No. 610,785. Patented Sept. 13, 1898.

B. F. ALLEN.

CAR TRUCK.

(Application filed May 27, 1898.)

(No Model.) 6 Sheets—Sheet 1.

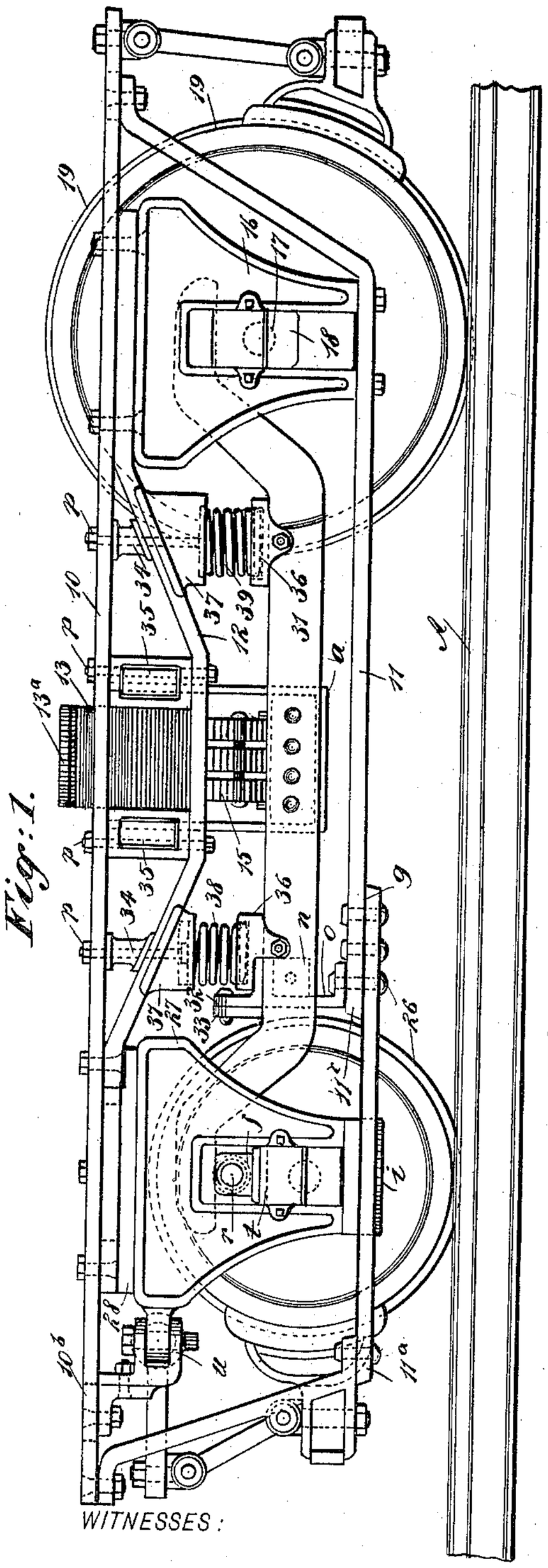

Fig: 1.

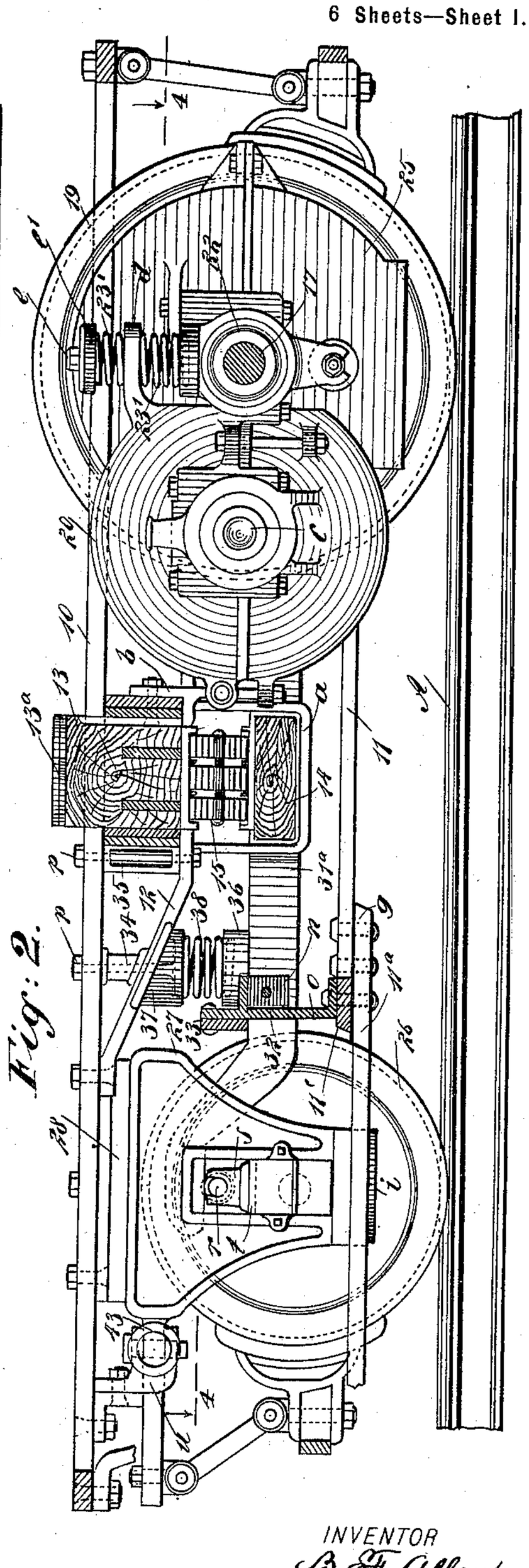

Fig: 2.

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(No Model.) 6 Sheets—Sheet 2.

