

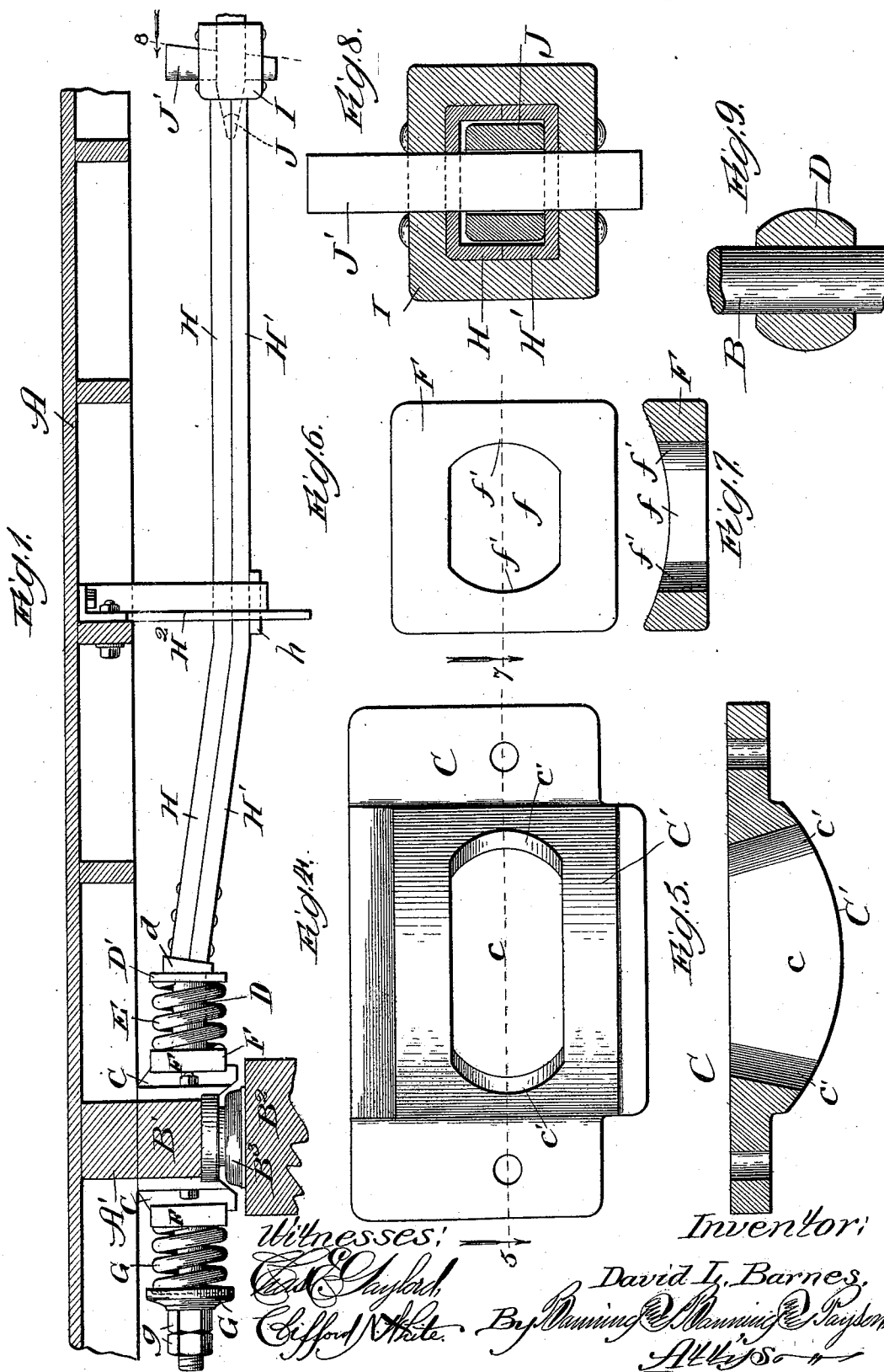
(No Model.)

3 Sheets—Sheet 1.

D. L. BARNES.
CAR COUPLING.

No. 518,873.

Patented Apr. 24, 1894.



Witnesses:

Chas. Claybrook,
Clifford White.

