

H. C. BUHOUP.

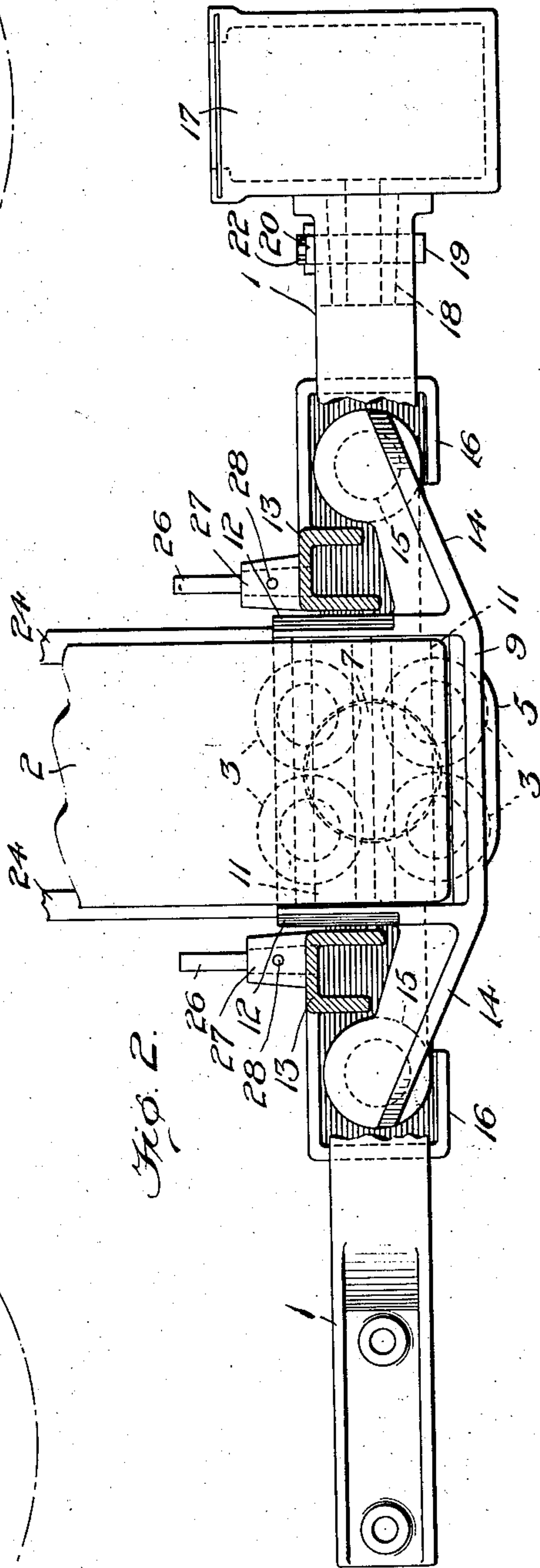
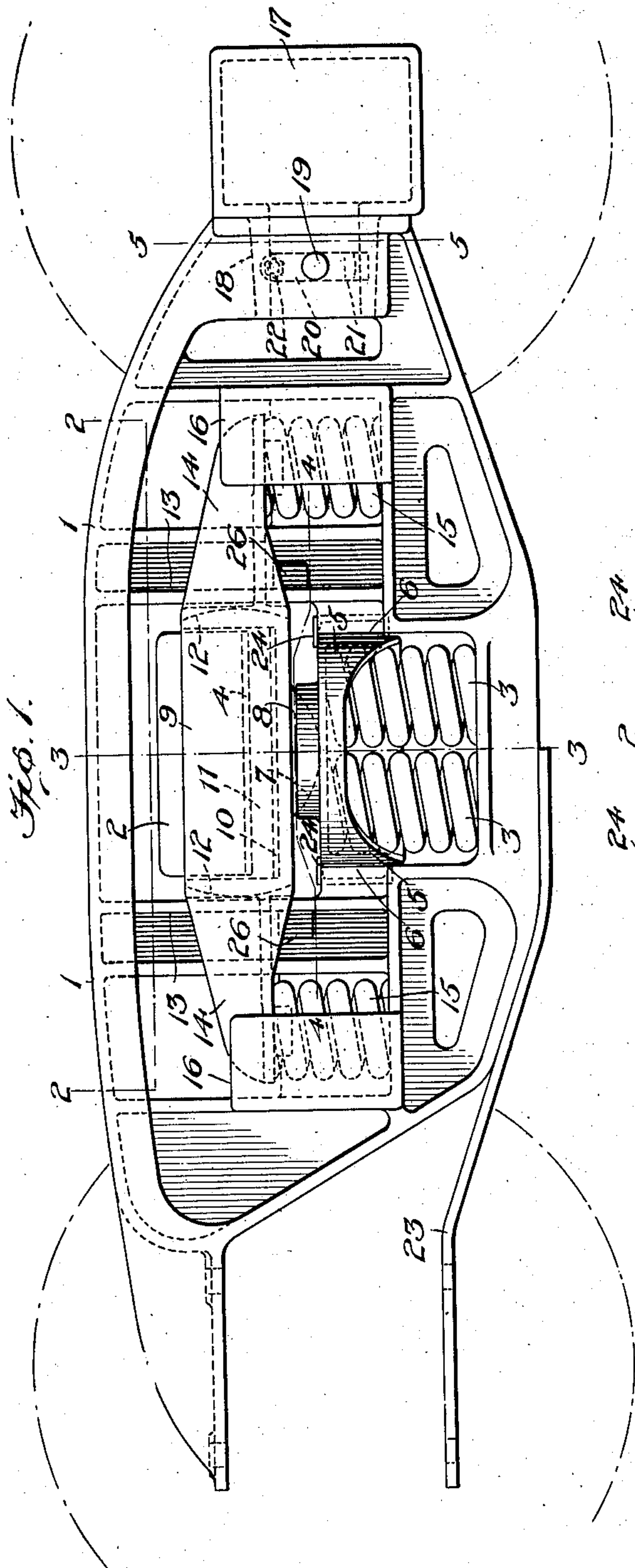
CAR TRUCK.

