

(No Model.)

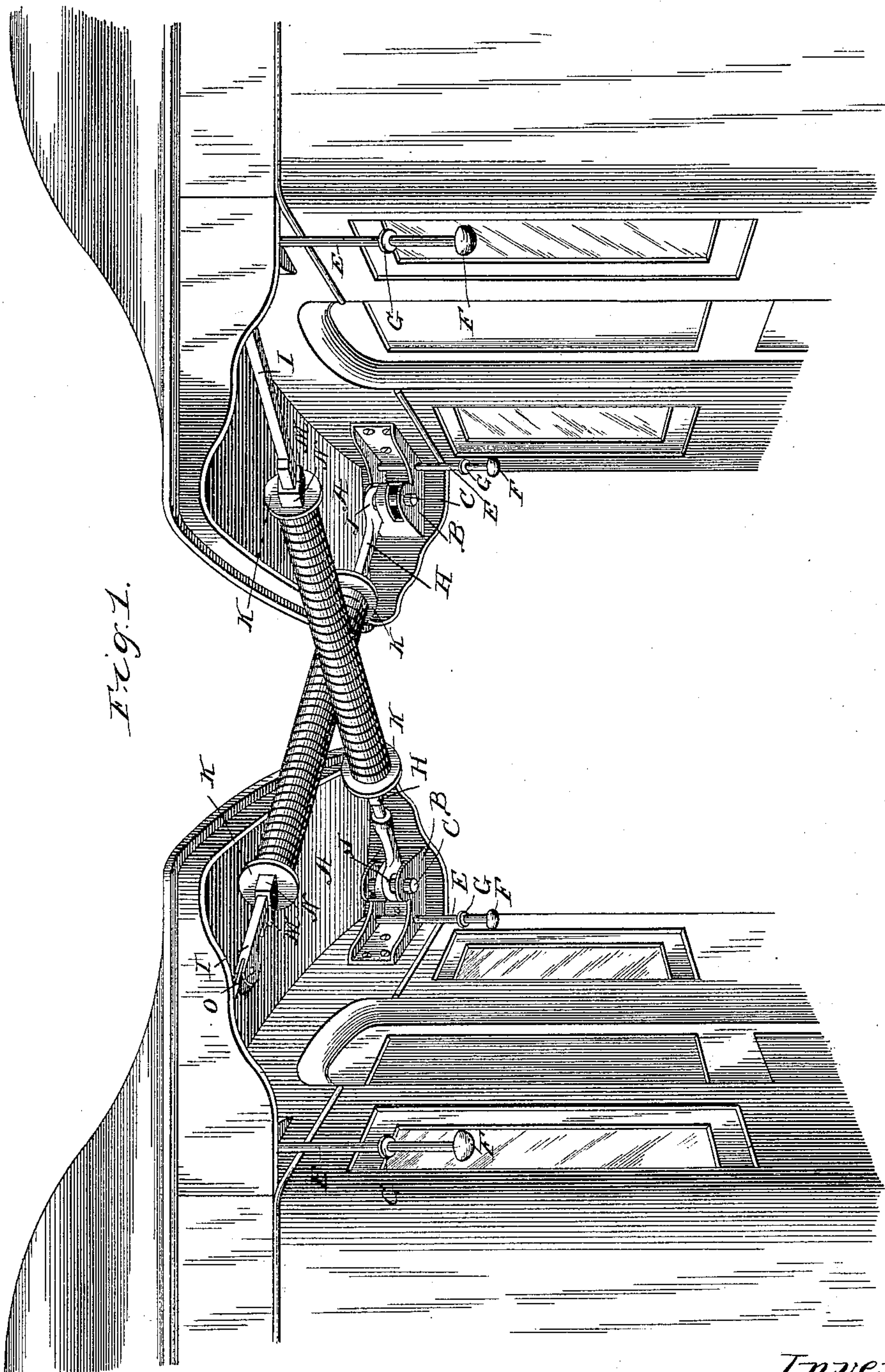
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RAILROAD CAR.

No. 397,902.

Patented Feb. 19, 1889.



Witnesses
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Chas. R. Quinlan

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att'y

(No Model.)

