

W. T. BROWNE.
Car-Truck.

No. 225,741.

Patented Mar. 23, 1880.

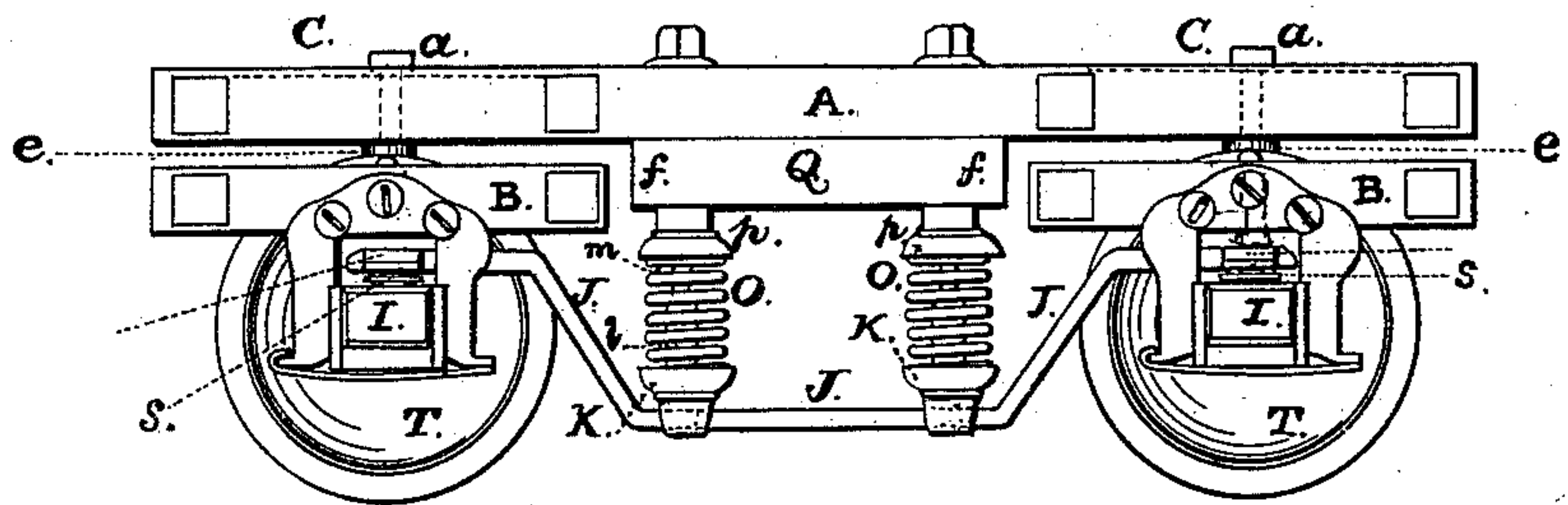


Fig. 1.

