

No. 610,119.

Patented Aug. 30, 1898.

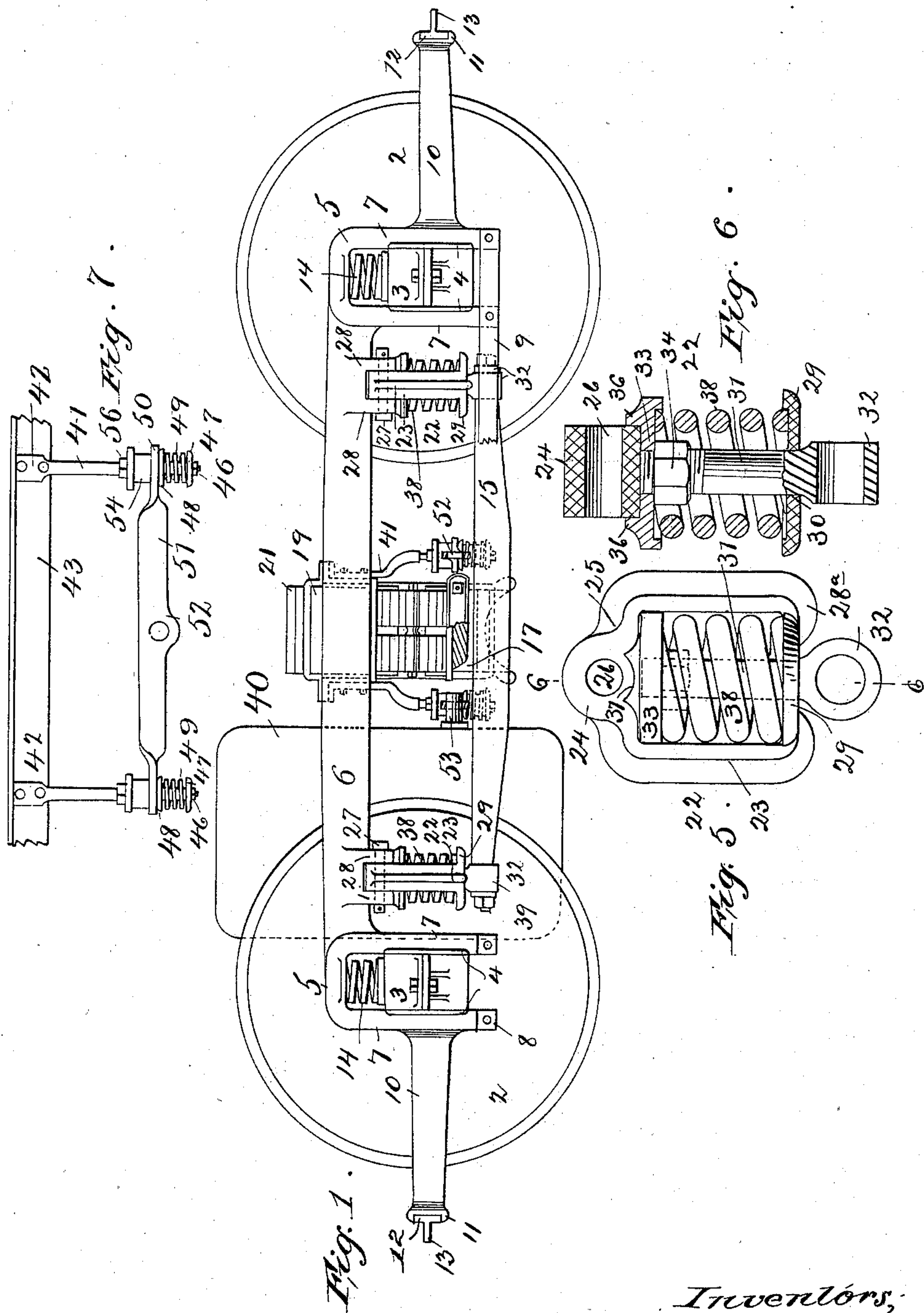
G. M. BRILL & S. M. CURWEN.