3 Sheets—Sheet 2.

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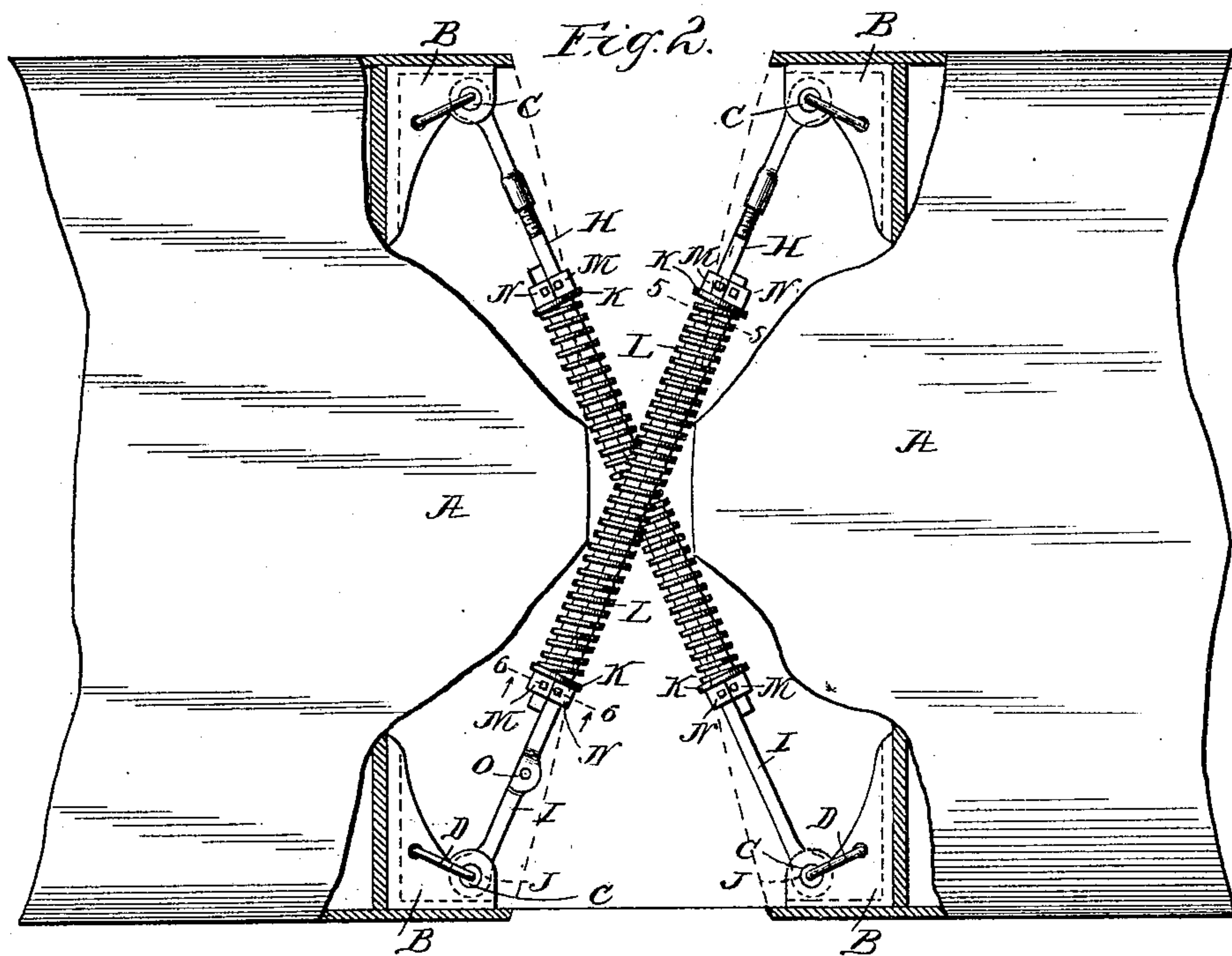


Fig. 3.