APPLICATION FILED JAN. 18, 1911.

994,501.

Patented June 6, 1911.

2 SHEETS-SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

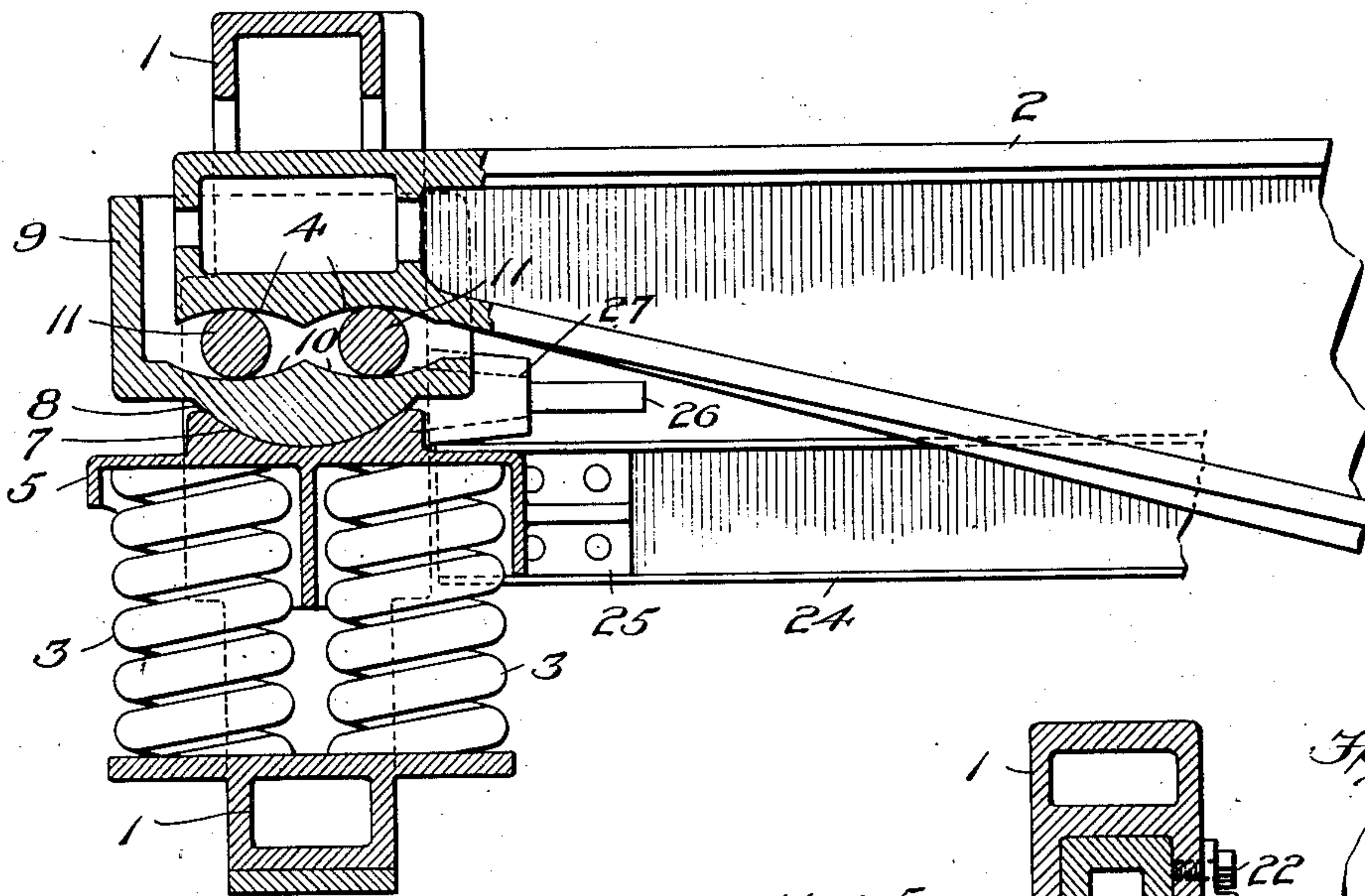


Fig. 5.