PIVOTAL TRUCK.

(Application filed June 23, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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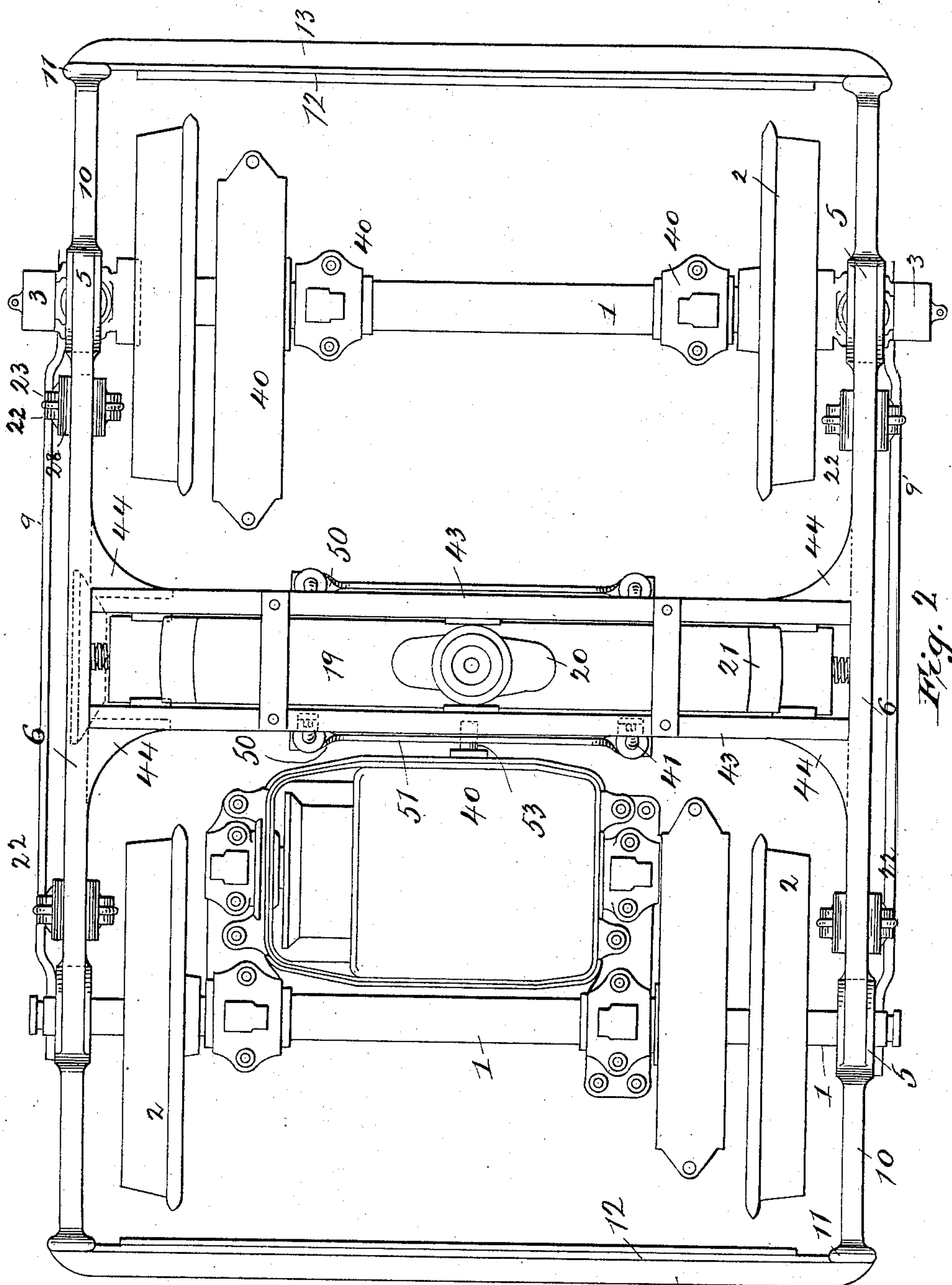


