

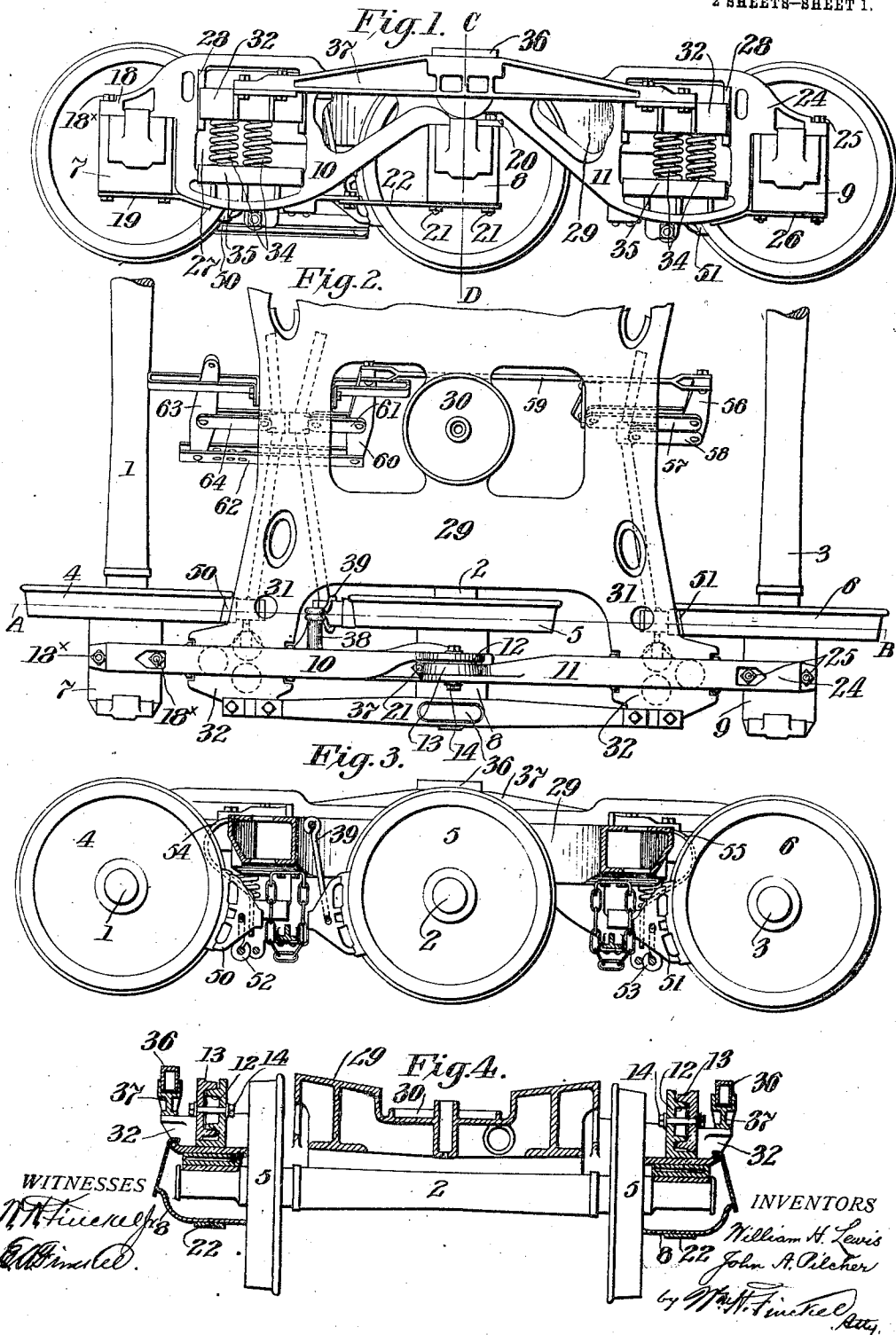
W. H. LEWIS & J. A. PILCHER.
CAR TRUCK.

APPLICATION FILED SEPT. 6, 1912.

1,054,697.

Patented Mar. 4, 1913.

