J. C. BARBER.

CAR TRUCK.

APPLICATION FILED JAN. 7, 1910.

977,429.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.

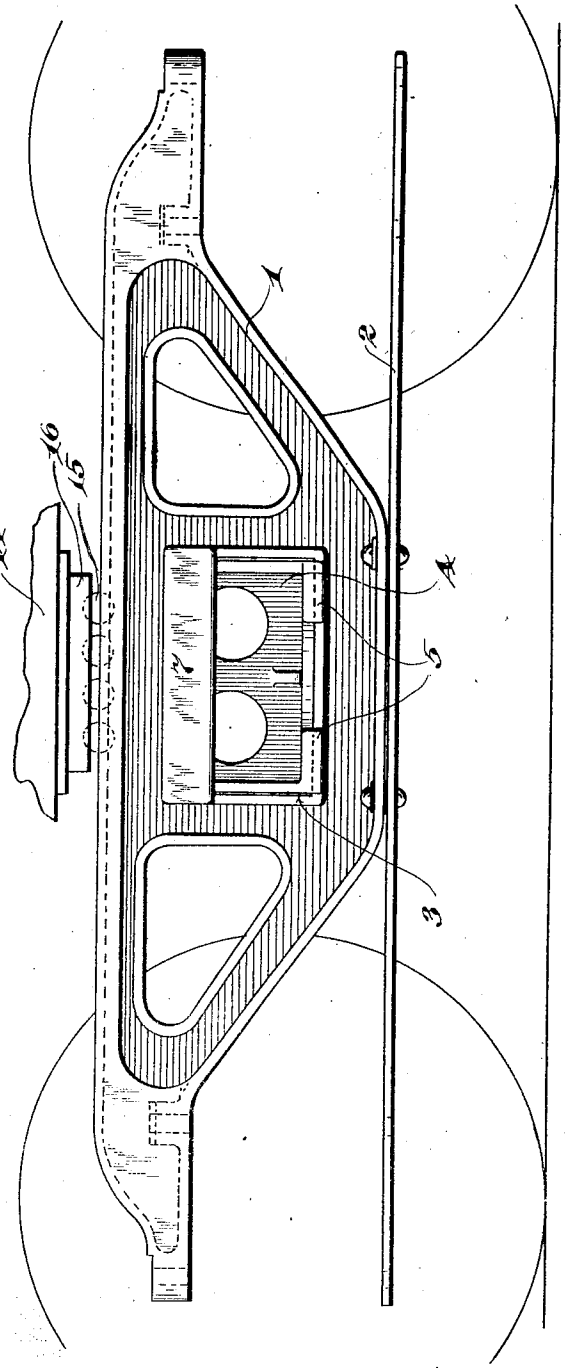

Fig. 1.