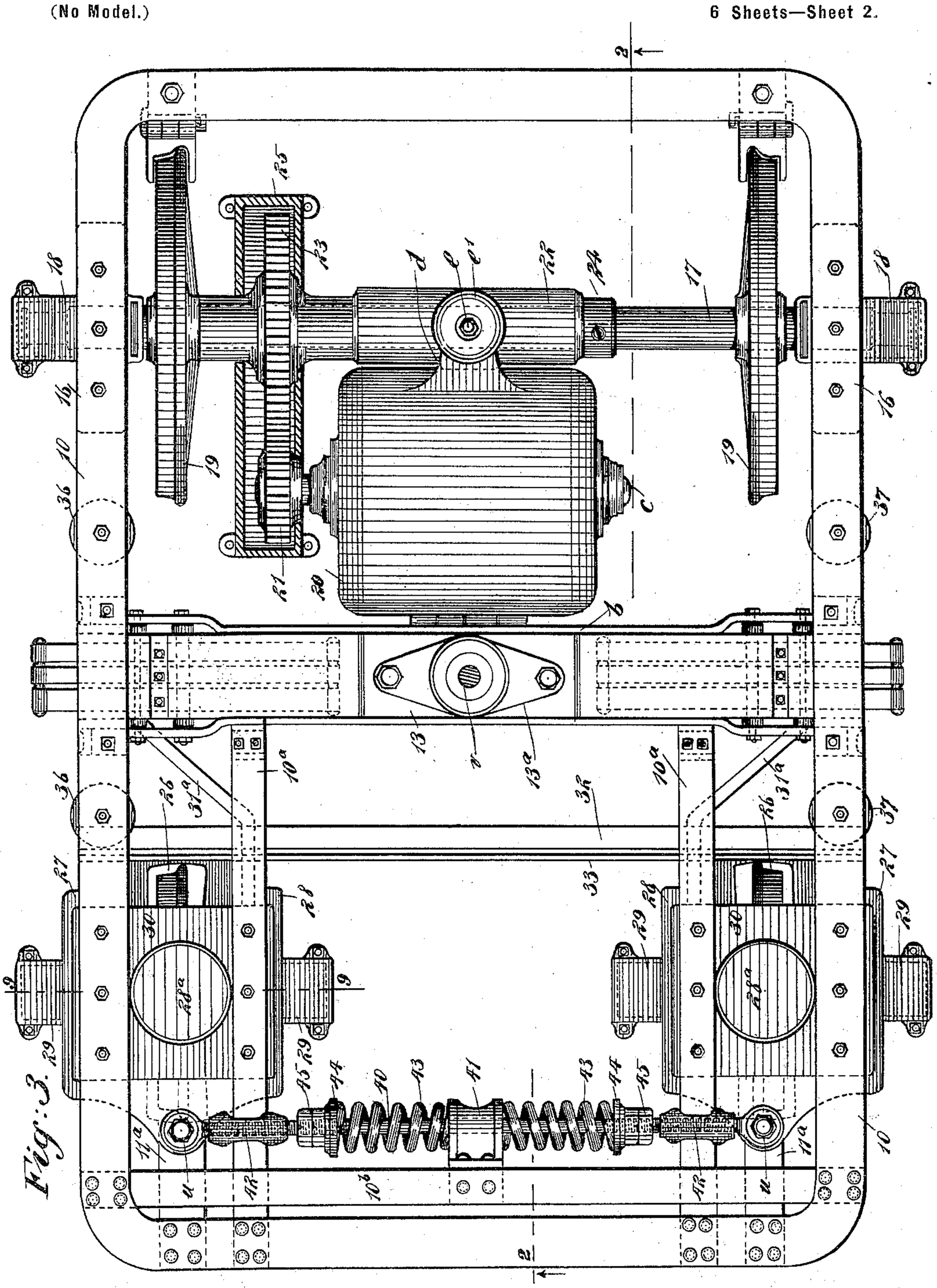

Fig: 3.

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(Application filed May 27, 1898.)

(No Model.) 6 Sheets—Sheet 3.

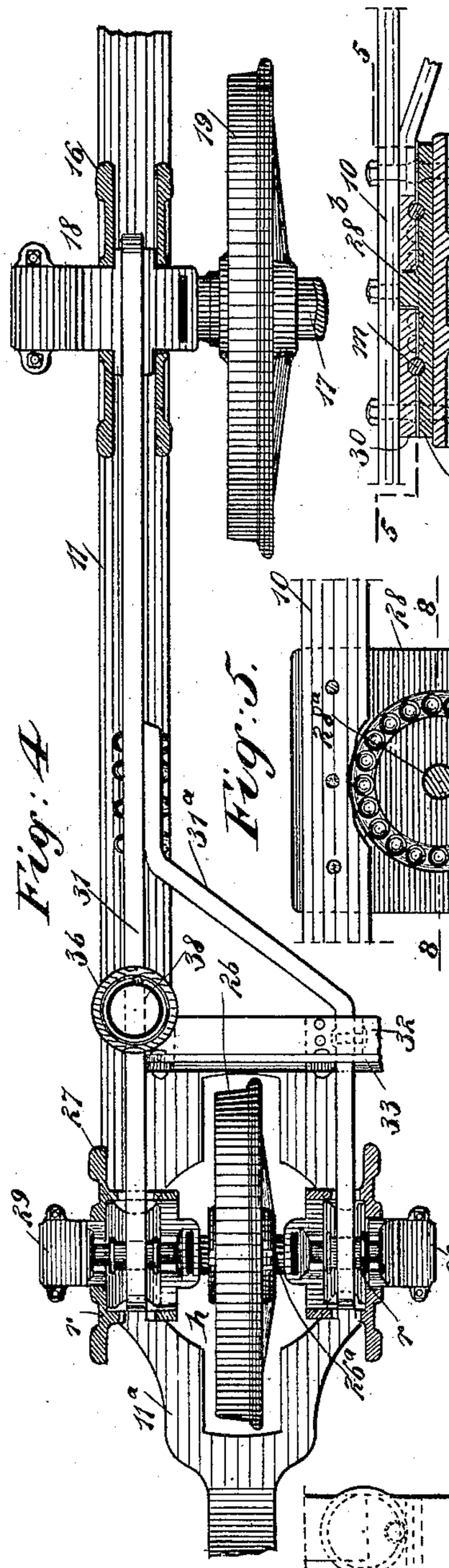

Fig: 4

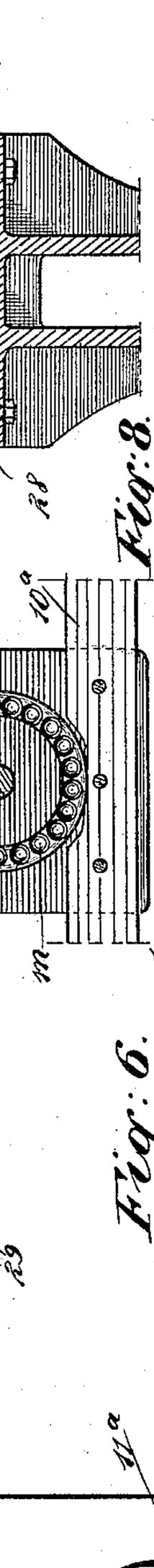

Fig: 5.

