

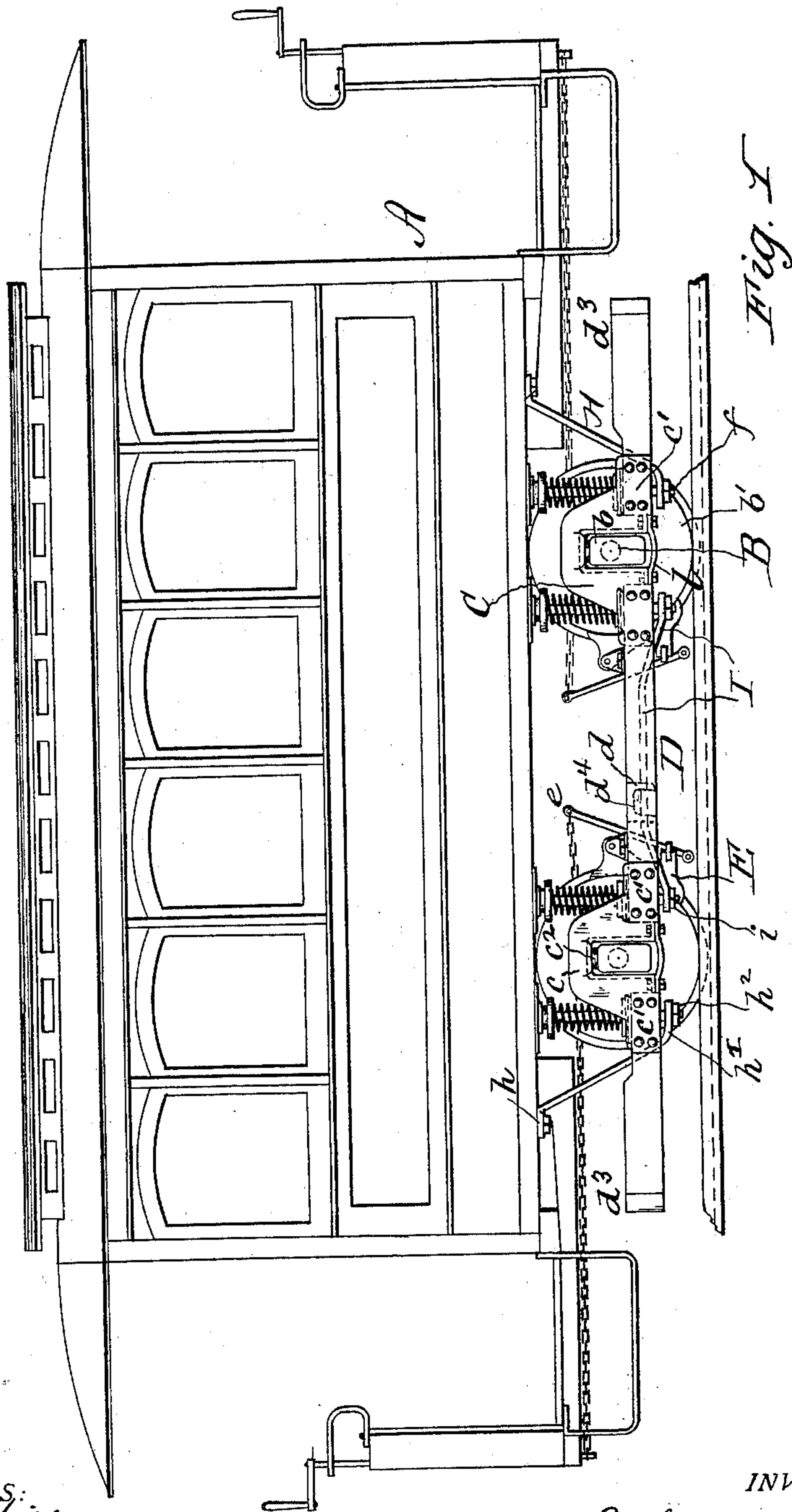
(No Model.)

3 Sheets—Sheet 1.

J. A. BRILL.
STREET CAR.

No. 432,115.

Patented July 15, 1890.