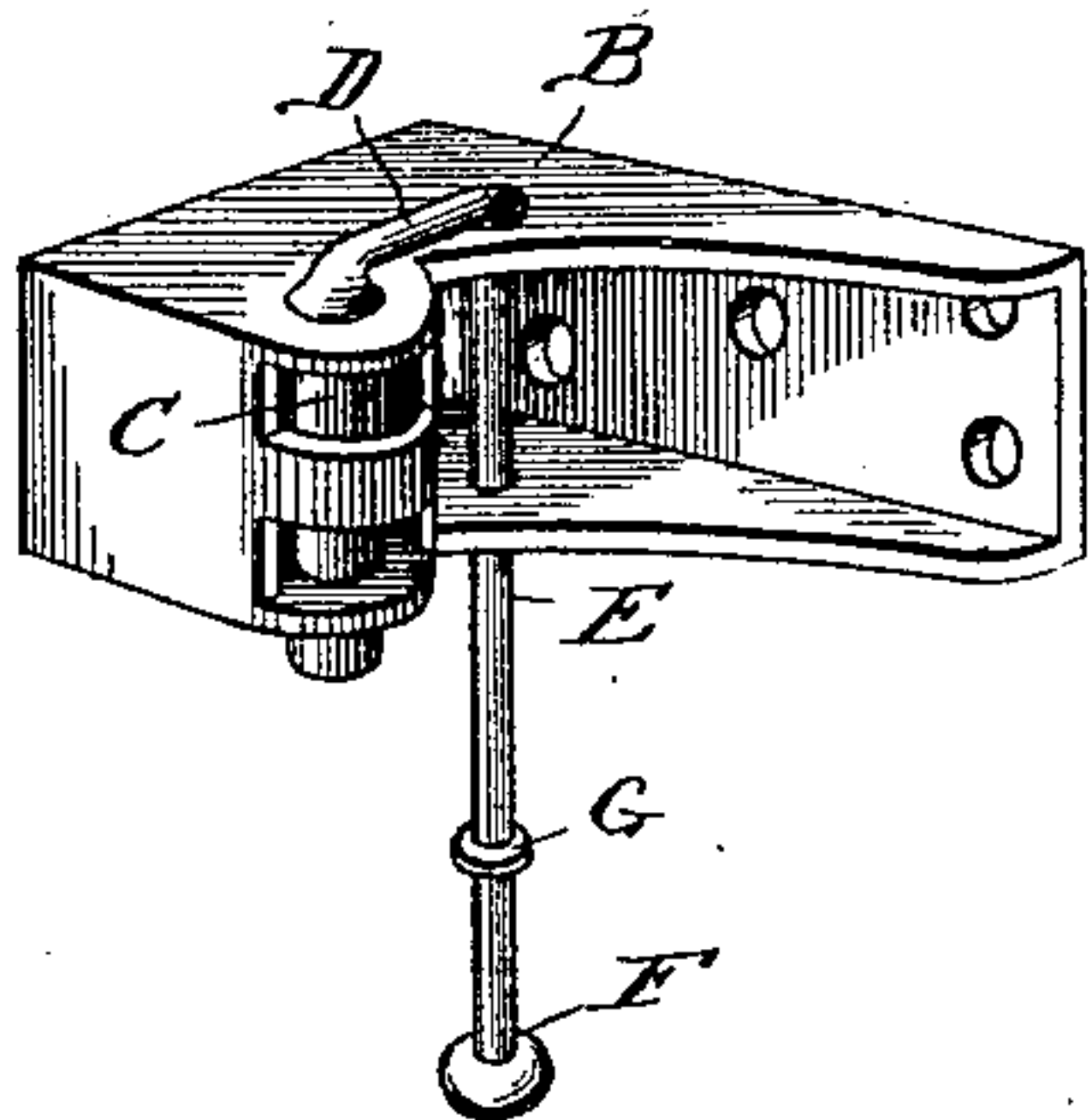


Fig. 4.