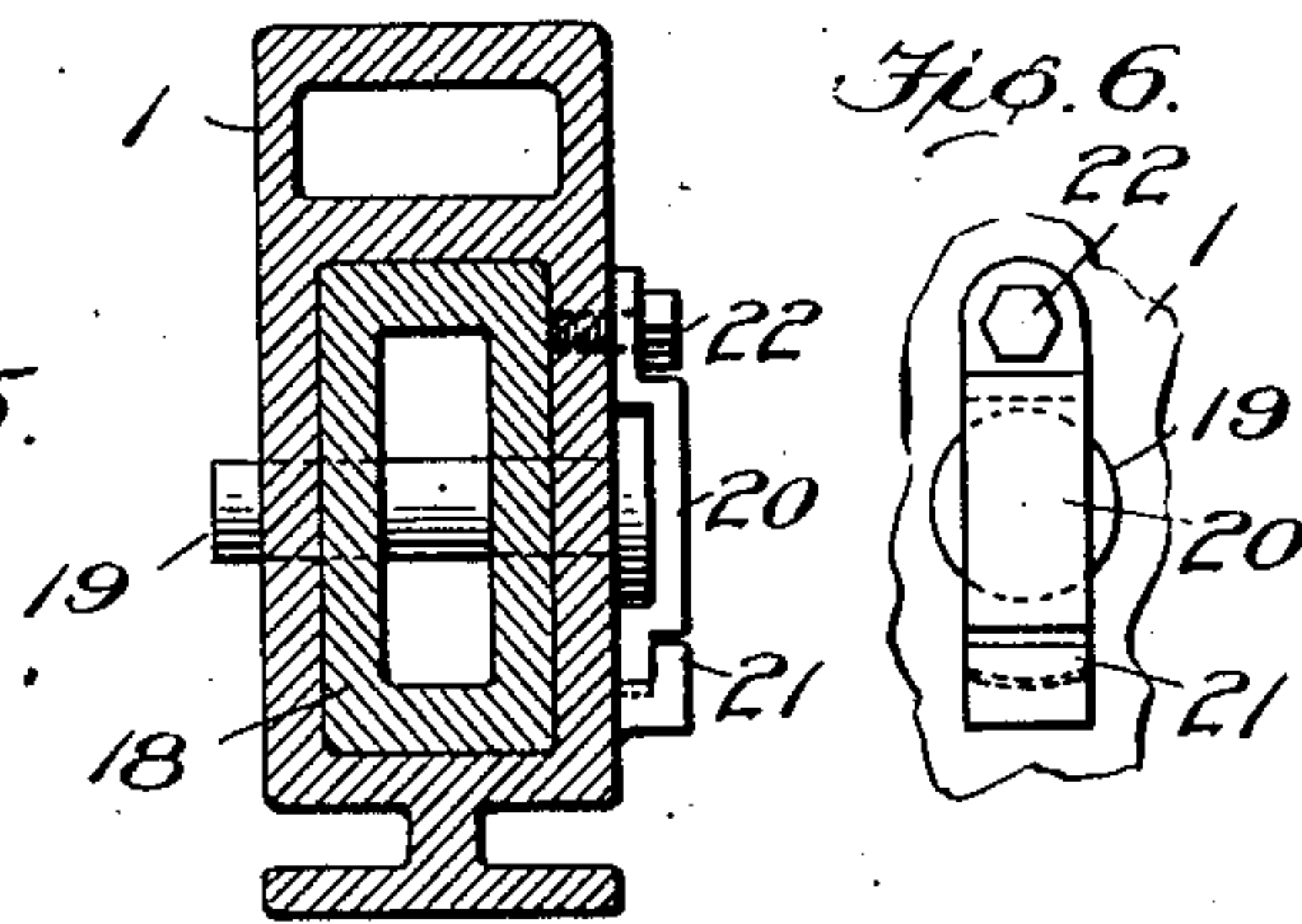


Fig. 6.

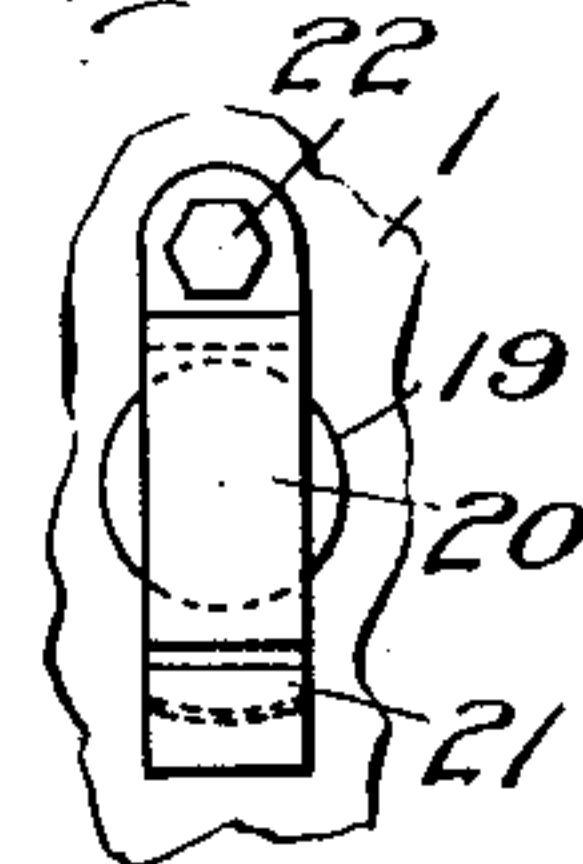


Fig. 4.