Fig. 2

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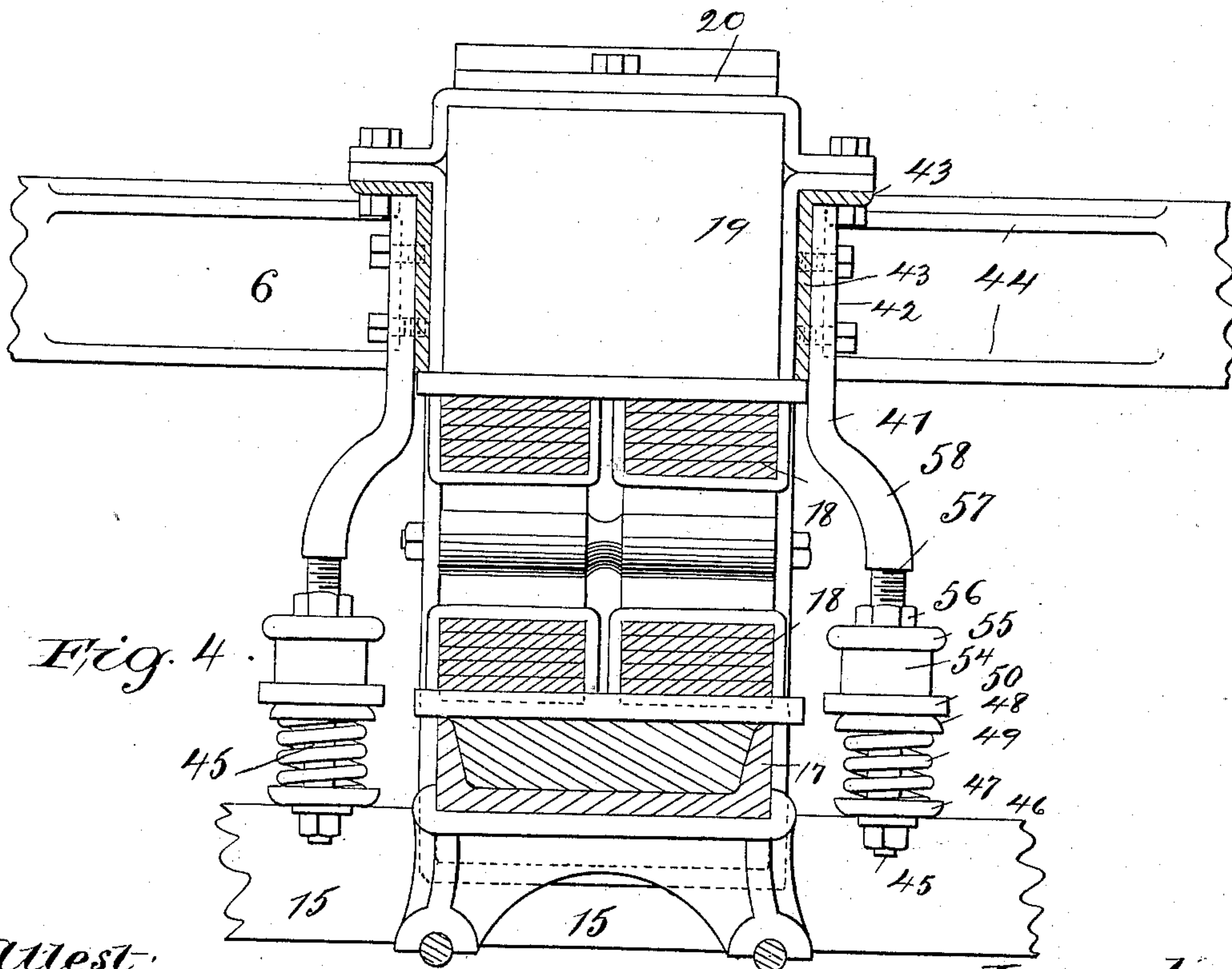