Witnesses.
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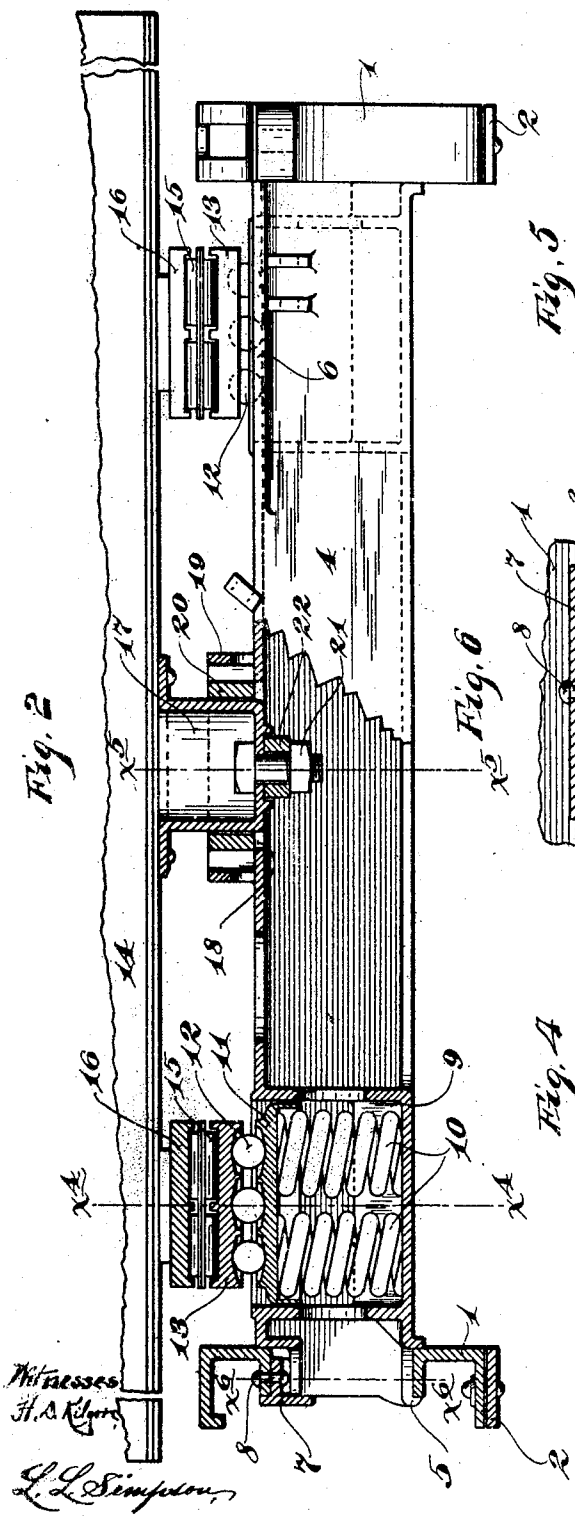

Fig. 2

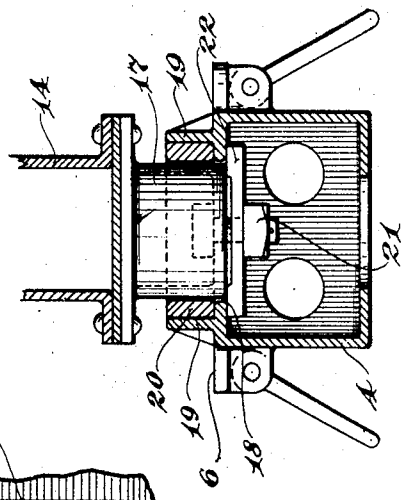

Fig. 5

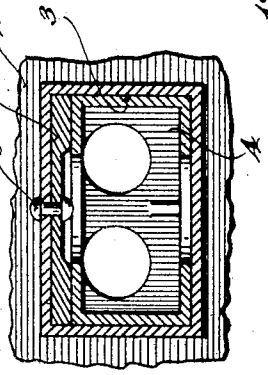

Fig. 6

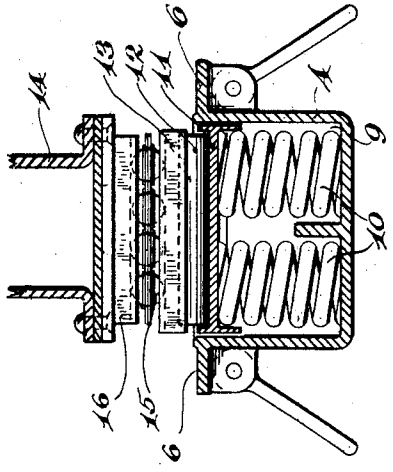

Fig. 4

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3 SHEETS—SHEET 3.

