(No Model.) 2 Sheets—Sheet 1.

L. K. JEWETT.

CAR TRUCK.

No. 324,383. Patented Aug. 18, 1885.

Fig: 1.

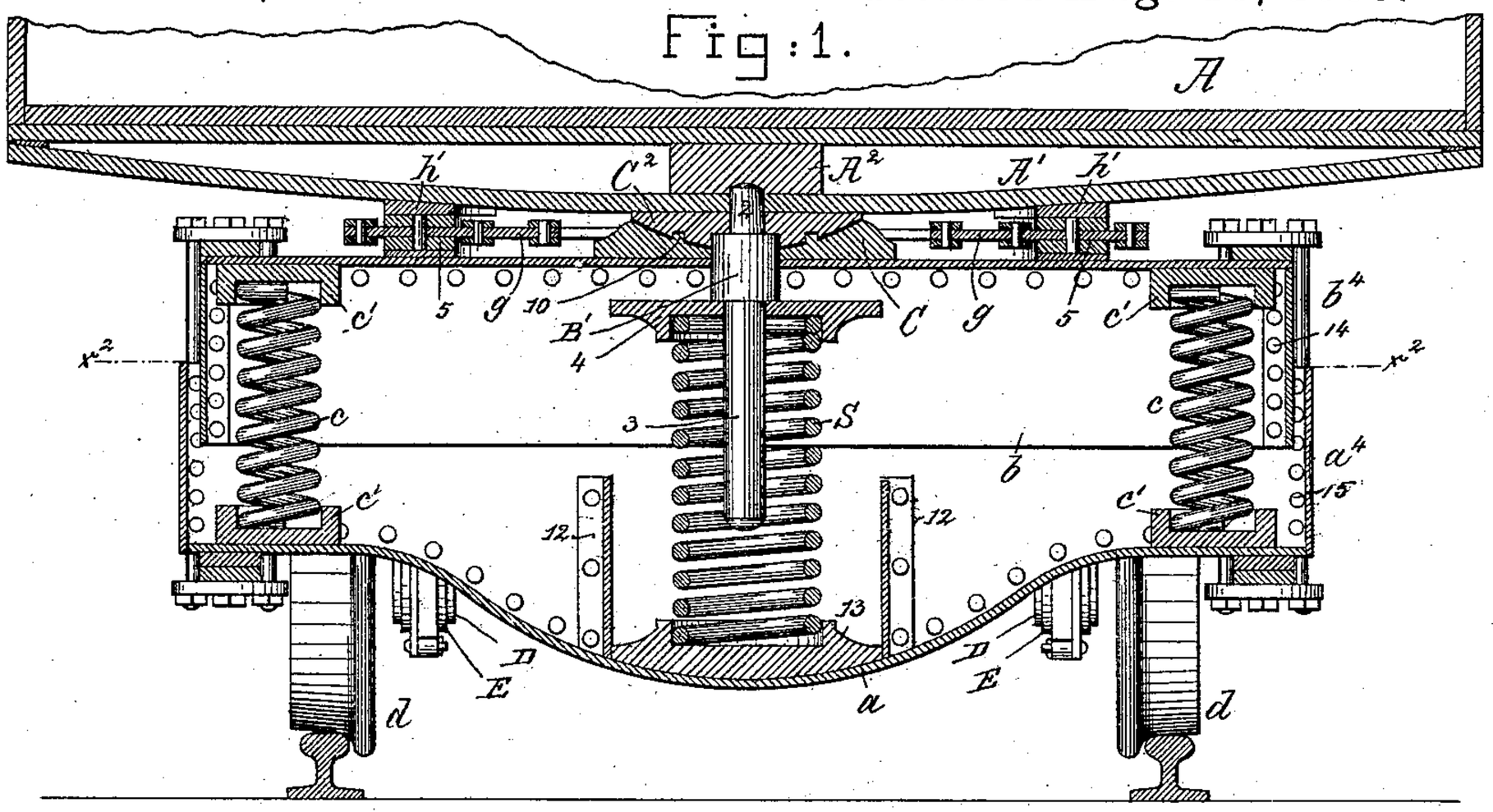
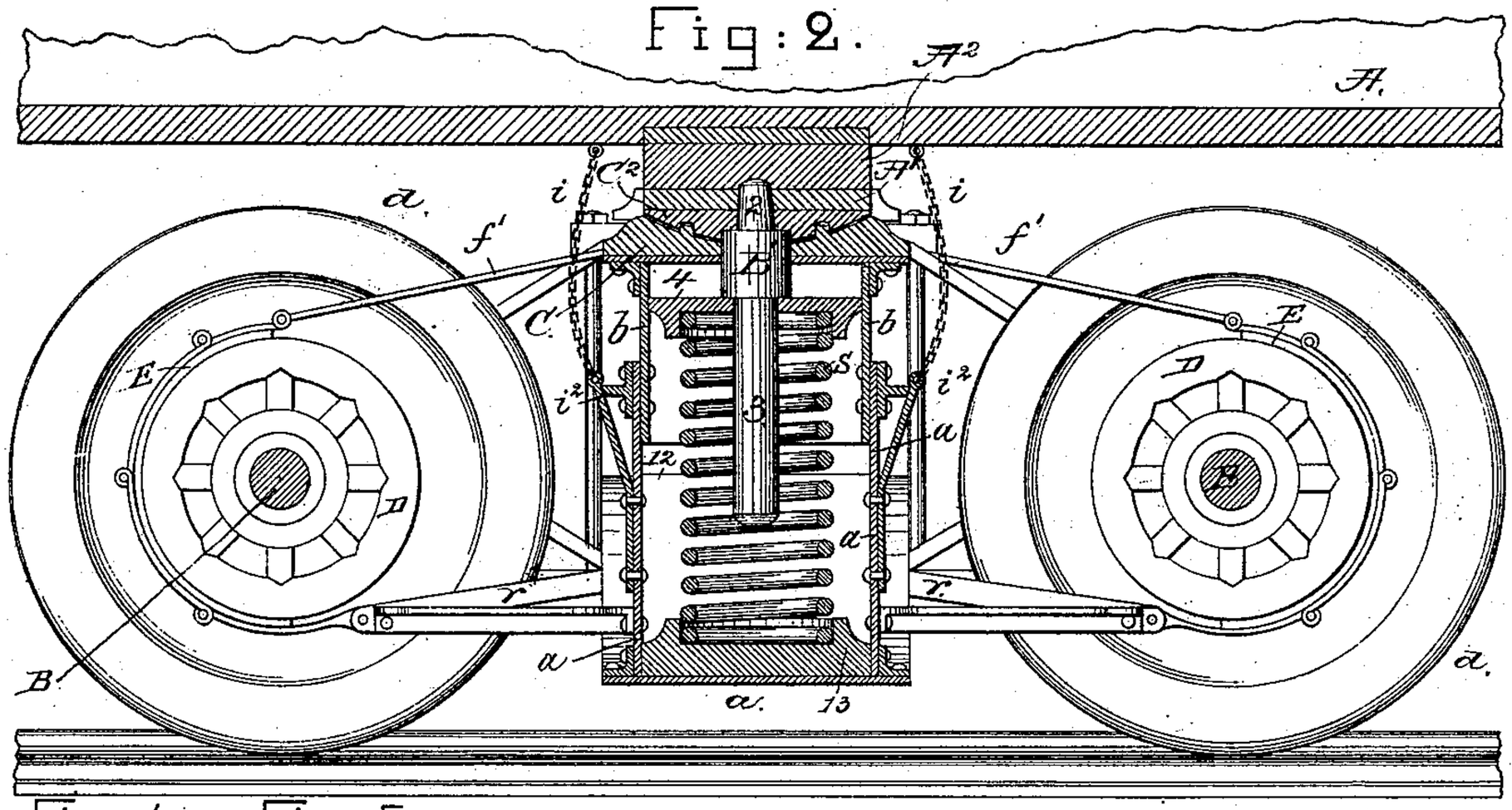


Fig: 2.