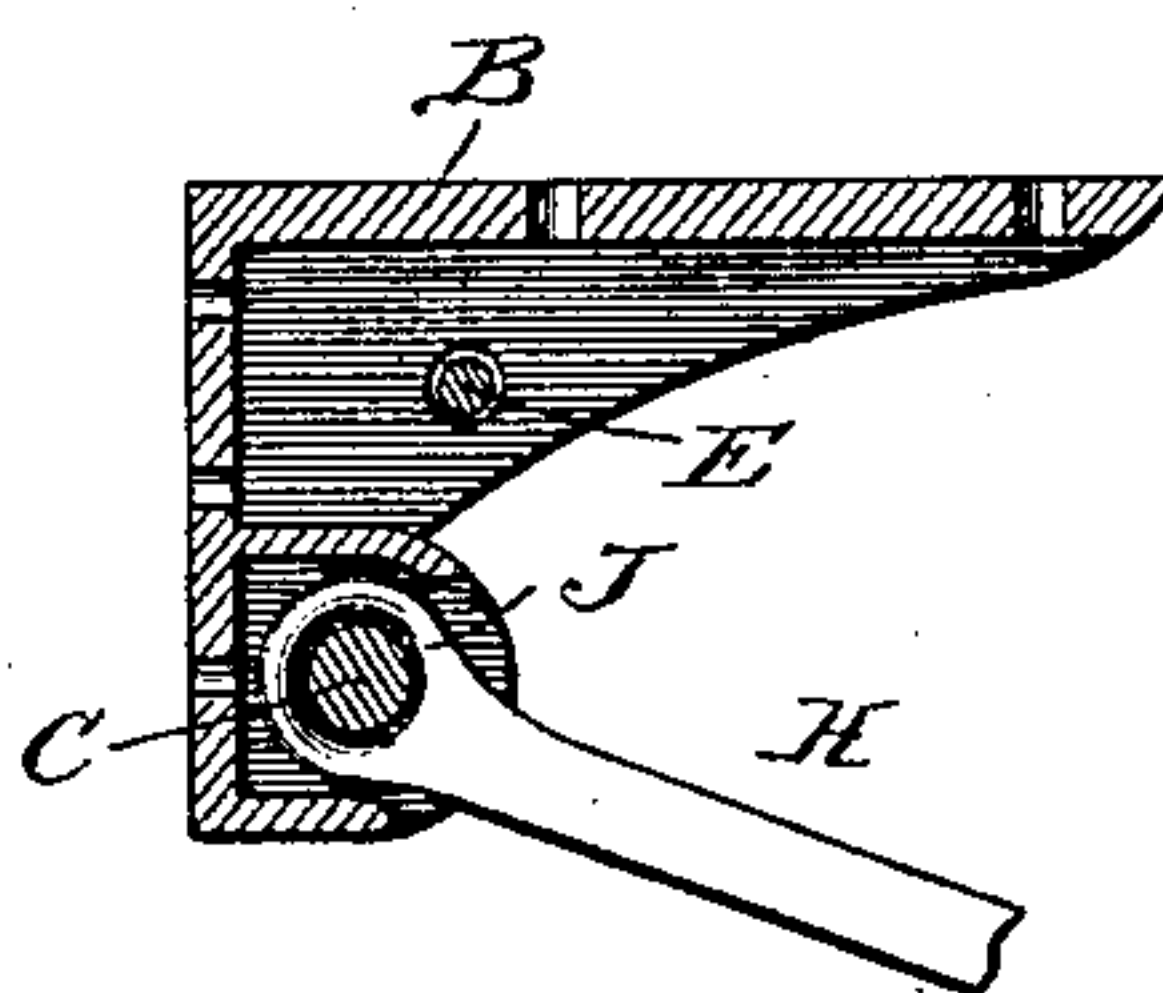
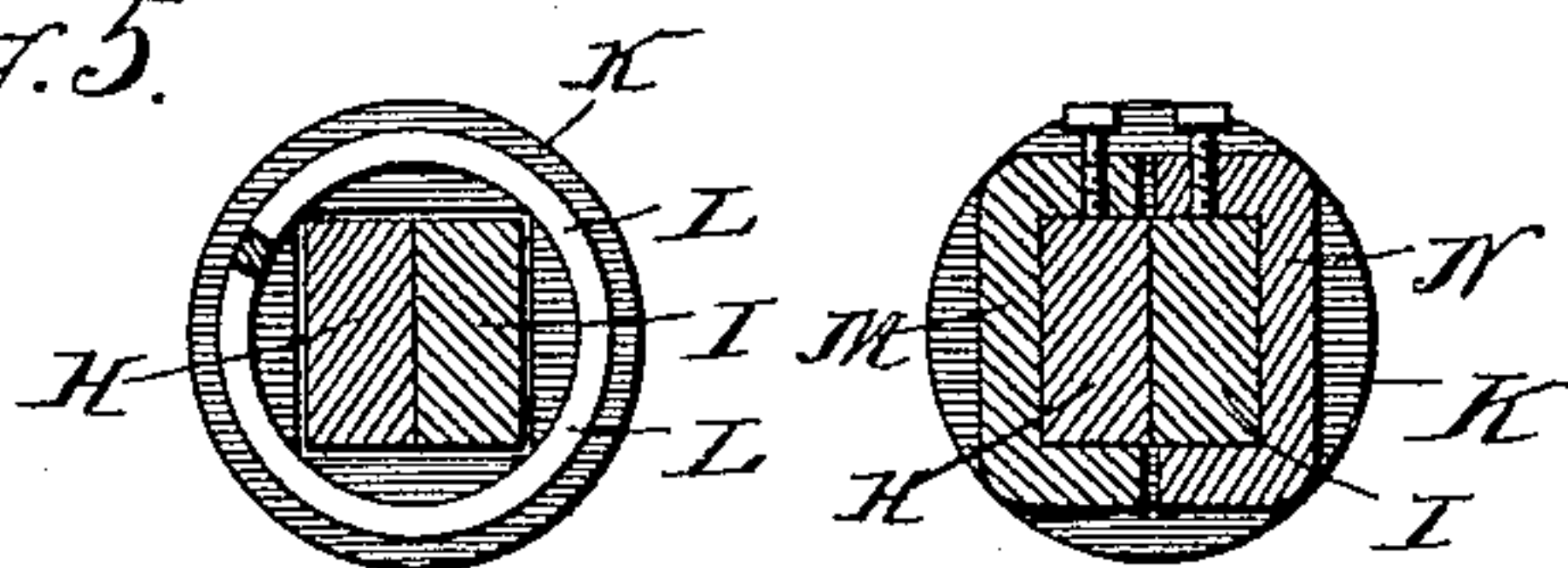


Fig. 6.

Fig. 5.