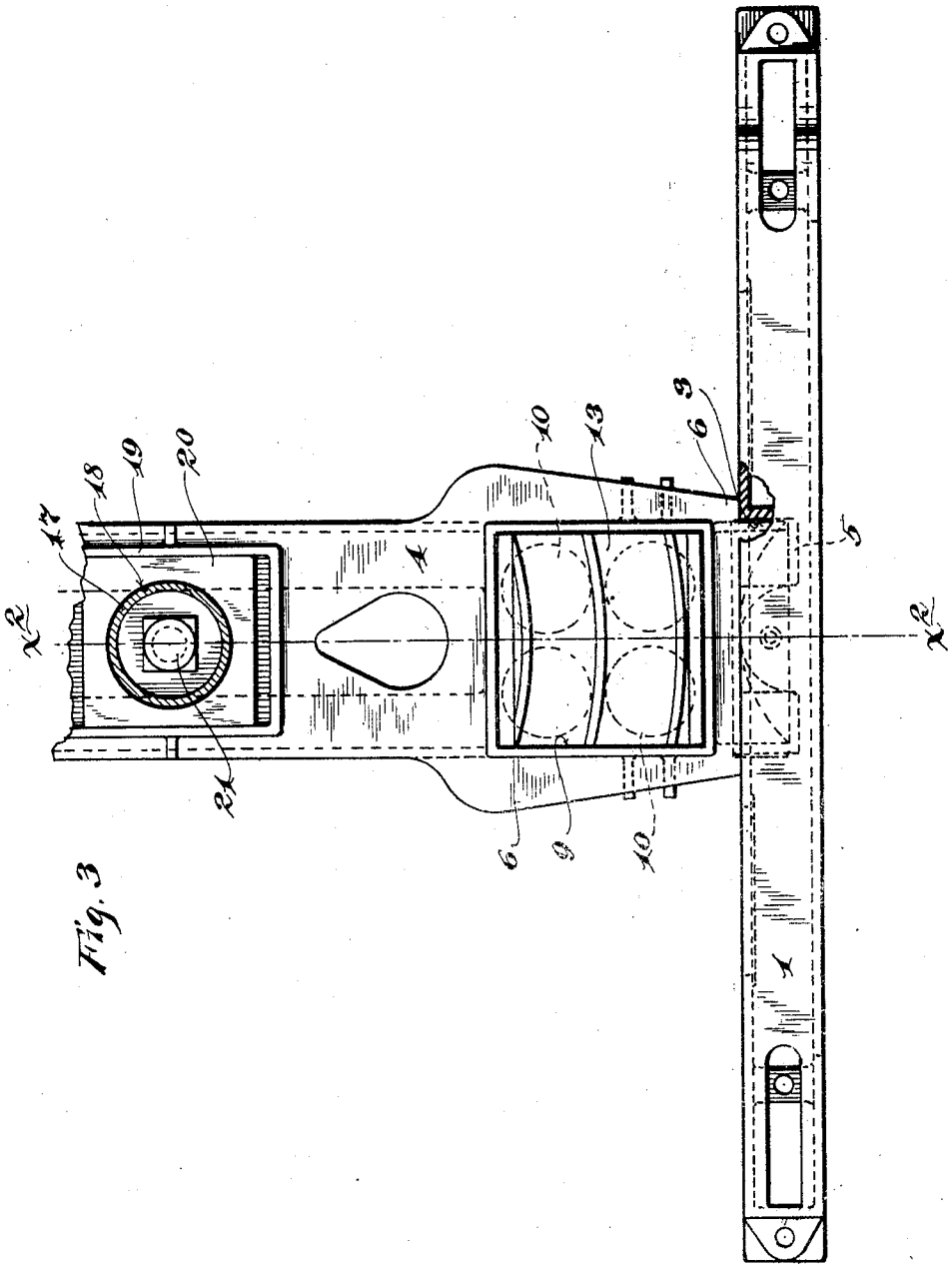

Fig. 3

Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN C. BARBER, OF CHICAGO, ILLINOIS, ASSIGNOR TO STANDARD CAR TRUCK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

CAR-TRUCK.

977,429. Specification of Letters Patent. Patented Dec. 6, 1910.

Application filed January 7, 1910. Serial No. 536,799.

To all whom it may concern:

Be it known that I, JOHN C. BARBER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Trucks; 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.

My present invention has for its object to provide an improved car truck especially adapted for railway service and, to this end, it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation, with some parts removed and with some parts shown in diagram only, showing the improved truck; Fig. 2 shows the improved truck partly in rear elevation and partly in section, on the line x^2 x^2 of Fig. 3, some parts being broken away and some parts being removed; Fig. 3 is a plan view showing one of the truck side frames and the truck transom, some parts being removed and some parts being broken away; Fig. 4 is a transverse section taken approximately on the line x^4 x^4 of Fig. 2, some parts being shown in full; Fig. 5 is a transverse section taken approximately on the line x^5 x^5 of Fig. 2, some parts being shown in full; and Fig. 6 is a detail in section taken on the line x^6 x^6 of Fig. 2.