WITNESSES:

Edwin R. Miller
Geo. R. Byington

INVENTOR,

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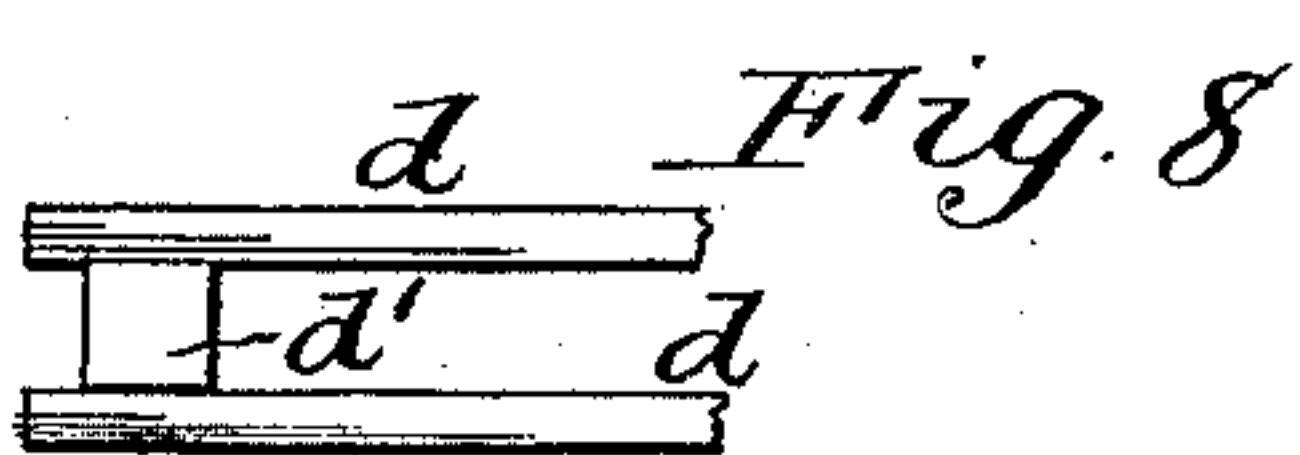
