No. 716,294.

Patented Dec. 16, 1902.

C. S. SHALLENBERGER.

FLEXIBLE CAR TRUCK.

(Application filed July 14, 1902.)

(No Model.)

3 Sheets—Sheet 1.

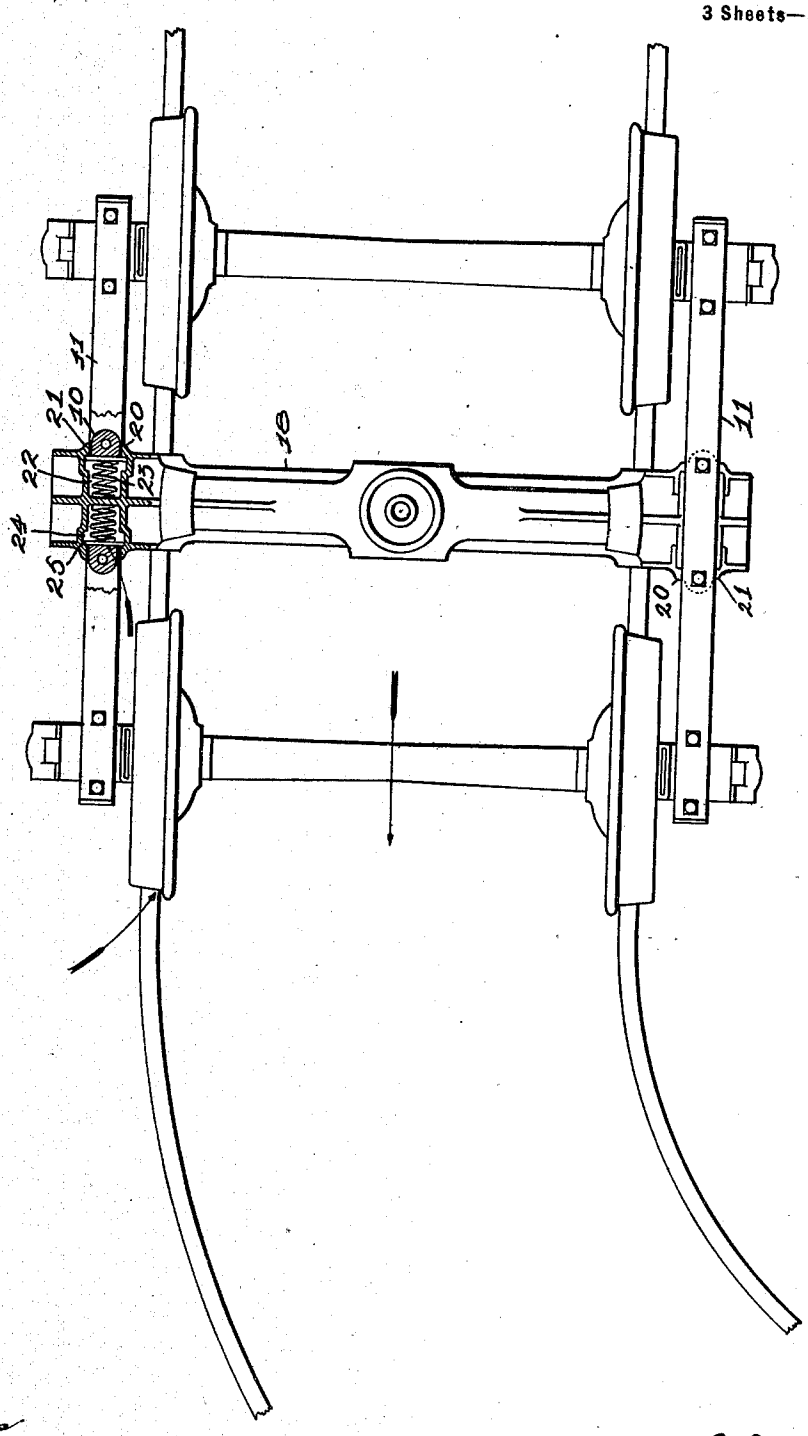


Fig. 1.