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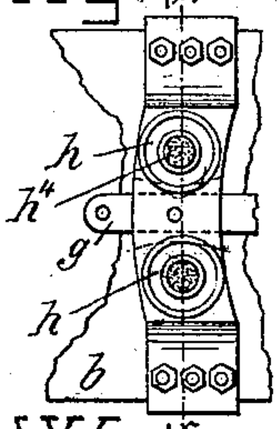


Fig: 5.

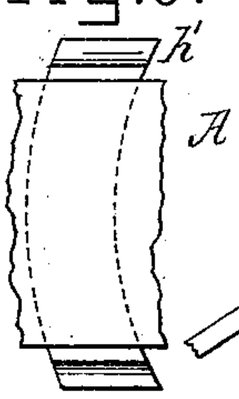


Fig: 3.

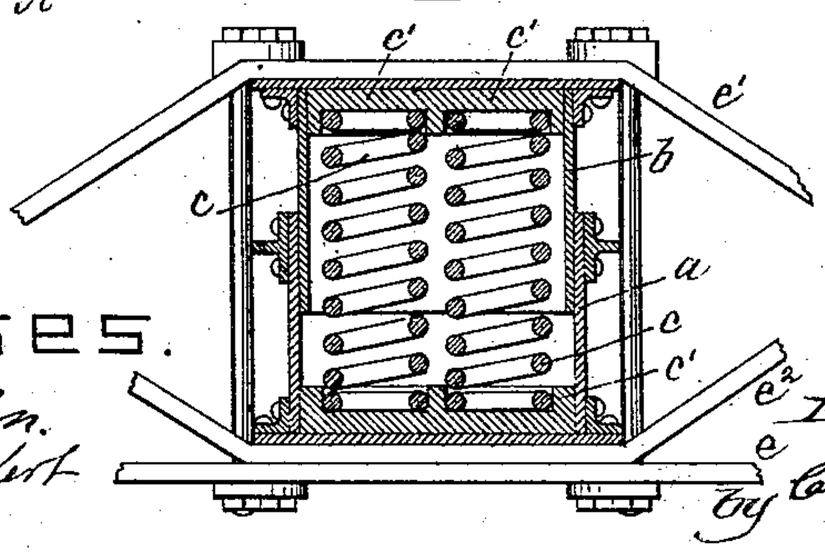
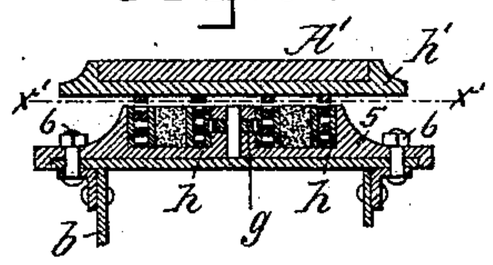


Fig: 6.



Witnesses.

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(No Model.) 2 Sheets—Sheet 2.

L. K. JEWETT.

CAR TRUCK.

No. 324,383. Patented Aug. 18, 1885.

Fig: 7.

