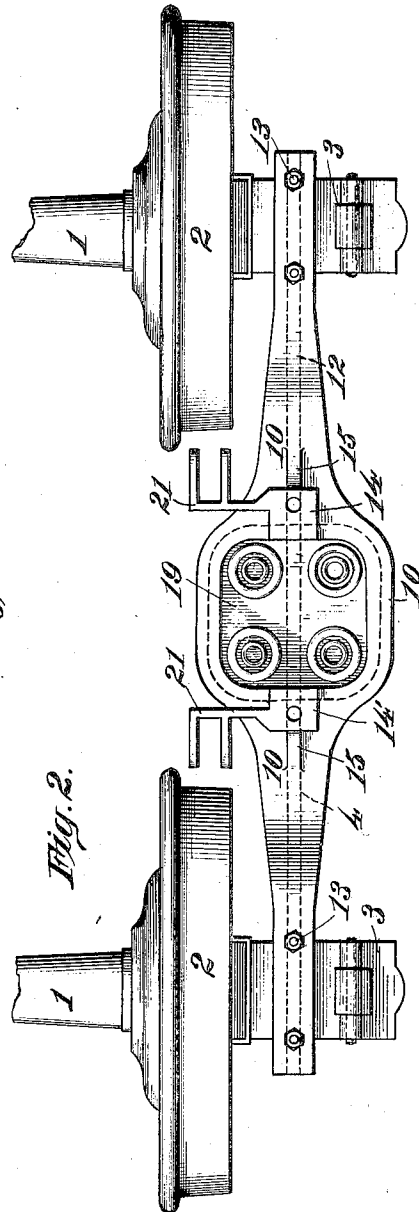
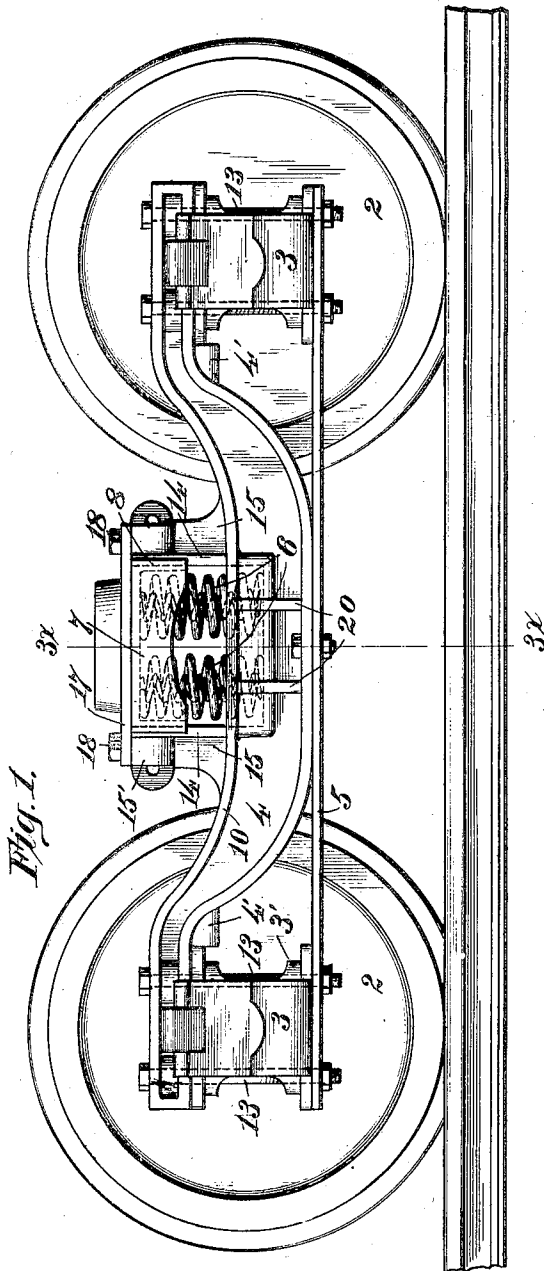


No. 822,676.