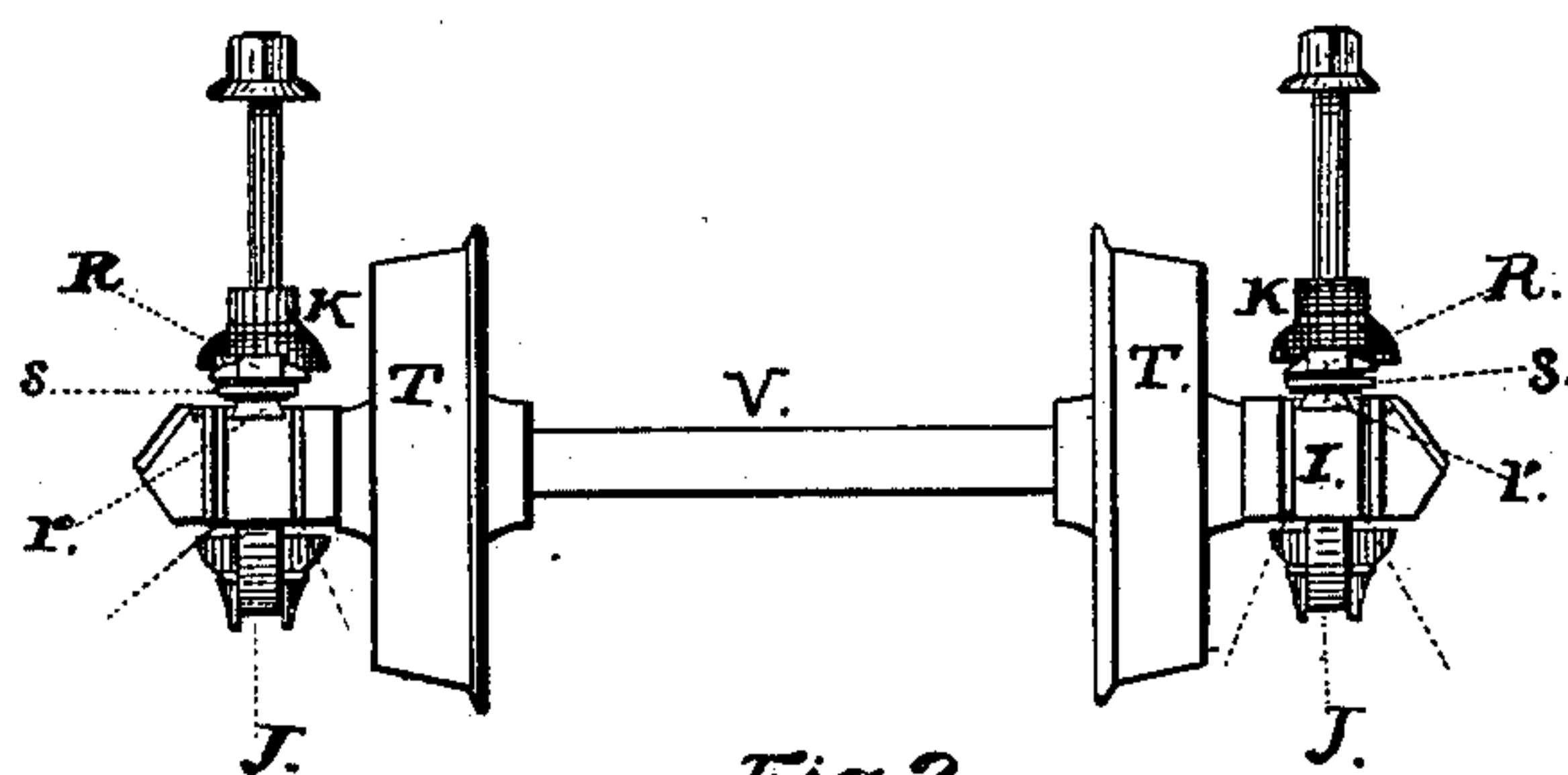


Fig. 2.

