

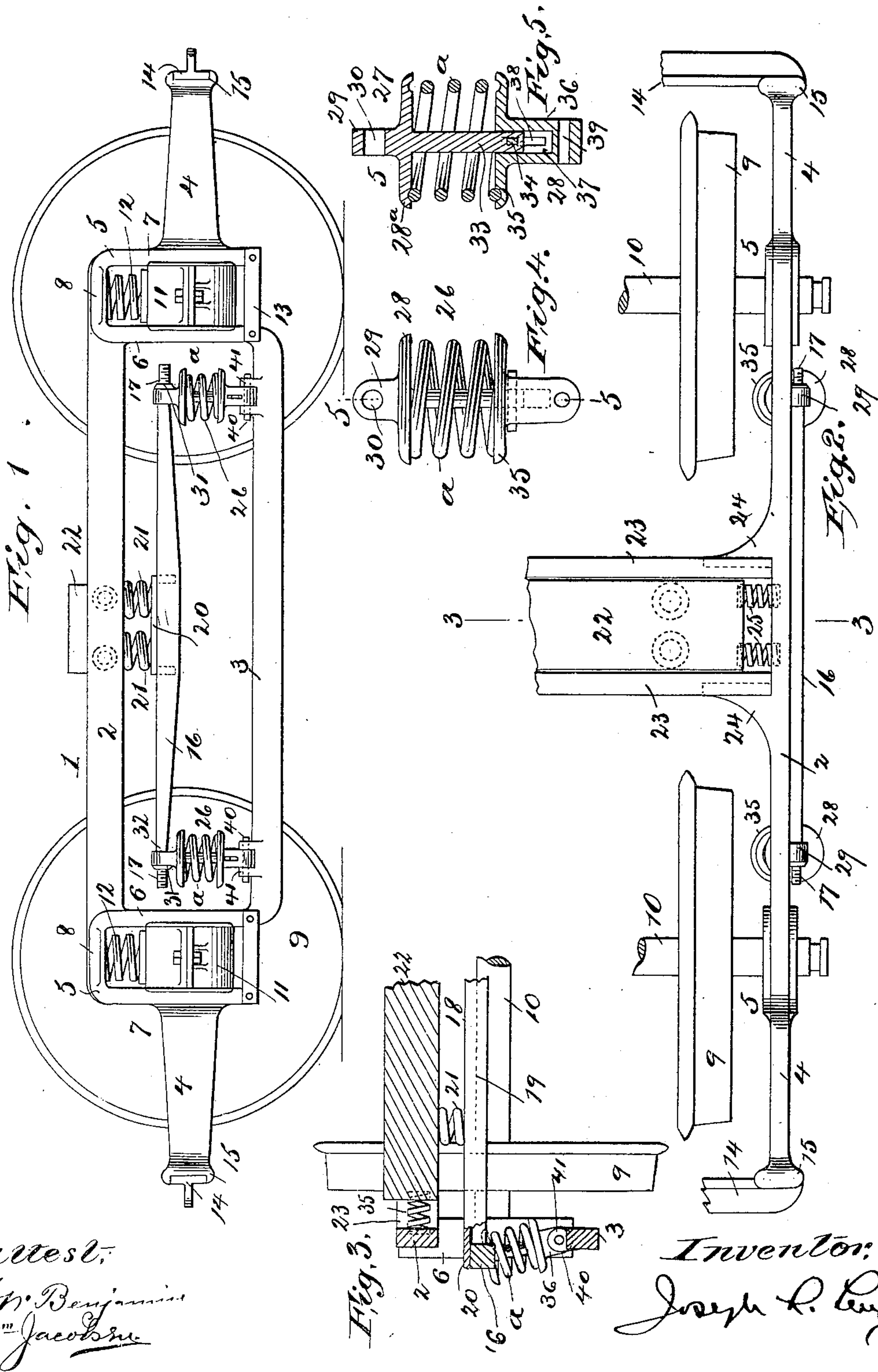
No. 658,659.

Patented Sept. 25, 1900.

J. L. LEVY.
CAR TRUCK.

(Application filed Sept. 14, 1897.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOSEPH L. LEVY, OF NEW YORK, N. Y., ASSIGNOR TO JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 658,659, dated September 25, 1900.

Application filed September 14, 1897. Serial No. 651,696. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. LEVY, a citizen of the United States, residing in the city, county, and State of New York, have made certain new and useful Improvements in Car-Trucks, of which the following is a specification.

My invention relates generally to improvements in car-trucks, and especially to pivotal trucks designed for use in motor and cable propulsion.

