

(No Model.)

2 Sheets—Sheet 1.

M. J. ALTHOUSE.  
CAR COUPLING.

No. 491,504.

Patented Feb. 7, 1893.

Fig 1.

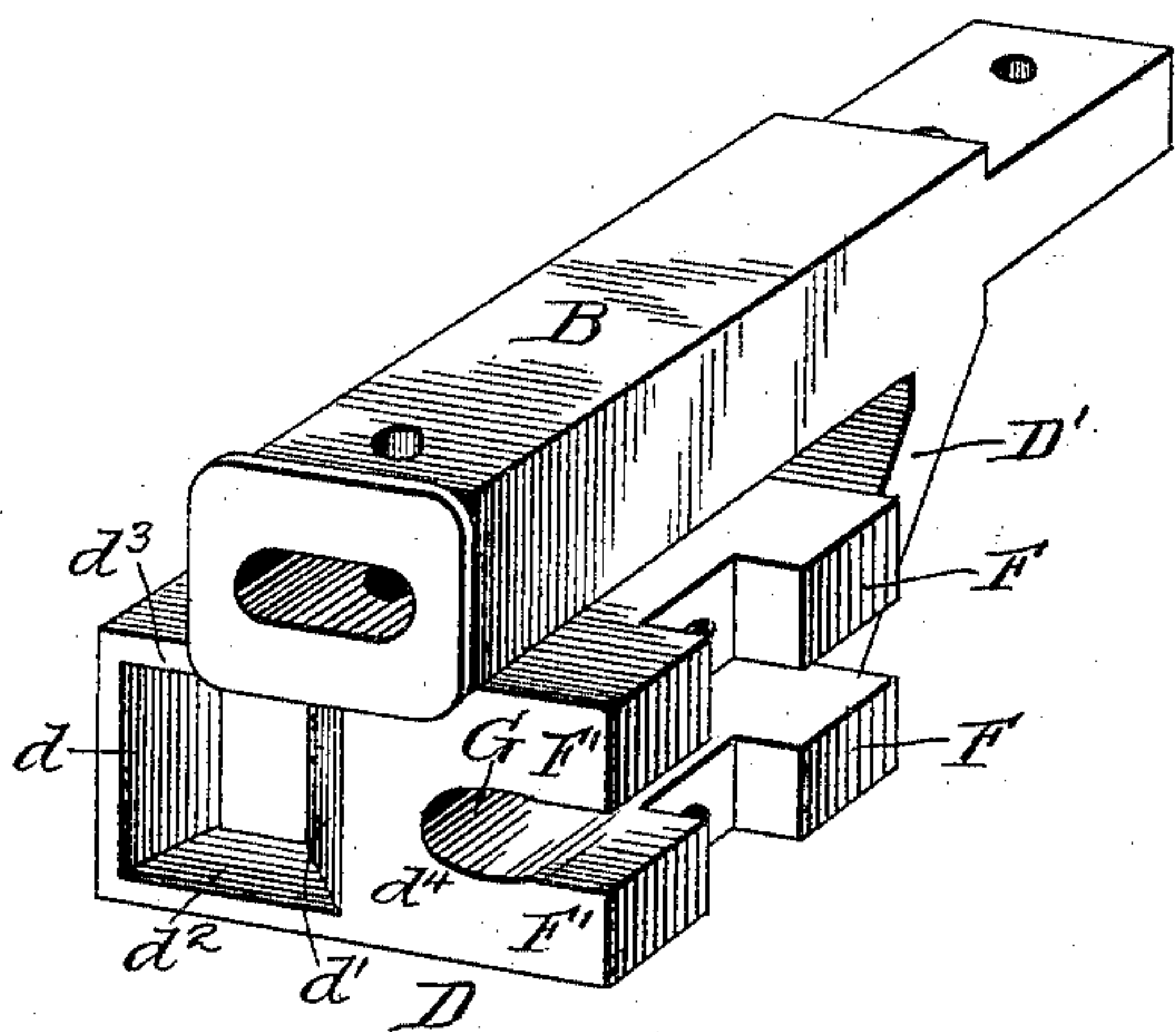
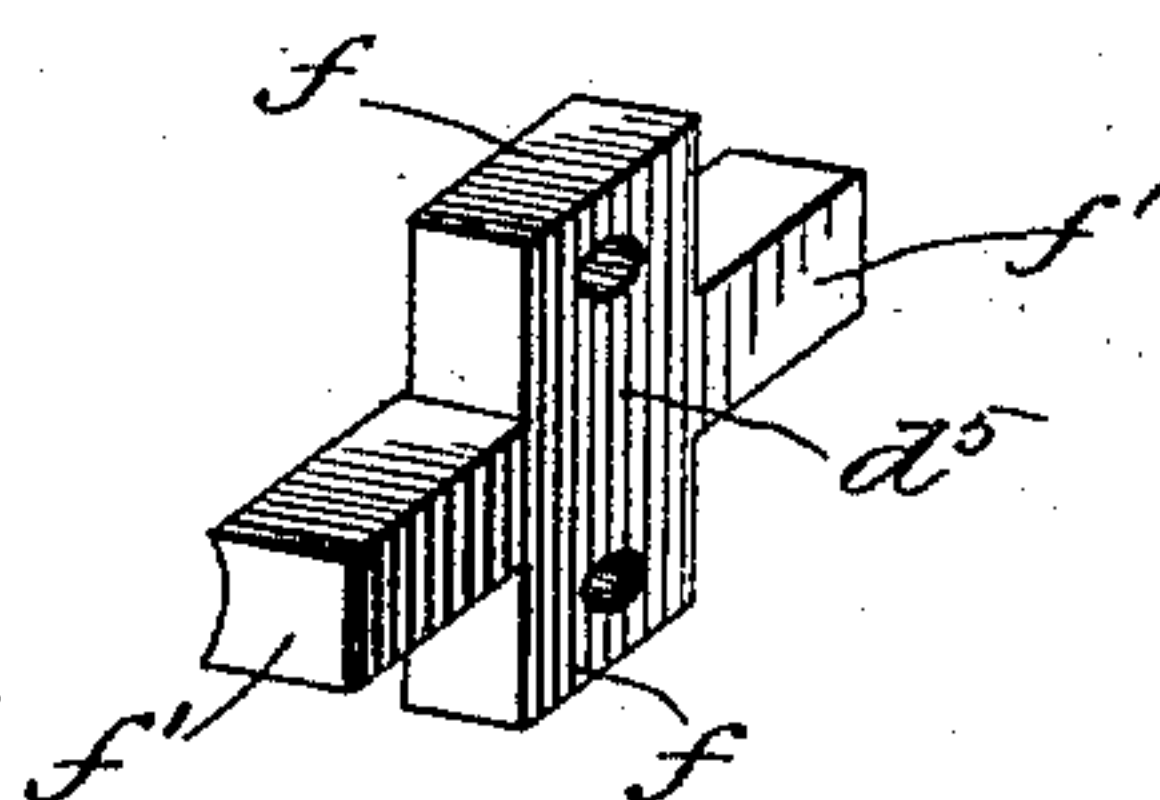
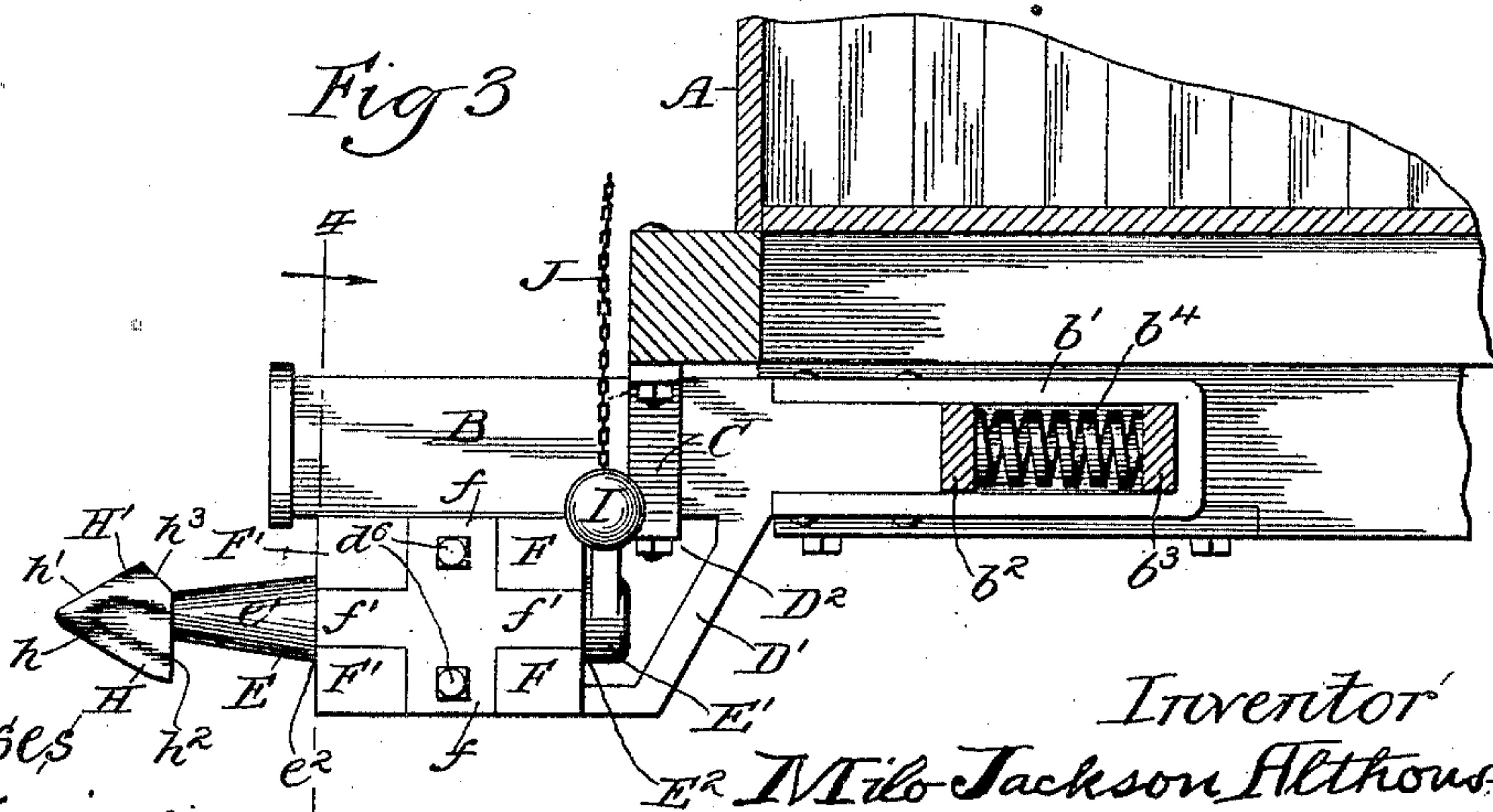