Inventor,

David L. Barnes

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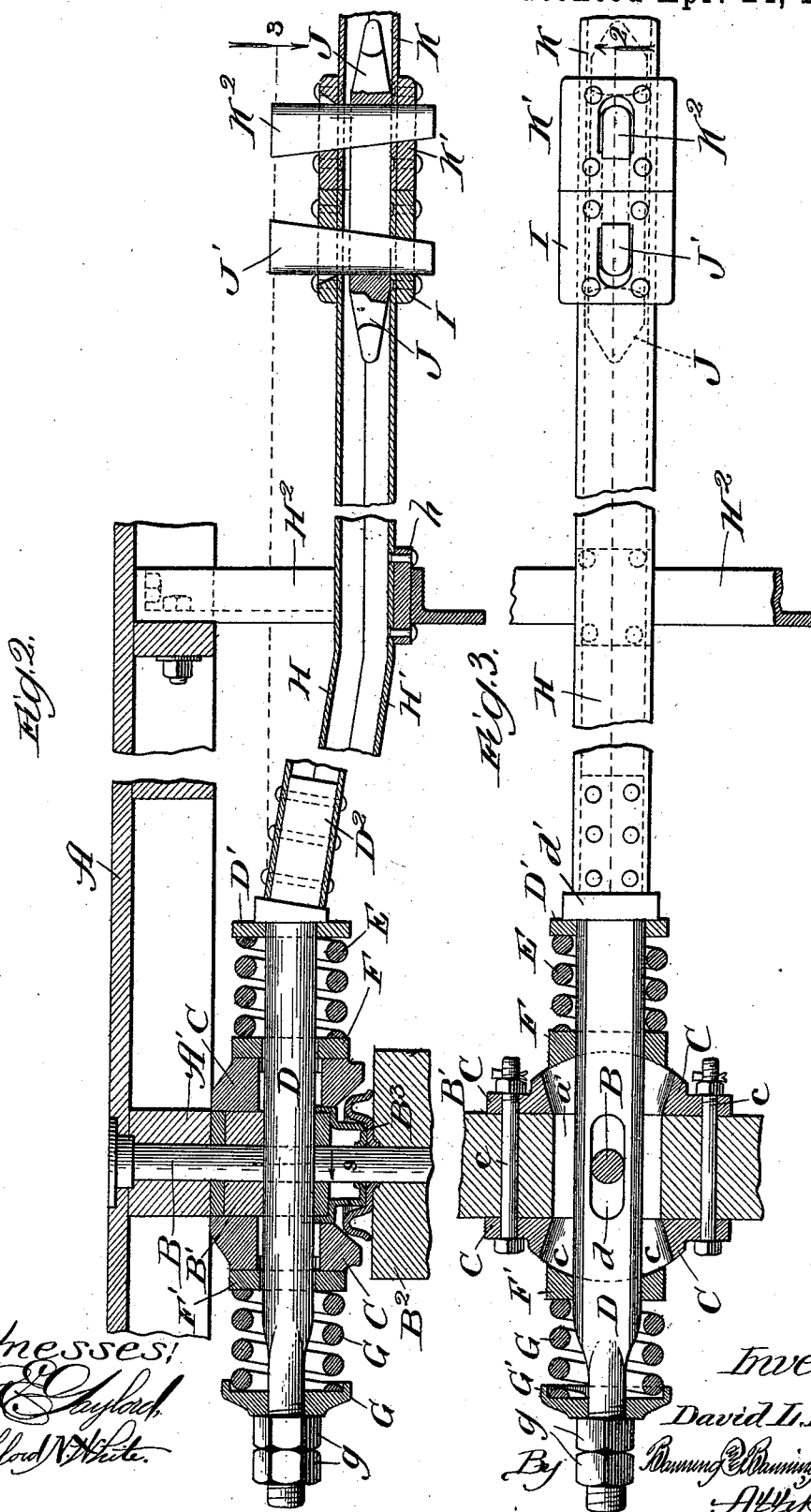
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3 Sheets—Sheet 2.

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Fig. 10.