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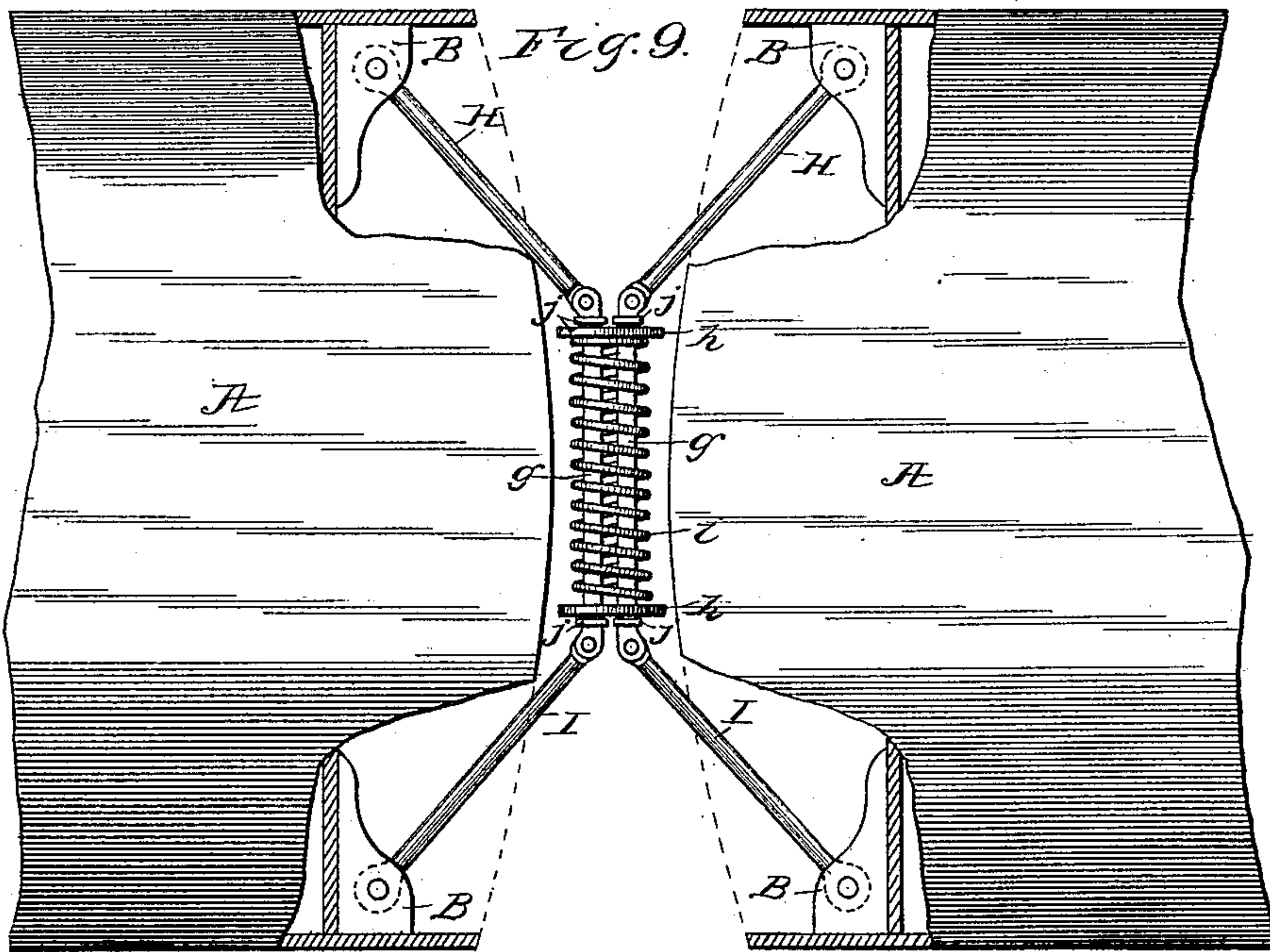