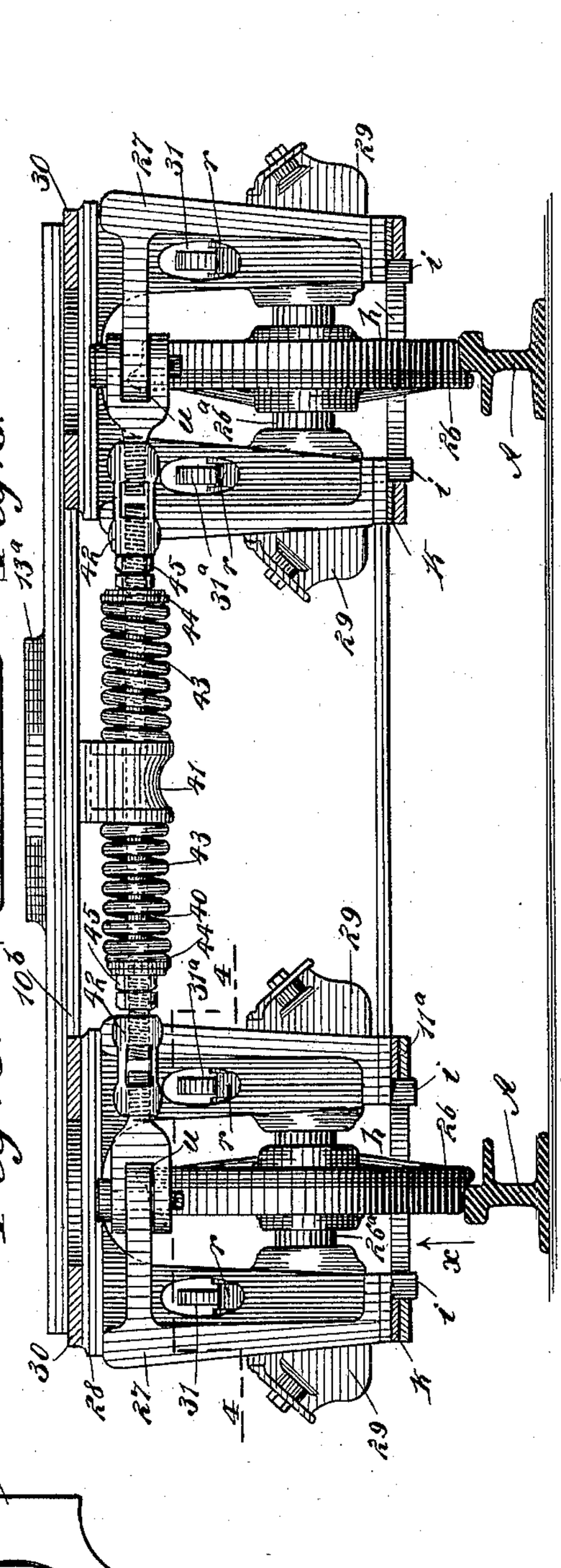

Fig: 8.

Fig: 6.

Fig: 7.

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(Application filed May 27, 1898.)

(No Model.) 6 Sheets—Sheet 4.

Fig: 10.

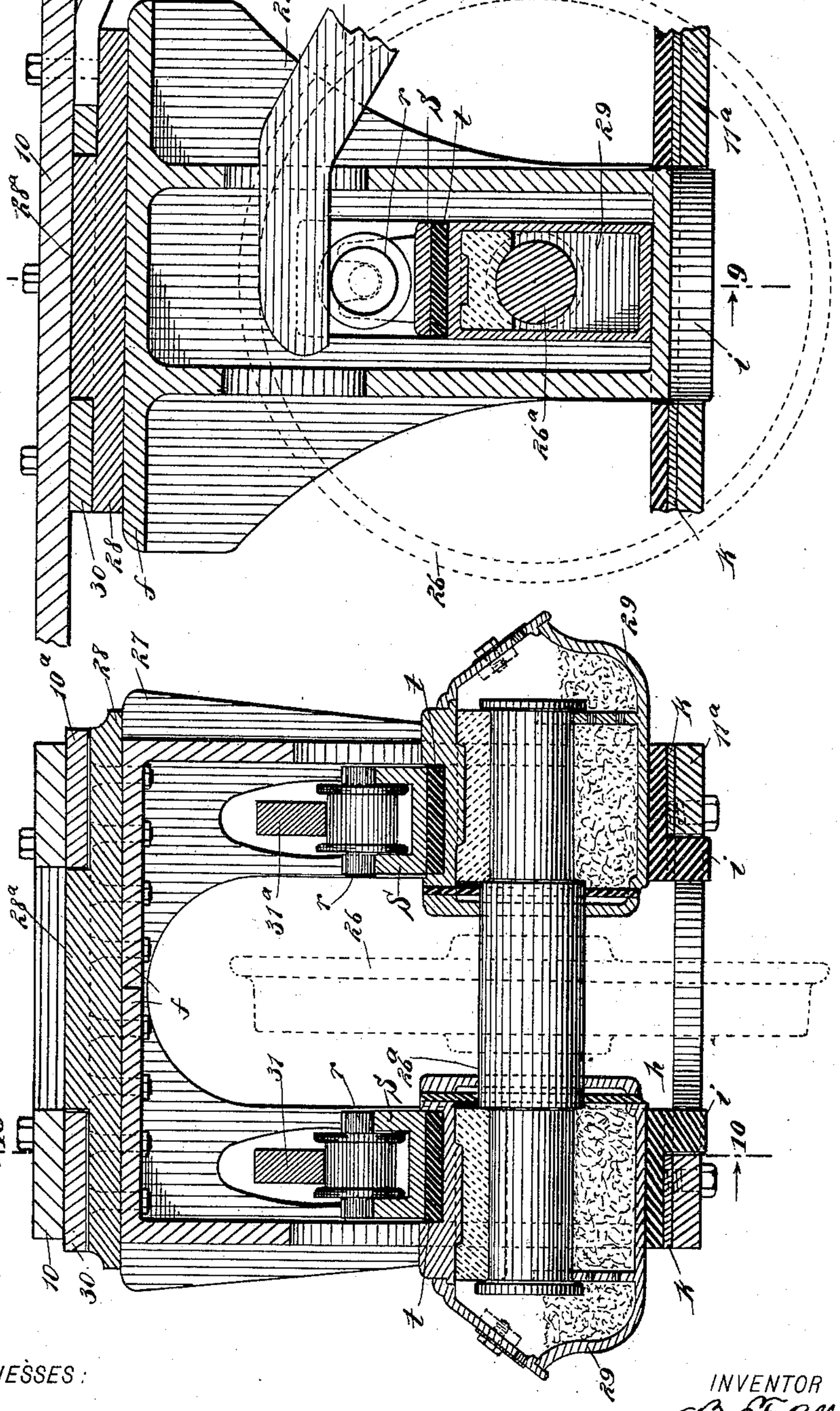

Fig: 9

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No. 610,785. Patented Sept. 13, 1898.

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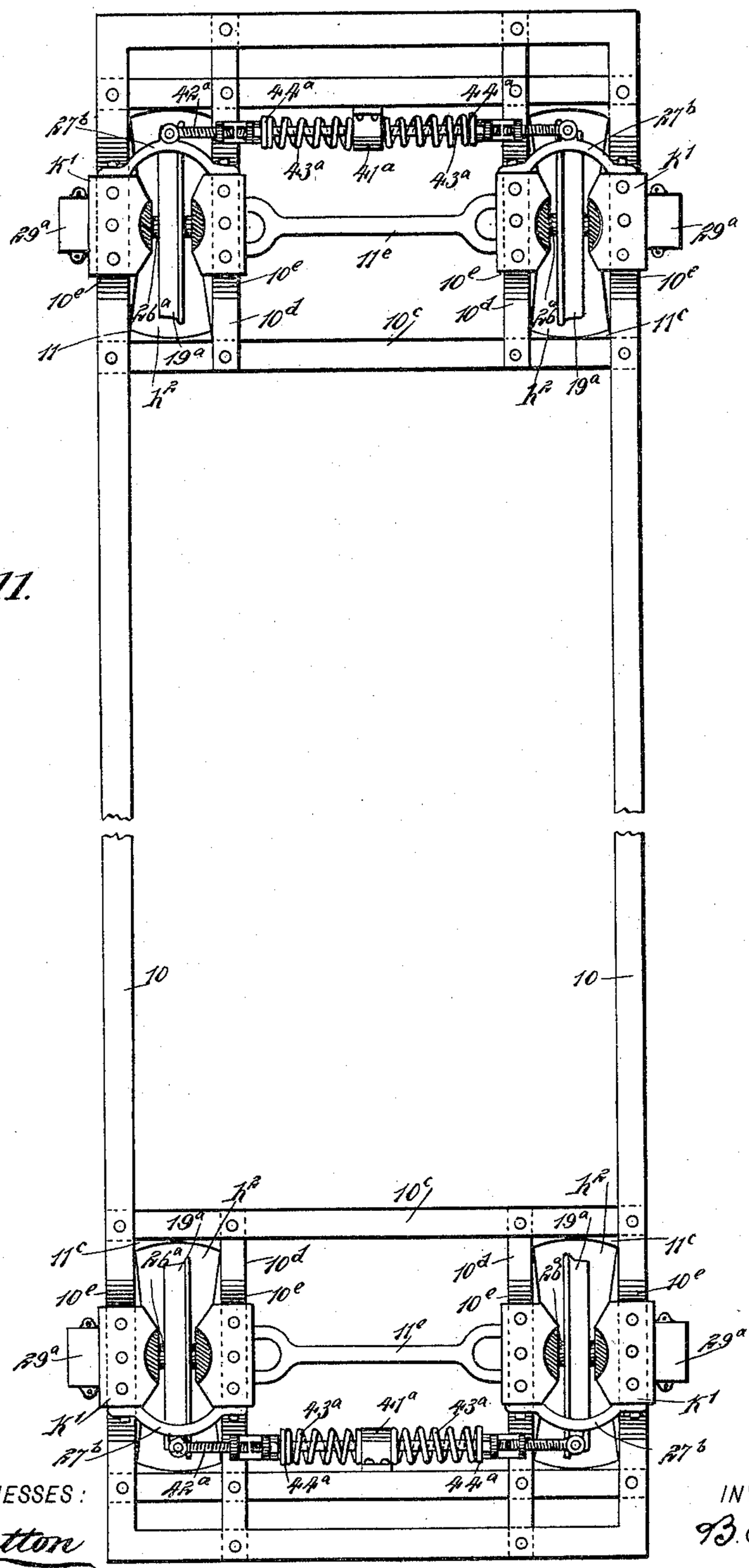
CAR TRUCK.