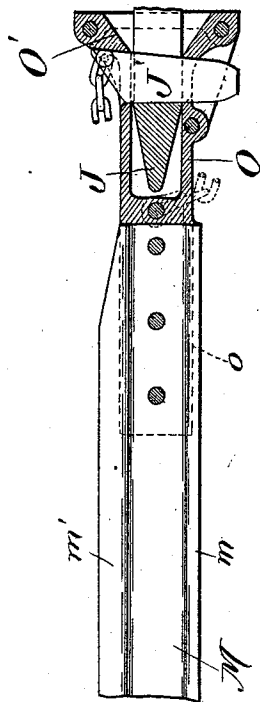
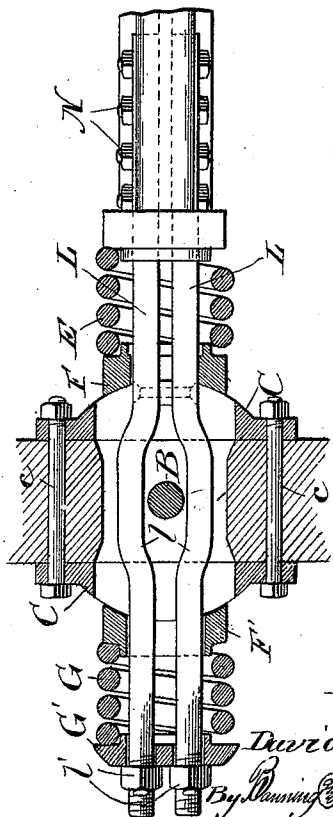
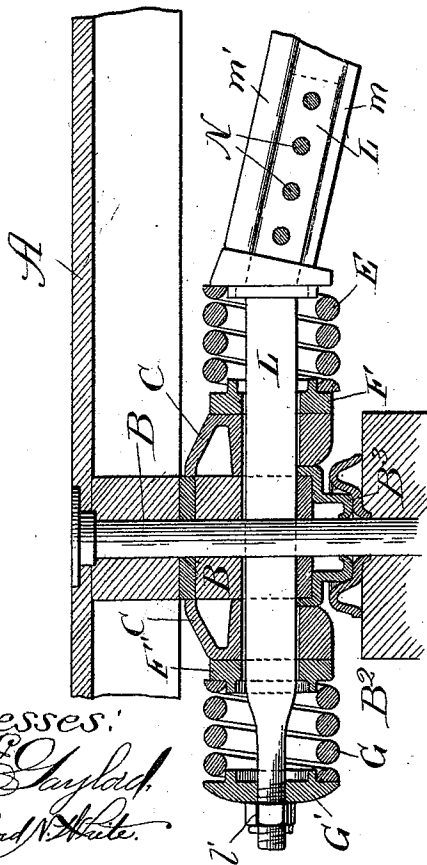
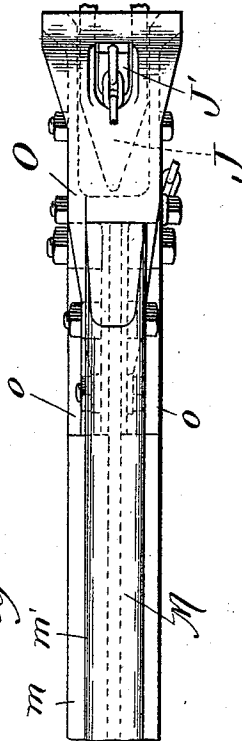


Fig. 11.



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UNITED STATES PATENT OFFICE.

DAVID L. BARNES, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 518,873, dated April 24, 1894.

Application filed February 13, 1893. Serial No. 462,065. (No model.)

To all whom it may concern:

Be it known that I, DAVID L. BARNES, of Chicago, Illinois, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention, while particularly applicable to the cars running upon elevated railroads, which frequently travel round sharp curves, is nevertheless capable of use in connection with any form of railway cars.

Speaking generally, my invention consists in dispensing with the play or motion between the couplers at the platforms. This I accomplish by connecting or tying together the king bolts of the adjacent cars, allowing the necessary motion or play at the king bolts, while the couplers are connected together in a rigid manner. The advantages of this construction are, that there is less racking of the cars, less tendency to derail on passing curves, and greater steadiness and uniformity in the running of the cars.