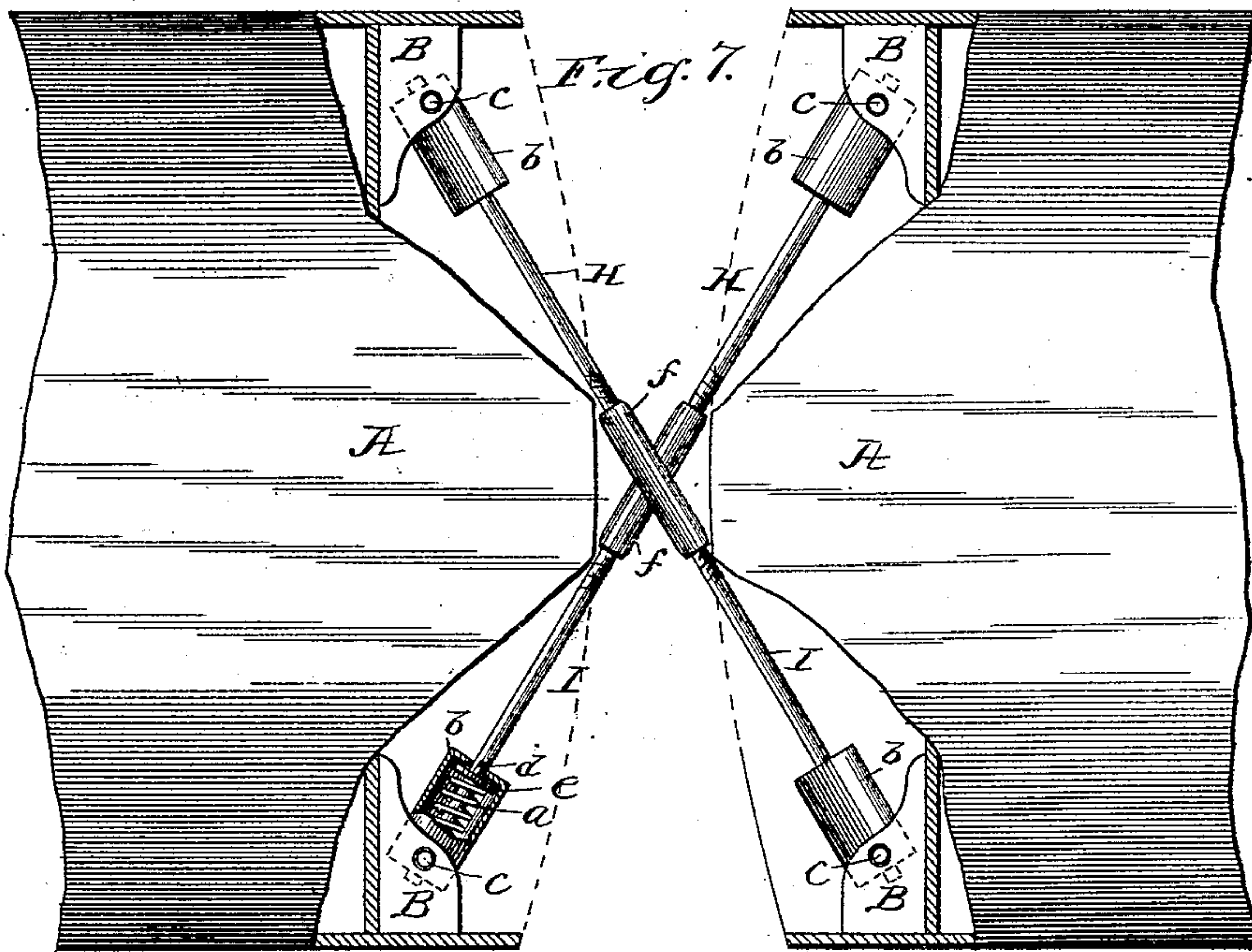
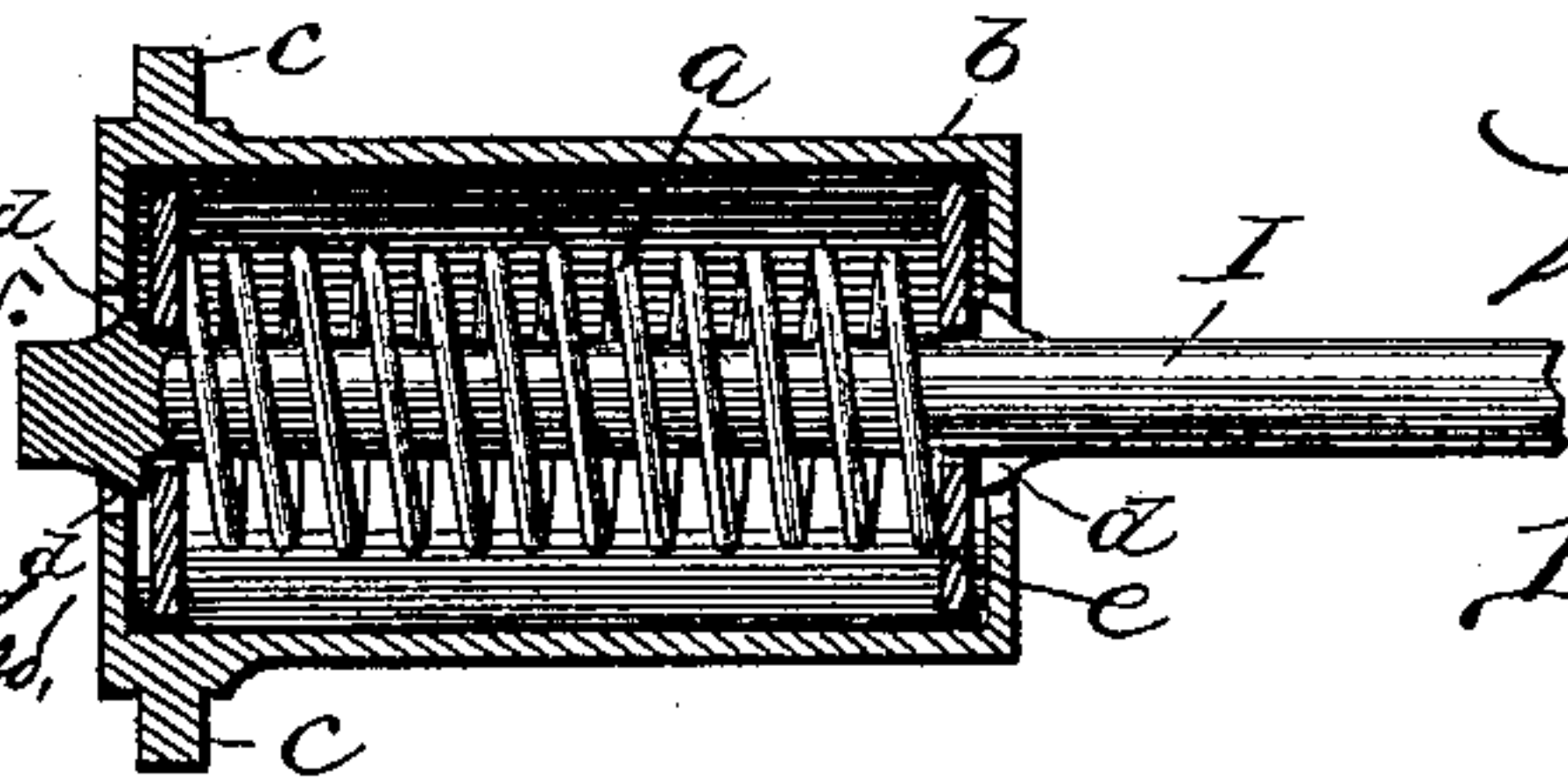