My invention has for its object to provide an easy-riding truck, and more especially to distribute the weight of the car, &c., thereon so as to produce the best results.

My invention therefore consists in forming an extension of the truck-bolster, supporting it on the truck-frame by links and equalizing-bars, the links having a compression and recoil spring, and pivotally uniting the links with the truck-frame and the ends of the equalizing-bars, so that both links, bars, and bolster can swing transversely in unison with the movements of the car-body.

My invention further resides in certain details of construction and combination of parts hereinafter described, and further pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a car-truck embodying my improvements; Fig. 2, a plan view of one side of same; Fig. 3, a sectional elevation of Fig. 2 on the line 3 3; and Figs. 4 and 5, respectively, front and sectional elevations of the spring-links, the section being had on the plane of the line 5 5, Fig. 4.

The general construction of the truck may be as desired; but I prefer the form shown, as it possesses features of advantage over others.

At 1 are the side frames, comprising the upper and lower chords or side bars 2 3 and extensions 4, between which are the inverted-U-shaped axle box yokes or pedestals 5, having upright inner and outer arms 6 7 and connecting top piece or extension 8, the chords connecting the inner yoke-arm 6 at the top and bottom and the extensions 4 extending from arms 7 intermediate of their ends.

At 9 are the wheels, 10 the axles, 11 the axle-boxes within the yokes, and 12 springs inserted between the extensions 8 and the

top of the boxes, and at 13 cross or stay bars united to the ends of the yoke-arms 6 7, and a T iron cross-bar 14, secured in a recess 15 in the ends of the extensions 4, completes the truck and its frame to which I have applied my improvements, which will now be described.

At 16 are the equalizing-bars, disposed longitudinally below the top chord 2 and strengthened centrally and provided with journaled ends 17, the extremes of which are provided with screw-threads. There are two of these equalizing-bars on each side of the truck, and by reference to Fig. 3 it will be seen that they lie a little to the outside of the vertical plane of the top chord 2. These equalizing-bars are connected together transversely by a cross-bar 18, which is firmly united to said equalizing-bars, which cross-bar may be termed a "sand" or "spring" plank of the bolster device hereinafter described. In this case the cross-bar consists in an inverted channel-beam, the side depending webs 19 of which are foreshortened at the end, so as to allow the base-piece 20 to rest directly on the equalizing-bars, to which it is securely fastened in any desirable way, the ends of the side webs 19 abutting directly against the sides of the equalizing-bars. This forms a strong, light, and efficient support for the intervening bolster-springs 21, which may be of the spiral, elliptic, or any other desired form and of any preferred number.

The springs 21 support the bolster 22, upon which may be secured a center plate and side bearings in the usual way, transoms 23 being provided for the bolster by securing their ends to brackets 24, extending outwardly from the inner face of the top chord 2, the transoms being of angle-iron with their vertical webs opposed, between which a bolster 22 lies, and between the ends of the bolster and in recesses formed in alining parts of the inner face of the top chord 2 extend thrust-springs 25. The bolster-springs 21 are securely fastened to the cross-bar or spring-plank 18 and to the bolster, this structure, including the bolster, bolster-springs, plank, and equalizing-bars, being adapted to move or swing transversely to allow of the evolutions of the car on the truck during curving and the like. This structure is supported upon the truck-frame by separate

links 26, there being two links on each side located adjacent the axle-box yokes 5. The links are so constructed as to allow of a downward movement of the bolster and equalizing-bars under the influence of the weight of the car and an upward movement of the truck-frame against the weight of the car while in braking or from any other cause, both of which movements being opposed by springs interposed in the links, which form, with the bolster-springs 21 and the axle-box springs 12 when employed, a part of the spring system of the truck.

The links 26 comprise two parts—an upper part 27, secured to the ends of the equalizing-bars, and the part 28, secured to the lower chord 3—the parts being movable or extensible in both directions. The part 27 comprises a spring cap or follower 28^a, having a lug 29 with a transverse aperture 30 therein, through which aperture passes the journaled ends 17 of the equalizing-bars, a nut 31 or other suitable restraining device being located against the lug 29 to maintain it against a shoulder 32, formed on the equalizing-bar at the opposite side of the lug. The follower 28^a has depending therefrom a rod 33, provided with a bar or pin 34, extending transversely there-through. The part 28 of the link comprises a follower 35 and a depending lug 36, in which is formed a barrel 37, the walls of the barrel being provided with two alining vertically-disposed slots 38, the rod 33 from the follower 28^a passing into the barrel and the bar 34, which projects from the rod 33, extending into the slots 38, so as to bear against the under side of the follower 35, as clearly shown in Figs. 4 and 5. The lug 36, below the barrel 37, is provided with a transverse circular opening 39, through which extends a pin 40, passing also through upwardly-extending ears or lugs 41, formed on the lower chord 3. The followers 28^a and 35 face each other and are provided with seats to receive the ends of a recoil-spring α between them, which spring surrounds the bar 33 and under normal conditions maintains the cross-bar 34 against the bottom of the follower 35 or closely adjacent thereto, the cross-bar 34 moving in the slots 38 during the compression and relaxation of the spring and preventing the upper section 27 of the link turning in relation to the lower section.