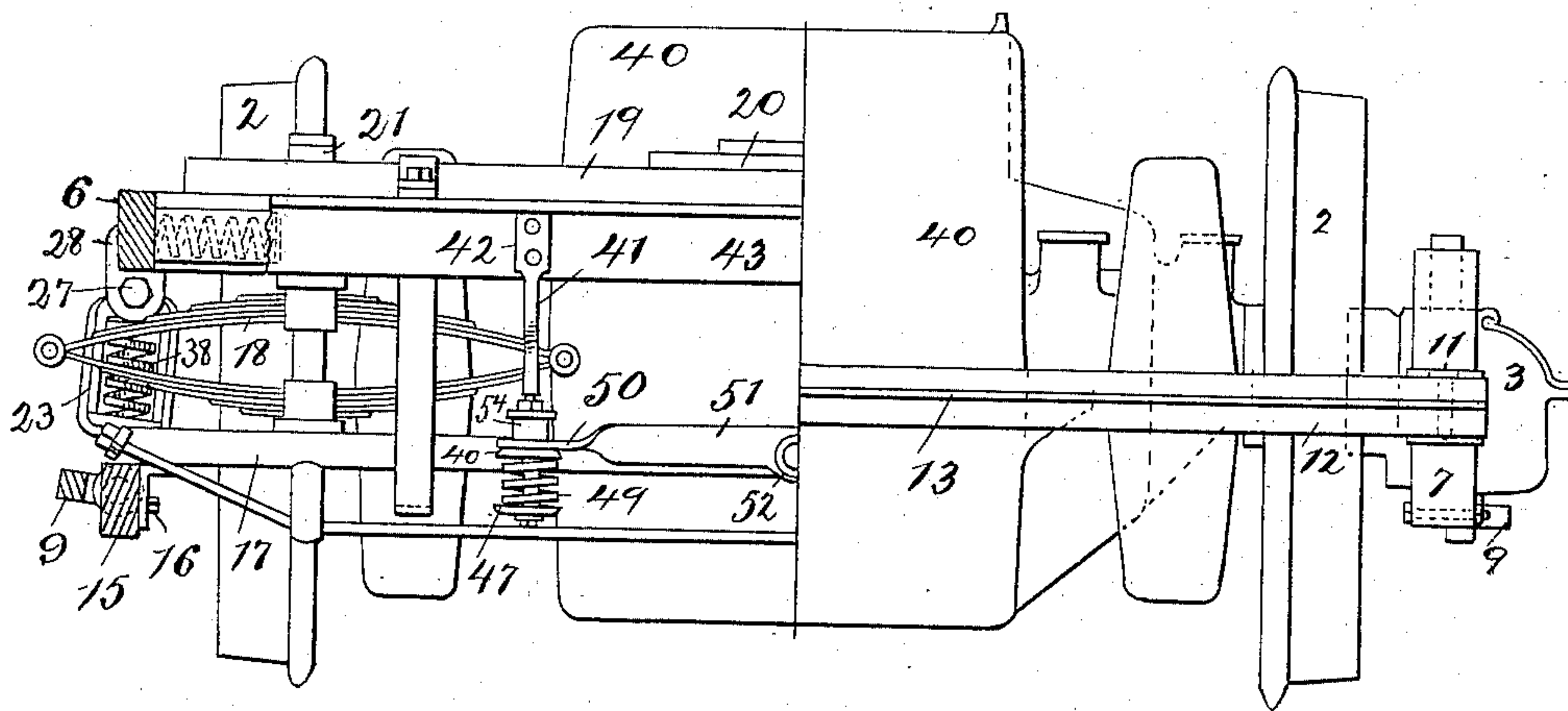
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3 Sheets—Sheet 3.

