

(No Model.)

J. R. LAWRENCE.  
CAR COUPLING.

2 Sheets—Sheet 1.

No. 255,082.

Patented Mar. 14, 1882.

Fig. 1.

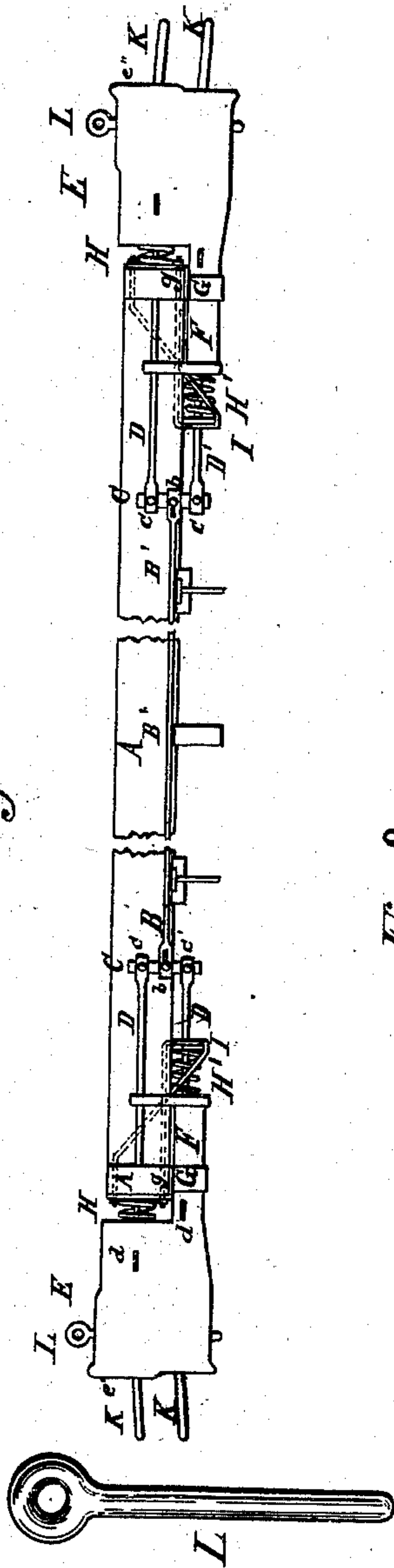
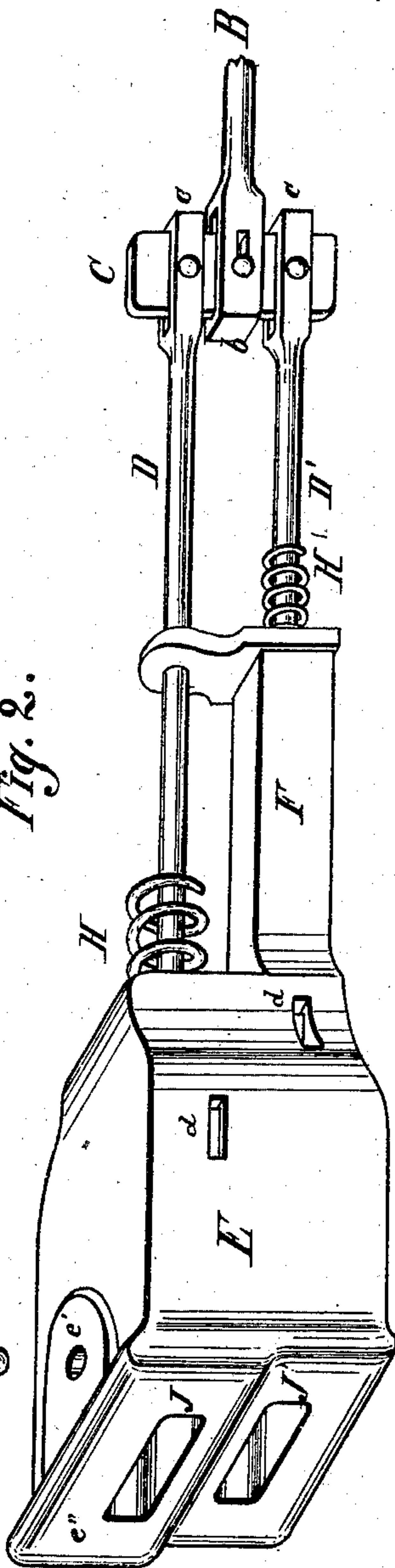


Fig. 2.