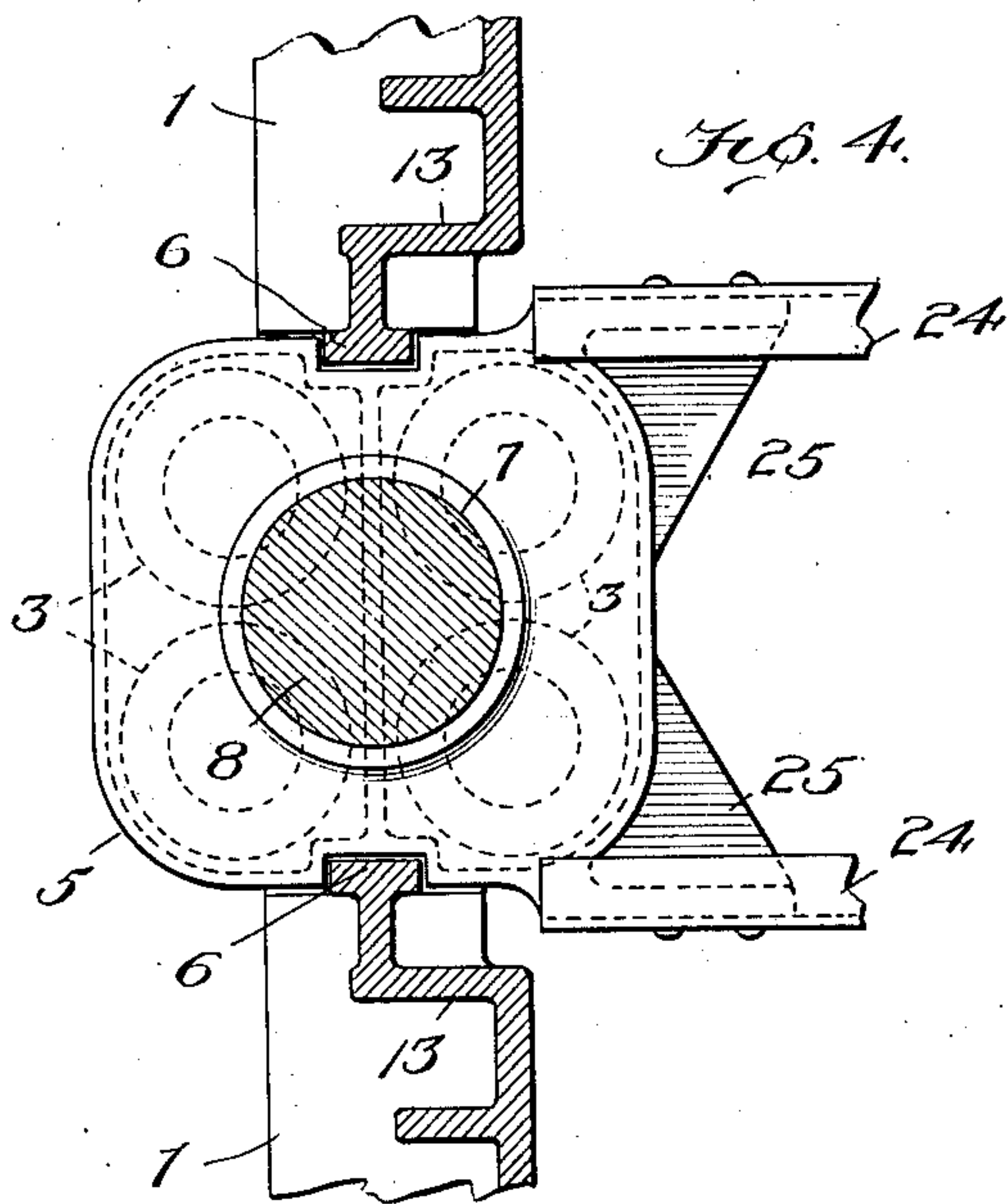