Fig. 8.

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UNITED STATES PATENT OFFICE.

WILLIAM E. ELLIOTT, OF CHICAGO, ILLINOIS.

RAILROAD-CAR.

SPECIFICATION forming part of Letters Patent No. 397,902, dated February 19, 1889.

Application filed May 29, 1888. Serial No. 275,479. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. ELLIOTT, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Railroad-Cars, of which the following is a specification.

This invention relates to improvements in devices for lessening the independent oscillation or lateral movement of the cars of a train, and which have heretofore consisted of opposing spring-seated friction plates or buffers attached to adjacent cars and bearing against each other at all times under strong tension; but it is well known that such devices only partially subserve the intended purpose and reduce the oscillation in a hardly-perceptible degree, because of the necessarily limited power of the springs seating the friction-plates and the fact that the bearing-surfaces of said plates soon become worn so smooth as to produce little or no friction when in contact, the parts sliding upon each other with every slight impulse whether powerful or weak springs are employed, and very powerful springs cannot be employed in connection with the superstructure of cars as at present constructed.

The prime object of my invention is to have a yielding and continuous or unbroken connection between adjacent cars at such a point above the platform as will substantially lessen the oscillation or vibration of the cars independently of each other.

Another object of my invention is to have a yielding connection between adjacent cars extending obliquely to their length, and, further, to have such oblique connections continuous or unbroken from car to car.

Other objects are to have such continuous connection between adjacent cars detachably or separably connected therewith, whereby it may be readily detached from either car or entirely disconnected from both cars when said cars are uncoupled, and to provide certain details of construction in the carrying out of my invention, all as illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of a portion of the ends of adjacent cars, showing the devices applied thereto embodying my

invention; Fig. 2, a plan view thereof with a portion of the roofs of the cars broken away; Fig. 3, a perspective view of one of the coupling-plates attached to the car-frame, by which the yielding connection is detachably secured in position; Fig. 4, a horizontal section thereof; Fig. 5, a detail transverse section on the line 5 5 of Fig. 2, and Fig. 6 a similar section on the line 6 6 of the same figure; Figs. 7, 8, and 9, detail views of a modified form of the yielding connection.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the car superstructure, and B angular coupling-plates secured to said superstructure on the ends and at the upper corners thereof by means of bolts, screws, or any other suitable devices which will serve to hold the said coupling-plates firmly in position; but I may here state that the form of these coupling-plates is immaterial, and they need not necessarily be located at the side edges of the superstructure so long as they will subserve the intended purpose. Two of these coupling-plates are designed to be attached to each end of a car, and each is provided with a coupling-pin, C, the upper end of which is bent at a right angle thereto, so as to form a horizontal arm, D, against the upper end of which bears a vertical rod, E, pivotally connected therewith and working loosely through perforations in the coupling-plate, the said rod extending downwardly from said plate a sufficient distance to be within easy reach of the operator, and preferably has its end formed into a handle, F, for convenience of manipulation. By means of this rod the coupling-pin may be elevated so as to couple or uncouple the connections as hereinafter described, the said rod being also provided with a collar, G, thereon to prevent the complete withdrawal of the coupling-pin from the plate.

Between each pair of couplings, but extending obliquely across the ends of the car, so that one end connects with one of the cars at one side and the other end at the opposite side of the adjacent car, is the yielding connection hereinbefore referred to, consisting

of the rods H I, arranged in pairs, each provided at their outer ends with eyes J, through which the coupling-pins pass, the inner ends of said rods being preferably rectangular in cross-section, as more clearly shown in Figs. 5 and 6, so that when placed together they will form a square. Sleeved upon these rods, and holding the inner ends of each pair thereof parallel and close together, are disk-like plates K, between which, and also sleeved upon said rods, are confined strong coil-springs L, the said disk in turn being confined between lugs M N, rigidly secured to said rods H and I, respectively, one near the extreme end of said rods and one toward the opposite end thereof, both beyond said disks, the whole forming a sliding or telescope connection between each pair of said rods, which are guided and prevented from separating solely by the disk-like plates K, hereinbefore referred to. The lugs on the rods are so located that the springs at all times are under a slight tension, and are so arranged that no matter which direction the rods are moved relative to each other the spring will be compressed, one lug on each rod operating at a time and in one direction, while the other pair of lugs operates when the rods are moved in the opposite direction, both, however, as aforesaid, operating to compress the spring.

Thus it will be seen that with the two sets of rods and springs or the double yielding connection shown in the drawings extending obliquely between the adjacent cars, whenever either car lurches to one side or the other, both connections will operate, although the rods in one connection are extended, while in the other they are telescoped; and it is therefore obvious that either one of these connections might be dispensed with and the same result be accomplished; but in that case it would be found advantageous to make the springs stronger than if a pair of such connections were employed.