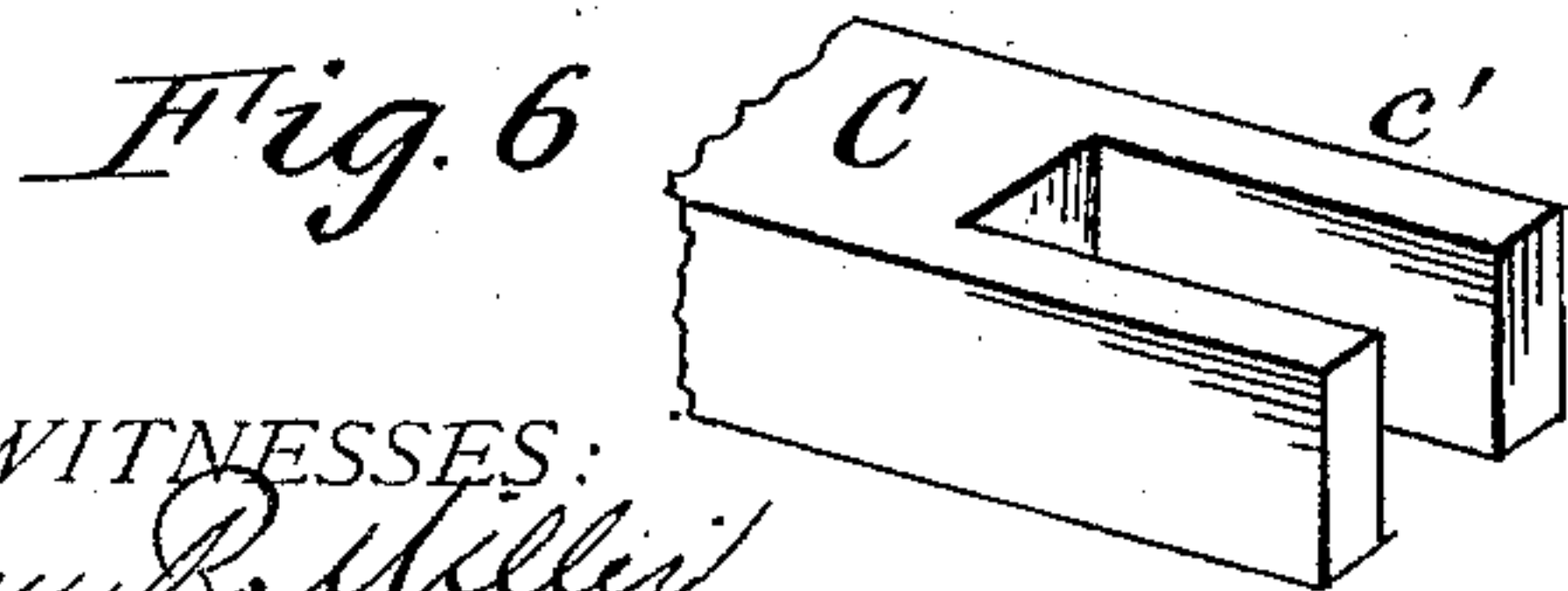
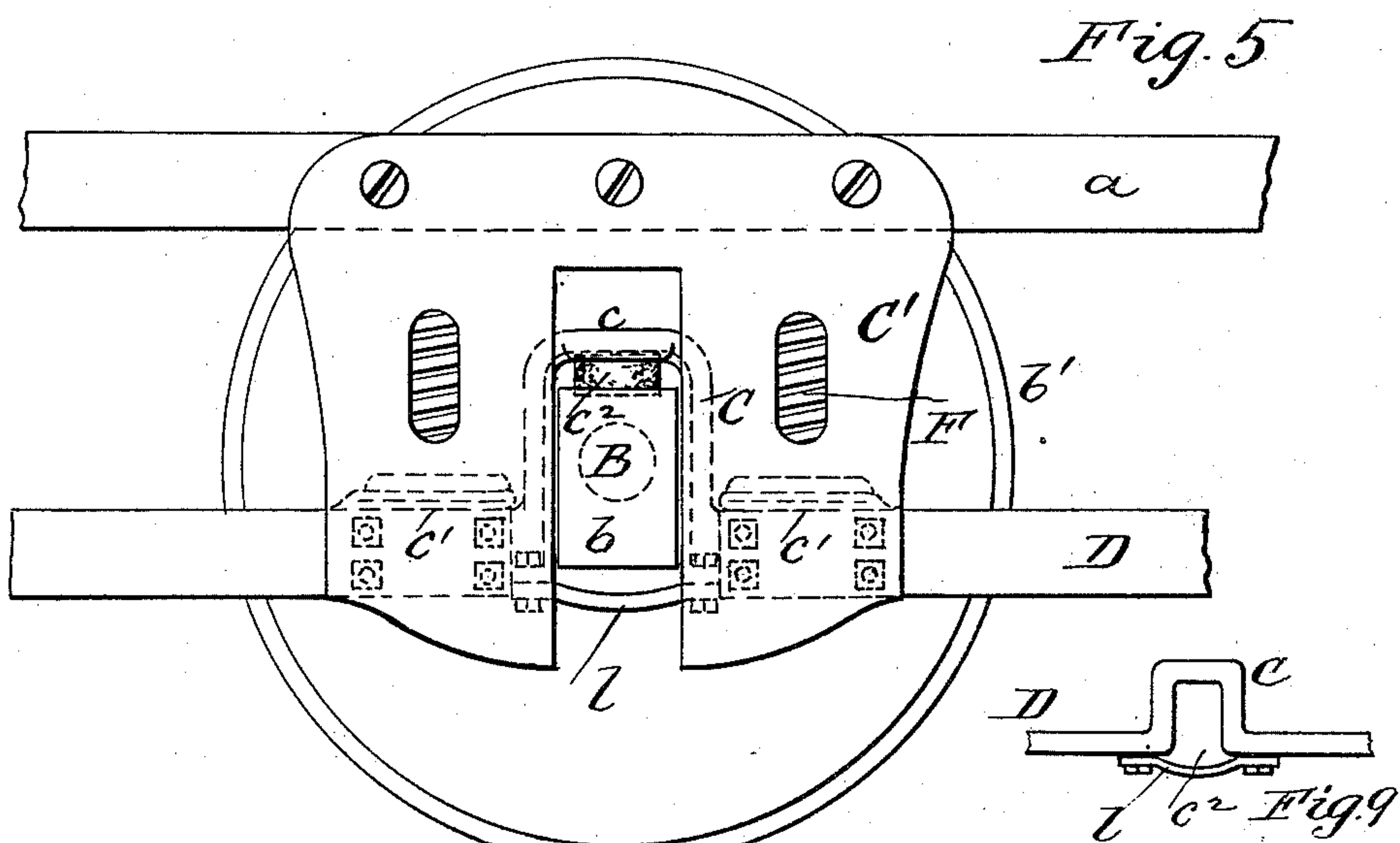
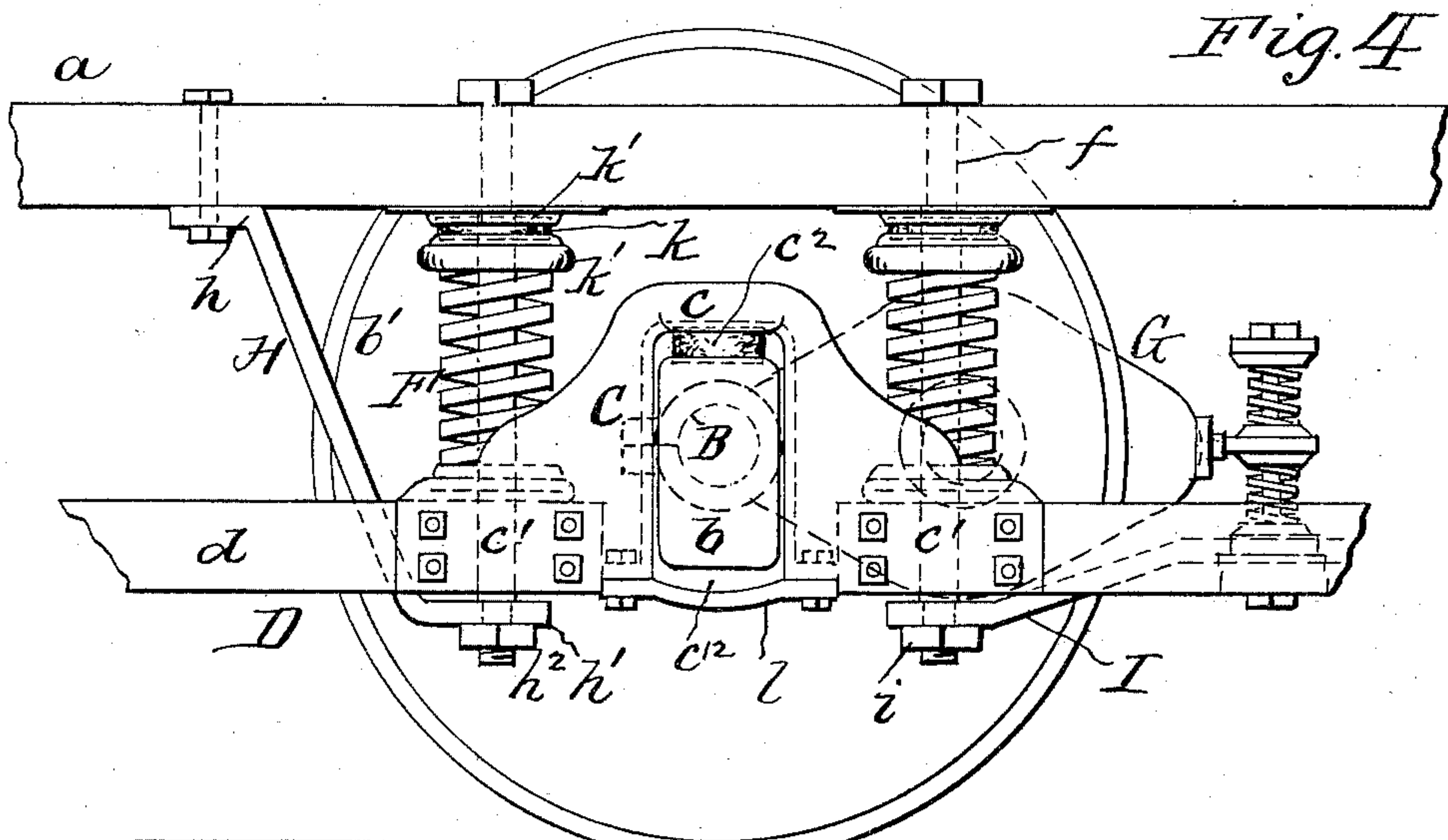
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