My invention consists in the features, combinations and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a sectional side elevation of a portion of one end of a car, provided with my improved coupling; Fig. 2 a section on line 2 of Fig. 3, looking in the direction of the arrow; Fig. 3 a section on line 3 of Fig. 2, looking in the direction of the arrow. Figs. 4 to 7 inclusive are detail views. Fig. 8 is a section on line 8 of Fig. 1, looking in the direction of the arrow; Fig. 9 a section on line 9 of Fig. 2, also looking in the direction of the arrow; Figs. 10 and 11 views similar to Figs. 2 and 3, illustrating a modification.

The cars, in connection with which my couplings are used, are constructed, except as hereinafter described, in the ordinary manner, and require no particular description.

A represents the floor of a car; A' one of the cross sills or timbers; B the king bolt; B' the car bolster; B² the truck bolster; and B³ the socket or chafing plate secured to the track and the car timbers, respectively. The bolster B' is cut or channeled at a'. On either side of the opening in this bolster is secured a plate C, by means of bolts c, or in any other suitable manner. One of these plates is shown in front elevation and section, on an enlarged

scale, in Figs. 4 and 5. As shown, the face of this plate is provided with a rounded or convex surface C', and through the plate passes an opening c, the side edges of which are beveled as shown at c'. The rearward end, D, of the draft bar passes through the opening a' in the bolster and the openings c in the plates C. It is provided with a slot or opening d, through which the king bolt passes. At its forward end this portion of the draw bar is provided with an integral collar or shoulder, against which bears a washer D' mounted upon the draft bar. Against this washer in turn bears one end of a coiled spring E, the other end of which bears against a plate F, mounted and sliding upon the draft bar. The plate F is shown in elevation and section, on an enlarged scale, in Figs. 6 and 7. It is provided with an opening f, of a shape to fit that of the draft bar. This portion of the draft bar is preferably made in one piece, out of any suitable material, and preferably in the form shown more particularly in Fig. 9, though any other suitable form may be used, if desired. The plate F is concave on its rearward face, as shown at f', in such manner as to fit and slide upon the convex face of the plate C, as shown more particularly in Fig. 3. Also mounted upon the draw bar, behind the bolster B', is a plate F', similar to the plate F, and engaging with the plate C on the rearward face of the bolster. Abutting against this plate F' is a spring G, the other end of which bears against a collar G', which collar is made adjustable by means of nuts g, screwing upon the preferably turned down end of the draft bar. From this construction it will be obvious that the draft bar is enabled either to play back and forth or to swing in any direction, the slotted connection and the plates forming practically a ball and socket joint.

The forward end of the part D', of the draft bar, carries a lug or projection D², to which is bolted the other portion of this bar, preferably composed of two pieces of channel iron, H H', placed together, as shown more particularly in Fig. 8, though any other form of constructing this portion of the bar may be used, as desired, and I have described this merely as being a form suitable for the purpose. This bar is bent or otherwise suitably shaped for its purpose, and rests in a stirrup

or hanger H², preferably made of angle iron, as shown in the drawings, the draft bar being preferably provided with a wear plate *h* at the point where it rests upon the hanger.

5 At its forward end, the draft bar carries and is inclosed by a head I, preferably made of cast iron, of a size adapted to fit closely upon the draft bar. Within this head slides a link J, and a beveled pin J', the link being preferably beveled at its ends, as shown in Figs. 2 and 3. In these figures is also shown the end of the coupling apparatus on the adjacent car, wherein K represents the draft bar, K' the head, and K² the beveled pin.

15 The device, having been constructed and put together as above described, operates as follows: When two cars are brought together, the link will be in the one head held in place by its pin, and the pin of the coupler on the adjacent car will be raised. As the heads come together, the raised pin will fall through gravity, and the two pins will operate to lock the coupling heads closely together, so as to practically form one continuous draft bar, extending from the king bolt at one end of the car to the king bolt on the adjacent end of the other car.

