

(No Model.)

2 Sheets—Sheet 1.

W. J. EVANS.

CAR COUPLING.

No. 368,914.

Patented Aug. 23, 1887.

Fig. 1.

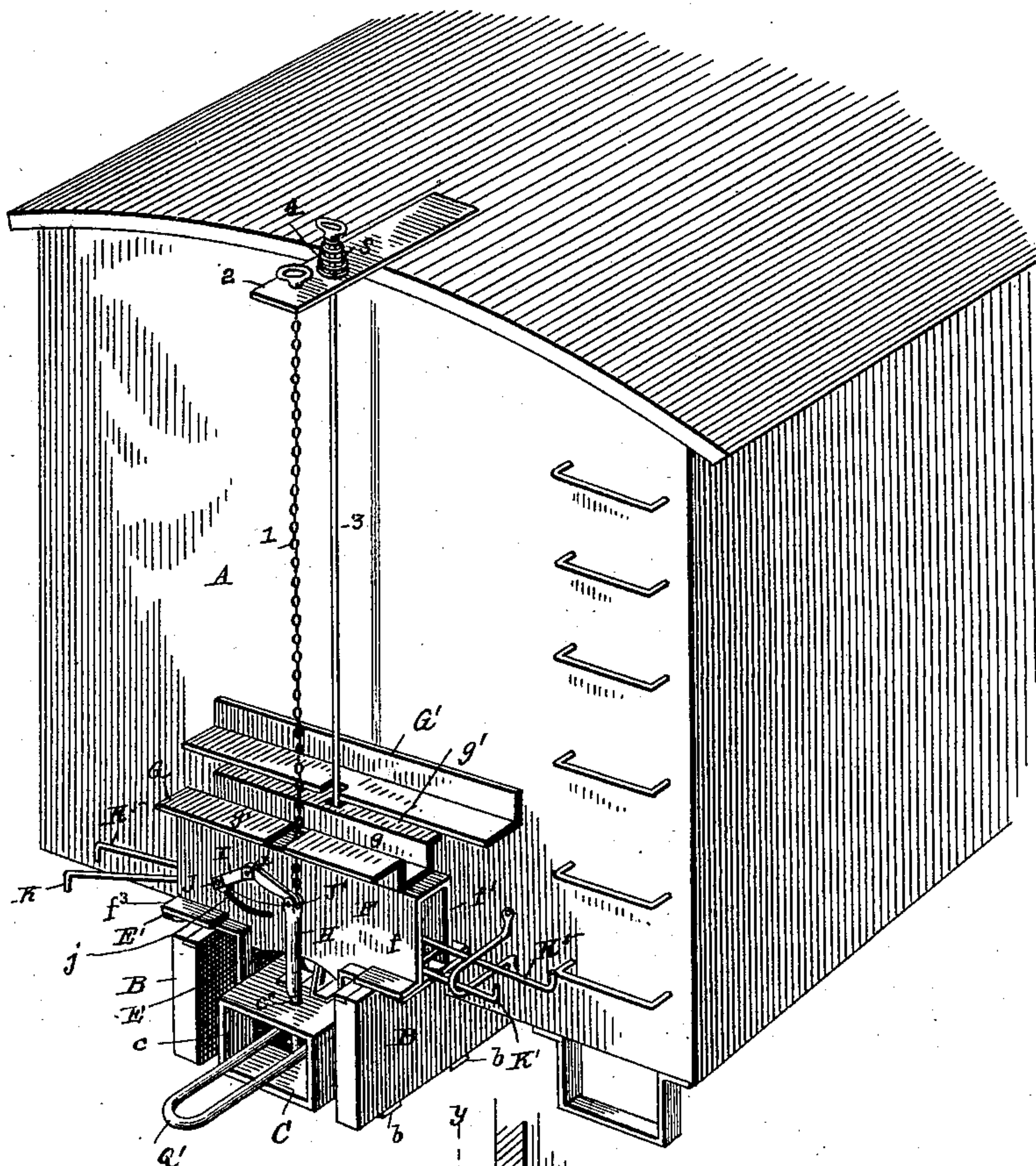
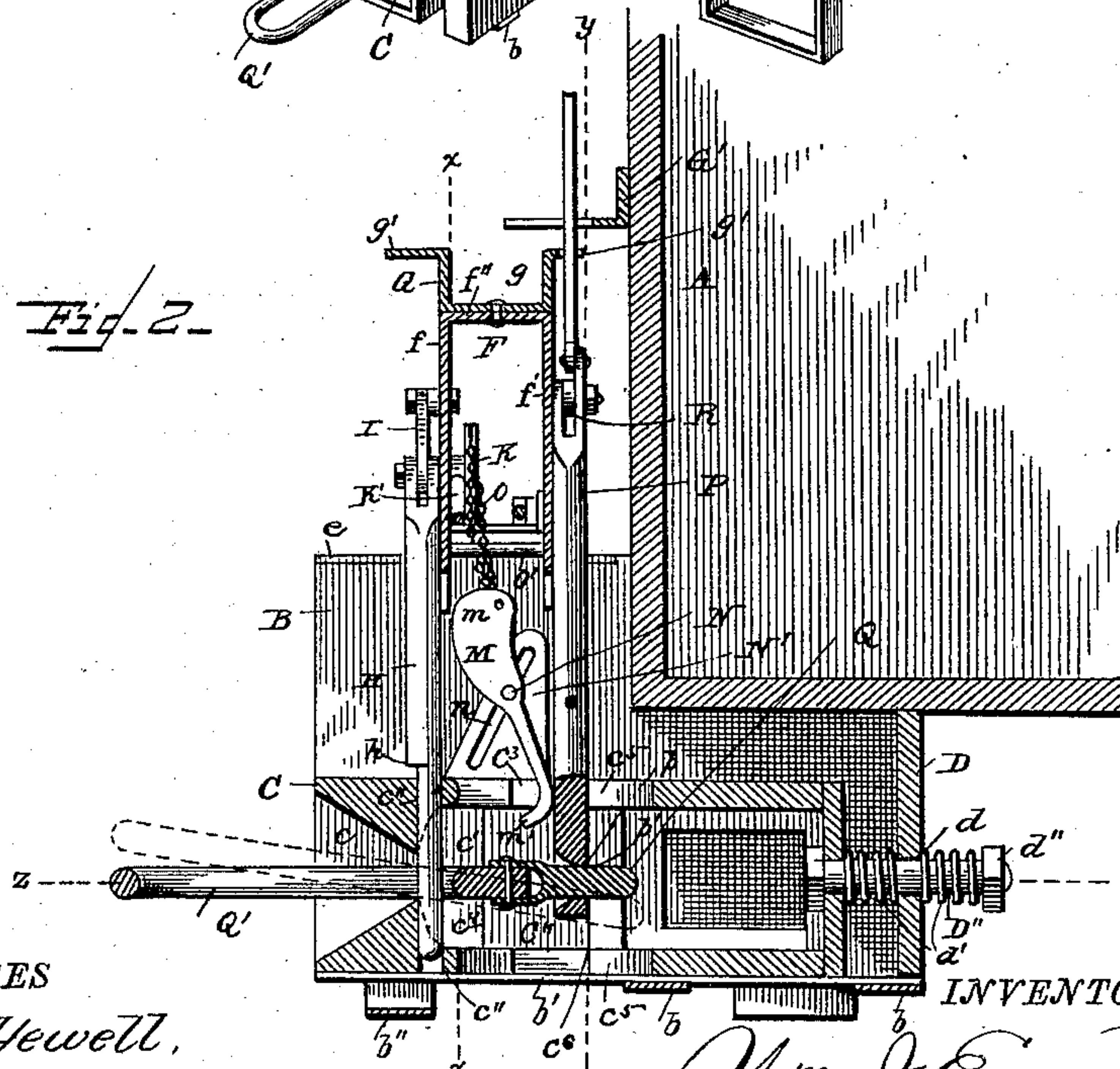