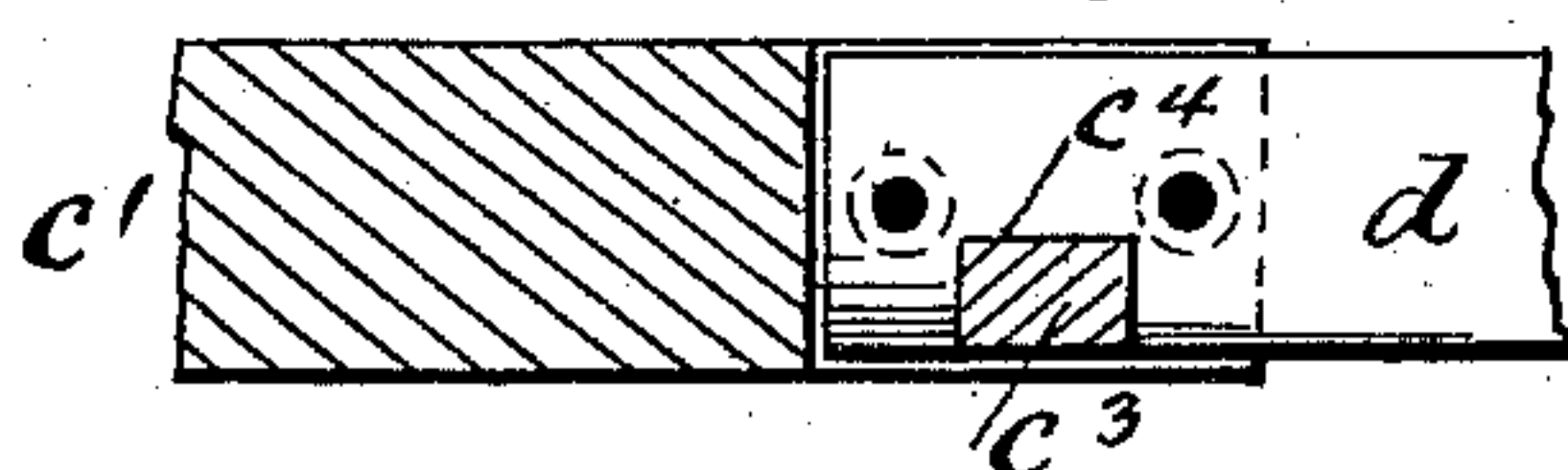
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UNITED STATES PATENT OFFICE.

JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 432,115, dated July 15, 1890.

Application filed April 27, 1889. Serial No. 308,852. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BRILL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Street-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to street-railway-car trucks of the form adapted to support or have mounted thereon electric motors, grips, or analogous devices; and it has for its object to provide a truck-frame of which the housings or pedestals for the axle-boxes form a component part of the truck-frame, which is wholly supported upon or suspended from the axle-boxes, so that neither the frame, pedestals, nor appurtenances mounted on the frame are subject to the vertical vibration of the car-body, and an easier-riding car-body and an easier-traveling running-gear and truck-frame are provided, and which admits of easy and quick removal of any or all of the wheels and axle-boxes for repairs or replacement without necessitating the dismantling of the truck-frame, and also of corresponding removal of the truck-frame with the wheels and their boxes from a car-body for repairs to either of said parts for replacement by a similarly-equipped truck-frame or for attachment to a different style of car-body.

My invention accordingly consists of the combinations, constructions, and arrangements of parts, as hereinafter described in the specification, and pointed out in the claims.

Reference being had to the accompanying drawings, Figure 1 is a side elevation of a car having truck-frame embodying my improvements. Fig. 2 is a like view of the truck-frame with axles, wheels, and axle-boxes removed from the car. Fig. 3 is a like view of part of the car, truck-frame, and one of the axles and wheels, showing the axle with wheels and axle-boxes removed from the car or its truck-frame. Fig. 4 is a like view of same, showing the axle with wheels and boxes in position on the truck-frame, and both said Figs. 3 and 4 drawn to an enlarged scale.

