H. M. PFLAGER.

CAR CONSTRUCTION.

APPLICATION FILED JAN. 12, 1918.

1,279,425.

Patented Sept. 17, 1918.

2 SHEETS—SHEET 1.

Fig. 2

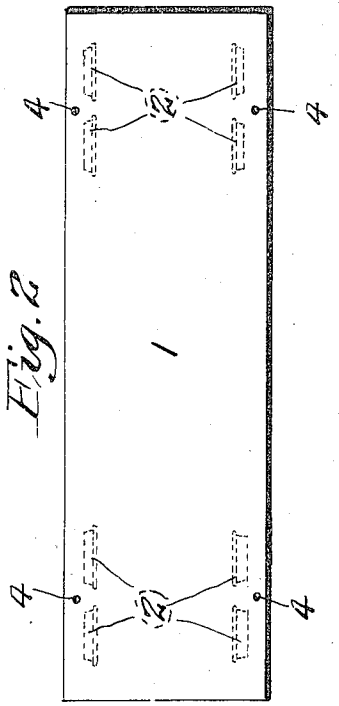


Fig. 3

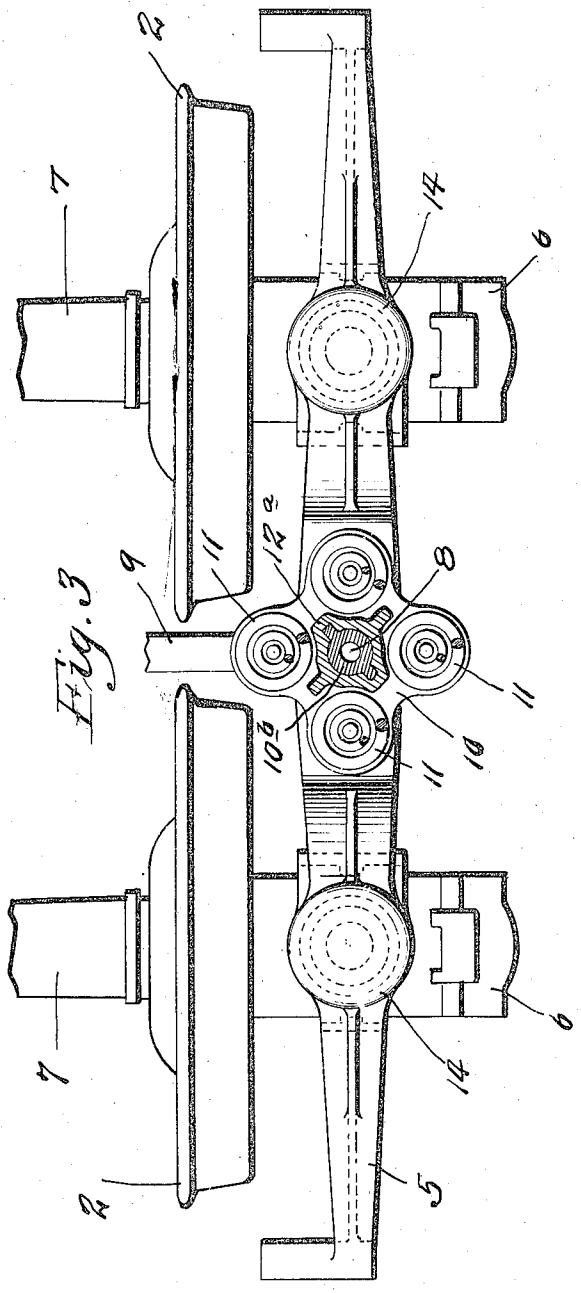
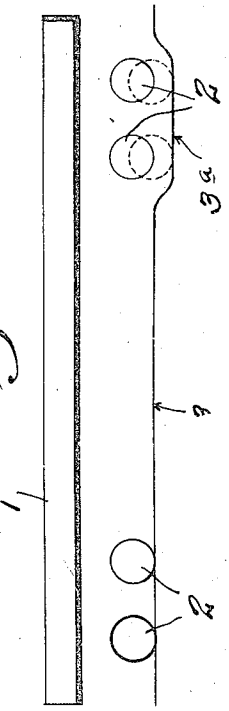


Fig. 1



Inventor

Harry M. Pflager

By J. M. Cornwell - Atty.