Fig. 2.



WITNESSES

Edwin D. Yewell,

Wm. J. Little,

INVENTOR

Wm. J. Evans,

J. R. Little, Attorney

(No Model.)

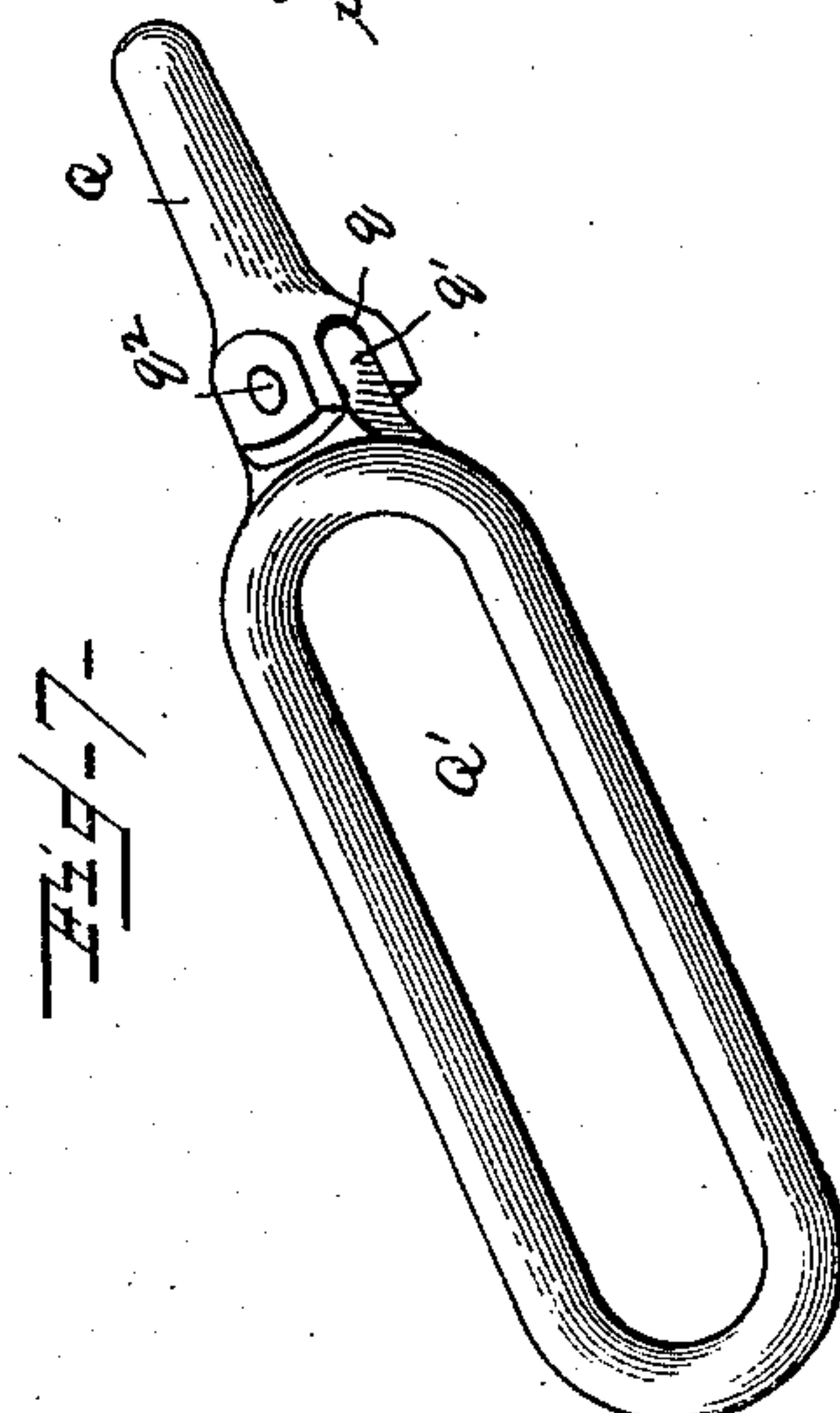
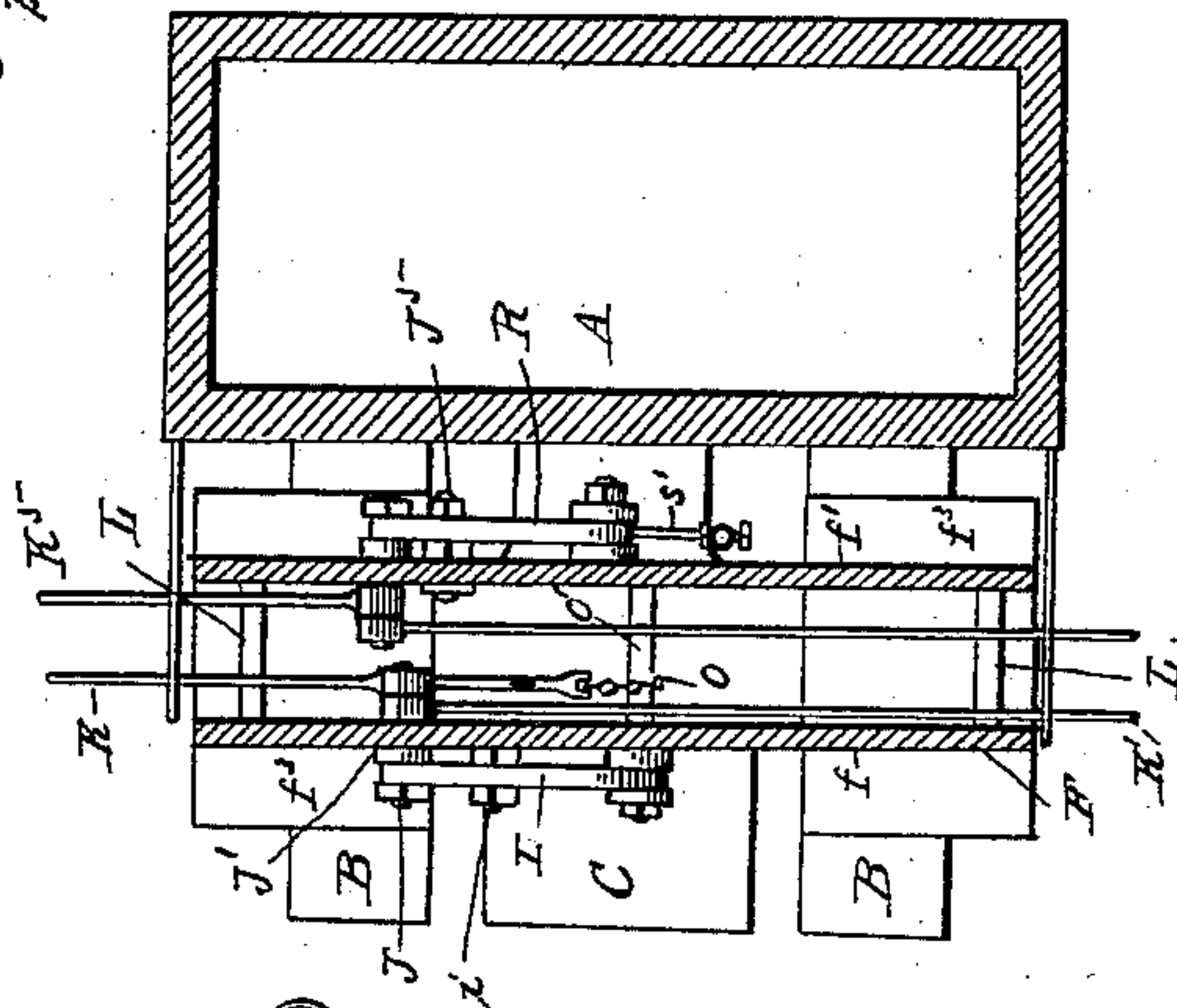