Fig. 5 is a similar view showing my improvements applied to a car having a part representing the usual form of pedestals secured to the car-body. Fig. 6 is a perspective view showing forked or bifurcated end of axle-box housing or pedestal. Fig. 7 is a sectional view of same and part of connecting frame-bars therefor, showing more plainly a preferable mode of connection for said parts. Fig. 8 is a plan view of part of said frame-connecting bars, showing the parallel or double bar form of same; and Fig. 9 is an elevation of part of truck-frame, showing a modification of construction of same.

A represents the car; B, the axles, having axle-boxes *b* and wheels *b'* of any suitable form or construction.

C represents the housings or pedestals for the axle-boxes *b*, which housings or pedestals are not secured to the car-body A, but are suspended from or supported upon the boxes *b*. Said pedestals are in the form of an inverted U, having top bar *c* and side wings or ends *c'*, which extend down to or below the bottom of the axle-boxes to embrace the boxes the full length of their sides to maintain the boxes in their normal position. Between the top bars *c* of the pedestals and the axle-boxes *b* are interposed cushions or springs *c²* to provide a spring-support for said pedestals on the axle-boxes. The ends *c'* of the pedestals are connected together by side bars *d* to form a frame D, of which the pedestals C are an integral or component part, and which constitutes the truck-frame for the car. The side bars *d* may be single bars; but I prefer a parallel or double bar form of same, as more plainly shown in Fig. 8, and when these parallel bars *d d* are used they are separated by interposed blocks *d'* and the whole suitably screwed, bolted, or riveted together. These side bars are connected by end cross-bars or fenders *d³* and intermediate cross-bars *d⁴* to give the requisite strength and stiffness to frame D for supporting the brake-shoes E, their actuating mechanism *e*, (see Figs. 1 and 2,) and an electric motor G or analogous devices relating to the propulsion of the car, as well as other appurtenances, like track brake-shoes, track-brushes, sand-boxes, &c.

The electric motor G or like device is se-

cured directly to the frame D. In the drawings one end of the motor is shown journaled on the axle and the other on the frame D.

Through vertical openings in the pedestals ends c' pass posts F, depending from the sills a of the car-body, or said posts may pass between the interval of the parallel side bars $d d$. In any case there is more or less play between the posts F and the openings in the frame D through which said posts pass to admit of the frame D having a slight lateral movement independent of the posts F, and consequently of the car-body, to conform to irregularities in the gage of the tracks. The lower ends f of posts F are suitably braced or supported, the outer posts being connected to braces H, the upper ends h of which are bolted to the car-sills a and the lower ends h' held to the post ends f by screw-nuts h^2 , and the inner posts being connected or braced by a truss-rod I, held thereto by screw-nuts i .

Upon or surrounding the posts F are the usual car-springs K, the lower ends of which seat on frame D or on the pedestal ends c' . If desired, suitable caps k' and secondary cushions or springs k may be interposed between the ends of springs K and the frame D and sills a .

The lower open ends c^{12} of the pedestals C are preferably closed by a cross-bar l , screwed, bolted, or otherwise secured in position, so as to be easily removable therefrom. When the side bars d of the frame D are separate from and connected to the pedestal ends c' , the latter are preferably bifurcated, as shown in Fig. 6, and in the bifurcation is a transverse bar c^3 for the ends of the parallel bars $d d$ to rest upon, the latter being preferably recessed at c^4 to fit said transverse bars c^3 , as more plainly indicated in Fig. 7. If desired, however, the pedestals C and frame D may be formed in one piece, as indicated in Fig. 9.

From the foregoing it will be noted that the posts F have no connection with the axle-boxes, or the latter are not in connection with any part of the truck-frame D or car-body; hence each axle is independent of the other and of frame D and independently conforms to the curves of the line of way; that the frame D, with the pedestals C, is not supported from the car-body, but from the axle-boxes; hence said frame and all appurtenances located thereon are not subject to the vertical vibrations of the car-body, which has in effect the usual spring-supports. As frame D has a slight transverse movement independent of the car-body, the latter is not subject to the lateral movements of the truck-frame; hence the car rides easier and the truck travels correspondingly. As the sides c' of the pedestals extend down to or below the bottom of the axle-boxes, the frame sides d are located in a plane below that of the axles; hence ample space between the car-body and frame D

is provided to admit of securing the motor G directly to frame D, and all supplementary frames depending from frame D for supporting the motor are avoided or unnecessary. Again, as the open ends c^{12} of the axle-box recesses in the pedestals C extend to the bottom of frame D, the latter is not continued across the bottom of the axle-boxes, but is broken or intervalled at said parts, so that no part of frame D interferes with or is in the way of the removal of the axles from the truck or car.