Witnesses
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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

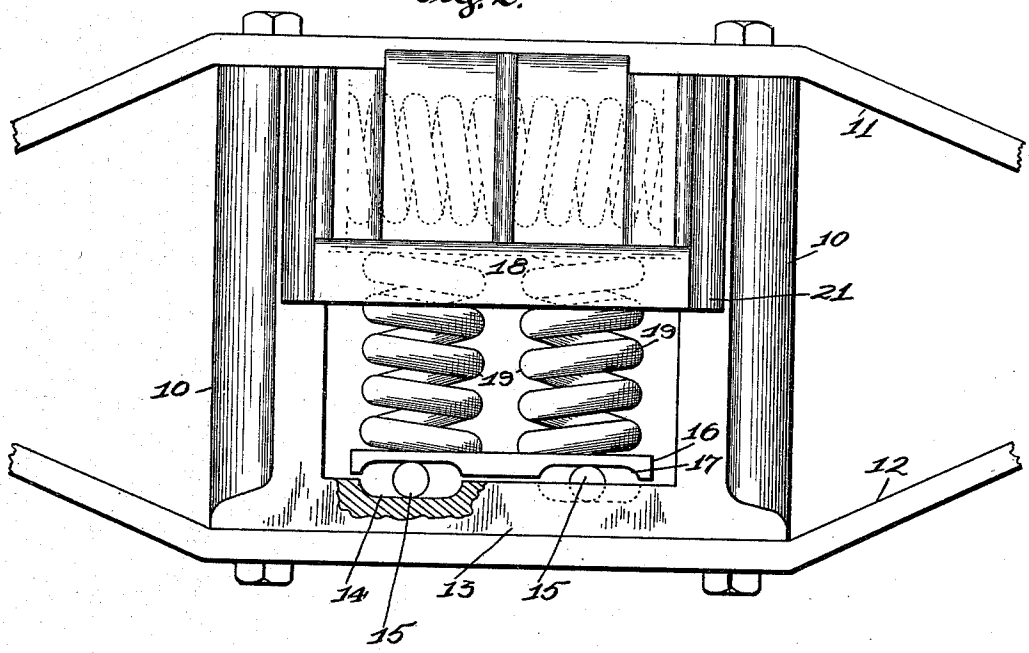
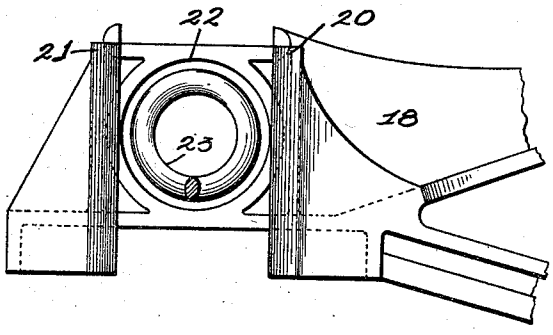


Fig. 3.



Witnesses

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3 Sheets—Sheet 3.