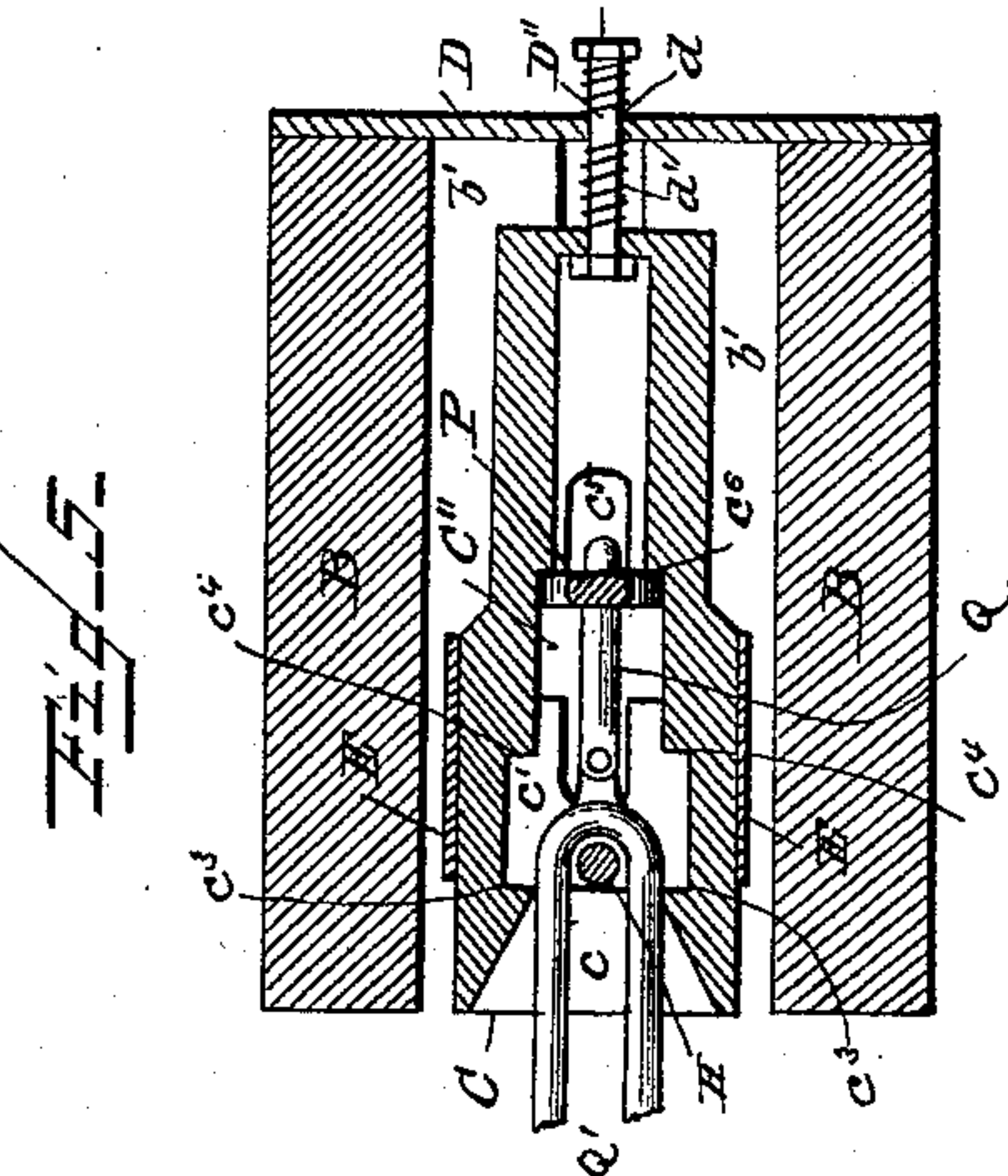
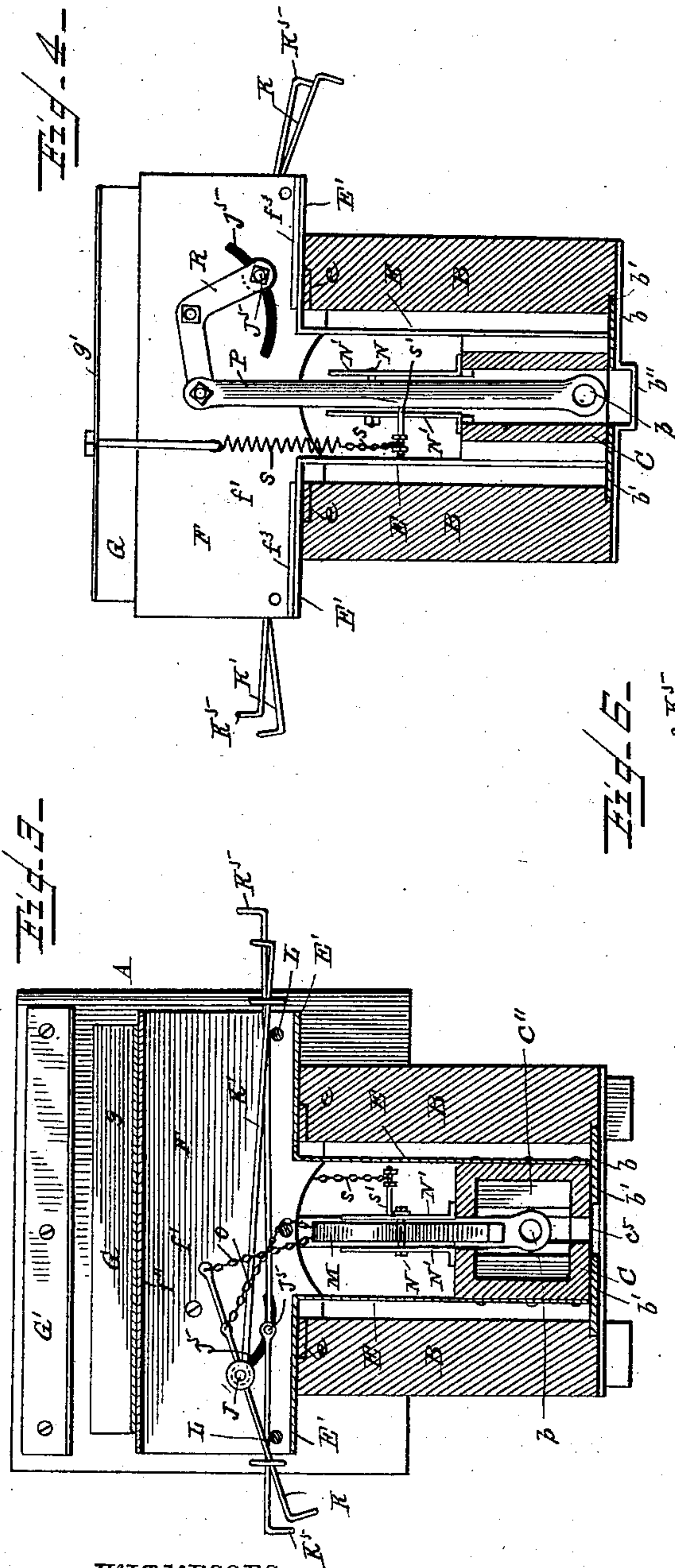
2 Sheets—Sheet 2.