If found desirable, in order to facilitate the coupling of the rods of the yielding connection with the coupling-plates, the said rods may be provided with a rule or knuckle joint, O, which when broken enables the coupling of the rods to the plates while the springs are not under tension, the said joint being afterward reset by forcing the rods back into alignment, which at the same time puts the springs under the desired tension, the joint being of such a character that the tension tends to stiffen or hold the joint in its normal unbroken position.

In Figs. 7, 8, and 9 I have shown two modified forms of a yielding connection between the cars, which, although different in form and construction, are fully within the spirit of my invention, the device shown in Figs. 7 and 8 being merely a reversal in the location of the parts shown in the preferred construction—that is to say, instead of one spring in the center of the rods, midway between the coupling-plates, two springs, *a*, are provided

for each rod, one at each end thereof, and confined in suitable boxes or casings, *b*, which have a pivot-connection with the coupling-plates, either by means of the coupling-pin hereinbefore described or by means of trunnions *c*, cast upon the box. The rods H I pass loosely through said box, and are provided with lugs or collars *d* at each end of the box, between which are located disks *e*, between which latter is confined the coiled spring *a*, before mentioned, the said disks acting alternately to compress the spring according to the direction in which the rod is moved in the box.

The rods H I are rigidly connected at the center by means of the right and left threaded coupling-sleeves *f*—an adjustment enabling the fitting of the device to different cars—and such a connection as this has a neater appearance upon the cars, and not only conceals the springs, but protects them from the lodgment thereon of dust and cinders, which might tend to cause objectionable wear between the parts.

In Fig. 9 I have shown still another form of connection embodying my invention, in which the rods H and I upon the same car are connected by transverse horizontal bars, *g*, one connecting each pair of rods H I and extending a short distance each side of the center of the car, the said bars *g* lying parallel with each other and connected and guided in their longitudinal movement by disks *h*, similar to the disks K of the preferred construction, between which are confined a coiled spring, *i*, sleeved upon and encompassing both of said bars *g*, the disks *h* being in turn confined between lugs or collars *j* upon the ends of the bars *g*, which operate the same as those of the preferred construction. In this connection, as in that of the preferred construction, the strain will be transferred obliquely across between the cars and distributed to both sides thereof, one set of rods, H, upon one car and I upon the other operating at a time to compress the spring when the car moves to one side, the other set operating when the car moves in the opposite direction, and all of them operating to maintain the car in its central and upright position and to return it to that position whenever the impulse is overcome by the tension of the spring.

Another obvious modification is the duplication of the oblique connections shown in Figs. 1 and 2, thus: by having two pairs of the connections extending from the center of the car to one edge and two more pairs extending from the center to the opposite edge, or two pairs set obliquely and parallel, one extending from the edge of one car to the center of the opposite car and the other from the center of the first-mentioned car to the edge of the opposite car. Then, again, the yielding connection, instead of extending obliquely between the cars, might extend directly across from car to car longitudinally or parallel with the car, and hence it will be un-

derstood that my invention is not limited to any specific form of yielding connection, but, broadly stated, consists of a continuous or unbroken yielding connection between adjacent cars at such a point above the platform as will substantially diminish the oscillation or vibration of such cars independently of or relatively to each other, and, in a more limited sense, to a yielding connection, whether continuous or otherwise, between adjacent cars extending obliquely to their length.

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

15 1. The combination, with the adjacent cars, of a yielding connection between and secured at both extremities to said cars and extending obliquely to their length, substantially as and for the purpose described.

20 2. The combination, with the adjacent cars, of a continuous yielding connection between and attached directly to said cars at both extremities and extending obliquely to their length, substantially as and for the purpose described.

25 3. The adjacent cars and the coupling-plates secured to the ends thereof, in combination with a pair of rods extending between said coupling-plates and connecting said cars, a sliding connection between said rods, lugs or collars on said rods, and a coiled spring sleeved upon said rods and confined between the collars thereon, substantially as described.

30 4. The adjacent cars and the coupling-plates secured to the ends thereof at opposite sides of the center, in combination with rods connecting said coupling-plates and extending obliquely between said cars, a sliding connection between said rods, lugs or collars upon

said rods, and a coiled spring sleeved upon said rods and confined between said collars, substantially as described. 40

5. The adjacent cars and the coupling-plates secured to the ends thereof at each side of the center, in combination with rods connecting each pair of coupling-plates on opposite cars and extending obliquely to said cars and to each other, a sliding connection between said rods, lugs or collars on each of said rods, and coiled springs sleeved on each of said rods and confined between the said collars, substantially as described. 45 50

6. The adjacent cars, the coupling-plates secured to the ends thereof, and rods connected to said coupling-plates and extending obliquely between said cars, in combination with a pair of lugs on each of said rods, disks sleeved upon and constituting a sliding connection between said rods, said disks being confined between each pair of lugs, and a coiled spring sleeved upon said rods and confined between the disks, substantially as described. 55 60

7. The adjacent cars and the coupling-plates secured to the ends thereof, in combination with a pair of rods extending between said coupling-plates and connecting said cars, a sliding connection between said rods, a detachable connection between said rods and coupling-plates, lugs or collars on said rods, and a coiled spring sleeved upon said rods and confined between the collars thereon, substantially as described. 65 70

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