Fig. 4

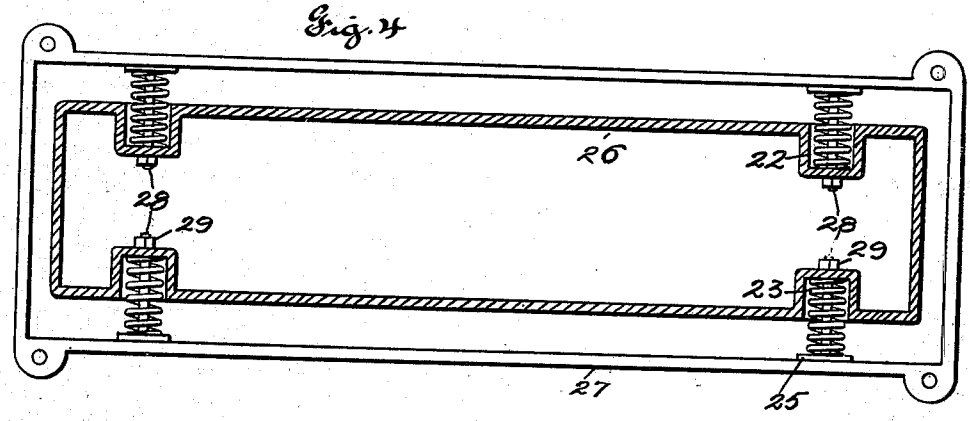


Fig. 5

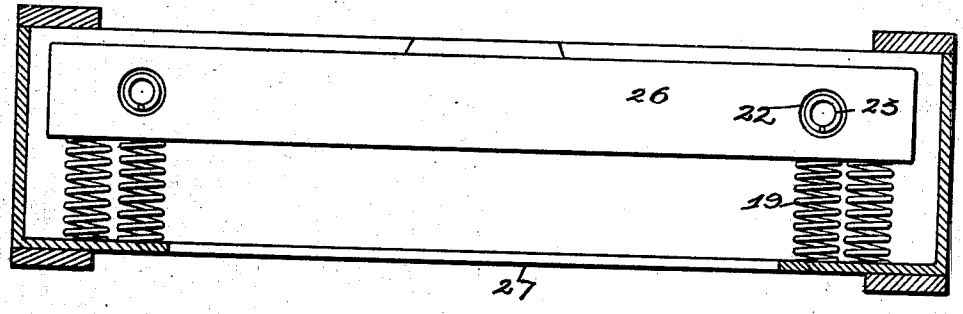
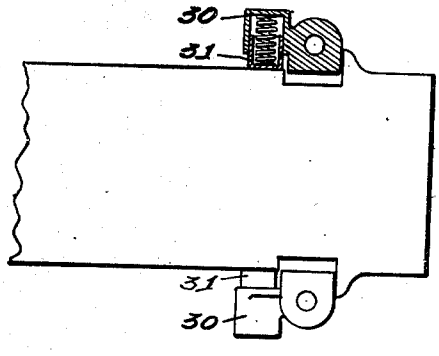


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES S. SHALLENBERGER, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF TO M. J. HURLEY, OF ST. LOUIS, MISSOURI.

FLEXIBLE CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 716,294, dated December 16, 1902.

Application filed July 14, 1902. Serial No. 115,585. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. SHALLENBERGER, of the city of Milwaukee, Milwaukee county, State of Wisconsin, have invented certain new and useful Improvements in Flexible Car-Trucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My object is to construct a flexible car-truck which shall produce improved results and at the same time be very economical in construction and operation; and my invention consists of the combination, with a car-truck, of springs inserted between the sides of the bolster and the frame and rollers under the bolster, so as to allow the bolster to move laterally against the tension of the springs, and thus making the truck flexible.

Figure 1 is a top plan view of a car-truck, one end of the bolster being shown in section to illustrate my invention. Fig. 2 is an end elevation, upon an enlarged scale, of the bolster and frame. Fig. 3 is a side elevation of one end of the bolster with the frame removed. Fig. 4 is a top plan showing my invention applied to a modified form of bolster. Fig. 5 is a vertical longitudinal section of the construction shown in Fig. 4. Fig. 6 is a sectional detail showing my invention applied to a second modified form of frame.

Referring to the drawings in detail, the truck-columns 10 are mounted between the arch-bars 11 and 12, and the spring-seat base 13 is formed integral with and rigidly connects the lower ends of the truck-columns, there being roller-recesses 14 in the upper face of said spring-seat base. Rollers 15 are placed in said roller-recesses, and the spring-seat plate 16 has roller-recesses 17 in its lower face, so that the rollers 15 operate between the spring-seat plate and the spring-seat base to allow the plate to move laterally upon the rollers. The bolster 18 operates between the truck-columns and is supported by the springs 19. Flanges 20 project laterally from the bolster upon the inner side of the truck-column, and similar flanges 21 project laterally upon the outer side of the truck-columns to limit the endwise motion of the bolster relative to the frame. Spring-seat pockets 22 extend into the bolster from the inner face of the truck-columns, and the expansive coil-springs 23 are mounted in said pockets. The outer ends of the pockets are squared to receive the spring-plates 25, which are inserted between the springs and the truck-columns. The plates are held in position by the upper arch-bar and slide up and down against the inner faces of the truck-columns under the action of the springs 19, and the plates slide in and out in the squared pockets 24, thus allowing the bolster a limited amount of lateral motion between the truck-columns, the tension of said springs being exerted to hold the bolster normally in a central position between the truck-columns. As the springs 23 yield under the pressure of the bolster, the spring-plate 16 will move laterally upon the rollers 15.