(Application filed May 27, 1898.)

(No Model.) 6 Sheets—Sheet 5.

Fig. 11.



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(Application filed May 27, 1898.)

(No Model.)

6 Sheets—Sheet 6.

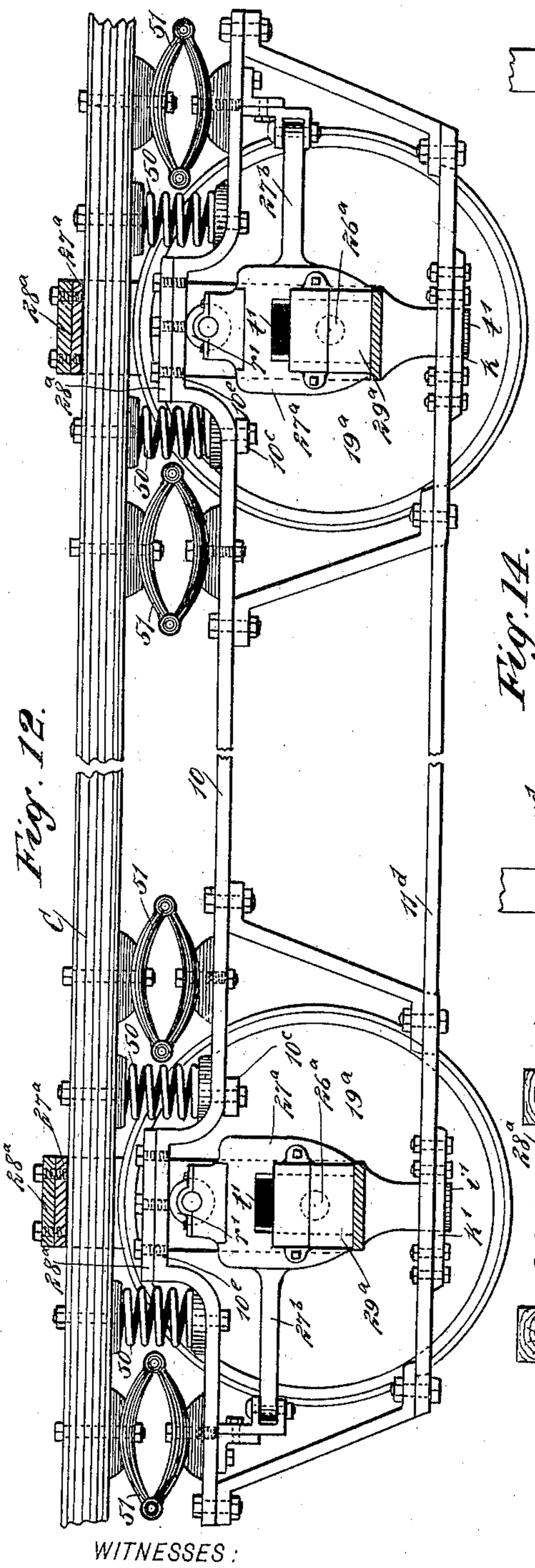

Fig. 12.