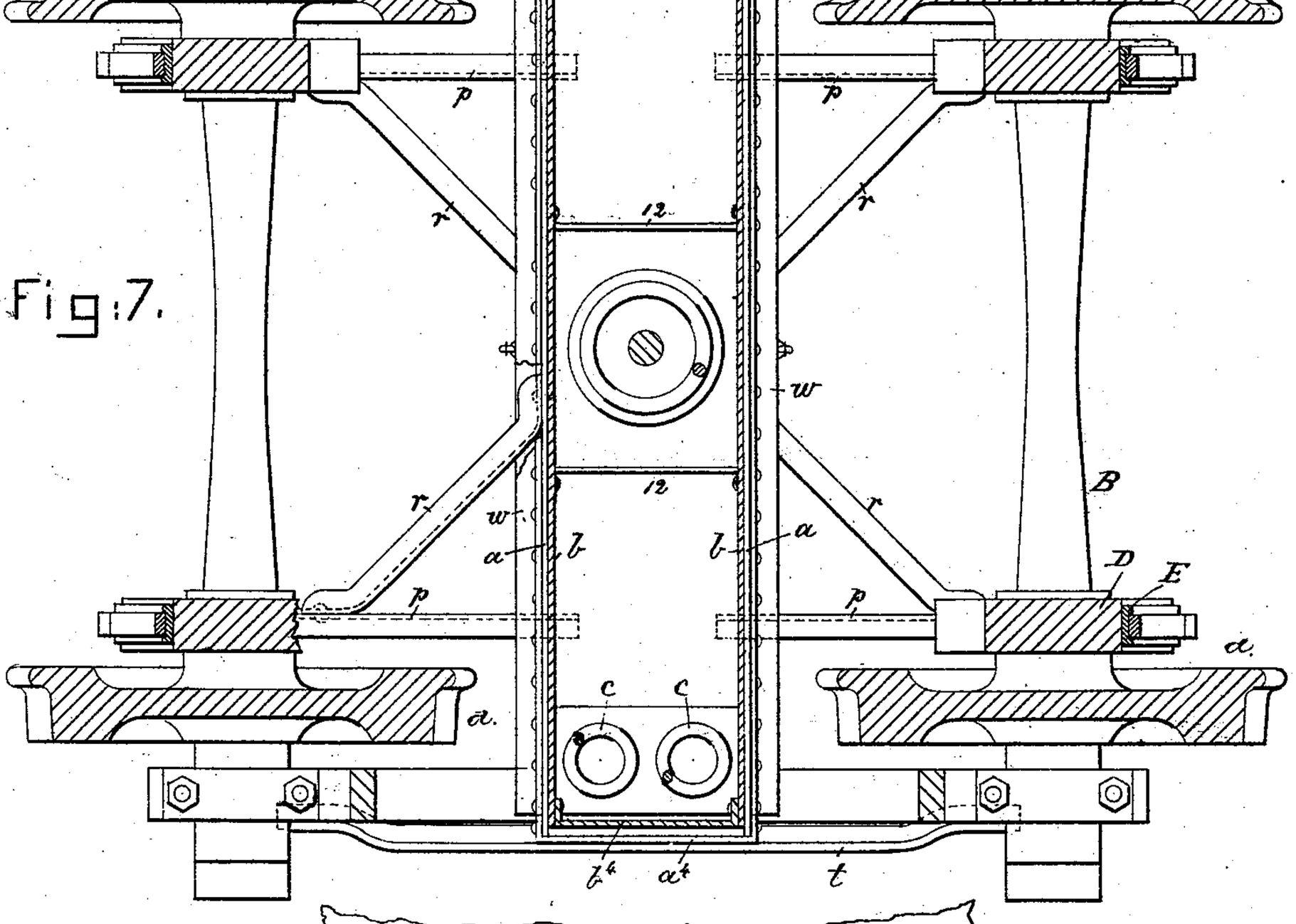
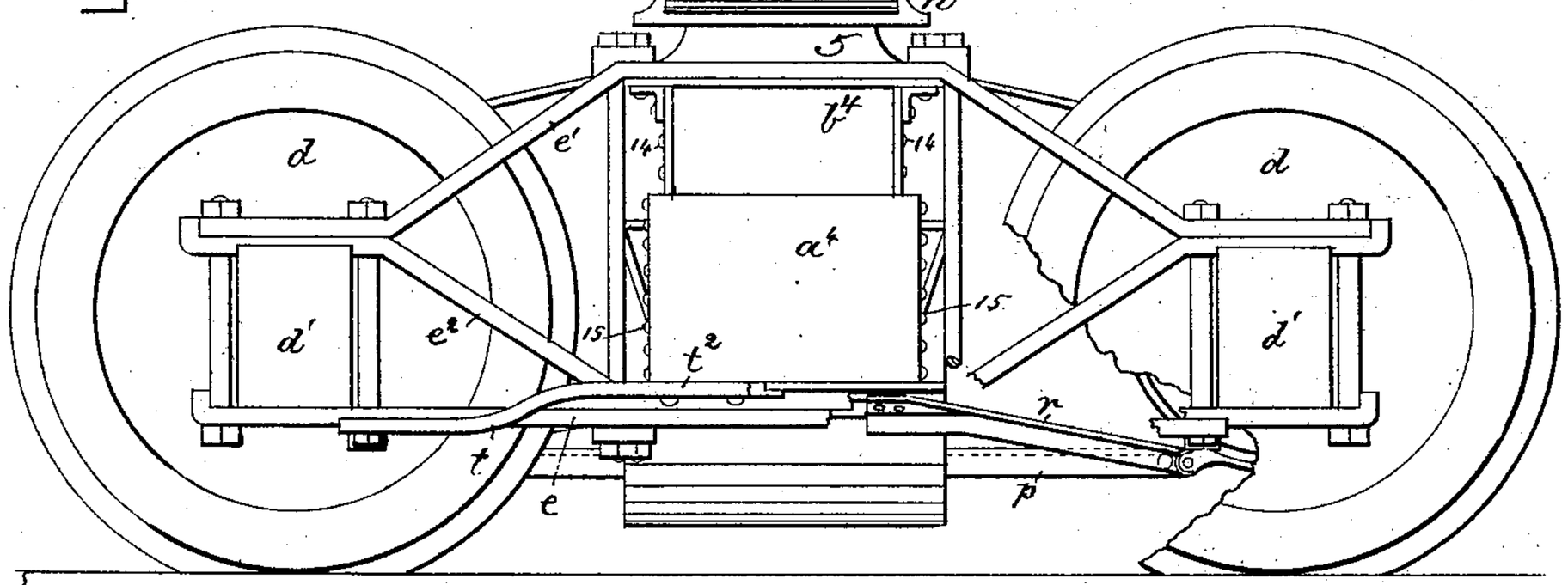