2 SHEETS-SHEET 1.



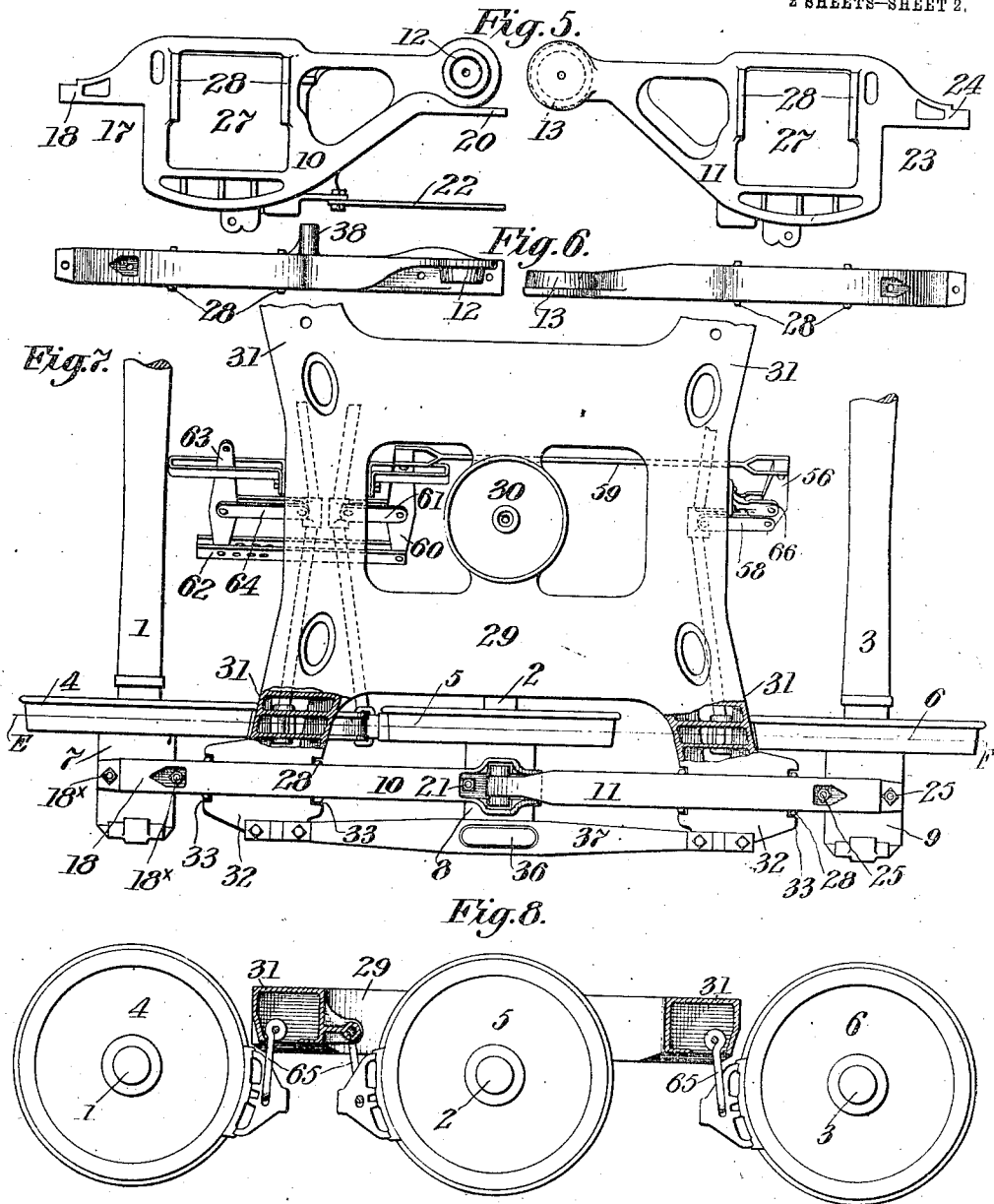
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UNITED STATES PATENT OFFICE.

WILLIAM H. LEWIS AND JOHN A. PILCHER, OF ROANOKE, VIRGINIA.

CAR-TRUCK.

1,054,697.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed September 6, 1912. Serial No. 718,910.

To all whom it may concern:

Be it known that we, WILLIAM H. LEWIS and JOHN A. PILCHER, citizens of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented a certain new and useful Improvement in Car-Trucks, of which the following is a full, clear, and exact description.

This invention relates to six wheel trucks for railway cars, and the object of the invention is to provide a truck in which wheel-pieces, pedestals, equalizer bars and their necessary adjuncts are dispensed with.