Fig. 3:



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UNITED STATES PATENT OFFICE.

GEORGE MARTIN BRILL AND SAMUEL M. CURWEN, OF PHILADELPHIA,
PENNSYLVANIA, ASSIGNORS TO JOHN A. BRILL, OF SAME PLACE.

PIVOTAL TRUCK.

SPECIFICATION forming part of Letters Patent No. 610,119, dated August 30, 1898.

Original application filed November 3, 1896, Serial No. 610,902. Divided and this application filed June 23, 1897. Serial No. 641,868. (No model.)

To all whom it may concern:

Be it known that we, GEORGE MARTIN BRILL and SAMUEL M. CURWEN, citizens of the United States, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have made certain new and useful Improvements in Pivotal Trucks, of which the following is a specification.

Our invention relates to improvements in the construction of car-trucks, and especially those adapted for passenger service; and the specific improvements hereinafter described relate to the subject-matter of an application filed by us on the 3d day of November, 1896, Serial No. 610,902, of which this application is a division.

The specific improvements claimed herein relate to the construction of the spring-links and the support for the motor, all of which are hereinafter described, and more fully pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a truck embodying our improvements. Fig. 2 is a plan view of a truck embodying our improvements. Fig. 3 is an end elevation of the truck, one half of which is cut away to illustrate the bolster construction and motor-support, the latter half being partly in section. Fig. 4 is an enlarged longitudinal sectional elevation through the bolster, showing a portion of the equalizing-bar and top chord of the side frame on one side of the truck and the motor suspension. Figs. 5 and 6 are respectively side and sectional elevations, enlarged, of the spring-link. Fig. 7 is a side elevation of a portion of one of the transoms and the motor-support secured thereto.

Similar numerals of reference indicate corresponding parts throughout the several views.

As this application refers, as above stated, solely to the specific construction of the spring-links and the motor suspension hereinafter described, we will confine ourselves in the following description to the parts of the truck more intimately connected therewith, cross-reference being had to said application for matters not hereinafter specifically touched upon.

A truck to which we have applied our spring-link, but to which form we do not limit ourselves, comprises the axles 1, the wheels 2, the journal-boxes 3, provided with vertical restraining-ribs 4, held in inverted-U-shaped yokes or pedestals 5, the yokes being connected together at the top by a top chord 6, the outside of the lower portion of the arms 7 of the yokes being recessed, as at 8, to receive a pedestal tie-bar 9, to which the yoke-arms are bolted, the tie-bar constituting a lower chord for the side frame and which is bent outwardly to give clearance for the swing of the equalizing-bars hereinafter described.

On the outer arms of the yokes, preferably on the same horizontal plane approximately with the axles, are outwardly-extending arms 10, formed with recessed jaws 11, in which is seated the bottom plate 12 of a T-iron cross-bar 13, the cross-bar tying the side frames together transversely.

The foregoing comprises the truck-frame, which may be variously termed an "axle-box frame" or "truck-frame," and the top chord may be termed the "side bar," and the top chord, yokes, and extensions the "side frame." The truck-frame is supported on the axle-boxes by springs 14, interposed between the tops of the yokes or pedestals 5 and the axle-boxes 3.

At 15 are longitudinally-disposed inflexible equalizing-bars, to the centers of which is secured—say, by the angle-iron 16—the transversely-extending sand or spring plank 17, which for the purposes of this particular application can be of any desired construction, or that of the application above recited, which sand-plank supports bolster-springs 18 and a bolster 19 of any desired construction, which carries the center and side bearings 20 21. The equalizing-bars 15 are supported from the top chord 6 or any other desirable portion of the side frames, preferably adjacent the yokes or pedestals, by the extensible spring-links 22, illustrated in detail in Figs. 5 and 6, the links comprising the rectangular-shaped stirrup 23, provided with a transverse enlargement 24 in its top cross-bar 25, in which is formed a hole 26 for the passage of a pin 27, which pivotally supports the stirrup in ears or lugs 28, de-

pending from the side bar 6. The lower transverse portion 28^a of the stirrup is enlarged to form the spring cup or base 29, and through the base is formed an opening 30, through which extends the eyebolt or thrust-bar 31, the eye 32 of which is exterior to the base and below it, the upper portion of the bolt being screw-threaded, and to which is secured a spring cap or follower 33, held in place by the nut 34. The nut 34 and follower 33 can be made in one piece and secured to the bolt 31 in the same way.