Fig: 8.



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UNITED STATES PATENT OFFICE.

LUTHER K. JEWETT, OF BOSTON, MASSACHUSETTS.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 324,383, dated August 18, 1885.

Application filed December 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, LUTHER K. JEWETT, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Car-Trucks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to produce a car-truck in which a very considerable proportion of the load represented by the car-body and its contents will be carried by the king-bolt, the latter being supported in a yielding manner by a spring carried by the under or rigid part of the bolster.

In ordinary cars the weight of the car-body and its contents is thrown upon the center part of the bolster, and the latter is supported by springs located only at or near its outer ends, and the king-bolt is used merely to keep the rocker-plate of the car-body upon the bolster. In this old plan the dead-weight of the car-body is distributed equally upon the springs at or near the ends of the bolster, so that the car in running upon and following the inequalities of the track is raised at one and then at its other side, according to which side of the track is highest; and as one end of the truck is raised it has to correspondingly raise the car-body on the same side of the track, which is accompanied very frequently by very considerable jarring strain.

To increase the steadiness of the movement of the car-body, and thus improve its riding qualities, I have devised means whereby much of the weight of the car-body is supported in a yielding manner by center springs at or near the center of the bolster and by springs at the ends of the bolster, and also preferably through spring-supported curve-plates which are constructed to gradually take or act to suspend a part of the load in a yielding manner between the rocker-plate and the end springs of the bolster.

When a car-body suspended in accordance with my invention is being run on an uneven track, or one out of level, the effect of the blows of the wheels against the track will for the most part be taken up by the end springs of the truck, and will be dissipated by said end springs, and the blows will not be given to the car-body above the bolster, and consequently swaying movement and jar which would be felt by passengers will be greatly reduced, if not obviated. The distribution of the load partly on the king-bolt at the center of the bolster is especially desirable when a car is rapidly rounding a curve, for at such times it is a matter of very considerable importance to maintain as much of the weight of the car-body as possible at the center of the bolster and as near as possible to the center of gravity of the moving body or the truck.

Herein I have shown my invention as applied to a car-truck having a bolster substantially such as illustrated in my Patent No. 279,951, to which reference may be had.