Assess:  
*Walter Allen*

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John R. Lawrence  
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Atty &

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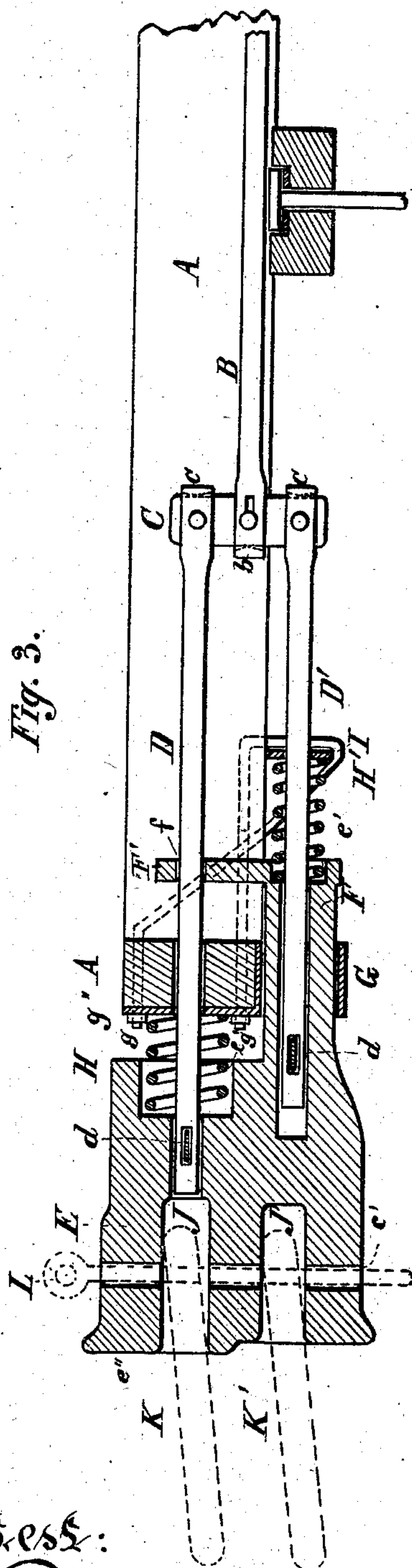
2 Sheets—Sheet 2.

## CAR COUPLING.

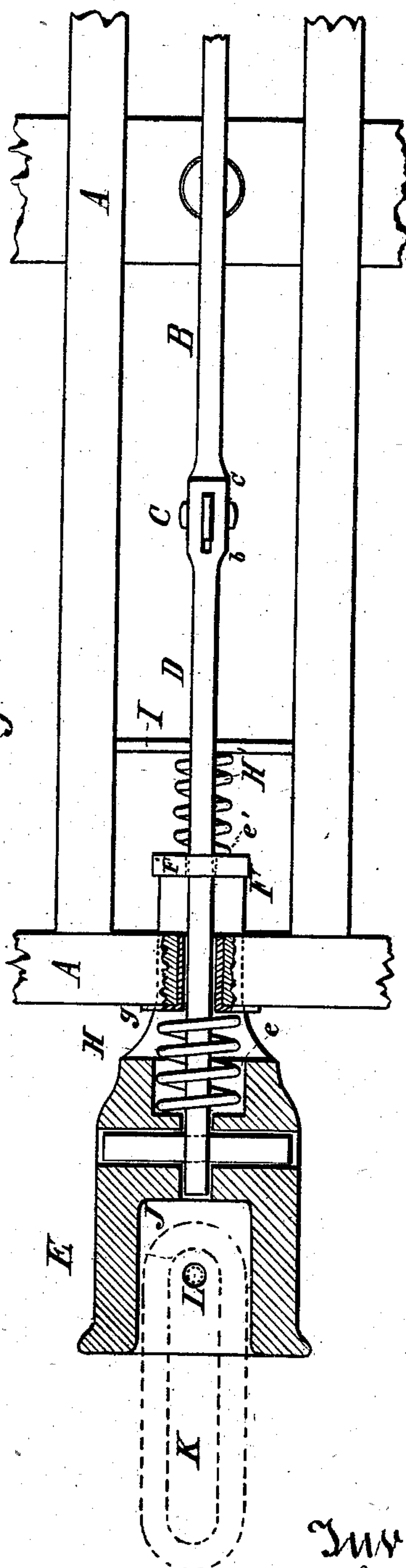
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*Fig. 3.*



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QSS.ess:

Wm. H. Perkins.  
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**Jyenson:**

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# UNITED STATES PATENT OFFICE.

JOHN R. LAWRENCE, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-THIRD TO  
CHARLES R. PARKER, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 255,082, dated March 14, 1882.

Application filed January 17, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN R. LAWRENCE, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

The device comprises a central bar or rod, which extends lengthwise of the body-frame of the car, and has pivoted to each extremity a vertical cross-plate or equalizer, to whose respective upper and lower ends are pivoted longitudinal draw-bolts, which, extending through or beneath the end sill of the car body frame, are keyed fast within the draw-head or coupling-head at that end of the car. Each of these heads is so constructed in association with that at the other extremity of the car and with the draw-bar and springs as to unite the functions of buffer and coupling-head. With this object in view the draw-bolt holes in the rear of each head are counterbored for two cushioning-springs, whose interposition between the head and the frame-work of the car-body enables them to alternately do service as bumper and draw springs. The casing of the lower spring extends back beneath the car-body, and is embraced by a suitable strap attached to the end sill. Each head has two horizontal throats or compartments, one immediately over the other, for as many coupling-links, the casing or muzzle of the upper throat extending somewhat forward of that of the lower one. Both coupling-links of each pair are held within the head by a single vertical coupling-pin common to both.