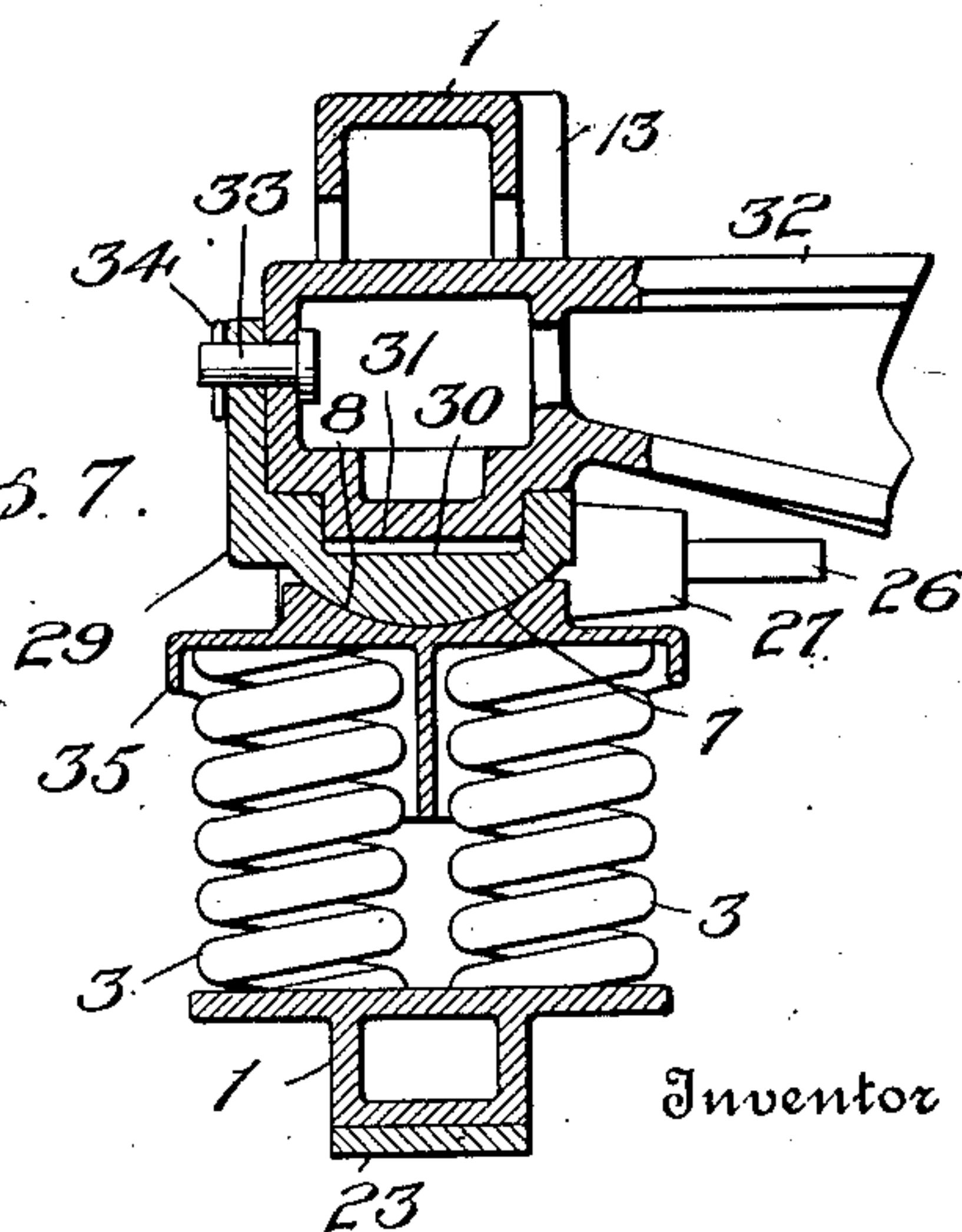