Figure 1 of the drawings is a cross-section through the bolster of a car-body and truck embodying my improvements, the end springs and king-bolt being in elevation. Fig. 2 is a partial longitudinal vertical section of a car-body and one of my improved trucks. Fig. 3 is a sectional detail showing the bolster with the intermediate springs and braces. Fig. 4 is a detail looking down upon the curve-plates attached to the bolster or looking down below the dotted lines x' x', Fig. 6; Fig. 5, a detail of the curve-plate attached to the under side of the rocker; Fig. 6, a section of Fig. 4 in the dotted line x, but showing the curve-plate of the rocker above it. Fig. 7 is a section of Fig. 1 in the dotted line x^2, and Fig. 8 is a partial end view of a car embodying my invention.

The wheels d d of the truck, the two-part bolster a b, composed of boiler or plate iron, one part arranged to slide vertically within the other, the end springs c, the metal cups c', and the braces e e' e^2 are substantially as in my patent referred to, except that herein I have shown two end springs placed between the rigid and the yielding members a b of the bolster instead of one, as in the said patent, and also that I have herein shown the rigid part of the bolster as downwardly curved at its central part to thus throw much of the weight of the car below the line of the axles of the truck, thus bringing the weight of the car below its center of gravity.

The car-body A, but partially shown, has at

its under side the usual rocker, A′, which near its center receives and holds a metal bearing-block, A^2, which is provided with a recess to receive the upper pivot, 2, of the king-bolt B′, having a large head, which in use fills the hole in the center plate C—a circular plate attached to the movable part *b* of the bolster—the shank or stem of the king-bolt being extended down through the covering-plate 4 of the center spring D, the lower side of the head of the king-bolt resting upon the said covering-plate, as in Figs. 1 and 2. The rocker, at its lower side, is provided with convex center plate C^2, which enters the concaved face of the center plate C, attached to the bolster. The central portion of the plate C^2 also receives the head of the king-bolt, and the plate C^2 is also provided with an annular groove, which is a little wider than the annular projection 10, attached to the plate C, the said annular projection entering the annular groove in plate C^2. The center opening in the plate C^2, about the sides of the part 2 of the king-bolt and about its head, is sufficiently larger than the diameter of the said part 2 and head, and so also is the annular projection 10 sufficiently smaller in width than the annular groove in the plate C^2 to permit a certain amount of rocking movement of the car-body upon the king-bolt and the center plate, C^2, as the curve-plates *h′* of the car-body or the rocker-plate comes to a variable bearing on the yielding curve-plate 5 of the bolster.

The center spring, S, in practice will be sufficiently stiff to support about one-fourth of the weight of the car-body and its load before the bolster begins to act upon and to compress the end springs, *c*, and as the latter are compressed the center spring receives about one-half the load, and the end springs, *cq*, the balance. When the car-body is unloaded, the weight thereof will be sustained chiefly by the center spring S at the center of the bolster of each truck, the weight of the car-body on the king-bolt placing the plate 4 at a little distance below the under side of the top of the movable part *b* of the bolster, and as the car is loaded the weight therein gradually depresses the center spring S and also the end springs, *c c*.

Throwing a very considerable portion of the weight of the car-body upon the center springs enables much of the weight of the car to be kept near the center of the bolster, and also enables the weight to be in a measure suspended between the end springs and the car-body, so that jars and concussions resulting from blows of the wheels on the track will be taken up or dissipated by the springs before reaching the car-body, and so also a large part of the weight of the car will be kept at the center of the truck, which is especially desirable when rounding curves in the track.

To yet further cushion the load, the curve-plates 5, two of which are bolted to the bolster by bolts 6 6, are provided in the process of casting with annular chambers for the reception of strong springs *h*, the upper ends of which extend above the said curve-plates and are acted upon and receive against them the pressure of the upper curve-plates, *h′*, attached to the rocker A′, the said springs when employed being compressed between the times of compressing the center springs D and the end springs, *c c*, the springs *h* taking a part of the weight of the car between the center and ends of the bolster and acting as cushions to resist movement of the car.