In the accompanying drawings, Figure 1 is a side elevation of my draw-bar and accessories. Fig. 2 is a perspective view of one of my draw-heads and associated members. Figs. 3 and 4 are respectively a vertical and a horizontal section of the same.

A represents members of the bed-frame of a railway-car. The remote extremities of the rods B or draw-bars proper are each pivoted, as at *b*, to a vertical cross-plate, C, to whose respective upper and lower ends are pivoted, as at *c*, two draw rods or bolts, D D', which, projecting through openings in the bed-frame, are keyed fast, as at *d*, to the draw-head E.

The draw-head has a rear projection, F, from its lower part, which has a vertical heel-plate, F', perforated (*f*) for the traverse of the upper draw-bolt, D, and which is supported and slides within a strap, G, attached to the end sill or bolster, A, by brace-bolts *g g'*. A prolongation of this strap, extending up in front of said sill, as at *g''*, constitutes a face-plate or sheathing. The rear portion of each draw-bolt hole is counterbored to form a pocket or housing, *e e'*, for helical springs H H', of which spring H abuts against the iron sheathing *g* of the frame-sill and spring H' against a lug, I.

Each draw-head has coincident with the planes of the respective draw-bolts two horizontal throats or compartments, J J', in one vertical plane for as many links K K', that are secured by a single coupling-pin, L, which is passed down through and occupies a vertical orifice, *e'*, in the head.

The portion *e''* of the face of the draw-head surrounding the upper throat, J, projects somewhat forward of that which surrounds the lower throat, J', in order that in sudden or severe crowding together of two or more cars the force of the concussion may be expended mainly on the upper buffer-spring, H, in the plane of the body-frame.

The use of two coupling-links secured by a single vertical pin, while greatly increasing the security, offers no resistance to the relative deflection of consecutive cars, such as occurs in traversing sharp curves.

In the crowding together of the component cars of a train, incident to sudden stoppages, all of the springs H H' coact to do duty as bumpers.

In the drawing apart of cars incident to a forward impulse of the engine the springs at the rear end of each car do duty as draw-springs.

Should the forces become excessive, no injury is done to the springs, because the rear walls of the draw heads in such case confront the abutting faces *g'' I* of the bed-frame. This construction is much safer to the person employed in coupling and uncoupling of cars than are those of customary forms.

As compared with the customary forms using special bumpers and bumper-connections, the



present construction dispenses with the necessity of draft-timbers and side castings with the numerous bolts employed to attach the same to the car-body.

5 For cars having draw-heads of different heights the option is afforded of employing either the upper or lower link or link-throats for the time being without the necessity of specially-constructed links.

10 The described draw-bar can be used with any of the accustomed arrangements using the common oval link.

Considerable advantage arises from the ample compressibility of train residing in the joint action of the two pairs of springs at each end, and equal advantage accrues from the fact that in pulling or drawing out but one set of springs—namely, those at the rear end of each car—are brought into action, so that the train  
20 remains held compactly together.

The above-described preferred form of improvement may be varied in non-essential particulars. For example, the link-throats, instead of being closed in at the sides, as shown, may  
25 extend entirely across the head.

The end sill may have sufficient vertical depth to coact with the strap G *g* in supporting the tongue or prolongation F.

I am aware that it has been proposed to  
30 make the draw-bar spring do duty also as a buffer-spring by inclosing it in the draw head, and that draw-heads have been devised for use with a pair of vertical coupling-links arranged side by side in the same horizontal plane, and  
35 that equalizers vibrating in horizontal planes have been associated with such couplings.

I claim as new and of my invention—

1. The combination, with a draw-head having two horizontal throats, J J', in one verti-

cal plane for as many coupling-links secured 40 by a single vertical coupling-pin, L, of the pair of draw-bolts D D' in the planes of said throats, pivoted in rear to a vertical cross bar or plate, C, which is pivoted to the draw-bar, substantially as set forth.

2. In combination with the double-throated 45 draw-head E, the draw-bolts D D', cross bar or plate C, draw-bar B, brace-bolts *g g'*, and the vertical abutments *g'' I* on the bed-frame, the helical springs H H', interposed between 50 said abutments and the rear wall of the draw-head and occupying sockets *e e'* in the latter, substantially as set forth.

3. The draw-head E, having the two horizontal coupling-link throats J J', one above 55 the other, and having that portion *e''* of its front wall which surrounds the upper throat and is in the plane of the car-bed frame projecting forward of the portion which surrounds the lower throat, substantially as and for the 60 purpose set forth.

4. The additional or supplementary spring H', occupying socket *e'* in the rear end of a rear prolongation, F, from the lower portion of the draw-head in the described combination 65 with abutment I and guiding and retaining strap G.

5. The support for the supplementary spring H', consisting of the abutment I and the double-headed or duplex bolt *g g'*, secured to the 70 end sill, A, of the car bed-frame, as represented.

In testimony of which invention I hereunto set my hand.

JOHN R. LAWRENCE.

Attest:

GEO. H. KNIGHT,  
SAML. S. CARPENTER.