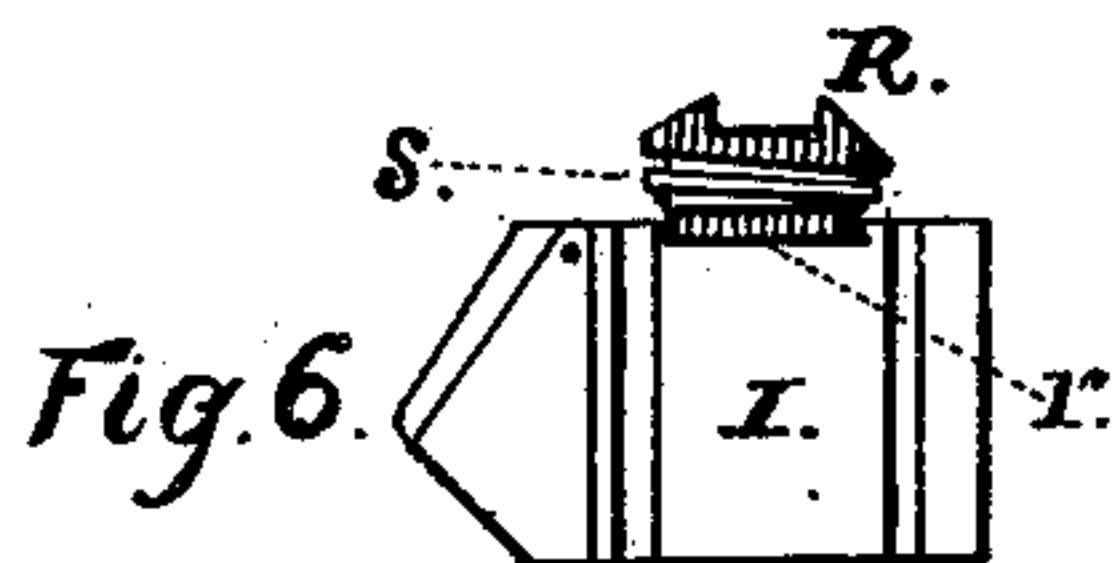


Fig. 6.

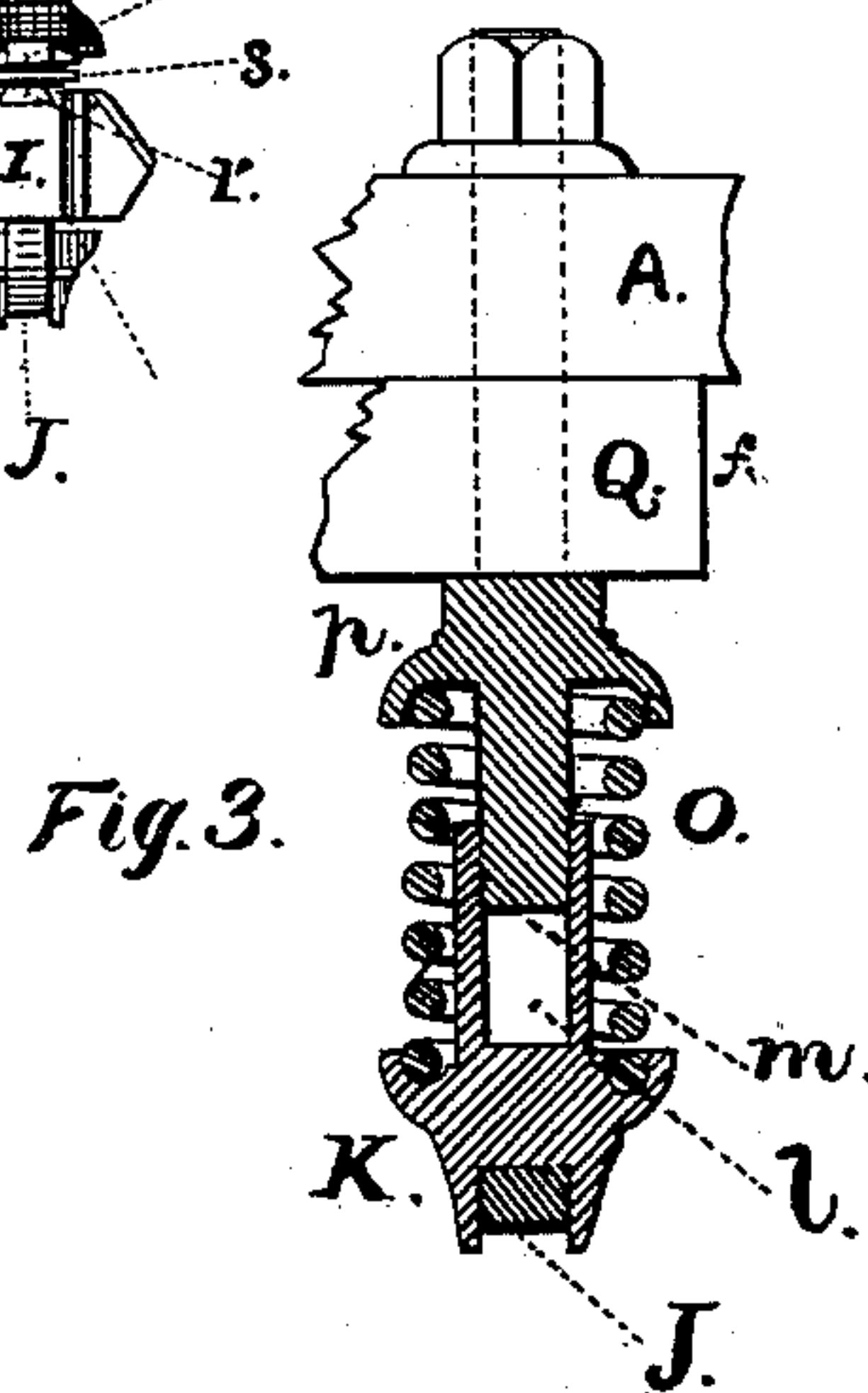


Fig. 3.