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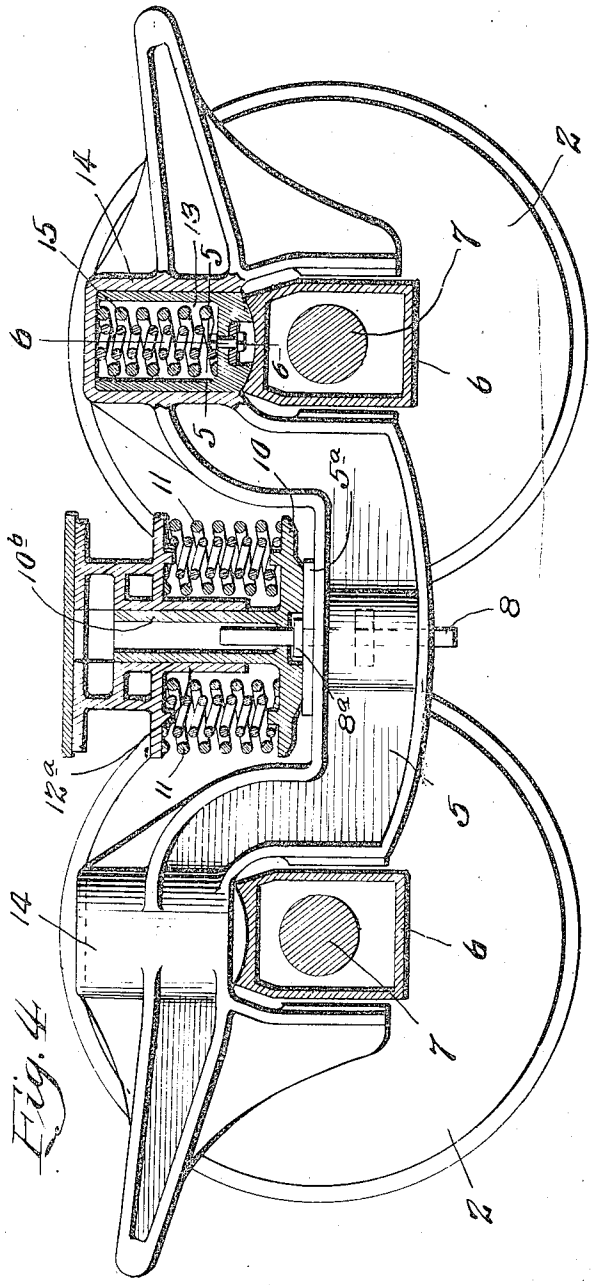


Fig. 4

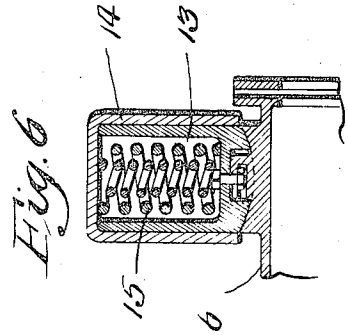


Fig. 6

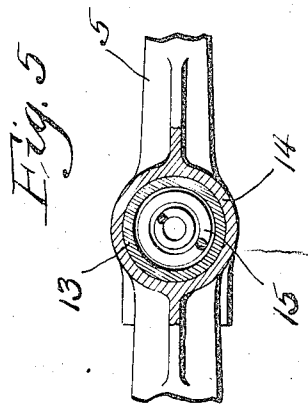


Fig. 5

Inventor

Harry M. Pflager

By J. C. C. & Atty.

UNITED STATES PATENT OFFICE.

HARRY M. PFLAGER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO COMMONWEALTH STEEL COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

CAR CONSTRUCTION.

1,279,425. Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed January 12, 1918. Serial No. 211,589.

To all whom it may concern:

Be it known that I, HARRY M. PFLAGER, a citizen of the United States, residing at city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Car Constructions, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a conventional illustration in side elevation showing my improved car construction.

Fig. 2 is a top plan view of the same.

Fig. 3 is a top plan view of one of the trucks used in my improved car construction.

Fig. 4 is a side elevational view partly in section of one of my improved frames.

Fig. 5 is a horizontal sectional view on line 5—5 of Fig. 4.

Fig. 6 is a vertical sectional view on line 6—6 of Fig. 4.

This invention relates to a new and useful improvement in car construction of the type illustrated in Reissue Letters Patent No. 14,221 dated November 28, 1916, the original of which, Patent No. 1,147,430, was granted July 20, 1915.

In the construction shown in said original and reissue patents granted to me upon the dates beforementioned, the weight of the car body including the load, when loaded, is supported at the four corners of the car.

My present invention has for its object to provide means for distributing the load of the car on the journals when unusual track conditions exist.

I prefer to provide this means in the form of a spring or springs, auxiliary to the main carrying springs, the auxiliary springs being capable of greater deflection and greater recoil travel than the main springs, so as not to affect the height of the drawbar from the track.

In the form of my invention illustrated in the accompanying drawings, the compensating springs are weaker than the load supporting springs, so that when the latter, which may be designated as the "major" springs, are under normal compression, the compensating spring or springs, which may be referred to as the "minor" spring or springs, are under compression, the spring follower of the major springs being seated home against some solid part of the structure, this home-seating of said follower being maintained in normal operations. However, if the major springs are released from compression and have a tendency to float free, the minor springs will have their energies released so as to take up in part the freedom of the major springs, and compress them to the extent that the minor springs assist in supporting the load.

In the present form of my invention, the compensating springs are located over the journal boxes which have an independent rocking movement by means of a spherical bearing on the lower end of a telescoping compensating spring container, thus enabling each wheel or set of wheels on an axle, or the end of one axle, to move vertically when the wheels pass over a depression in the track.