It is a well-known fact that the strain between the sides of a bolster and the truck-columns is at times enormous—as when the truck is going around a curve and the momentum of the car has a tendency to carry the truck in a straight line, thus forcing the load all against one truck-column, as shown in Fig. 1. The springs 23 will greatly reduce the liability of breaking wheel-flanges, contents of the car, and car-body and injuring the truck-columns and the bolster at such times.

In Figs. 4 and 5 the bolster 26 is mounted in an open casing 27 and the spring-seat pockets 22 are formed in the bolster 26. The spring-plates 25 are placed against the inner face of the casing 27, and bolts 28 extend from the spring-plates 25 through the spring and through the wall of the truck, and nuts 29 upon the inner end of said bolts hold the springs in place when the bolster is out of the casing 27. The bolts 28 are flexibly connected to the spring-plates, so as to allow the bolster to move up and down.

In Fig. 6 the spring-seat pocket 30 is formed integral with the truck-column and the cap 31 telescopes into the pocket, said cap serving as a substitute for the spring-plate 25. The construction shown in Fig. 6 may be used with any ordinary bolster.

I claim—

1. The combination of a bolster, columns, and springs mounted within said bolster at a

point between said columns, so as to produce a yielding connection between said bolster and said columns, substantially as specified.

2. In a car-truck, the combination of a bolster having integral spring-pockets, of the columns, and springs mounted in said spring-pockets and adapted to exert a yielding pressure upon said columns, substantially as specified.

3. The combination with a car-truck; of a yielding connection between the bolster and the frame; and rollers under the bolster to allow the bolster lateral motion, substantially as specified.

4. In a car-truck, the combination of columns, of a bolster having integral spring-seat pockets extending into the same from the opposite edges at a point in alinement with the columns, springs mounted in said pockets, and spring-plates also mounted in said pockets, and adapted to engage the columns, substantially as specified.

5. In a car-truck, the combination of columns, of a bolster having integral spring-seat pockets extending into the same from the opposite edges at a point in alinement with the columns, springs mounted in said pockets, the outer ends of said pockets being angular, and angular spring-plates also mounted in said pockets and adapted to engage the columns, substantially as specified.

6. In a car-truck, the combination of the bolster, the frame, and rollers under the bolster to permit the latter to move laterally with small friction, substantially as specified.

7. The combination of a bolster, a frame, springs beneath the bolster, a spring-plate beneath said springs, bearings for rollers below said spring-plate, and rollers mounted in said bearings beneath said spring-plate, substantially as specified.

8. In a car-truck, the combination of the truck-frame, an open casing, a bolster mounted within said casing, and provided with spring-seat pockets in its opposite edges, spring-plates bearing upon the inner surface of said casing, and springs mounted in said spring-seat pockets and bearing upon said spring-plates to urge the same into yielding contact with said casing, substantially as specified.

9. In a car-truck, the combination of the truck-frame, an open casing, a bolster mounted within said casing, and provided with spring-seat pockets in its opposite edges, spring-plates bearing upon the inner surface of said casing, springs mounted in said spring-seat pockets and bearing upon said spring-plates to urge the same into yielding contact with said casing, and bolts extending from said spring-plates through the said springs and connecting said spring-plates to the said bolster, substantially as specified.

10. In a car-truck, the combination with the columns, of lateral spring-pockets formed integral with said columns, the bolster, caps telescopically engaging said spring-pockets, and bearing upon the edges of said bolster, and springs mounted within said spring-pockets and arranged to force the caps into contact with the edges of said bolster, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. SHALLENBERGER.

Witnesses:

EDWARD E. LONGAN,

M. G. IRION.