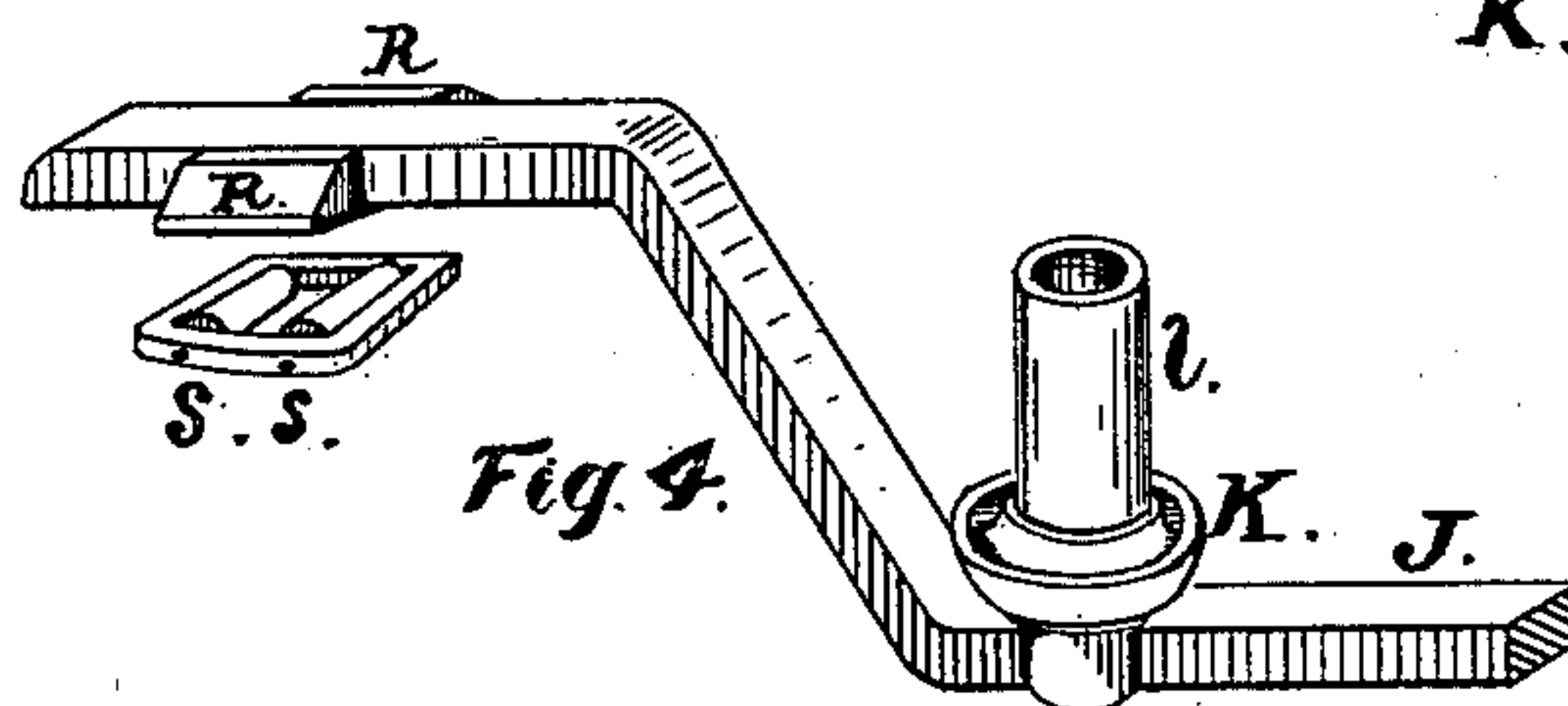


Fig. 4.