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J. R. Little, Attorney

UNITED STATES PATENT OFFICE.

WILLIAM J. EVANS, OF GRANVILLE, NEW YORK, ASSIGNOR TO PRISCILLA EVANS, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 368,914, dated August 23, 1887.

Application filed April 28, 1887. Serial No. 236,469. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. EVANS, a citizen of the United States, residing at Granville, in the county of Washington and State of New York, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to car-couplings; and its object is to provide a simple and improved coupling possessing advantages in point of durability and general efficiency, and which will effectively operate to automatically couple the cars without endangering the life of the operator or necessitating his going between the cars.

In the drawings, Figure 1 is a perspective view of a car-coupling embodying my improvements. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a transverse sectional view taken on the line $x x$, Fig. 2, and looking rearwardly. Fig. 4 is a corresponding vertical sectional view on the line $y y$, Fig. 2, looking forwardly. Fig. 5 is a horizontal sectional view on the line $z z$, Fig. 2. Fig. 6 is a detail top or plan view of the operating mechanism, the top of the casing being broken away. Fig. 7 is a detail perspective view of the link.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the end of the car, and B B parallel longitudinally-disposed beams located at the bottom thereof. The draw-head C is located between these beams, and at their rear ends the beams are connected by a wall, D, having an opening, d , through which passes a bolt, D' , projecting from the rear end of the draw-head and provided with a rear end nut, d'' . Upon the bolt D' , at both sides the wall D, are provided coiled springs $d' d'$, forming cushions, which receive the shock in longitudinal movement of the draw-head when the cars come together. At the bottoms of the beams B B are provided transverse plates b , carrying longitudinal plates b' , upon which the draw-head rests and is adapted to slide. The foremost cross-piece b is provided with a central depression, b'' , to accommodate the end of the coupling-pin.

The draw-head is provided with the usual

mouth, c , in rear of which is formed a link-chamber, c' , through which passes a vertical opening, c'' , for the coupling-pin. The link-chamber forms transverse front shoulders, $c^3 c^3$, to the top and bottom of the mouth of the draw-head, and is of sufficient depth to permit vertical play of the inner end of the link. Vertical shoulders $c^4 c^4$ are also formed at the rear end of the link-chamber, and from these shoulders extends a supplementary chamber, C'' , in which works a balance-pin, as hereinafter described. The chamber C'' is open at its top and bottom, as shown at $c^5 c^5$, to permit vertical movement of the balance-pin, and the lower end of the latter is of a width about corresponding to the diameter of the chamber C'' , so that the walls of the chamber form guides for the lower end of the balance-pin, and the rear walls, c^6 , of the chamber C'' prevent rearward displacement of the pin.

In the top of the draw-head and extending forwardly from the top opening, c^5 , of the chamber C'' , is a slot, C^3 , in which works a gravity supporting-hook, as hereinafter described.

At each side the draw-head is secured a vertical plate, E, projecting upwardly from the draw-head between the beams B B, and provided with an outwardly-projecting horizontal top portion, E' . The horizontal portions or extensions of the supporting-plates E rest upon the top of the beams B B, and are adapted to have a sliding movement upon the ends of said beams, projecting from the end of the car, during longitudinal movement of the draw-head. The projecting ends of the beams are therefore preferably provided at their tops with friction-plates e .