PATENTED JUNE 5, 1906.

A. LIPSCHUTZ.
CAST STEEL CAR TRUCK.
APPLICATION FILED FEB. 12, 1906.

2 SHEETS—SHEET 1.



Witnesses:

W. S. Austin
Janette Holt

Inventor
Arthur Lipschutz

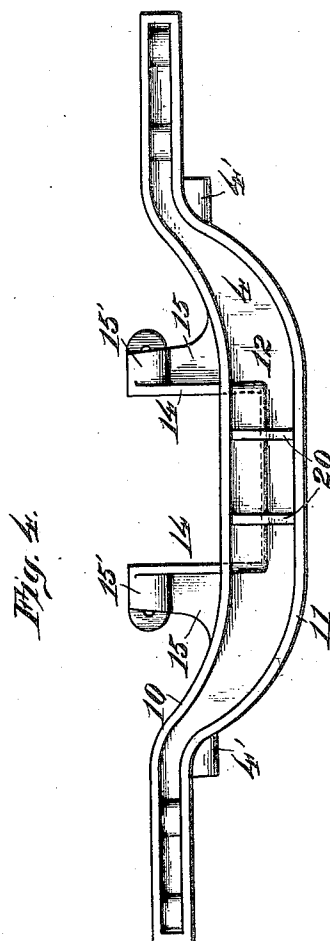
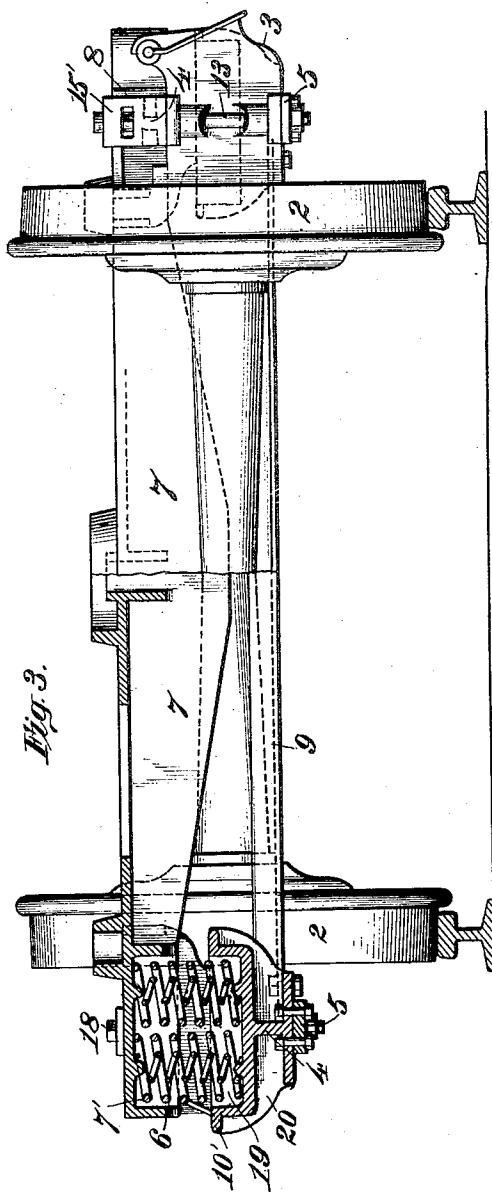
By
Charles W. Hawley
Attorney

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Witnesses:

W. S. Austin
J. Holt

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UNITED STATES PATENT OFFICE.

ARTHUR LIPSCHUTZ, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
HERBERT W. WOLFF, OF ST. LOUIS, MISSOURI.

CAST-STEEL CAR-TRUCK.

No. 822,676.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed February 12, 1906. Serial No. 300,704.

To all whom it may concern:

Be it known that I, ARTHUR LIPSCHUTZ, a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Cast-Steel Car-Trucks, 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 a part of this specification, and in which—

Figure 1 is a side elevation of a car-truck embodying my invention. Fig. 2 is a plan view of one-half of the car-truck, the truck-bolster having been removed to disclose the spring-seat, which is formed upon the truck-beam or side frame. Fig. 3 is an end elevation of the truck, one-half thereof being in vertical section on the lines 3×3× of Fig. 1; and Fig. 4 is a detailed side elevation of my novel truck-beam.