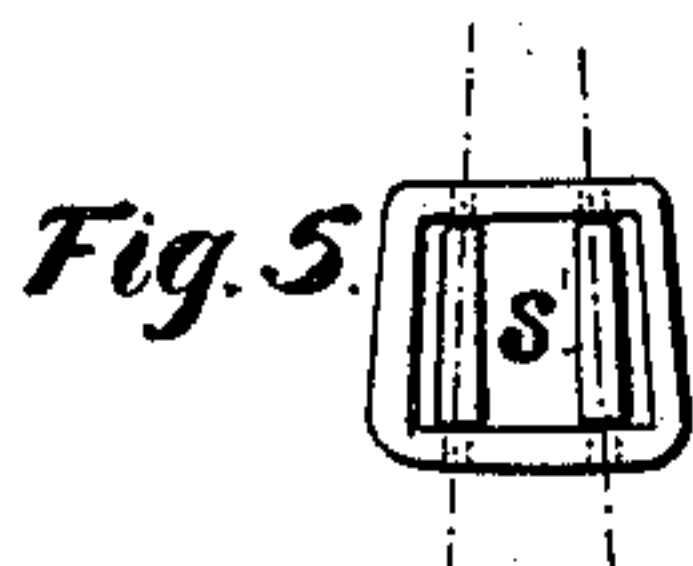


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM T. BROWNE, OF STOCKTON, CALIFORNIA.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 225,741, dated March 23, 1880.

Application filed September 10, 1879.

To all whom it may concern:

Be it known that I, WILLIAM T. BROWNE, of Stockton, San Joaquin county, State of California, have invented certain new and useful Improvements in Car-Trucks for Railways; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings accompanying this specification, and forming a part of the same.

My invention has reference to that special class of four-wheeled trucks called "bogie-trucks" for supporting railway-cars, in which the axles are carried in swiveling supplemental trucks underneath a main truck-frame.

Six-wheel car-trucks, in which three supplemental trucks were mounted under a main frame, have heretofore been used. In this case the swiveled end trucks were connected with the intermediate or middle truck, which moved endwise in passing around a curve, thus throwing the axles of the end trucks to the radial position.

I have discovered, however, that if the supplemental trucks in which the axles are carried are left free to turn without being directly connected to each other, and without special hinderance from the weight of the car and its load, I can utilize the conical shape of the tread of the car-wheels for adjusting the axles to the proper radial position on curves and for restoring them to their proper parallelism on a straight track. To provide for this I make no connection whatever between the supplemental trucks, and support the weight of the car and its load upon equalizing-bars, while the ends of the equalizing-bars rest loosely upon the boxes. I then interpose an anti-friction device between the ends of the bars and the tops of the boxes, so that the supplemental trucks can swivel easily and their positions be governed by the conical shape of the wheels, as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is an elevation of my improved car-truck. Fig. 2 is a view of one pair of wheels with their axles and boxes, the parts of the truck-frame being omitted. Fig. 3 is a section, in detail, through one of the springs and its guide-rods. Fig. 4 is a perspective view, in

detail, of an end of the equalizing-bar and its anti-friction-roller supports. Fig. 5 is a detail of the rollers. Fig. 6 is a longitudinal section of one of the boxes, showing steel plate, rollers, and shoe.

Let A represent the main truck-frame, and B B the two swiveling supplemental trucks (one under each end of the main frame) in which the axles are carried.

Each supplemental truck is connected at its center with a cross-timber of the main truck-frame by a king-bolt, *a*, so that it can turn about the king-bolt as a center in the usual way of mounting supplemental trucks. I place one or more washers, *e e*, around the king-bolt, between the timbers, so as to separate the frames and prevent the supplemental trucks from coming in contact with the under side of the timbers of the main frame when they swivel. The axle-boxes I are carried in the slotted pedestals of the supplemental trucks, so that the truck-frames can move up and down while the boxes maintain their position with reference to the tracks.