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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CAR-TRUCK.

994,501.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, HARRY C. BUHOUP, 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 invention relates to the construction of trucks for railway vehicles and is designed to afford a strong, cheap, and simple structure in which the bolster is yieldingly connected to the side frames in such a manner that the elements of the truck are relieved from excessive strains when passing over inequalities in the track and the flange wear of the wheels is greatly decreased.

Generally stated, my invention may be said to reside in a car truck in which there are combined with the side frames, bolster and springs for yieldingly supporting the bolster on the side frames, devices interposed between the bolster and bolster supporting springs which constitute means for permitting a yielding rotary movement of the side frames with respect to the bolster and also serve as means for permitting the bolster to move or oscillate in the direction of its length between the side frames.

In the drawings chosen for the purpose of illustrating my invention, the scope whereof is pointed out in the claims, Figure 1 is a side elevation of a car truck embodying my invention, one end of the side frame being illustrated as designed to receive the standard Master Car Builders' journal box and a journal box of special construction being illustrated as secured to the other end of the side frame; Fig. 2 is a view, partly in plan and partly in section on the line 2—2, Fig. 1, of the car truck illustrated in Fig. 1; Fig. 3 is a vertical section taken in the plane of the line 3—3, Fig. 1, illustrating one side of the truck structure; Fig. 4 is a detail horizontal section taken on the line 4—4, Fig. 1; Fig. 5 is a vertical section taken in the plane of the line 5—5, Fig. 1; Fig. 6 is a detail view showing in side elevation the journal box bolt retaining devices illustrated in Fig. 5, and Fig. 7 is a view corresponding to Fig. 3, but illustrating a modified construction.

Like symbols refer to like parts wherever they occur.

I will now proceed to describe my invention more fully so that others skilled in the art to which it appertains may apply the same.

As the various features of construction illustrated are designed to be applicable to both sides of the truck, it will be unnecessary to describe both sides of the structure.