In Figs. 10 and 11 I have illustrated a modification of my device. The principle involved is precisely the same as that already described, as is the construction of most of the parts. This renders it necessary merely to describe those parts which differ in mechanical construction from the ones already described. In Figs. 2 and 3 the rearward end of the draft bar D, is shown, as made in a solid piece provided with a slot *d*, through which passes the king bolt. In the modification this portion of the draft bar is made of two separate bars or rods L, L, which pass through the spring F, the plate C, &c., are then preferably bent, as shown, at *l*, to pass around the king bolt and then pass through. The spring G and collar G' are held in place by means of suitable nuts *l'*. That portion of the draft bar which in Figs. 2 and 3 is made of two pieces of channel iron is in the present form preferably made somewhat in the form of a railroad rail or an I-beam M, provided with flanges *m*, *m'*, the latter being thicker and narrower than the former. The bars L, L, fit between these flanges on either side of the draw bar and are secured in place by means of suitable bolts N, as shown. The plate C, in this form, is preferably cored out, as shown in Fig. 10. The head O used with this form of draft bar is provided with a fork O' adapted to embrace the web of the I-beam draft bar to which it is secured by bolts. This head is provided with a flaring mouth to aid in receiving the link J, which link is made in substantially the form already described. The coupling pin J' is made preferably in the form shown operating in the same manner as the pin already described. The operation of this form of the device is precisely the same as that already described and therefore requires no re-

statement. As the draw bars pull back and forth, the strain will not fall immediately upon the king bolt, in fact, no strain will be brought upon this bolt until one of the springs E or G is fully compressed. At the same time, the draft bar is free to swing sidewise as occasion may require. In this way I avoid the play usually found at the couplers, avoid racking of the car, and render it more easy to run around sharp curves without derailing; and while I have described more or less precise forms, it is not my intention to unduly limit myself thereto; but I contemplate all proper changes in form and proportion, and the substitution of equivalent members.

I claim—

1. A car provided with a draft bar, such bar being loosely mounted upon the king-bolt of the car and provided with a coupling head adapted to be rigidly connected to a similar coupling head on the adjacent car, and springs mounted on the draft bar and abutting against the bolster of the car, whereby the cars are coupled through their bolsters, substantially as described.

2. In a car, the combination of a king-bolt, a draft bar loosely mounted thereon, a coupling head upon the draft bar, means whereby such coupling head is rigidly connected to a similar head upon an adjacent car, plates secured to the car, and plates mounted upon the draft bar and engaging with those attached to the car, whereby the cars are coupled together through their bolsters, substantially as described.

3. In a car, the combination of a king-bolt, a draft bar loosely mounted thereon, plates secured to the car and plates mounted upon the draft bar and engaging with those attached to the car, and means whereby the plates are kept in engagement with each other, substantially as described.

4. In a car, the combination of a king-bolt, a draft bar loosely mounted thereon, curved plates secured to the car and curved plates mounted upon the draft bar and engaging with those attached to the car, and springs abutting against the plates, whereby the cars are coupled together through their bolsters, substantially as described.

5. The combination of a king bolt, a draft bar connected to such bolt and to the car by means of substantially a ball and socket connection, and a coupling head upon such draft bar, substantially as described.

6. In a railroad car, the combination of a king bolt, a draft bar provided with a slot surrounding such bolt, curved plates secured to the car, curved plates mounted upon the draft bar and engaging with those attached to the car, and suitable springs mounted upon the draft bar and engaging with the curved plates upon such bar and with suitable washers thereon, substantially as described.

7. A draft bar comprising a solid portion D, provided with a slot to receive the king bolt, and with a lug D², a portion made of the two

channel irons inclosing and secured to the lug, and a head inclosing the forward end of the channel irons and secured thereto, substantially as described.

5 8. In a railroad car, a draw bar secured to the car bolsters by a universal joint and carrying a coupling head adapted to be rigidly connected to a head carried by a draw bar similarly attached to the adjacent car, substantially as described.

10 9. In a railroad car, the combination of a slotted bolster, a slotted draft bar passing therethrough, a king bolt passing through the bolster and draft bar, and curved friction plates mounted respectively on the bolster and the draft bar, whereby such draft bar is enabled to move forward and back and side- 15 wise, substantially as described.

20 10. In a railroad car, the combination of a slotted bolster, slotted curved plates secured

thereto, a slotted draw bar passing through the slot in the plates and bolster, slotted curved plates mounted upon such draw bar and engaging with the plates on the bolster, 25 springs mounted upon the draw bar and abutting against washers on such bar and against the curved plates thereon, and a king bolt passing through the bolster and the slot in the draw bar, substantially as described.

11. The combination of a hollow draw bar 30 provided with heads inclosing and secured to the same, a link within such draw bar, and a beveled link pin, whereby such head is rigidly secured to a similar head upon an adjacent draw bar, substantially as described.

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Witnesses:

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