By removing the nuts or fastenings h^2 and i from posts F the frame D, with axles, boxes, and wheels, and all appurtenances mounted on frame D are easily and quickly removed from the car-body by raising the latter, and this is done when repairs are needed for either the car-body or the truck, or when a faulty truck is to be replaced by a new one, or when a change of trucks is made from one style of car to another—as, for instance, from a summer to a winter car, or reversely—in which case one set of trucks answers for different sets of cars.

By removing the cross-bars l from the lower open ends c^{12} of the pedestals the car-axles, with boxes and wheels, are removable from frame D without dismounting it, and this is done when it is desired to repair or replace the axles, boxes, or wheels. In case an electric motor G or other appliance is partly secured to the axles, such motor-connection is first unshipped or released and the end of the motor hooked, tied, or otherwise temporarily fastened to the car, as indicated by dotted lines x , Fig. 3, when the axles, with boxes and wheels, are removed.

If desired, the frame D, with pedestals C, may be used in conjunction with a part C', representing the usual form of pedestals, secured to the car-sills a , as indicated in Fig. 5.

As it is evident that the construction and arrangement of the novel parts of my invention may be greatly varied without departing from the spirit of the invention, I do not limit myself to the same, as shown and described. Thus, for instance, in some cases the pedestal-bar l may be dispensed with. It will be noted that the pedestals C are a part of the frame D, or, in other words, no extra or separate pedestals secured to the car or truck frame are needed or used; neither are lower yokes or saddles embracing the bottom part of the axle-boxes necessary, as has heretofore been used.

What I claim is—

1. A truck-frame D, having component axle-box pedestals or housings supported on and extending to or below the bottom of the car-axle boxes, in combination with a spring-supported car-body, substantially as set forth.

2. In combination with a car-body A, a truck-frame D, having axle-box pedestals or housings supported upon or depending from

the axle-boxes, said pedestals having lower open ends and attachable and detachable bars *l* at said ends, substantially as set forth.

3. In combination with the axle-boxes of a car, the frame *D*, having axle-box pedestals *C*, with lower open ends *c*¹², extending down to the bottom sides of said frame, and the latter extending longitudinally beyond the car-axles, substantially as set forth.

4. In a car, the frame *D*, having pedestals *C*, supported on and extending down to or below the bottom of the axle-boxes, springs inserted between said pedestals and boxes, and spring-supports for said car on said frame, substantially as set forth.

5. The combination of axle-boxes *b*, pedestals *C*, supported thereon and having forked ends, transverse bars *c*³ in said forked ends, and frame side bars *d d*, having recesses *c*⁴, fitting bars *c*³, substantially as set forth.

6. In combination with a car-body and its running-gear axle-boxes, the frame *D*, having component yoke-shaped axle-box pedestals *C*, with lower open ends *c*¹², inner and outer posts *F*, connecting frame *D* and car-body, car-

springs surrounding said posts, braces *H* for the outer posts, and a separate truss-rod *I* for the inner posts *F*, substantially as set forth.

7. In combination with a car-body and its running-gear axle-boxes, the frame *D*, having pedestals *C*, with lower open ends supported on said axle-boxes, posts *F* and car-springs interposed between said frame *D* and car-body, and braces for said posts, which braces do not extend across the bottom of the axle-boxes, substantially as set forth.

8. In combination with a car-body and its running-gear axle-boxes, a frame *D*, having axle-box openings *c*¹², supported on said boxes, springs between said frame *D* and car-body, supports for said springs, and attachable and detachable bars *l*, for closing openings *c*¹², substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. BRILL.

Witnesses:

GEO. R. BYINGTON,
S. J. VAN STAVOREN.