From the foregoing it will be seen that the connection of the spring-links 26 with the ends of the equalizing-bars and with the truck-frame is a pivotal one, allowing of a transverse swinging movement of the equalizing-bars and devices supported thereby.

By reference to Fig. 3 it will be seen that the spring-links are splayed outwardly to prevent an excessive outward movement in either direction of the equalizing-bars, thus establishing a firm and efficient support for the bolster thereon.

In action the weight of the car is primarily taken on the bolster-springs 21, thence to the springs α in the links, which I prefer in the

aggregate shall be equal to or of greater carrying capacity than the bolster-springs 21, and finally through the springs 12 to the axle-boxes.

The action of the truck when either the truck-frame or the wheels are raised through inequalities in the track or when from braking the end of the truck-frame is raised lifts the lower chord, carrying the lower section of the link upwardly, compressing the interposed spring, raising the equalizing-bars 16, with the bolster-springs 21, which compression finally absorbs the upward movement of either the frame or the wheels, so that under either condition of use the car is supported upon a spring system responsive to the varying requirements of use. Besides this the location of the link-springs adjacent the axle-boxes extends the spring-base of the bolster-support on the truck to an extent much greater than hitherto generally employed.

It will be plain from the foregoing that my invention is not limited to forming a bolster with interposed springs, as the bolster construction may either be formed as shown, which includes the bolster-bar 22, springs 21, and cross-bar 18, or a bolster construction could be formed by securing the bolster directly on the cross-bar 18, or the cross-bar could be so constructed as to form a bolster, so that wherever the word "bolster" is employed in the claims, unless otherwise qualified, I desire it to be understood as comprehending either one of these forms of bolster, the only essential to this portion of my present invention being an efficient device for tying the equalizing-bars on both sides of the truck together.

Having described my invention, I claim—

1. In a car-truck, the combination with the truck-frame having axle-box pedestals, longitudinally-disposed equalizing-bars located between the pedestals, a bolster-support adapted to swing transversely and securing said equalizing-bars together, and links extending upwardly from the truck-frame and pivotally connected to the latter and to the ends of the equalizing-bars, the equalizing-bars and links swinging bodily with the bolster, substantially as described.

2. In a car-truck, the combination with the truck-frame having axle-box pedestals, longitudinally-disposed equalizing-bars located between the pedestals, a cross-bar transversely disposed and securing said equalizing-bars together, and adapted to swing transversely, springs on the cross-bar, a bolster on the springs, and links extending upwardly from the truck-frame and connected to the ends of the equalizing-bars, substantially as described.

3. In a car-truck, the combination with a truck-frame having axle-box pedestals, a bolster-support adapted to swing transversely and securing said equalizing-bars together, a bolster, thrust-springs between the said bolster and the truck-frame, and links extending

upwardly from the truck-frame and pivotally connected to the latter and to the ends of the equalizing-bars, substantially as described.

4. In a car-truck, the combination with the truck-frame, of the equalizing-bars, a bolster supported on the side bars, links having parts movable to or from each other, said links extending upwardly from the truck-frame and which are pivotally connected with said bars and the truck-frame, and springs on said links for opposing the movements of said parts, the links, springs, bars, and bolster being adapted to swing transversely independently of the truck-frame, substantially as described.

5. In a car-truck, the combination with the truck-frame, longitudinally-disposed equalizing-bars, a bolster-support transversely disposed and securing said bars together, the bolster-support being adapted to swing transversely and independently of the truck-frame, links extending upwardly from the truck-frame and pivotally connected to the latter and to the ends of the equalizing-bars, and springs carried by the links arranged to be compressed by the equalizing-bars or truck-frame, substantially as described.

6. In a car-truck, the combination with the truck-frame, of the longitudinally-disposed equalizing-bars arranged between the axles of the truck, a cross-bolster adapted to swing transversely and supported on said equalizing-bars, transversely-swinging connections extending from the truck-frame below the equalizing-bars, each of said connections comprising a part pivoted alike to the truck-frame and each end of each equalizing-bar, and a spring carried by the said parts and arranged to be compressed between them, substantially as described.