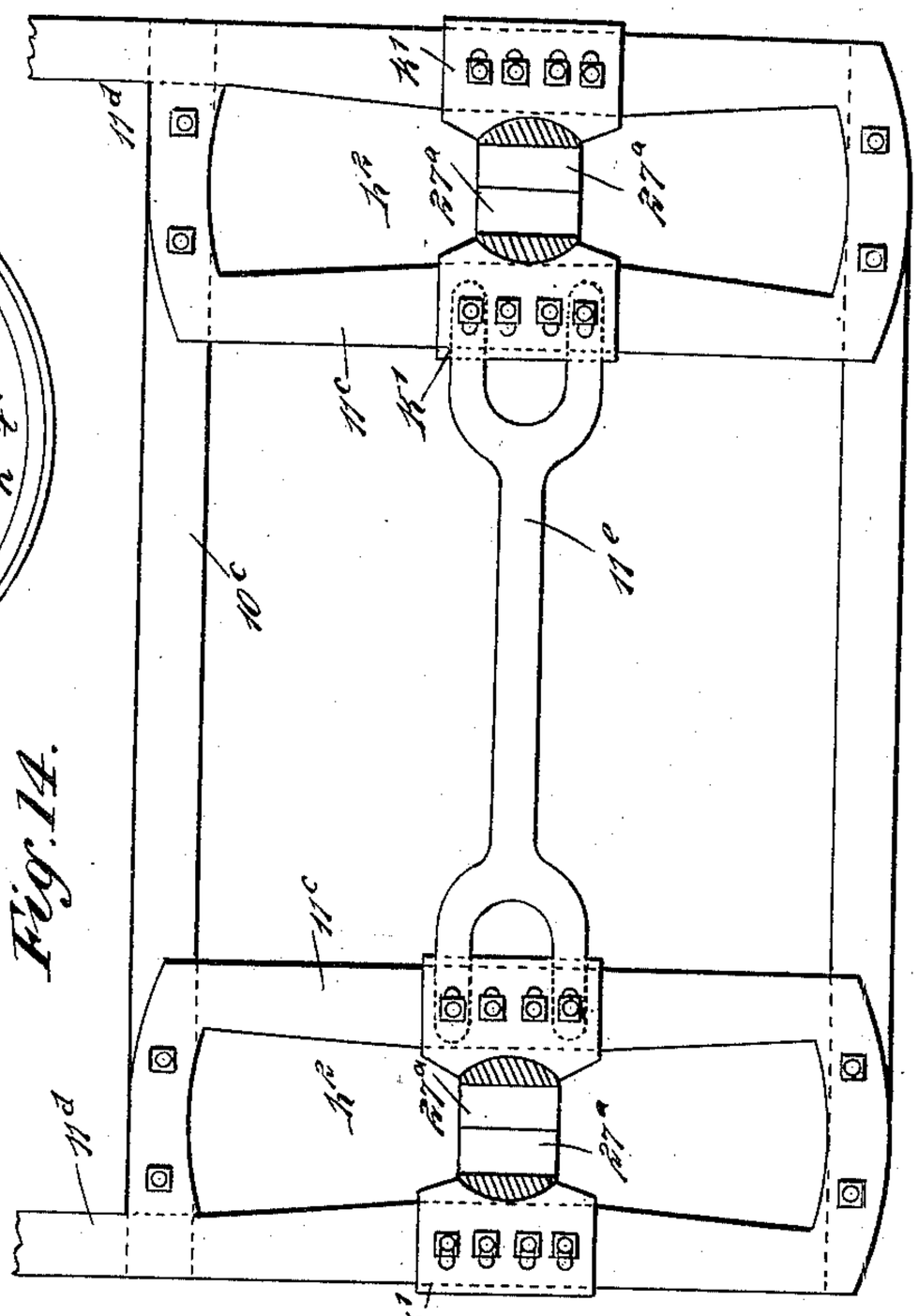

Fig. 14.

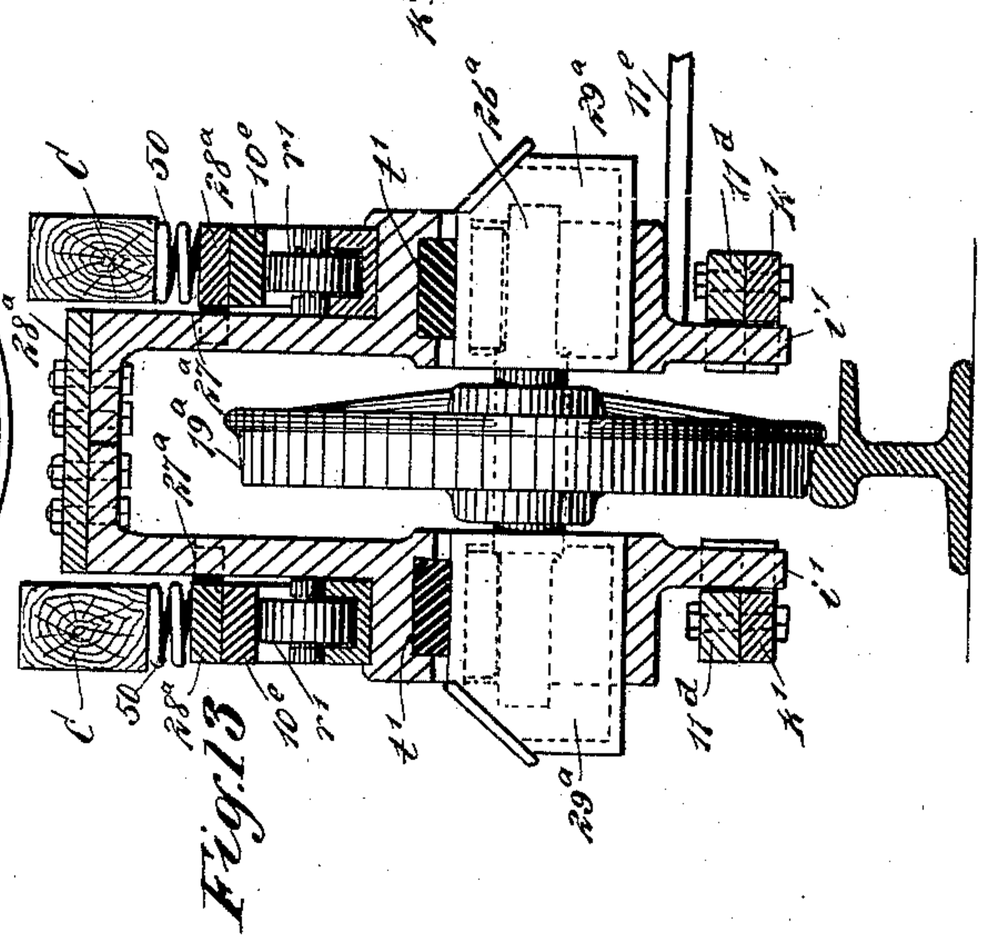

Fig. 13.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. ALLEN, OF MOBILE, ALABAMA.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 610,785, dated September 13, 1898.

Application filed May 27, 1898. Serial No. 681,885. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. ALLEN, of Mobile, in the county of Mobile and State of Alabama, have invented new and useful Improvements in Car-Trucks, of which the following is a full, clear, and exact description.

This invention relates to street-railway or other car-trucks, and has for its object to provide a car-truck with two short axles at the forward end thereof which are independently journaled in boxes on swiveling pedestals.

A further object is to provide such axles and the wheels thereon with efficient means for holding said wheels alined with the rear wheels of the truck while the truck is traveling on a straight track and permit the front wheels to move laterally a proper degree when running on curves of the railway, and thus obviate the frictional resistance of the wheel-flanges on the track that is incidental to car-truck wheels which are secured in pairs on car-axles of the ordinary construction.

A further object is to provide novel and efficient means for the support of an electric motor on the truck-frame, so as to cushion said motor from shocks of percussion and adapt it to have a geared connection with the rear axle of the car-truck.

The invention consists in the novel construction and combination of parts, as hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a car-truck having features of the improvement. Fig. 2 is a longitudinal sectional view of the improved car-truck, taken substantially on the line 2 2 in Fig. 3. Fig. 3 is a plan view of a car-truck having the improvements and adapted for propulsion by an electric motor. Fig. 4 is a partly-sectional plan view of one side portion of the truck, substantially on the line 4 4 in Figs. 2 and 6. Fig. 5 is a sectional plan view of one forward truck-pedestal and portions of the truck-frame, taken, essentially, on the line 5 5 in Fig. 8. Fig. 6 is a partly-sectional end view of a car-truck having features of the invention. Fig. 7 is a reversed plan view of a forward portion of the truck-frame at the bottom of a front pedestal seen in the direction of arrow *x* in Fig. 6. Fig. 8 is a longitudinal sectional view of one truck-pedestal in part, showing novel details and taken, essentially, on the line 8 8 in Fig. 5. Fig. 9 is an enlarged transverse sectional view of one of the axle-supports at the front of the car-truck, substantially on the line 9 9 in Fig. 10. Fig. 10 is an enlarged longitudinal sectional view, substantially on the line 10 10 in Fig. 9. Fig. 11 is a plan view of a truck-frame with the improvements applied and which is to be used singly for support of a car-body. Fig. 12 is a broken side view of the sill of a car-frame and a side elevation of the single car-truck adapted to support the sills of the car-frame. Fig. 13 is an enlarged transverse sectional view of the united pedestals for one of the car-wheels and the stub-axle therefor, showing a modification of said parts to adapt the improvement for a single-truck street-railway car; and Fig. 14 is an enlarged reverse plan view of one end of the single-truck frame shown in Fig. 11, showing in section the segmental journals on the lower ends of the pedestals which loosely engage with wear-plates on the frame.