The invention consists of articulated side frames, carrying the axle-boxes; a truck-bolster having four arms extending through openings in the side-frames and engaging such frames, and supported on springs which are arranged in the openings in the side-frames; also side-bearings supported from the bolster-arms; also brake-beam suspension arrangements, and also brake-beam connections for simultaneously operating the brakes, all as we will proceed now more particularly to set forth and finally claim.

It will be understood that we do not wish to limit our invention to the particular details of construction shown in the accompanying drawings, as various changes may be made without departing from the spirit of the invention.

In the accompanying drawings, illustrating the invention in the several figures of which like parts are similarly designated, Figure 1 is a side elevation of a truck embodying one form of the invention. Fig. 2 is a top plan view showing the brake mechanism partly in dotted lines. Fig. 3 is a sectional elevation taken in part on the line A B, Fig. 2. Fig. 4 is a vertical transverse section taken in the plane of line C D, Fig. 1. Figs. 5 and 6 are detail views showing in elevation and plan the type of side frame members shown in Figs. 1, 2, 3 and 4. Fig. 7 is a top plan view, partly in section, showing another form of articulated side frames and another method of hanging the brakes. Fig. 8 is a sectional elevation, taken in part in the plane of line E F, Fig. 7. Fig. 9 is a detail view of the type of articulated joint shown in Fig. 7.

It is to be noted, at the outset, that we dispense with wheel-pieces, pedestals and equalizer-bars as such, and replace these with a pair of articulated side-frames on each side of the truck, which receive the

bolster, the axle boxes and the springs, and when assembled perform the functions of equalizer-bars in distributing the load.

The axles 1, 2 and 3, and their pairs of wheels 4, 5 and 6 and the axle boxes 7, 8 and 9, may be of any usual or approved construction.

The side-frames are composed of pairs of members 10 and 11 connected at adjacent ends by suitable knuckle joints, two forms of which are shown. The knuckle joint shown in Figs. 1 to 5, comprises circular flanges 12 and 13 projecting laterally toward each other and of a size to fit or nest one within the other, and a connecting bolt 14. As shown in Figs. 7 to 9 the knuckle joint is composed of a socket 15 in one member and a cross pivot 16 on the other member adapted to fit in the socket and requiring no other connection. The member 10 is provided at its outer end with a recess 17 to receive the axle-box 7, and an overhanging arm 18 to which the axle-box may be secured by ordinary bolts 18*; and if desired, a strap 19 may be arranged beneath the axle-box to receive it and the bolts 18* and itself be secured to or formed with the member 10. The inner end of this member 10 is made or provided with a projection 20 and to this is secured the intermediate axle-box 8, by bolts 21, or otherwise. In this instance, also, a bottom strap 22 may receive the axle-box and its bolts and itself be secured to or formed with the member 10. Thus the members 10 on opposite sides of the truck receive and support the four axle-boxes of one outer axle and the intermediate axle. The third axle 3 is supported in the axle-boxes 9 and these boxes are secured in recesses 23 made in the outer ends of the members 11, and secured to the overhanging arms 24 by bolts 25 and straps 26 formed with or attached to the members. Thus, all of the axle-boxes are sustained without the use of pedestals or wheel-pieces. Each of the members 10 and 11 is provided with openings 27, the lower portions of which are wider than the upper, and the upper portions are provided with vertically disposed guides 28, to receive and engage the bolster. These side-frames may be cast.

The bolster 29 is, preferably, a single casting, of platform formation, having the center-bearing element 30, and at each corner a laterally projecting arm 31, each arm ending in a longitudinally extending spring

pocket 32 which is provided with guides 33 to engage and cooperate with the guides 28, to connect the side-frames on opposite sides of the truck and provide for relative vertical movement. Between the arms of the bolster and the openings in the side-frames are springs 34, and these springs may be supported in the openings upon suitable integral or removable spring pockets 35. Thus the side-frames and bolster may be united and the parts held in alinement without the use of cross-ties, although such ties may be added if desired. The side-bearing plates 36 may be mounted upon bars 37 fixed to the arms of the bolster outside of the side-frames.

With the arrangement shown and described, the side members 11 and their wheels and axle become in effect a trailer, and by virtue of their articulation or pivotal relation to the other members 10 they may respond freely to track and load conditions.

