fig. 7 is a vertical section on the line 7—7 of Fig. 2. Fig. 8 is a similar section on the line 8—8 of Fig. 3.

In the drawings 1 designates an upper body bolster fixed beneath the car sills 2 and having mounted therein a center pin 3, while 4 designates the lower truck bolster pivotally mounted beneath the bolster 1 upon the center pin 3 in the usual manner. The upper bolster is provided about the center pin 3 with the center plate 5, the under face of which normally occupies a position in frictional contact with the upper face of the lower bolster.

Upon the outer ends of the body bolster are bolted or otherwise mounted upper bearing plates 6, having in their lower faces an arcuate groove 7 inscribed about the center pin, which groove is preferably of the same depth throughout with its bearing face lying in a horizontal plane. Upon the outer ends

of the truck bolster are similarly mounted lower bearing plates 8, having in their upper face an arcuate groove 9, oppositely disposed with reference to the groove 7 in the upper plate. The groove 9 has a greater depth in the center with inclined approaches, having a concave contour viewed longitudinally as shown in Fig. 5. The opposed grooves 7 and 9 form together a run-way for anti-friction members, shown in the present case as rolls 10, each having the form of a truncated cone whose vertex is in the center pin 3. These rolls are mounted in pairs, one at each end of the bolster. The members of each pair are arranged closely adjacent to each other and rotatably mounted upon the outer ends of the arms 11 of a spider-like frame, having a circular body 12 mounted concentric with the center pin 3 for rotation thereabout upon guide rolls 13, which guide rolls are mounted upon studs 14 carried by plates 15; bolted upon the two sides of the truck bolster opposite the center pin. The frame is advantageously formed of two rods having their medial portion off-set in the form of a semi-circle, and the two rods join together immediately adjacent the off-set portion by collars 16, whereby the curved off-set portions form the circular body 12 and the straight portions of the rods form the arms 11, extending from said central body in a radial direction, as shown in Fig. 3.

The collars 16 are provided with ears 17, which ears form an anchorage for helical springs 18, the opposite ends of which are attached to a bracket 19, secured by the bolts 20 to the car sill or other suitable fixed support.

It will be observed that under normal circumstances when the two bolsters are in parallel relation, the weight of the car is supported by the rolls and by the central bearing plate, as shown in Fig. 1. Under such circumstances the rolls 10 occupy the position shown in Figs. 4 and 5 in the deepest portion of the run-way of the bearing plates, but when a curve is reached and the truck bolster swings to a position at an angle to the body bolster, the rolls 10 will travel up the incline or bearing face of the lower plate, thus lifting the body bolster with its center plate out of contact with the truck bolster, bringing the entire load upon the

rolls and dispensing with the frictional contact within the center plate and the truck bolster.

It is important that as soon as the car leaves a curve the truck shall return to its normal position, and this return is facilitated by the longitudinal contour of the lower groove, the force of gravity causing the rolls to tend to resume their normal position in the deepest portion of the groove, thereby bringing the truck bolster back into parallelism with the body bolster. If the tendency of the truck bolster to resume its normal position be increased beyond a certain point by emphasizing the curvature of the groove, there will be a corresponding resistance to the swinging of the truck bolster upon reaching a curve, and, therefore, instead of making the curvature sufficient to enable gravity alone to be depended upon to bring the bolster back into parallelism under all circumstances, it is found to be advantageous to also provide as supplemental means for returning the parts the equalizer springs 18, which coöperate with the inclined groove to effect this result. Either the inclined grooves or the equalizer springs may be employed one without the other, but by combining the two in their action upon the rolls, a degree of adjustment is attained which would otherwise be impossible, and the proper relation between the resistance to turning and the tendency to return.

What is claimed is:—

1. In a side bearing, the combination, with the body bolster, a truck bolster, and a center pin, of upper and lower bearing plates carried respectively by the body bolster and the truck bolster and having runways formed in their opposing faces, a spider frame pivotally mounted concentric with the center pin and having arms extending to the plates, rolls journaled on the outer ends of the arms between the bearing plates, and equalizer springs connected with the arms and with a fixed support to yieldingly return the arms to a position in parallelism with the fixed bolster.

2. In a side bearing, the combination, with the body bolster, a truck bolster, and a center pin, of upper and lower bearing plates carried respectively by the body bolster and the truck bolster and having runways formed in their opposing faces, the run-way in one of the plates having a curved contour viewed longitudinally, a frame pivotally mounted concentric with but independent of the center pin and having arms extending radially from such pivotal center to the bearing plates, and rolls journaled on the outer ends of the arms within the runways, and equalizer springs connected with the arms on each side of the center and with a fixed support.

3. In a side bearing, a body bolster, a

truck bolster, bearing plates carried respectively by the body bolster and truck bolster and having runways formed in their opposite faces, the run ways on the plates carried by the truck bolster each having a concaved contour viewed longitudinally, grooved guide rolls on opposite sides of the bolsters, a spider frame having a circular body mounted upon and supported by the grooved rolls in surrounding relation thereto, said spider having arms extending radially from the circular body and upon diverging lines to and between the bearing plates, and rolls within the run ways directly journaled on the outer ends of the arms.

4. In a side bearing, the combination, with the body bolster, a truck bolster, and a center pin, of upper and lower bearing plates carried respectively by the body bolster and the truck bolster and having runways formed in their opposing faces, the run-way of the lower bearing plate having a concave contour viewed longitudinally, grooved guide rolls mounted upon opposite sides of the bolsters, a spider frame having a circular body mounted upon the grooved rolls concentric with the center pin and having arms extending radially from such pivotal center and upon diverging lines to the plates in a horizontal plane between the bolsters and plates, rolls journaled on the outer ends of the arms within the run-ways, said rolls formed as truncated cones having their vertices at the pivotal center of the frame, and equalizer springs connecting the arms on each side of the circular body with a fixed support.

5. A sided bearing for a vehicle provided with a body bolster and a truck bolster, comprising plates adapted to be carried respectively by the body bolster and the truck bolster and provided on their opposing faces with grooves forming runways, a spider frame having a central circular portion, and radial arms extending therefrom outwardly on opposite sides in divergent lines, rolls mounted directly on the outer ends of the arms and adapted to travel along the runways, and grooved guide rolls adapted to be mounted on opposite sides of the bolster to engage the central circular portion of and support the spider frame.

6. In a side bearing, a body bolster, a truck bolster, bearing plates carried respectively by the body bolster and truck bolster at their outer ends and having runways formed in their opposing faces, the runway of the lower bearing plate carried by the truck bolster having a concaved contour viewed longitudinally and the runway of each upper bearing plate being plane, a spider frame having a central circular body, grooved guide rolls within the circular body and engaging and supporting the same, said

spider frame having arms extending radi-  
ally from the circular body upon divergent  
lines to and between the bearing plates, and  
rolls journaled directly on the outer ends of  
5 the arms and located within the runways,  
said rolls being formed as truncated cones  
having their vertices at the pivotal center of  
the circular body.

In testimony, that I claim the foregoing  
as my own, I have hereto affixed my signa- 10  
ture in the presence of two witnesses.

ABNER K. WOLFE.

Witnesses:

HOMER D. KIRK,  
CLEMENT DAVIS.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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