F designates a casing, which contains the mechanism for operating the coupling-pin, supporting-hook, and balance-pin of my improved car-coupling, this casing being secured to and mounted upon the horizontal extensions of the plates E and comprising a front wall, f , a rear wall, f' , and a top, f'' , the front and rear walls being preferably provided with flanges f^3 , which are bolted or otherwise secured to the extension E' .

Upon the top of the casing is secured a weather-guard, G, forming a longitudinal

trough, *g*, at the top edges of which are provided laterally-projecting longitudinal flanges *g' g'*, extending out over the coupling and balance-pins and their spring and connecting mechanism, and thus protecting the same. A supplementary weather-guard may be formed by a flange or plate, *G'*, extending transversely across the end of the car and projecting out over the trough *g*, as clearly shown in Fig. 2.

H designates the coupling-pin, which projects up in front of the wall *f* of the casing, and is preferably provided with a shoulder, *h*, to limit its downward movement with relation to the draw-head. To the top of the coupling-pin is pivotally connected a bell-crank lever, *I*, fulcrumed upon the front of the casing, as shown at *i*, and provided at its other end with a pin, *J*, projecting through a segmental or curved slot, *j*, in the front wall of the casing. A washer or disk, *J'*, is preferably interposed between the end of the bell-crank lever and face of the front wall, *f*. By means of the foregoing construction it is manifest that when the bell-crank lever is swung upon its fulcrum, the coupling-pin will be elevated by the arm *i'* of the lever, while the pin *J* will move downwardly in its guide-slot. After the link has entered the draw-head and the pressure upon the lever is released, the coupling-pin, by reason of its heavy top portion above its shoulder *h*, will drop by gravity and effect the coupling.

The bell-crank lever is operated by means of a rod or lever, *K*, fulcrumed upon the inner end of the pin *J* and projecting from the end of the casing *F* at one side of the car. A corresponding operating-rod, *K'*, is pivotally mounted upon the pin *J* and projects from the opposite end of the casing at the other side of the car, by which arrangement the mechanism may be readily operated from either side of the car. A transverse bar or support, *L*, is provided at each end of the casing to form a rest for the operating-levers, and suitable guides, *L'*, projecting from the ends of the car, may also be provided.

M designates a supporting-hook embodying an enlarged head or top portion, *m*, forming the weight, and a hook-shaped lower portion, *m'*, working in the slot *C³* of the draw-head and adapted to support the coupling-pin in elevated position. This supporting-hook is provided with lateral pins *N*, projecting on diametrically-opposite sides and sliding in inclined slots *n n* in vertical plates *N' N'*, mounted upon the top of the draw-head. The hook is adapted to slide between these plates, and when it is down its hook-shaped end projects under the end of the elevated coupling-pin and serves to support the same until the cars come together and the link enters the draw-head when the supporting-hook is lifted and forced out of engagement with the end of the coupling-pin, and the latter automatically drops and effects the coupling.

To enable the supporting-hook to be lifted when the coupling-pin is elevated, the hook is

connected with the lever *K* by means of chains *O O*, extending from the top of the hook up over a transverse guide-rod, *O'*, mounted in the side of the casing, the chains being crossed above said rod and respectively secured to the inner end of the lever *K*, projecting from its fulcrum.

P designates a balance-pin, which is disposed in rear of the casing and is provided at its lower end with an eye, *p*, working in the chamber *C''*. This eye is preferably beveled to form a central interior ridge, *p'*, and it receives an arm, *Q*, pivotally connected with the end of the link *Q'*, the pivotal joint being preferably formed by means of a lug, *q'*, projecting from one end of the link and received by the bifurcated end *q* of the arm *Q*, a vertical pivot-pin, *q²*, being passed through said bifurcated end and projecting lug. When the link enters the draw-head, its pivoted arm *Q* is received by the eye of the balance-pin, so that by vertical movement of the latter the inner end of the link is raised and lowered to cause a corresponding movement of the outer end of the link, by which arrangement a coupling may be readily effected between cars of different heights, and the projecting end of the link is easily guided into the mouth of the adjoining draw-head. (This operation is illustrated in dotted lines, Fig. 2.)

The balance-rod is operated by means of a bell-crank lever, *R*, fulcrumed upon the rear wall, *f'*, of the casing and corresponding to the lever *I*, a corresponding slot, *j⁵*, pin *J⁵*, washer, and operating-rods *K⁵* being provided, as shown. A coiled spring, *S*, is provided at the rear of the casing, and has its lower end connected by a chain, *s*, with an arm, *s'*, projecting laterally from the balance-pin, this spring being of sufficient tension to normally retain the balance-pin in such position that the eye at its lower end will always receive the pivoted arm upon the link when the latter enters the draw-head.