The construction described requires modification of the brake mechanism, and we have shown two modes of arranging such mechanism.

In the construction shown in Figs. 1, 2 and 3, we have shown the brake-beams as supported entirely from the side-frames. In this case the side-frames 10 have laterally projecting supports 38 from which depend stirrup-like links 39 connected with the brakes for the intermediate pair of wheels 5, while the brakes 50 and 51 for the outer pairs of wheels are connected by links 52 and 53, respectively. In other words, the brake-beam for the intermediate wheels is supported from above, while the brake-beams for the outer pairs of wheels are supported from below, and in this latter case it may be necessary to use springs substantially as indicated at 54 and 55, to pull the brake-beams away from the wheels. The operating mechanism may comprise a dead lever 56 fulcrumed to the bolster through a pivotal connection 57 and having its lower end connected by a pivotal connection or link 58 with the brake-beam for one of the outer pairs of wheels, and having its upper end connected by a rod or tension member 59 with the upper end of a floating lever 60 which is connected between its ends by a pivotal connection 61 with the brake-beam of the intermediate wheels, and has its lower end connected with one end of a compression member 62, the other end of which compression member is connected with the lower end of a floating lever 63 which is connected between its ends by a pivotal connection 64 with the brake-beam of the other outer pair of wheels, and has its upper end connected in any suitable way with the brake-operating mechanism.

In the construction shown in Figs. 7 and 8, the brake-beams are hung directly from

the bolster by the several links 65, and the operating mechanism is essentially the same as that already described with reference to the construction shown in Figs. 1 to 4, excepting that the dead lever has a bracket-like fulcrum 66 which is arranged at the outer end of the bolster.

What we claim is:—

1. A six wheel truck for railway cars, having a pair of articulated side-frames, whose outer ends are provided with means to receive and support the axle-boxes, an inner portion of one of the members of each pair of side-frames having means to receive and support the axle-boxes of the intermediate wheels, the joints of the side-frames located above the intermediate axle.

2. A six wheel truck for railway cars, having a pair of articulated side-frames, whose outer ends are provided with means to receive and support the axle-boxes, an inner portion of one of the members of each pair of side-frames having means to receive and support the axle-boxes of the intermediate wheels, the articulation of the pairs of side-frames being independent of the intermediate axle and its boxes and out of the horizontal plane thereof.

3. A six wheel truck for railway cars, having a pair of articulated side-frames, whose outer ends are provided with means to receive and support the axle-boxes, an inner portion of one of the members of each pair of side-frames having means to receive and support the axle-boxes of the intermediate wheels, the articulation of the pairs of side-frames being independent of the intermediate axle and its boxes and out of the horizontal plane thereof and substantially in the vertical plane thereof.

4. A six wheel truck for railway cars, having a pair of articulated side-frames, whose outer ends are provided with means to receive and support the axle-boxes, an inner portion of one of the members of each pair of side-frames having means to receive and support the axle-boxes of the intermediate wheels, the articulation of the pairs of side-frames being independent of the intermediate axle and its boxes and out of the horizontal plane thereof, in combination with said axle-boxes rigidly secured in said side-frames.

5. A six wheel truck for railway cars, having its sides composed of pairs of articulated frames, one member of each pair of frames having means for rigidly securing the axle-boxes of one of the outer axles and the axle-boxes of the intermediate axle, and the other member of each pair of frames having means for rigidly securing the axle-boxes of the other outer axle, the points of articulation of the side-frames being independent of and removed from the axles, combined with a truck bolster having arms

supported and guided in the several members of the side-frames between the axles.

6. A six wheel truck for railway cars, having its sides composed of pairs of articulated frames, one member of each pair of frames having means for rigidly securing the axle-boxes of one of the outer axles and the axle-boxes of the intermediate axle, and the other member of each pair of frames having means for rigidly securing the axle-boxes of the other outer axle, the points of articulation of the side-frames being independent of and removed from the axles, combined with a truck bolster having arms extending laterally through openings in the several members of the side-frames, springs interposed between said arms and members, and supports for said springs on the arms and members.

7. A six wheel truck for railway cars, having its sides composed of pairs of articulated frames, one member of each pair of frames having means for rigidly securing the axle-boxes of one of the outer axles and the axle-boxes of the intermediate axle, and the other member of each pair of frames having means for rigidly securing the axle-boxes of the other outer axle, the points of articulation of the side-frames being independent of and removed from the axles, combined with a truck bolster having arms extending laterally from its four corners, spring supports and vertical guides on said arms, openings in said frames into which said arms extend and having vertical guides engaging the guides on the arms and springs supported in said openings beneath the arms.