In the drawings, I have heretofore referred to Figs. 1 and 2 as conventionally illustrating a car body in which 1 is the body of the car, 2 the wheels, and 3 the track having a depression 3^a over which the wheels at the right hand side of Fig. 1 are illustrated in full lines as floating over the depression, and in dotted lines as resting upon the track in the depression.

In Fig. 2, 4 indicates the pivotal point of the truck side frames, these being the points of reaction and showing that the car body is practically supported at its four corners. In the absence of the compensating springs constituting the principal feature of my present invention, if the lower right hand truck side frame in Fig. 2 was not supporting any portion of the load on that particular corner of the car, it is obvious that the other three points of reaction would carry the entire load.

Referring now to the details of construction of my present form of truck, 5 indicates the truck side frame, preferably in the form of a steel casting, in which the vertically movable journal boxes 6 are arranged for the reception of the axles 7 on which the

wheels 2 are mounted. This truck side frame is preferably recessed at its upper central portion and is provided with a spring seat 5^a in which is arranged a king pin 8, said king pin passing through a tie bar 9 connecting the side frames on each side of the car. The king pin 8 is provided with a shoulder or collar 8^a, as shown in Fig. 4, and extends upwardly therein so as to provide a connection with a spring follower bearing plate 10 between which and the truck side frame are arranged the major springs 11, which constitute the main supporting springs for the car body. There is a central boss 10^b having telescopic connection with centrally arranged boss 12^a on a spring seat follower casting secured to the car underframe. This construction permits vertical movement between the parts, but prevents independent rotation of the spring seats, and, consequently, torsion or movement of the springs. The spring seat 10 is preferably convex on its lower surface to form a bearing which coöperates with a concave bearing surface formed in the top of spring seat 5^a, whereby a slight rocking movement of the truck side frame relative to the underframe is permitted. The upper surface of each journal box 6 is provided with a spherical bearing which coöperates with the end of convex bearing surface on the lower end of a spring container 13 in the form of an open-ended cylinder arranged for vertical movement in a housing 14, there being springs 15 within said container bearing against the upper wall of said housing, these springs 15 being the minor springs before referred to.

From the above construction, it will be noticed that the weight of the car body and its contents is directly carried on the springs 11, but in the event that wheels at one side of either end of the car pass over or rest in a depression, the supporting springs 11 will force the truck side frame downwardly until said springs reach or approach their point of exhaustion, whereupon the minor springs 15 will be permitted to act and assist in distributing the load to the journals, and to the extent that pressure is exerted on said journals, said springs 15 will assist in supporting that portion of the car under which they are located.

It is obvious that minor changes in the size, form and details of the various parts of my improved car construction may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim:

1. In car construction, supporting wheels, main supporting springs, and a compensating device located over each axle for transmitting load to said supporting wheels only when the main supporting springs are exhausted or nearly exhausted.

2. In car construction, a truck side frame, supporting wheels, main supporting springs, and compensating devices for cooperating between the wheels and the truck side frame whereby said compensating devices may assist in supporting the load only when the main supporting springs are exhausted or nearly exhausted.

3. In car construction, a car underframe, in combination with truck side frames having pivotal connection with said car underframe, supporting wheels, supporting springs, and compensating springs arranged between the side frames and the wheels normally under compression and whose stored-up energies may be utilized to assist in supporting the load.

4. In car construction, a car underframe, a truck side frame having pivotal relation thereto, in combination with supporting springs arranged to support the load, and vertically movable journal boxes having pivotal relation to the truck side frame, said journal boxes being normally held in fixed relation to said truck side frame, and springs interposed between said journal boxes and said truck side frame, which springs are normally under their greatest compression.

5. In car construction, the combination with an underframe, of truck side frames pivotally connected thereto, supporting springs interposed between said truck side frames and said underframe, journal boxes arranged for vertical movement in said truck side frames and having pivotal relation to spring containers arranged in said truck side frames, there being springs interposed between said journal boxes and said truck side frames, said springs being arranged in said containers and being normally under their greatest compression whereby, when the supporting springs do not support the entire load, the springs in said containers will exert their energies between said truck side frames and said journal boxes and assist in supporting the load.

6. In car construction, an underframe, truck side frames pivotally movable with relation to said underframe, supporting springs, compensating devices, and means for preventing torsional strain being imparted to the supporting springs when the truck side frames swing on their pivots.

7. In car construction, an underframe, truck side frames having pivotal relation thereto, supporting springs interposed between said underframe and said truck side frames, compensating devices, and means for preventing torsional strain being imparted to said compensating devices when said truck side frames swing on their pivots.

8. In car construction, an underframe, truck side frames having pivotal relation thereto whereby the underframe is supported at four points, supporting springs arranged adjacent said points of support, compensating devices, and connections between the underframe and truck side frames permitting vertical movement but preventing torsional strains in said supporting springs and compensating devices.

In testimony whereof I hereunto affix my signature this 8th day of January, 1918.

HARRY M. PFLAGER.

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