This invention relates to railway-trucks composed of metal, and has special reference to improvements in trucks of that class wherein the journal-boxes are rigidly secured in the truck-frame and wherein the truck-bolster is supported by springs provided upon the side frames of the trucks, as distinguished from those trucks wherein the bolster is supported by transverse transoms. In a truck of this general class the truck-bolster is usually quite as long as the car-axles, and its ends extend through or beyond the side frames. The springs for supporting the bolster are usually arranged in the vertical planes of the said frames.

My invention relates particularly to improvements in the side frames of freight-car trucks, though it is not confined to such trucks.

The object of my invention is to provide a car-truck which shall be of less weight and cost than others of its class and which shall be composed of fewer parts.

Another object of my invention is to so improve the construction of the side frames of car-trucks as to provide ample spaces for the bolster-springs and also to permit the easy placing and removal of the bolster without requiring the side frames to be taken down or dismembered.

The particular object of the invention is to provide a car-truck in which the usual transoms shall be dispensed with and in which single-part truck-beams, one on each side of the truck, shall take the place of the arch-bars, truck-columns, spring-seats, and minor associated parts commonly used to connect the journal-boxes and support the ends of the truck-bolster.

A further and particular object of the invention is to provide a car-truck which shall have its chief members made of cast-steel.

A further object of my invention is to provide a single-piece, strong, simple, and cheap side beam or frame for car-trucks, and, further, to provide a side beam of simple form specially adapted for low trucks.

This invention is related to the cast-steel car-truck which is shown and described in Letters Patent No. 786,575, granted to me April 4, 1905.

Broadly defined, my invention consists in a car-truck having side beams or frames that rest upon the tops of the journal-boxes and which are characterized by vertical recesses or spring-pockets and by bolster guides or columns, which latter project upwardly from the tops of the beams.

Further and particularly my invention consists in a novel side beam for car-trucks, said beam having bolster-guides on its top and being provided with an expanded or widened top flange and said flange being interrupted at the middle of the beam by a spring pocket or recess the bottom of which is below said flange.

I generally make my novel side members or beams of cast-steel, and my invention takes its name from this fact. I desire, however, to state that though I prefer that each side member of my truck shall be a single casting said members may be constructed of one or more pieces of rolled, pressed, or cast metal, and I do not limit my invention to a car-truck in which the chief members consist of single pieces of cast metal or to the particular constructions herein shown and described, but refer to the appended claims as pointing out and defining my invention.

Referring to the drawings for a better understanding of the preferred embodiment of my invention, 1 1 represent the axles, 2 2 the

wheels, and 3 3 the journal or oil boxes, of the truck. The journal-boxes upon each side of the truck are joined by a truck-beam 4, supplemented by a tie-bar 5. The novel features of my invention are grouped in and about these side beams, which take the place of the more complicated arch-bar frames in ordinary use. The springs 6 rest upon the side beams, and the bolster 7 in turn rests upon the springs 6, having its ends guided by column parts on said side beams.

The bolster is mainly composed of a wide flat top and depending truss-shaped webs. The ends of the bolster comprise open-bottomed boxes or spring-seats 7' to receive the upper ends of the springs 6 6. The characteristic cross-section of the bolster is an inverted-U shape with front and back webs of greatest depth at the middle of the bolster. At its ends the bolster is provided with vertical ribs or shoulders 8 to cooperate with the bolster columns or guides upon the side beams. In place of the common spring-plank I usually employ the parallel angle-bars 9, which extend between the side beams of the truck. It will be noted that the ends of the bolster extend through and beyond the side beams or frames of the truck and that the spring-centers—that is, the centers of the groups of springs—lie substantially in the middle vertical planes of respective side beams, the arrangement being such that the pressure of the bolster is directly downward upon said side beams without side or lateral thrust.