At each side of the top cross-bar 25 the follower 33 is extended upward by the lugs 36 about the sides of the cross-bar, against which the lugs bear to keep the follower in place in the stirrup, and in order to allow the latter to rest snugly against the lugs 28 on the side bar and to prevent turning of the follower or eyebolt the lugs 36 are curved downwardly at the top to form recesses or bearings 37, and between the follower and the base or cup 29 and about the eyebolt or thrust-bar 31 is the spiral equalizing-spring 38.

The aperture in the eye 32 of the bolt 31 is fitted over a rounded extension 39 of the equalizing-bars 15, so that the ends of said equalizing-bars are journaled in the end of said thrust-bar. Instead of employing the spiral spring we can employ cushions of rubber or the like, although coiled springs are preferred, as it is intended that such springs shall enter into the car-supporting spring system, of which the axle-box and bolster-springs form a part, as recited in said before-mentioned application.

The bolster, whether comprising the bolster proper, 19, the bolster-springs 18, and spring-plank 17, or a simple cross-bar, ties the equalizing-bars together transversely, and such bolster construction can have the capacity for transverse swinging movement through its articulated support from the side bars and is suspended from the side bars by the springs 38 in the links or hangers.

The weight of the car-body, whether imposed on the bolster-spring, or directly on the spring-plank, is taken through the equalizing-bars to the link-springs, which sustain their share of the load of the car, the follower 33, through the thrust-bar, having a downward movement, or a tendency thereto, when the weight comes from above, as from the car.

When the brakes are applied to the wheels, which are carried by the end of the truck-frame, as on the cross-bar 13, the tendency is to lift the truck-frame. This movement is resisted by the link-springs, which movement pulls the stirrup 23 upwardly against the weight of the car, which tends to keep the follower down on the top of the spring, compressing the link-springs and absorbing this movement, so that its effect is not materially felt on the car or bolster.

The motor-support is constructed as follows: At 40 is an electric motor, diagrammatically illustrated, one end being hung, sleeved,

or otherwise supported from the axle in the usual or desired way, the other end being upheld by the support hereinafter described. At 41 are pendent hangers, securely bolted at their upper ends 42 to the transoms 43 (the transoms being secured to brackets 44, as recited in said application) and the lower ends 45 being threaded to receive nuts 46, which support a spring-cap 47, above which is a spring-cap 48, between which spring-caps and about the ends 45 of the hangers are spiral springs 49, the cap 48 being movable on the hangers, and on the top of the spring-cap 48 rests the flat end 50 of a twisted cross-bar 51, which between the ends is disposed upwardly and which is provided with a central apertured enlargement 52 to receive the usual circular lug 53 on the end or casing of the motor, and above the end 50 of the cross-bar and upon it rests either a spiral spring or elastic cushion 54, and on the cushion rests a spring-cap 55, which abuts against a nut 56, movable on a thread 57 on the hanger, so as to adjust the tension of the springs, and holding the spring-cap 55 in position.

As illustrated in Fig. 4, the hangers are turned outwardly, as at 58, in order to clear the bolster-springs. This form of suspension enables the space between the bolster and axles to be utilized for the suspension of the motor, bringing the motor and its casing close up to the bolster, one of the essential features of this suspension being its connection with the transoms, which derive their support from the side bars of the truck, which in turn are resiliently supported upon the axle-boxes, so that the motor has a resilient support upon the axles through the axle-box springs 14 and an intermediate oppositely-acting resilient suspension on the truck-frame.

Having described our invention, we claim—

1. The combination in a car-truck, of the side frames, hangers pivotally suspended from said frames, a bolt movable in each of the said hangers, a follower on the bolt, a spring interposed between the hanger and the follower, equalizing-bars secured at their ends to the bolt exterior to the hanger, and a bolster secured to said equalizing-bars, substantially as described.