The improvements may be applied to the trucks of railroad-cars of different styles which are moved by electric or other power. The novel features are herein shown in Figs. 1 to 10, inclusive, as combined with a street-railway car-truck which is furnished with an electric motor for its propulsion and the consequent movement of the car which the truck aids to sustain.

In the drawings the truck-frame consists of a rectangular top portion 10 and a bottom portion 11, spaced from the top portion by depending members of the bottom frame, as best shown in Figs. 1 and 2. On each side bar of the top frame portion 10 truss-bars 12 are secured, which are bent so as to depend from the frame and have the middle portions of said truss-bars spaced from and parallel with the side bars to which they are affixed.

Near the longitudinal center of the portion 10 of the truck-frame the usual transverse bolsters 13 14 are held in position, the top bolster being secured near the ends there-

of between the top portion 10 and the truss-bars 12 and resting on the latter. Springs 15 are introduced between the top bolster 13 and lower bolster 14, thus spacing said parts from each other, and the lower bolster is hung near its ends from the frame portion 10 by the looped hangers *a*. Between the top portion 10 and lower portion 11 of the truck-frame, at a proper distance from the rear end thereof, two pedestals 16 of any approved form are secured oppositely and at each side of said frame.

The rear axle 17 is journaled at its ends in suitable boxes 18, located in the pedestals 16 in any preferred manner. On the axle 17 a pair of car-wheels 19 are secured, so as to be respectively positioned within the frame near each side thereof, and spaced apart to suit the gage of the tracks A A they are to traverse. On the transverse bolsters 13 14 and at their rear a suitable hanging device *b* is secured, whereupon is hinged the forward side of the motor-casing 20, wherein is held to rotate an electric motor of any preferred type and power by a central armature-shaft *c*, which is journaled in the casing, and at one end thereof projects sufficiently to permit a gear-pinion 21 to be secured thereon.

A pad *d*, which is formed on or secured upon the casing 20 at the rear side of the same, projects over a sleeve 22, that is loosely mounted on the axle 17 and is held from end movement by means which will be hereinafter described.

Coiled or other springs 23′ are placed one above and the other below the pad *d*, the lower spring filling the space between the pad and the sleeve 22, on which latter said lower spring is seated, both springs being held in position by the bolt *e* and washer-plate *e*′. The bolt *e* passes down through the washer-plate *e*′ and screws into the sleeve 22, whereby the springs 23′ are adapted to cushion shocks that the motor is liable to receive while the truck is in motion.

A spur-gear 23 is secured on the axle 17, and the sleeve 22 may have loose contact with one end of the hub of said gear, as shown in Fig. 3, a collar 24, which is secured by a set-screw on the axle adjacent to the opposite end of the sleeve, serving to prevent the sleeve from sliding endwise on the axle.

The gearing 21 23 may be incased, to prevent anything from coming in contact therewith, by a boxing 25, (shown in Figs. 2 and 3,) which boxing is hung from the sleeve 22 and may be hung from the rear end of the frame 10, if this is found desirable.

It will be seen that the hinged and spring-cushioned support afforded for the motor will adapt it to run without jar and permit a proper transmission of motive power from the electric motor to the rear axle 17 for propulsion of the car-truck and car.

The most essential feature of the improvement comprises the novel means for supporting and controlling the two forward truck-wheels 26, so that they will automatically swing laterally to a limited extent to permit them to traverse the curves of a railroad without the grinding action had by the flanges of ordinary car-truck wheels on the track-rails and which is a detriment to both the wheels and track and also causes a considerable retardation of progressive movement and loss of power.

The truck-pedestal 27 for each forward truck-wheel 26 is best shown in Figs. 9 and 10 and essentially consists of two similar jaw-pieces, each provided with an integral top flange *f*, which flanges extend at their inner ends for a proper length to space apart the bodies of the jaws when said flanges abut at their inner extremities. The two jaws of each pedestal 27 are held rigidly connected by the top plate 28, which is bolted or riveted thereto. Each pedestal 27 has its two spaced jaws each adapted to receive an axle-box 29 of approved construction by the formation of a vertical recess in each jaw, this being the usual provision for the introduction of the axle-boxes that are held to slide vertically by any approved means.

A portion of each lower side bar 11 of the main truck-frame is spliced near the forward end of the same by a lap-joint, as at *g* in Figs. 1 and 2, and each front part thus attached is widened inwardly into plate form, as shown at 11ª in Figs. 4 and 7.

Across the front end of the truck-frame a bar 10ᵇ is secured by each end on a respective frame member 11ª, so as to stiffen the forward lower portion of the truck-frame. A circular aperture *h* is formed in each frame member 11ª, and on the lower end of each jaw of a front truck-pedestal 27 a short depending segmental journal is produced, as indicated at *i* in the drawings. The journal formations *i* may be flat on their inner sides, while their outer faces may have such a degree of convexity as will adapt them to loosely contact with the circular wall of the aperture *h* within which they are located, as clearly shown in Fig. 7. The apertures *h* in each frame member 11ª have two opposite notches *h*′ formed in the edge thereof, so as to widen the apertures lengthwise of said frame portions, and thus permit the forward truck-wheels 26 to be located within the apertures of these frame members. Each truck-wheel 26 is secured on a short axle 26ª, having journaled engagement at its ends with the usual bearings in the axle-boxes 29, and the width of the notches *h*′ in the frame members 11ª is such as will permit a limited rotatable movement to be given to the pedestals within the apertures *h* when necessary.

A wear-plate *k* is preferably introduced between the lower end of the pedestal-jaw, which would otherwise contact directly with the frame-plate 11ª, which provision permits wear of the parts to be taken up, as the wear-plates may at little cost be renewed when worn out, said wear-plates being held in place by bolts

or other means. At the upper side of the pedestals 27, and near inner edges thereof, frame-bars 10^a are longitudinally extended from the front cross-bar of the frame portion 10 to the front of the top bolster 13, and they are secured to said parts, as shown in Fig. 3.

A cap-plate 30 is secured upon the under side of the top frame over each pedestal 27, said cap-plates being respectively held by bolts or rivets upon the lower sides of the side bars of the frame 10 and of the parallel frame-bars 10^a. The cap-plates 30 are each apertured to produce a circular orifice, which orifices may be of a diameter to each loosely receive a short journal formation 28^a, that projects upwardly from each top plate 28, so that the pedestals 27 have a revoluble engagement with the truck-frame at the upper and lower portions of said pedestals.

In Figs. 5 and 8 a ball-bearing device is shown, which may be preferred as a revoluble support for the top of each pedestal 27 and comprises a series of antifriction-balls *m*, located in circular grooves that are opposite in pairs and are respectively formed in the lower side of each cap-plate 30 and the upper side of each top plate 28. In this construction a journal formation 28^b of reduced diameter is projected from the top plate 28 of each pedestal and which has a revoluble engagement with a smaller circular aperture in a cap-plate 30, said journals being located centrally within the circular grooves wherein the bearing-balls *m* are placed.

It will be seen that by providing the ball-bearings for the upper ends of the pedestals 27 friction is largely reduced and the free rotatable movement of the pedestals is facilitated.