The top arch bars, the bottom arch bars and, in fact, the main body portions of the side frames, are preferably in the form of integral castings 1 which, as shown, are channel-shaped in cross section but may, nevertheless, take other forms. The upper ends of these side frame castings are arranged to rest upon the usual journal boxes, not shown, and the customary tie bars 2 are connected, preferably, by rivets to the lower intermediate flanges of the said frame castings and the ends thereof are, in practice, secured to the journal boxes by the customary bolts or other suitable means. At their intermediate portions, the side frame castings 1 are formed with rectangular transom seats 3, said castings being formed, as shown, with outwardly extended rectangular flanges that surround and form parts of these transom seats.

The transoms 4 are in the form of heavy castings of hollow form, preferably rectangular in cross section. The side frame castings and this transom are preferably steel casting. The ends of the transom are reduced in vertical dimensions, so that they may be inserted into the seats 3 of the side frame castings with considerable clearance and, at the lower portions of their extreme ends, they are formed with downturned lock flanges 5 that are adapted to closely engage and interlock with the lower flanges of said seats, as best shown in Fig. 2. The shoulders formed by the reduced ends of the transom engage the inner sides of the side frame castings 1 and afford stops which positively limit the extent of the insertion of the reduced ends of the transom into the seats of the said side frames. To afford additional stops for the same purpose, the transom is shown as provided near its upper surface with laterally projecting end flanges 6, the extremities of which abut against the inner surfaces of the side frame castings 1 adjacent to the transom seats thereof.

After the ends of the transom have been inserted in the seats of the side frame castings and the flanges 5 thereof interlocked with the said side frames, as already stated, the spaces between the tops of the seats and the upper surfaces of the reduced ends of said transom are filled by so-called filling pieces 7, and these filling pieces are then rigidly secured to the side frames, preferably, by rivets 8 passed through reduced intermediate portions of the inwardly extending flanges of said filling pieces and through the overlying flanges of the said seats 3.

By reference to Figs. 2 and 6, it will be noted that the reduced ends of the transom are cut away immediately below the said rivets 8 so as to permit of the application of the rivets and of the riveting thereof. These filling pieces are preferably also formed, at their outer extremities, with vertical web portions which overlap portions of the adjacent ends of the transom, as well as the upper flanges of the respective seats 3. When the filling pieces are applied, they positively hold the ends of the transom interlocked to the side frames.

Immediately inside of the truck side frames, the transom is formed with deep open topped spring pockets 9 which, as shown, are rectangular in horizontal cross section. In each of these spring pockets is a set of coiled springs 10, as shown, four in number. Each set of springs supports a lower roller bearing plate 11 which is guided for vertical movements by the pocket in which it is inserted. Each lower roller bearing plate 11 supports a set of rollers 12 that extend transversely of the transom and, in turn, each of these sets of rollers supports an intermediate roller bearing plate 13. The said rollers 12 engage concave seats in the said plates 11 and 13 and provide for lateral movement of a body or car bolster 14 transversely of the truck. On each intermediate or floating bearing plate 13 is a set of rollers 15 that extend approximately at a right angle to the underlying set of rollers 12, and each of these sets of rollers 15 supports an upper roller bearing plate 16 which is secured to, or connected for movements with, the overlying body bolster 14. The rollers 15 provide for the radial or oscillatory movements of the body bolster 14 in respect to the transom 4 or, in other words, for radial or oscillatory movements of the truck frame in respect to the car body. These complex roller bearing devices, which provide for both radial and lateral movements of the truck frames, in respect to the car body, are, except for the manner of their application, approximately the same as those disclosed in my pending application S. N. 532,531, filed of date December 11, 1909, entitled "Car truck", and are of the same general character as those disclosed and more broadly claimed in patent to Lake and Deverall No. 798,350 of date August 29, 1905.

The body bolster 14 is intermediately pivoted to the transom 4 by a connection which permits, in addition to the customary radial or pivotal movement, both vertical movements of the said body bolster, in respect to the transom and other parts of the truck frame, and endwise movements of the said bolster transversely of the truck. This novel pivotal connection is preferably arranged as follows: To the intermediate portion of the body bolster 14 is rigidly secured a depending hollow hub 17 that depends through a longitudinally elongated passage 18 in the upper web of the transom 4. On its upper web, the said transom is provided with a rectangular guide flange 19 that surrounds the elongated passage 18.