7. In a car-truck, the combination with the truck-frame having axle-box pedestals and a chord secured to and extending between the lower part of said pedestals, of the equalizing-bars disposed between said pedestals, a spring-cup pivotally supported on the chord below the end of each of said bars, a cap pivotally hung from the end of each of said bars, connections movably interposed between said cap and cup, a stop to limit such movement and a spring interposed between each of said cups and caps, substantially as described.

8. In a car-truck, the combination with the equalizing-bars adapted to swing transversely and independently of the truck-frame, a frame-chord disposed below the equalizing-bars on each side, a bolster supported on the equalizing-bars and swinging with them, and yielding connections between each of said chords and said bars arranged to be compressed by the downward movement of each of said bars or upward movement of each of said chords, substantially as described.

9. In a car-truck, the combination with the equalizing-bars adapted to swing transversely and independently of the truck-frame, a frame-chord disposed below the equalizing-bars on each side, a bolster supported on the

equalizing-bars and swinging with them, a spring between each of said chords and each end of each of the equalizing-bars, and means combined with said springs whereby the upward movement of said chord or the downward movement of said bars will be resisted by said springs, substantially as described.

10. In a car-truck, the combination with the side frames having side bars, the equalizing-bars disposed above the side bars, links diverging upwardly and outwardly from said bars and pivotally connected with the side bars and the ends of the equalizing-bars, and a bolster on said bars, substantially as described.

11. In a car-truck, the combination with the side frames having side bars, the equalizing-bars disposed above the side bars, two-part links diverging upwardly and outwardly from said bars and pivotally connected therewith and the ends of said equalizing-bars, springs interposed between the parts of said links, and a bolster on said bars, substantially as described.

12. In a car-truck, the combination with the truck-frame having axle-box pedestals, longitudinally-disposed equalizing-bars located between the pedestals, a bolster-support transversely disposed and securing said equalizing-bars together, links extending upwardly and outwardly and pivotally supported upon the truck-frame, and pivotally connected with the ends of the equalizing-bars, substantially as described.

13. The combination in a truck, of the longitudinally-disposed equalizing-bars, the collapsible links pivotally supported and extending upwardly from the truck-frame and pivotally connected with the ends of said equalizing-bars, springs interposed in said links to oppose the movements of their parts, and a bolster-support transversely disposed and tying the equalizing-bars together, said links being inflexible between their ends, substantially as described.

14. The combination in a truck, of the side frames, having the top chord 2, lower chord 3, and axle-box yokes 5, of the equalizing-bars longitudinally disposed between the upper and lower chords, the spring-links 26 pivotally secured to the lower chords at one end and pivotally secured to the ends of the equalizing-bars at their upper ends, and a bolster-support tying the equalizing-bars transversely together, substantially as described.

15. The combination in a truck, of the side frames having the top chords, lower chords, and axle-box yokes, of the equalizing-bars longitudinally disposed between the upper and lower chords, the spring-links 26 pivotally secured to the lower chords at one end and pivotally secured to the ends of the equalizing-bars at their upper ends, transoms extending between the top chords, and a bolster supported on the equalizing-bars and extending between the transoms, substantially as described.

16. The combination with the lower chord 3 of the truck-frame, of the follower-plate 35, the chambered lug 36 depending from the follower and pivotally secured on the lower chord, the follower 28^a having the depending rod 33 and apertured lug 29 above the follower, slots 38 formed in the chambered lug 36, a bar 34 passing through the rod 33 and into the slots 38, a spring *a* interposed between the followers, the longitudinally-disposed equalizing-bars 16 having their ends pivotally secured in the apertured lugs 29, and a cross-bar secured to the equalizing-bars, substantially as described.

17. In a car-truck, a compression-link comprising a plate, and a follower, said plate having a vertically-slotted chamber, and said follower having a rod extending into said chamber, a pin passing through said rod engaging said slots, and a yielding body disposed be-

tween said plate and follower, and means for pivotally supporting said link on the truck, substantially as described.

18. In a car-truck, a compression-link comprising the plate 35 and follower 28^a, a chambered lug 36 depending from the plate, a rod 33 depending from the follower 28^a into said lug 36, slots formed in said lug, a bar 34 passing through the rod and into the slots, a spring *a* interposed between the plate and follower, and means for supporting said link on the truck, and a car-body on said link, substantially as described.

Signed at the city, county, and State of New York this 10th day of September, 1897.

JOSEPH L. LEVY.

Witnesses:

WILLIAM JACOBSEN,
S. BEATRICE KUHN.