To dispose a proper proportion of the weight sustained by the car-truck upon the front wheels 26 and yet permit them to swing laterally for a non-frictional engagement of their flanges with the track-rails, a novel form of equalizing-bars is provided, one for each side of the truck. Each equalizing-bar is composed of two parts, respectively designated by the reference characters 31 31^a. The member 31 of each composite equalizing-bar is straight and of such length as will permit it to project with its front end into a forward pedestal 27, while the rear end of said part 31 extends into the rear pedestal at that side of the truck-frame. The remaining member 31^a of each equalizing-bar is shorter than the member 31 and is bent laterally at two points, as shown in Figs. 3 and 4, so as to afford a front and a rear portion which are united and held spaced apart in parallel planes by a diagonal intervening portion.

The rear portion of the member 31^a is secured upon the inner side of the other member 31, as shown in Fig. 4, the point of said connection being at the center of the member 31. The forward portion of the member 31^a is so spaced from the front portion of the member 31 that these two parallel end portions of the composite equalizing-bar may be loosely inserted through apertures in the walls of the jaws of a front pedestal 27 and extend over the boxes 29 therein.

To permit each of the two-part equalizing-bars to have a clearance from the lower transverse bolster 14, the latter is made shorter than the upper bolster 13, so that space is provided for a disposal of the equalizing-bars, as already described. Each equalizing-bar is bent edgewise and downwardly at a proper distance from its ends, so as to dispose the main intermediate portion thereof parallel with the sides of the top frame portion 10 and suitably removed therefrom to permit the introduction of other parts between the equalizing-bar members 31 and the downwardly-arched truss-bars 12. The rear ends of the portions 31 of the equalizing-bars respectively engage the top of the rear truck-boxes 18, as shown by dotted lines in Fig. 1. Near the forward points, where the two portions 31 31^a of each equalizing-bar are bent downward, two transverse braces for the equalizing-bars are secured thereto, said braces consisting of a T-shaped bar 32 and a flat reinforce-bar 33. The braces 32 33 are secured together, and a pad *n* is formed on the T-bar 32 near each end, which pads are at right angles with the body of the bar, so as to be adapted to contact with the inner sides of the members 31^a of the equalizing-bar whereon they are secured. The brace-bar 32 may be notched in its lower flange, so that it may pass over each member 31^a of the equalizing-bars and have a portion thereof extended to engage with the outer members 31, upon which said extensions are secured by any suitable means. A leg *o* may be formed or secured on the brace-bar 32 near each end, which legs have pads on their lower ends which are secured upon a transverse frame-bar 11^c, extended between the side bars 11 of the frame at the rear of the front truck-wheels, whereby the inner edges of the frame members 11^a are sustained and held braced in an efficient manner.

A roller *r* is supported to revolve over each front axle-box 29 by its journaled engagement with the bracket-stands *s*, which are respectively seated upon an elastic block *t*, which in turn rests upon the upper side of one of the axle-boxes 29. The rollers *r* are preferably flanged at each end and serve to support the forward ends of the two-part equalizing-bars that project over said rollers, and thus permit the pedestals 27 to swivel on their supports when the weight of the car is on the wheels 26. The downwardly-arched truss-bars 12 are stiffened between their ends by the filling-blocks 34 35, that are introduced between the truss-bars and the side members of the top frame portion 10, bolts *p*, that pass through the frame truss-bars and filling-blocks, serving to clamp the latter in place for the reinforcement of the truss-bars.

Spring-holding pockets 36 37 on each truss-bar and outer member 31 of the equalizing-

bars afford seats wherein strong cushion-springs 38 39 are located and held from displacement, said springs being adapted to absorb shocks to which the truck-frame is subjected in service, more particularly such percussion as is due to vertical vibration of working parts of the truck and car-body carried thereon.

The top plates 28 on the pedestals 27 are each forwardly extended to permit a jointed engagement of the forward ends thereof with a coupling-bar 40.

A transverse frame-bar 10^b is secured on the top frame portion 10 near the front end, and near the longitudinal center of said frame-bar a bracket-box 41 is affixed thereto and projects rearwardly. The middle portion of the coupling-bar 40 is sustained by the box 41, through which it loosely extends. The coupling-bar is preferably formed as a three-part cylindrical rod, the two shorter end portions thereof each having a swing-joint connection *u* with the end of a respective top plate 28, as before mentioned. The end portions of the coupling-bar sections that are adjacent to each other are threaded and adjustably secured together by turnbuckles 42. On the intermediate member of the three-part coupling-bar 40 two heavy springs 43 are mounted, and each bears at one end upon an adjacent side of the bracket-box 41. Washers 44 are placed on the coupling-bar and respectively engage an outer end of one of the springs 43, the springs being put under proper tension by the jam-nuts 45, that engage the washers.

It will be seen that a proper adjustment of the coupling-bar 40 and springs 43 will dispose the front truck-wheels 26 in alinement with the rear truck-wheels 19 and hold them so alined while the car-truck is traversing straight portions of a railway-track. When the front truck-wheels 26 enter a curve of the track, the lateral pressure of the flanges of the truck-wheels 26 on said track will cause the pedestals 27 to receive a swiveling movement, both turning together, so that there is no grinding friction of the wheel-flanges on the track-rails. It will also be evident that from the described construction of parts the springs 43 are adapted to return the truck-wheels 26 to alinement with the rear truck-wheels 19 when a straight portion of the track is reached.

It is to be understood that the usual center plate 13^a for a king-bolt connection (shown at *v* in Fig. 3) is to be provided at the center of the top bolster 13, and this is duplicated on the car-frame, (not shown,) so as to provide means for the pivotal connection of the truck with the car-body. Furthermore, it is to be understood that duplicate trucks having the improvements are to be used on street-railway cars or other cars that require two car-trucks for their support.

The invention thus far described relates to its application to cars having two trucks and that require two pairs of wheels for each truck or eight wheels for the support of the car-body. I will now describe a modified form of the improvements, which I prefer to use on cars having but a single truck-frame for the support of the car-body and which have one pair of wheels at each end of said truck-frame.

The single truck-frame and the improvements thereon are represented in Figs. 11 to 14, inclusive, and will now be specifically described. The truck-frame 10 may be the same in general construction as the frame 10, (shown in Fig. 3,) but has a greater proportionate length, so that it will be adapted to sustain the entire car-frame and car-body. Two cross-bars 10^c are secured on the frame 10 and are respectively spaced a proper distance from the ends of said frame, and on said cross-bars and the adjacent end bars of the frame longitudinally-disposed frame-bars 10^d are affixed at like distances from the sides of the truck-frame 10, as shown in Fig. 11. The car-wheels 19^a in this adaptation of the invention are all of the same diameter and are secured on the similar stub-axles 26^a, journaled at their ends in the axle-boxes 29^a. The pedestals 27^a are substantially the same in construction as the pedestals 27 (represented in Figs. 9 and 10) in respect to their means for receiving the axle-boxes 29^a, and the pedestals are paired and secured together at their upper ends by a clamping wear-plate 28^a, affixed by bolts on the flanged upper ends of the pedestals, as shown in Fig. 13. The car-frame in this construction of the improvement has at each of the points where the pedestals 27^a are to be connected thereto an upwardly-projected flat-topped arch 10^e integrally formed thereon, as clearly shown in Fig. 12, and the frame-bars 10^d are likewise arched to adapt them, as well as the side bars of the truck-frame, to receive the top wear-plates 28^a, to which they are bolted. The pedestal-bodies 27^a are rendered convex on their outer sides above and below the openings therein which receive the boxes 29^a, said convex faces being arcs of like circles that have their radial centers at the longitudinal centers of the stub-axles 26^a. Two bottom yoke-plates 11^c are provided for each end of the truck-frame 10, and these yoke-plates are secured upon the lower frame members 11^d of the single truck device or may be integral therewith, the apertures h^2 in said yokes being essentially the same as the apertures *h* in the bottom plates 11^a. (Shown in Fig. 7 of the drawings.) At the centers of length of the yokes 11^c bottom wear-plates *k'* are adjustably secured upon their lower sides, and said wear-plates are concaved to loosely fit against the convex sides of the depending segmental journals *i'*, integral with the lower ends of the pedestal-jaws 27^a. The wear-plates 28^a are concaved to fit against the convex sides of the pedestal-jaws, which extend above the boxes 29^a, the upper and lower wear-plates being thus adapted to hold the