In the particular embodiment of my invention illustrated in Figs. 1 to 6, inclusive, of the drawings, 1 is the side frame, 2 the bolster, and 3 the bolster springs. The under face of the bolster 2 is preferably provided at each end with a plurality of inclined roller-bearing faces 4 which may be conveniently formed as segments of a circular cylinder. The form of the bolster may be otherwise such as desired, but, as shown, it is preferred to construct it as an integral casting.

Seated upon the upper ends of the bolster springs 3 which are mounted upon each side frame is a vertically movable spring cap 5 that is maintained in proper relation to the side frame by means of guides 6 which project into the bolster openings and are received by corresponding vertically extending recesses formed in opposite sides of the spring cap 5, as more particularly shown in Fig. 4. In order that the side frames 1 may be capable of a rotary or turning movement with respect to the bolster 2 so as to permit the truck to pass over high and low joints and other inequalities in the track without creating undue stresses in its members, the upper face of the spring cap 5 is formed with a curved socket 7 which is adapted to receive a correspondingly curved convex member 8 which projects downwardly from the bolster receiving member 9, the socket 7 and projection 8 being preferably spherical in form.

Each bolster-receiving member 9, which also acts as an equalizer to yieldingly maintain the side frames and bolster in their normal relation to each other, is preferably formed upon its inner face with a plurality of inclines 10 that correspond to the inclines 4 formed upon the under face of the adjacent end of the bolster 2. The bolster 2 is supported upon the bolster receiving member 9 through the intermediacy of a plurality of cylindrical rollers 11 which en-



gage and are adapted to roll upon the inclined faces 4 and 10 with which the bolster and bolster-receiving member are respectively provided.

5 The bolster receiving member 9, which projects outwardly through the bolster opening in the side frame and is capable of vertical movement with respect to said side frame, is provided with oppositely disposed  
10 cylindrical guide faces 12 which, while co-operating with the interior faces of the truck columns 13 to guide the bolster 2 and bolster-receiving member 9 vertically, also permit a turning movement of the side frame  
15 with respect thereto. Each bolster-receiving member 9 is provided with oppositely projecting lateral arms 14 which extend across the outer faces of the truck columns 13 and are seated upon the upper ends of  
20 vertically arranged springs 15 that rest upon the side frame 1. As shown more particularly in Figs. 1 and 2, the bolster receiving members 9 are maintained in proper operative relation to the truck side frames  
25 by being interposed between the truck columns 13 and guides 16, the latter being preferably formed integral with the side frames and being so located as to serve to prevent possible displacement of the  
30 springs 15.

The form of journal box which it is preferred to employ with the features of construction hitherto described is illustrated at the right hand ends of Figs. 1 and 2, and  
35 also in Fig. 5. This journal box 17 is fashioned or provided with a laterally extending shank or projection 18 which fits a correspondingly shaped socket in the end of the side frame, the connection of the  
40 journal box with the frame being maintained by means of a bolt 19, which, as more particularly shown in Fig. 5, passes through the side frame and the shank or projection of the journal box. In order to  
45 prevent possible loss of the journal box bolt 19 when the truck is in service, it is preferred to secure said bolt in position by means of a retaining bar 20, the lower end of which engages the curved face of an  
50 angular lug 21 formed on the side frame and the upper end of which is secured to the side frame by means of a threaded bolt 22. The Master Car Builders' standard journal box may, however, be employed if desired  
55 and in such event the side frame 1 is preferably constructed as shown at the left hand ends of Figs. 1 and 2, 23 being a tie bar which passes under the journal boxes and side frame in the usual manner and the  
60 journal boxes being secured to said tie bar and side frame by means of journal box bolts in the usual way.

The side frames 1 of the truck are preferably connected by means of tie bars 24  
65 which are riveted to brackets 25 with which

the spring caps 5 are provided on their inner sides. By such a construction the liability of the truck members being distorted by the shocks and strains transmitted from one side frame to the other when the truck is in  
70 service, is greatly decreased.

For convenience of repair the brake beam hangers 26 are preferably detachably connected to the side frame, the latter being  
75 for that purpose provided with socketed projections 27 into which the brake beam hangers 26 are introduced from the outside of the side frame. The brake beam hangers are retained in the sockets of the projections 27 by means of pins 28, as will be readily  
80 understood.