The side or truck beams are identical in shape, but occupy reverse positions. A description of one will serve for both. While, as intimated above, the truck-beam may be made of several cast or rolled metal parts, I much prefer that it shall be a single piece of cast-steel molded or cast in the exact form required and adapted to serve the several functions of the many equivalent parts in the ordinary truck-frame. In shape the beam is an inverted-arch bar, smaller at the ends than middle, with its middle top portion substantially in the plane of the car-axle centers. Because of this shape of the beams the bolster is, in effect, swung or hung from the tops of the journal-boxes, and its lateral thrust has little torsional effect upon the truck-beams. The upper and lower chords or flanges 10 and 11 of the truck-beam are preferably straight at the ends and also at the middle, and the intermediate converging portions take the form of ogee-curves, giving the whole the appearance of a dipped or depressed center truss. The top and bottom flanges 10 and 11, which provide strength against lateral strains, are joined by one or more vertical webs 12, which, of little height at the ends of the beam, increase in depth toward the middle of the beam, making, with

the flanges, a beam of ample strength to resist all lateral and vertical strains. The ends of the beam are straight and rest squarely upon the tops of the journal-boxes. The bottom of the beam is substantially in the plane of the bottoms of the journal-boxes, and a tie-bar 5 is bolted or otherwise preferably secured to the bottom flange 11 of the truck-beam and to the bottoms of the boxes. Large bolts 13, extending between the ends of the beam 4 and the tie-bar 5, embrace the boxes 3 to bind the parts 4 and 5 firmly upon said journal-boxes. The bolts pass through lugs or ears 3' on the journal-boxes. 4' 4' represent gage-lugs on the beams 4. When the journal-boxes 3, the beam 4, and the tie-bar 5 are properly alined and bolted together, they constitute a rigid and very strong frame of comparatively light weight, the beam because of its peculiar shape being capable of sustaining great weight and withstanding all lateral and torsional strain.

It will be seen that the side beam is provided with a bolster-space that is open at the top, being formed by the jaws or columns 14, that rise from the top of the beam. The columns or jaws 14 14 are plate-like in form and are strengthened by the thick webs 15, together with the top flanges 14' and lugs 15', preferably all intergal with the body of the beam. The columns thus formed are fully capable of withstanding all fore and aft and lateral strains or blows from the truck-bolster and also fit the ends of the bolster and prevent its longitudinal movement in the truck-frame.

When the bolster has been put in place, as shown in Figs. 1 and 3, it is retained by a light locking-bar 17, placed across the tops of the columns 14 and secured by bolts 18, the nuts whereof are within the inclosures formed by the bifurcated webs 15'. (See Figs. 1 and 3.) It is obvious that upon the removal of the bars 17 the bolster may be easily taken from the columns or guides without disturbing any other part of the truck.

The middle portion of the beam between the guides or columns 14 is thickened or widened to form a deep spring-pocket 19, the bottom of which is below the top flange 10—i. e., between the top and bottom flanges of the beam.

The sides and ends of the pocket portion of the beam are preferably curved to avoid sharp corners, and the flange 10, which is interrupted by the pocket, is, so to speak, divided and extends around each side of the pocket portion. As shown in Fig. 2, these widened or extended flanges 10' substantially follow the curves of the pocket portion and merge with the solid portions of the top flange. I thus preserve the full strength of the top flange and at the same time provide

a spring-seat that is much lower than that shown in the patent previously granted to me. The advantage which attaches to the use of a depressed center side beam having a relatively depressed spring-seat is that the springs and bolster may be lowered, and thus the height of the truck reduced.

The middle portion of the beam is preferably strengthened by transverse webs or fillets 20, which extend from the web 12 and connect the lower flange 11 with the upper widened flange 10'.

The form of the relatively depressed spring seat or pocket depends upon the principal cross-sections of the beam whatever their kind, and it will be obvious that this portion of the beam may be modified without departing from the spirit of my invention, the gist of which resides in a spring-seat which is located between the top and bottom flanges of the beam.