2. In a car-truck, the combination with the side frame having pendent lugs, a pin passing through each of said lugs, stirrups suspended by said pins, an apertured spring-seat on said stirrup, a spring on the seat, an eyebolt having an eye at one end exterior to the stirrup, and a follower on the other end resting on said spring, an equalizing-bar connected at its end to each of said bolts, and a bolster on said equalizing-bars, substantially as described.

3. In a car-truck, the combination with the side frames, the stirrups pivotally supported from the side frames, spring-seats formed at the lower portions of said stirrups, a spring on each of said seats, the equalizing-bars,

bolts on the ends of the equalizing-bars extending into said stirrups, connections between said bolts and the springs, and car-supporting devices resting on said bars, substantially as described.

4. The combination with the side frames, having the side bars, lugs on the side bars, stirrups suspended by the lugs, each stirrup having an aperture at the upper end and a spring-seat on the lower end, a pin passing through said lugs and aperture, springs on each of the spring-seats, the equalizing-bars and connected bolster, bolts extending from the ends of the equalizing-bars into the stirrups, and a follower in the stirrup resting on said spring, substantially as described.

5. The combination in a car-truck, of the side frames, the bolster, the equalizing-bars, the eyebolts movably secured to the ends of the equalizing-bars, a stirrup movably suspended from said side frames, said bolts having followers, and springs interposed between said followers and said stirrups, substantially as described.

6. In a car-truck, the combination with the top chord, of the link or hanger comprising the stirrups 23 having the top bar 25 provided with an apertured enlargement 24, apertured lugs on the top chord, a pin securing said stirrup to said lugs, an eyebolt and follower, a spring interposed between the follower and the stirrup, the follower having upwardly-extending lugs embracing the sides of the top bar 25, substantially as described.

7. In a car-truck, the combination of the side bar, with the stirrup 23 having a top cross-bar 25, a transversely-apertured enlargement 24 in the top cross-bar, a pin securing the enlargement to the side bar a spring-seat 29 formed on the lower cross-bar 28^a, an aperture 30 formed in said seat, a bolt 31 passing upwardly into the stirrup through the aperture in the seat 29, a spring 38 on the seat 29 surrounding said bolt, a follower 33 secured on said bolt and resting on said spring, an apertured eye 32 formed on the end of said bolt and a bolster secured through interme-

diate connections to the said eye, substantially as described.

8. In a car-truck, the combination of the side bar, with the stirrup 23 having a top cross-bar 25, an apertured enlargement 24 in the top cross-bar, a pin securing said enlargement to the side bar, a spring-seat 29 formed on the lower cross-bar 28^a, a follower 33 within the stirrup, a bolt 31 passing into said stirrup through an aperture in the seat 29, said bolt being threaded and engaging a thread formed in the follower 33, a set-nut 34, engaging the follower, an apertured eye 36 formed on the said bolt exterior to the stirrup and a bolster secured through intermediate connections to said eye, substantially as described.

9. The combination in a car-truck and the axle-sustained motor, of the top chords of the truck-frame, a transom extending between said chords, hangers depending from and secured to said transom, a cross-bar extending between said hangers, springs on the hangers above and below said bar, a spring-cap secured to the hanger below the transom against which cap the upper springs bear, a stop on the hanger for confining said cap thereon and means for connecting said bar to the free end of said motor, substantially as described.

10. The combination with the side bars 6, of the transom 43 extending between the side bars, the hangers 41 pendent from the transom, the cross-bar 51 on the hangers, springs for supporting said bar on said hangers located below the bar, springs above said bar on said hangers, nuts below and above each of said last-mentioned springs and a thread on the hangers for engagement with said nuts, substantially as described.

Signed in the city and county of Philadelphia, State of Pennsylvania, this 17th day of June, 1897.

GEO. MARTIN BRILL.
SAMUEL M. CURWEN.

Witnesses:

HENRY C. ESLING,
W. M. ENLING, Jr.