The numeral 20 indicates a rectangular guide block which is mounted to slide loosely within the guide flange 19 in a direction transversely of the truck and is provided with a large perforation in which the hub 17 is loosely seated with freedom for both oscillatory and vertical movements. Rigidly secured to the extreme lower end of the hub 17, as shown, by means of a short nutted bolt 21, is a cross bar or stop 22, the ends of which overlap an elongated passage 18 and engage the upper web of the transom, thereby affording a stop which will positively limit the upper movement of the body bolster under the lifting action of the springs 10, when the car carries a light load or when there may be a tendency of the car body to jump in respect to the truck.

In this construction, as is evident, no weight whatever is carried by the pivotal connection between the body bolster and transom, but the weight of the car body and its load is entirely carried by the spring supporting roller bearing devices.

The above described arrangement, as is evident, permits the use of a very low down truck structure. Furthermore, the said construction is simple, strong and durable.

What I claim is:

1. In a car truck, the combination with side frames and a transom connecting the same, of a body bolster intermediately pivoted to said transom, and roller bearing devices and coöperating springs supporting the said body bolster with freedom for oscillatory movements, the said springs being mounted in seats formed in said transom.

2. In a car truck, the combination with side frames and a transom connecting the same, of a body bolster intermediately pivoted to said transom, and roller bearing devices and coöperating springs supporting the said body bolster with freedom for oscillatory movements, the said springs being mounted in seats formed in said transom and located entirely inside of the truck side frames.

3. In a car truck, the combination with side frames and a transom connecting the same, said transom having open support spring pockets formed therein and located inside of the said side frames, springs in said pockets, a lower roller bearing plate supported by said springs and guided for vertical movements by the said pockets, a body bolster intermediately connected to said transom with freedom for oscillatory movements and for vertical movements corresponding to the spring movements, and roller bearing devices interposed between said lower bearing plate and the said body bolster, substantially as described.

4. In a car truck, the combination with side frames and a transom connecting the same and provided with open topped pockets located inside of the said side frames, springs in said pockets, a body bolster intermediately pivoted to said transom with freedom for movements transversely of the truck, upper, lower and intermediate roller bearing plates, said upper bearing plate being connect-

ed to said body bolster and said lower roller bearing plate being supported by said springs, and two sets of rollers, one extended longitudinally and the other transversely of said transom, the lower of said rollers being interposed between said lower and intermediate bearing plates and said upper rollers being interposed between said intermediate and upper bearing plates, substantially as described.

5. In a car truck, the combination with side frames and a transom connecting the same, of a body bolster intermediately pivoted to said transom with freedom for vertical movements in respect thereto, and springs and spring supported roller bearing devices interposed between said transom and body bolster and taking the weight of the load, substantially as described.

6. In a car truck, the combination with side frames and a transom connecting the same, of a body bolster intermediately pivoted to said transom with freedom for vertical movements in respect to said transom and for movements transversely of the truck, and springs and spring supported roller bearing devices interposed between said transom and body bolster and arranged to carry the entire load and to permit the above noted movements of said body bolster in respect to said truck, substantially as described.

7. In a car truck, the combination with side frames and a transom connected with the same, of a body bolster intermediately pivoted to said transom with freedom for vertical movements, and springs and spring-supported coöperating roller bearing devices interposed between said transom and bolster, the said springs and spring supported cooperating roller bearing devices supporting the weight of the load, and means limiting the upward movement of the said bolster in respect to the transom, under the action of said springs.

8. In a car truck, the combination with side frames having transomed seats, of a transom connecting said side frames, the said transoms having vertically reduced ends constructed for interlocking engagement with the lower portions of the said seats, and filling blocks applied in the gaps between the upper portions of the said seats and the reduced ends of the said transoms, and serving to hold said transom interlocking the said side frames, substantially as described.

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

JOHN C. BARBER.

Witnesses:
JAMES T. MILNER,
LEE W. BABRER.