The car-body is attached by strong chains *i i* to braces i^2 i^2, connected with the rigid stationary portion *b* of the truck-bolster at or near its center, as shown in Fig. 2, the said chains acting to prevent the car-body from being thrown from the truck, as is very frequently the case in railway accidents. These chains are strong enough to prevent the body leaving the trucks, thereby obviating telescoping of the bodies, which happens only when the bodies leave the truck. The chains i^2 are sufficiently long to permit the necessary rise and fall of the body on its supporting-springs when the car is running, and the spring-supported king-bolt is so held and acted upon that its upper end, 2, will remain in engagement with the rocker-plate, even when the chains are taut or straight, the king-bolt acting at all times to obviate lateral movement of the body from the trucks.

The axles B have applied to them drums D, embraced by pivoted brake-shoes E, which are substantially as shown in my application filed March 24, 1884, Serial No. 125,310, to which reference may be had, except that herein the said drums and brake-shoes are flat at their contacting surfaces rather than V-shaped, as shown in the said application.

To strengthen the bolster member *b*, and at the same time provide rigid walls to surround the foot-plate 13, which receives the lower end of the spring S, I have provided the bolster with the upright cross-plates 12.

The levers *g g* and links *f′ f′* are substantially the same as the devices marked by like letters in my application referred to, filed March 24, 1884.

The plates or webs at the ends of the portions *a b* of the bolster are joined by metallic plates a^4 b^4, respectively, which are riveted thereto by the rivets 14 15, thus adding greatly to the strength of the metallic bolsters, and also excluding dust, &c.

The bars *p*, on which the brake-shoes are pivoted, are braced by braces *r*, composed of angle-iron joined with the rigid part *a* of the bolster and with the bars *p*, as best shown in Fig. 7.

Outside the truck the metal frame which receives the journals *d′* is braced by the bracing-rod *t*, which, near its center, is rabbeted to the rigid part *u* of the bolster, thus greatly strengthening the truck, preventing the liability of the axle B from becoming strained out of parallelism.

The curve-plate 5 has an oil-chamber, h^4,

for the reception of oiled packing or waste to supply oil to the rubbing-surfaces of the curve-plates.

Pieces of angle-iron *w* are placed at the junction of the side plates and the bottom plate of the pieces of metal plates constituting the under rigid member, *a*, of the bolster.

I claim—

1. The car-truck having a bolster supported by end springs and a centrally-located independent spring, D, and the king-bolt B′, sustained by it, combined with the car-body and its rocker, and with center plates C C′, attached to the body and bolster and held in place by the king-bolt, substantially as described.

2. In a car-truck, a bolster having its central part bent down below the load of the axles, combined with the car-body, a central spring, and a king-bolt supported by the said spring and receiving a part of the weight of the car-body, substantially as described.

3. The car-body and the truck having a bolster supported by end springs, combined with center plates and with the curve-plates, and springs co-operating therewith to take a portion of the load of the car and act as cushions between the car-body and truck outside the center plates, substantially as described.

4. The car-body provided with a rocker, the truck having a bolster provided with end springs, and a centrally-located spring and king-bolt sustained by it and receiving part of the weight of the car-body and the center plates, combined with curve-plates and cushioning-springs co-operating therewith, substantially as described.

5. The rigid hollow bolster member *a*, having the braces 12, the foot-plate 13, center spring S, king-bolt B^2, plate B′, on which the head of the bolt rests, and the movable member *b* of the bolster, and center plates C C^2, combined with the car-body and its rocker, substantially as described.

6. The truck having a bolster provided with end springs, the spring-supported king-bolt, and the car-body, combined with chains to keep the car-body down upon the truck, substantially as described.

7. The bolster and the braces *p* to support the brake shoes or straps E, combined with the braces *r*, connecting the brace *p* with the bolster, substantially as described.

8. The car-truck having a two-part bolster provided with end springs, combined with the braces *t*, connected at their centers with the bolster and at their ends with the box-supporting side frames or bars of the car-truck, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LUTHER K. JEWETT.

Witnesses:

B. J. NOYES,

JOS. P. LIVERMORE.