I have also shown in Figs. 1 and 2 connecting mechanism by which my improved coupling is adapted to be operated from the top of the car. This connecting mechanism embodies a chain, *1*, connected with the top of the coupling-pin and extending through a guide or bracket at the top of the car, a hand-ring or equivalent device being provided upon the end of the chain. A rod, *3*, is connected to the top of the balance-pin and passes through the projecting bracket at the top of the car. This connecting mechanism extending to the top of the car may be used either separately or in connection with the levers projecting at the sides of the car; but when used separately the spring *S* is arranged to be carried by the bracket *2*, as shown at *4*, Fig. 1, and the rod passes through the spring and is supported thereby.

I claim as my invention—

1. In a car-coupling, the combination of the beams *B B*, provided at their tops with longitudinal friction-plates *e*, a draw-head disposed

between the beams and adapted to have a longitudinal movement, and supporting-plates projecting vertically at each side the draw-head and provided with horizontal top portions resting upon the beams, substantially as and for the purpose set forth.

2. In a car-coupling, the combination of the beams B B, a draw-head disposed between the same, supporting-plates projecting vertically at the sides of the draw-head and provided with horizontal top extensions resting upon the beams, a casing mounted upon said top extensions, coupling devices adapted to operate within the draw-head, and operating mechanism contained within the casing and connected with the coupling devices, substantially as and for the purpose set forth.

3. In a car-coupling, the combination of the beams B, a draw-head disposed between said beams and comprising a link-chamber, in rear of which is a supplementary chamber, C'', supporting-plates projecting vertically at the sides of the draw-head and provided with horizontal top extensions resting upon the beam, a casing mounted upon said top extensions and provided with segmental slots in its front and rear walls, the coupling-pin disposed in front of the casing, a balance-pin arranged at the rear of the casing, bell-crank levers pivotally connected with said pins and carrying at their other end pins working in said slots, and operating rods or levers pivotally connected with the inner ends of said projecting pins, substantially as and for the purpose set forth.

4. In a car-coupling, the combination of the beams B B, the draw-head mounted between the same and comprising the link-chamber c', the supplementary chamber C'', having an open top and bottom, and the slot C³, provided in the top of the draw-head in front of the supplementary chamber, supporting-plates projecting vertically at the sides of the draw-head and provided with top extensions, E', resting upon the beams, a casing mounted upon said extensions and provided with segmental slots in its front and rear walls, the coupling-pin, vertical plates N', mounted upon the draw-head and provided with inclined slots, a gravity supporting-hook having arms en-

gaging said inclined slots, a balance-pin provided with an eye working in chamber C'', bell-crank levers pivotally connected with the coupling and balance pins and carrying pins J J⁵, projecting through the segmental slots, operating rods or levers pivotally connected with the inner ends of pins J and J⁵ and projecting from the ends of the casing, and chains connecting the gravity-hook and the inner end of one of said levers, substantially as and for the purpose set forth.

5. The combination, with the draw-head comprising a link-chamber, a supplementary chamber, C'', in rear thereof, and a slot extending forwardly from said supplementary chamber, of a coupling-pin, a balance-pin provided with an eye working in chamber C'', and a gravity-hook mounted upon the draw-head between the coupling and balance pin, and having an end projecting through said slot and adapted to support the coupling-pin, substantially as and for the purpose set forth.

6. The combination, in a car-coupling, of the draw-head provided with a link-chamber and a slot, C³, plates mounted vertically upon the draw-head and provided with inclined slots, a coupling-pin, and a gravity supporting-hook comprising an enlarged head or top portion, and a hook-shaped lower portion projecting through the slot C³, and provided with lateral pins working in the inclined slots, substantially as and for the purpose set forth.

7. In a car-coupling, a link provided at its end with a pivoted arm, in combination with a vertically-movable balance-pin having an eye adapted to receive said arm, substantially as and for the purpose set forth.

8. In a car-coupling, a casing comprising the front and rear walls and adapted to contain the mechanism for operating the link, and a weather-guard disposed transversely upon the top of the casing and forming a longitudinal trough having laterally-projecting longitudinal flanges at its top edges, substantially as set forth.

WILLIAM J. EVANS.

Witnesses:

JURDEN E. SEELEY,
ASA W. TUPPER, Jr.