J J are the equalizing-bars, the ends of which I place loosely upon the boxes. I then support the main frame A upon the equalizing-bars by means of one or more springs, as follows: Upon each equalizing-bar I secure a socket or cup-shaped head, K, wherever a connection is to be made. This socket or cup-shaped head has a tubular stem, *l*, projecting upward from it, around which I place a spiral or other spring, O, so that the lower end of the spring rests in the cup or socket. To the under side of the side timbers of the main frame, directly over each cup-shaped head K, I secure an inverted cup-shaped socket or head, *p*, in the center of which is a downward-projecting spindle, *m*, which corresponds in size with the bore of the tubular stem *l*.

The upper end of the spring O rests in the inverted socket *p*, while the spindle *m* enters the hole in the tubular stem, thus forming a spring and stop. The shoulder or end of the stem serves as a stop to limit the action of the spring and prevent the weight of the car and load from coming upon the supplemental frames, while the spindles working in the stems not only serve as guides, but also to prevent

any side or longitudinal motion of the equalizing-bars, which must be avoided in carrying out this invention.

The supplemental trucks, it will be noticed, 5 have only one permanent connection, and that is through the king-bolt, with the main frame. They can therefore swivel freely in either direction. This swiveling motion I limit, however, by stops *f f*, so that in case one of the 10 wheels should strike against an obstruction on the track the truck-frame cannot be thrown around so far from the proper radial or transverse position as to crank the wheels on the track.

15 In the present instance I have secured a short timber, *Q*, to the under side of the side rails of the main frame on each side, the ends of which serve as stops for limiting the motion of the swiveling trucks; but any other kind 20 of a stop could be used.

The pressure of the ends of the equalizing-bars would retard the swiveling motion of the trucks unless some anti-friction device were interposed. I therefore sink a steel plate, *r*, 25 in the top of the box, as shown, and place one or more rollers, *S*, upon the plate, so that the ends of the equalizing-bars will rest upon the rollers. Usually I shall employ two or more rollers, and mount them in a frame, as shown 30 at Figs. 4 and 5, so as to form a carriage; but this frame will be of less thickness than the rollers, so that the rollers will rest upon the plate, while the shoes *R* on the ends of the equalizing-bars will rest upon the rollers.

35 The rollers, as stated, are conical, and they are secured in the frame so that they will be radial to the king-bolt *a*, or center about which the swiveling trucks turn. This causes them to move in a curve concentric with the king-bolt and relieve the friction between the ends 40 of the bars and the boxes.

The car-wheels *T*, I make somewhat more conical than usual, so that they will have a positive taper. On a straight road the tend-

ency of the conical wheels is to adjust them- 45 selves on the tracks, so that points of equal diameter will bear upon the rails, causing the axles to assume and maintain parallel positions; but on curves the outer wheels will roll upon a larger diameter than the inner wheels 50 and measure a longer distance at each revolution, thereby making up the difference in the length of the two rails and keeping the axles upon the radii of the curve.

Having thus described my invention, what 55 I claim, and desire to secure by Letters Patent, is—

1. The combination, with the main truck-frame *A*, supported upon the springs *O O*, secured upon the bars *J*, of the independently- 60 swiveled supplemental truck-frames *B B*, wholly disconnected from each other, and governed in their swiveling movement by the stops *f Q*, substantially as shown and described, for the purpose set forth. 65

2. The combination, with the frame *A*, supplemental truck-frames *B*, having slotted pedestals, with boxes *I* and bent equalizing-bars *J*, of the carrying-springs, consisting of the 70 tubular stems *l*, having cup-shaped bases *K*, spindles *m*, entering the stems *l*, and having inverted cup-shaped flanges *p*, and surrounding springs *O*, substantially as and for the purpose set forth.

3. The combination, with the independent- 75 ly-swiveled truck-frames *B* and their journal-hangers or pedestals, having the boxes *I I*, of the bars *J*, which support the main frame *A*, and frictional rolls *S S*, mounted radially in a frame interposed between the ends of the bars 80 *J* and axle-boxes *I*, all constructed substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal.

WILLIAM T. BROWNE. [L. S.]

Witnesses:

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