8. A six wheel truck for railway cars, having its sides composed of pairs of articulated frames, one member of each pair of frames having means for rigidly securing the axle-boxes of one of the outer axles and the axle-boxes of the intermediate axle, and the other member of each pair of frames having means for rigidly securing the axle-boxes of the other outer axle, the points of articulation of the side-frames being independent of and removed from the axles, combined with a truck bolster having arms extending laterally from its four corners, spring supports and vertical guides on said arms, openings in said frames into which said arms extend and having vertical guides engaging the guides on the arms and springs supported in said openings beneath the arms, the springs located approximately at points two-thirds the distance between the intermediate axle and the outer axles.

9. A six wheel truck for railway cars, having its sides composed of pairs of articulated frames, one member of each pair of frames having means for rigidly securing the axle-boxes of one of the outer axles and the axle-boxes of the intermediate axle, and the other member of each pair of frames

having means for rigidly securing the axle-boxes of the other outer axle, the points of articulation of the side-frames being independent of and removed from the axles, combined with a truck bolster having arms extending laterally from the four corners of the bolster, and having spring pockets at their ends, the several members of the side-frames having openings to receive the arms and spring pockets and springs therein to support said arms.

10. A six wheel truck for railway cars, having its sides composed of pairs of articulated frames, one member of each pair of frames having means for rigidly securing the axle-boxes of one of the outer axles and the axle-boxes of the intermediate axle, and the other member of each pair of frames having means for rigidly securing the axle-boxes of the other outer axle, the points of articulation of the side-frames being independent of and removed from the axles, combined with a truck bolster having arms extending laterally from the four corners of the bolster, and having spring pockets at their ends, the several members of the side-frames having openings to receive the arms and spring pockets and springs therein to support said arms, and cooperating vertical guides on the arms and openings.

11. A side-frame for six wheel trucks for railway cars, composed of articulated members, adapted to take the place of the wheel-pieces, equalizer-bars and pedestals, the articulation comprising complementary parts at the adjacent ends of the members, which when in place are located in vertical alignment with the intermediate axle and above the same.

12. A side-frame for six wheel trucks for railway cars, composed of a pair of articulated members, adapted to take the place of the ordinary wheel-pieces, equalizer-bars, and pedestals, the articulation consisting of concentric circular flanges projecting laterally from the adjacent faces of the side-frame members, and means to hold the flanged parts together.

13. A side frame for six wheel trucks for railway cars, composed of a pair of members whose adjacent ends are connected by a knuckle joint located above the intermediate axle, and whose outer ends are provided with recesses and arms to support the outer axle-boxes, said members having openings to receive the bolster and springs, and one of said members provided with means to support the intermediate axle-box, the whole adapted to replace the ordinary wheel piece, equalizer-bar and pedestals.

14. A six wheel truck for railway cars, having side-frames composed of pairs of articulated members, one pair to each side, like members of the two pairs provided with means to receive and support four of

the six axle-boxes and the other members of the two pairs provided with means to receive and support the other axle-boxes, the articulation comprising concentric circular flanges on the adjacent ends of the members fitting one within the other and a connecting medium.

15. A six wheel truck for railway cars, having side-frames composed of pairs of articulated members, one pair to each side, like members of the two pairs provided with means to receive and support four of the six axle-boxes and the other members of the two pairs provided with means to receive and support the other axle-boxes, said side-frames having means by which the brake beams may be hung from them in proper relation to the wheels.

16. A six wheel truck for railway cars, having side-frames composed of pairs of

articulated members, one pair to each side, like members of the two pairs provided with means to receive and support four of the six axle-boxes and the other members of the two pairs provided with means to receive and support the other axle-boxes, combined with brake-beams for the outer wheels and under-hung means to support them from said side-frames, and a brake-beam for the intermediate wheels and over-hung means to support it from the side-frames.

In testimony whereof we have hereunto set our hands this 4th day of September A. D. 1912.

WILLIAM H. LEWIS.
JOHN A. PILCHER.

Witnesses:

W. HECKMAN,
ROY K. BROWN.

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