In Fig. 7 is shown a modified form of construction in which the channel iron tie bars 24 are dispensed with and the connection between the bolster and bolster receiving  
85 members is such that the bolster operates to tie the two side frames together. In this modified form of my invention the bolster receiving member 29 is identically like the  
90 bolster receiving members 9 heretofore described, except that the roller inclines 10 are omitted and its interior surface is formed with a rectangular socket or recess 30 into which a downwardly extending rectangular  
95 projection 31 formed on the under surface of the bolster 32 fits. If desired, the bolster receiving member 29 and bolster 32 may be connected by a pin 33 and cotter 34, as shown, and such a construction not only  
100 assists in preventing the lateral separation of the side frames, but also prevents any possibility of the disengagement of the projection 31 of the bolster from its socket 30 in the bolster receiving member. The spring  
105 cap 35 differs from the spring caps 5 only by the omission of the brackets 25, such brackets being unnecessary in this modified form of construction since the function performed by the channel iron tie bars 24 is  
110 performed by the bolster 32 instead. The construction of the remaining features of the truck illustrated in Fig. 7 is precisely the same as heretofore described in connection with Figs. 1 to 6, inclusive, of the drawings, and, therefore, such remaining features of  
115 construction have been indicated by reference characters showing their correspondence with the features of construction heretofore described.

When a truck such as shown in Figs. 120 1 to 6, inclusive, of the drawings passes over a high or low joint or other inequality in the track, the side frame 1 rotates on the spherical bearing faces 7 and 8, thus compressing one or the other of the springs 15  
125 upon which the arms 14 of the bolster receiving member 9 bear. After the wheels of the truck have passed over the inequality in the track, the compressed spring 15 expands, thus returning the bolster, bolster receiving  
130



ing member and side frame to their normal positions. When the leading wheels of the truck pass onto a curve the side frame 1 will travel inwardly, or the bolster 2 will travel outwardly, or both operations may take place, thus reducing the pressure between the rails and the flanges of the wheels. When the truck passes from the curve onto straight track the side frame or bolster, or both, as the case may be, will return to their normal positions and the rollers 11 will assume the relation to the inclines 4 and 10 illustrated in Fig. 3. It will be understood, of course, that if, while passing around a curve, the truck wheels pass over any inequalities in the track the side frames 1 will rotate vertically on the spherical bearings 7 and 8, as heretofore described.

In the construction shown in Fig. 7 the side frame 1 and bolster 32 are incapable of any travel with respect to each other in the direction of length of the bolster; but the side frames are arranged to turn or rotate on the spherical bearings 7 and 8 in the same manner and for precisely the same purposes as heretofore described in respect to the construction shown in the preceding figures of the drawings.

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

1. In a car truck, the combination with side frames, of a bolster, springs for yieldingly supporting said bolster on said side-frames, and devices interposed between said springs and bolster constituting means for permitting a rotating movement of said side-frames with respect to said bolster and also means for permitting the bolster to move in the direction of its length between the side-frames.

2. In a car truck, the combination with

side-frames, of a bolster, springs interposed between said side-frames and bolster for supporting said bolster, spring-caps resting upon their respective bolster-supporting springs, bolster receiving members engaging their respective spring-caps and movably connected thereto, and rollers interposed between the bolster and bolster receiving members.

3. In a car truck, the combination with side-frames, of a bolster, springs seated upon said side-frames for yieldingly supporting said bolster, spring-caps resting upon the bolster-supporting springs, bolster-receiving members movably seated on said spring-caps, and rollers interposed between the bolster and bolster receiving members, said bolster and bolster receiving members being provided with oppositely inclined faces engaging said rollers.

4. In a car truck, the combination with side frames, of a bolster, bolster receiving members supporting the bolster at its ends, bolster springs resting on each side-frame for supporting said bolster, a spring-cap interposed between the springs resting on each side-frame and the bolster receiving member at the corresponding end of the bolster, and springs independent of the bolster springs and interposed between the bolster receiving members and their respective side-frames, the adjacent spring caps and bolster receiving members having socketed engagement permitting a turning movement of said side-frames with respect to said bolster.

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

HARRY C. BUHOUP.

Witnesses:

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H. W. STANNARD.