pedestals vertically on the frame of the truck and permit each pair of pedestal-jaws to turn, as if on a pivot. The pedestals on each end of the car-frame are joined in pairs by the transverse coupling or spacing bars 11^e, as shown in Figs. 11 and 14, so that the two coupled pedestals at each end of the truck will swivel together when running on curves of the railway-track, and said bars 11^e also prevent the spreading apart of the pedestals. The pedestals 27^a at each end of the truck-frame are also preferably coupled by the rods 42^a, which are adjustable for length, as are the rods 42, before described, and said rods, which are jointed on arms 27^b, projecting from the pedestals, pass through boxes 41^a, held on a transverse member of the truck-frame. Springs 43^a are likewise provided which encircle the rods 42^a and press endwise on the box 41^a, as well as on the washers 44^a, held in place by nuts on the rods. The rods 42^a and the springs 43^a, like the same parts 40 and 43, (shown in Fig. 3,) serve to return the pedestals, axles, and car-wheels to normal position when the truck leaves a curved portion of the railway-track, and enters a straight portion of the same. The sill-timbers of the car-frame (indicated at C in Figs. 12 and 13) are supported from the frame 10 by coiled springs 50 and also by the elliptical plate-springs 51, so that shocks due to quick passage over rail-joints will be cushioned in the usual manner. As shown in Figs. 12 and 13, gum buffer-springs t' are also provided to reduce percussion between the boxes 29^a and the pedestals 27^a, said buffer-springs being held in place in grooves or recesses in the bases of the pedestals 27^a, as shown. Rollers r' are placed upon the axle-boxes 29^a and have a rolling engagement with the arched portions of the frame 10 and the bars 10^e, so that these points of support between the truck-frame and car-frame will permit a free swiveling action of the car-wheels when they enter curves of the railway-track.

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

1. The combination with a car-truck frame, of truck-pedestals revolubly supported on said frame, each pedestal having a box-receiving aperture between journal ends thereon, boxes in said apertures, axles journaled in the boxes, truck-wheels secured on the axles, and longitudinally-adjustable means to control the rotatable movenent of the pedestals on the frame, substantially as described.

2. The combination with a truck-frame having upper and lower portions held spaced apart, of two pedestals swivel-connected at their upper and lower ends to said spaced portions of the truck-frame, and means to control the swiveling movement of the pedestals, substantially as described.

3. The combination with a truck-frame composed of upper and lower portions held spaced apart, and a ball-bearing device at each side of the upper frame portion, of truck-pedestals supporting axles and wheels thereon, and journaled at the lower ends of the lower portion of the truck-frame, the upper parts of said pedestals being adapted to engage with and rotate on ball-bearings, substantially as described.

4. The combination with a truck-frame, and equalizing-bars held thereon, of a rear axle, wheels thereon, swivel-supported front pedestals, axle-boxes therein, short axles journaled in said boxes, a wheel on each front axle, and rollers supported from the front axle-boxes and engaged by the forward ends of the equalizing-bars, substantially as described.

5. The combination with a truck-frame, and equalizing-bars held thereon, each equalizing-bar having two members that project in parallel planes at their forward ends, of a rear axle, wheels thereon, swivel-supported front pedestals, axle-boxes therein, short axles journaled in said boxes, a wheel on each front axle, and rollers supported from the front axle-boxes and engaged by the forward ends of the two-part equalizing-bars, substantially as described.

6. The combination with a truck-frame, pedestals supported thereon, car-axles and wheels thereon held to revolve on the pedestals, and means to swivel-connect the pedestals with the truck-frame, of spring-actuated means for controlling the swivel movement of the pedestals, substantially as described.

7. The combination with a truck-frame, pedestals supported thereon, car-axles and wheels thereon held to revolve on the pedestals, and means to swivel-connect the pedestals with the truck-frame, of a longitudinally-spring-controlled coupling-bar slidable on the truck-frame and jointed at its ends to the forward ends of the pedestals to adapt them to swivel together, substantially as described.

8. The combination with a truck-frame, pedestals supported thereon and adapted to swivel, car-wheels, and axles held to rotate on the pedestals, and journal-supports at the upper and lower ends of said pedestals, of a longitudinally-spring-controlled coupling-bar slidable on the truck-frame, means to adjust the length of said coupling-bar, and joints at the ends of the coupling-bar and on the forward projections of the pedestals, to adapt them to swivel together, substantially as described.

9. The combination with a truck-frame, pedestals supported at the forward end of said frame, car-wheels and axles held to revolve on the pedestals, and means to swivel-connect the pedestals with the truck-frame, of a coupling-bar slidable on the truck-frame and jointed at its ends to projections from the forward ends of the pedestals, and springs on the coupling-bar adapted to hold the for-

ward wheels alined with the rear wheels of the truck when traversing a straight track, but adapted to yield to permit the forward wheels to swing laterally when running on curves of said track, substantially as described.

10. The combination with a truck-frame adapted to loosely support pairs of truck-pedestals thereon, of upright truck-pedestals held to swivel on the truck-frame, means to control the swivel movement of said pedestals, and adjustable wear-plates on portions of the frame adjacent to the journal ends of the pedestals and loosely contacting therewith, substantially as described.

11. The combination with an elongated truck-frame, of pedestals held upright and free to swivel, by journal ends on the upper and lower ends of the pedestals which loosely contact with adjustable wear-plates on the truck-frame, truck-boxes in apertures of the pedestals, short axles journaled at ends in the boxes, wheels on said axles, gum cushion-springs between the tops of the boxes and the pedestals, rollers mounted on the cushion-springs, and bent equalizing-bars engaging the ends thereof with said rollers, substantially as described.

12. The combination with a truck-frame, pedestals thereon having upper and lower journal ends, adjustable wear-plates on the upper and lower portions of the truck-frame loosely engaging the journal ends of the pedestals that are thus held to swivel, adjustable means for controlling the swiveling movement of the pedestals, short axles in paired pedestals, car-wheels on said axles, boxes in apertures of the pedestals and engaged by journals on the ends of the short axles, of two substantially U-shaped equalizing-bars at the sides of the truck-frame extending their end portions into apertures of the pedestals over the boxes therein, gum cushion-springs on the boxes, and bracket-supported rollers mounted on the gum cushions and supporting the end portions of the equalizing-bars, substantially as described.

BENJAMIN F. ALLEN.

Witnesses:
WM. B. INGE,
H. T. INGE.