The ends of the channel, spring-plank, angles 9 or equivalent members preferably abut against the inner side of the vertical web of the truck-beam and are bolted to the beam-flange 11 and fillets 20. The plank performs the office of preventing the spreading apart of the two truck-beams, being assisted therein by the columns and column-guides of the bolster.

It has been explained that the truck-beam not only ties or rigidly joins two journal-boxes, but also supports the weight of and on the truck-bolster. It also furnishes the spring-seat, provides or contains the bolster-guides, and with a simple bar constitutes the means for securing the bolster and springs in proper place. In addition to these functions I make the side beams of my truck to perform the further service of supporting the brake-beams of the truck. The brake mechanism of the truck is not shown in the drawings; but it will be seen that each truck-beam is provided with two vertical bracket-like webs 21, arranged upon the upper inner side thereof above the top web 10. These brackets 21 are preferably integral with the columns or bolster-guides 14 and are provided with lugs 21', having holes for pins, adapted to support the brake-beam hangers.

It will be obvious that the gist of my invention—to wit, a truck-beam or side frame all of which is substantially above the bolster spring-seat and beneath the columns—may be embodied in a beam that is built up from several parts. Thus the columns or the spring-seat plate, or both, may be formed separately and bolted or fastened upon the beam proper. This is also true of the brake-hanger lugs, and it is also obvious that both the longitudinal and the cross sections of the truck-beam as herein shown may be modified to meet special requirements, and gener-

ally, as it is obvious that numerous modifications of my invention will readily suggest themselves to one skilled in the art, I do not confine the invention to the specific constructions herein shown and described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A side beam for car-trucks, comprising suitably-connected top and bottom flanges and having bolster guides or columns on its top and a spring pocket or recess between said guides, the bottom of said pocket being between said top and bottom flanges, substantially as described.

2. A side beam for trucks, comprising suitably-connected top and bottom flanges and having its middle portion depressed, said beam containing a spring seat or pocket the bottom of which is intermediate of the said top and bottom flanges and also having bolster-guides on its top, in combination with a bolster stop-bar connecting the upper ends of said guides, substantially as described.

3. The herein-described flanged side beam, containing a pocket the bottom whereof is between the flanges of the beam and which opens through the top flange of the beam, the top flange of said beam extending around the walls of said pocket, substantially as described.

4. A side beam for car-trucks, comprising a flanged beam having ends adapted to rest upon the tops of journal-boxes, and having a middle portion depressed containing a spring-pocket, the top flange of the beam being interrupted by and surrounding said pocket and the bottom of said pocket lying between the upper and lower flanges of the beam, substantially as described.

5. The herein-described depressed center side beam for trucks, provided with top and bottom flanges, having ends to rest upon the tops of journal-boxes, provided with a deep spring-recess, the bottom of which is below the top flange of the beam and provided with bolster-guides, which rise from said top flanges, substantially as described.

6. The herein-described depressed center side beam, containing in its depressed center portion a recess or pocket whose bottom is below the depressed top of the beam, having ends to rest upon the tops of journal-boxes and provided with bolster-guides, which rise from the top of said beam, adjacent to ends of said recess, substantially as described.

7. The herein-described beam, comprising suitably-connected top and bottom flanges and containing a spring-pocket in its upper middle portion, said pocket opening through the top flange of the beam, the bottom of said pocket being between said top and bottom flanges, said top flange being extended

around the walls of said pocket, and bolster-guides rising from said top flange, substantially as described.

8. The herein-described beam, comprising
5 suitably-connected top and bottom flanges
and containing a spring-pocket in its upper
middle portion, said pocket opening through
the top flange of the beam, the bottom of said
10 pocket being between said top and bottom
flanges, said top flange being extended
around the walls of said pocket, and bolster-

guides integral with the said beam and rising
from the top flange, substantially as de-
scribed.

In testimony whereof I have hereunto set 15
my hand, this 6th day of February, 1906, in
the presence of two subscribing witnesses.

ARTHUR LIPSCHUTZ.

Witnesses:

CHARLES GILBERT HAWLEY,
J. HOLT.