Fig 2.



*Fig 3*



Witnesses <sup>H</sup> <sup>L</sup>  
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 *Inventor*  
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2 Sheets—Sheet 2.

No. 491,504.

Patented Feb. 7, 1893.

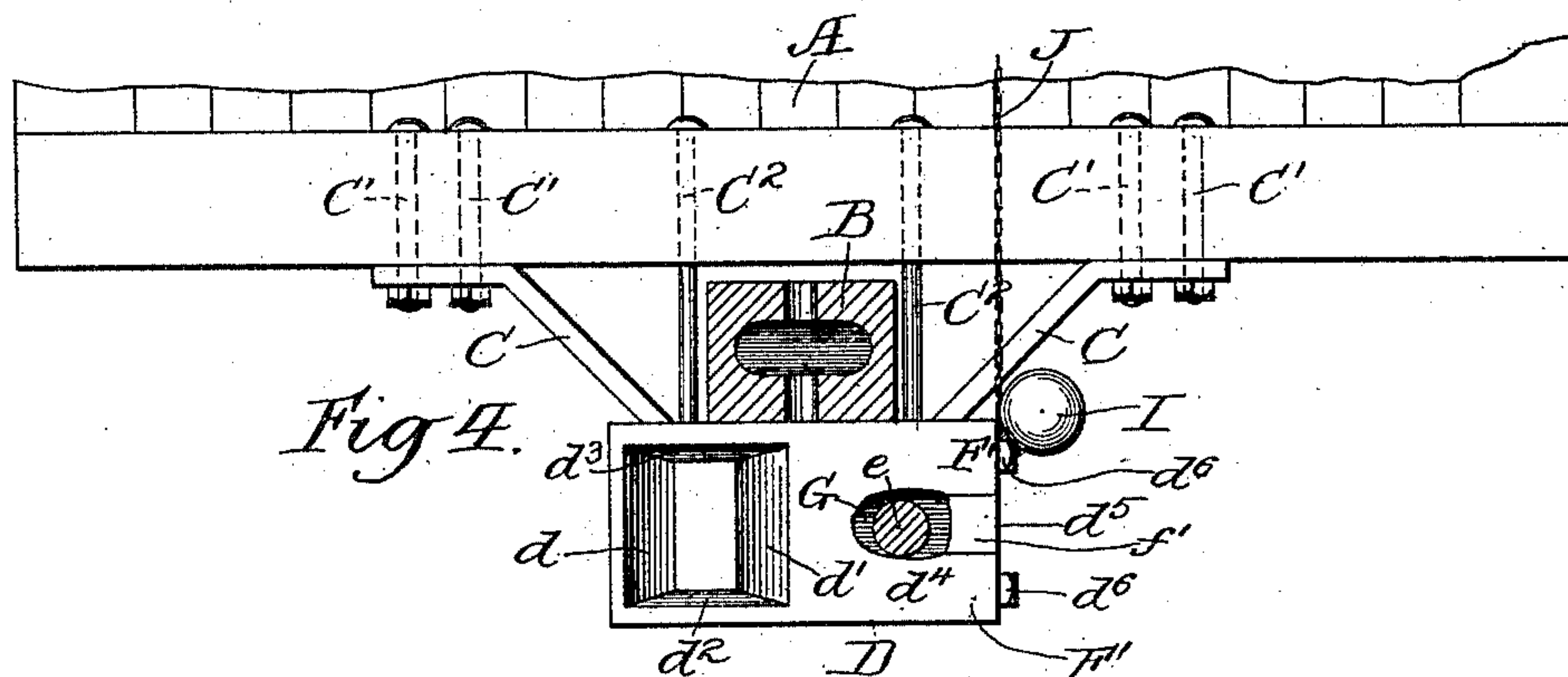
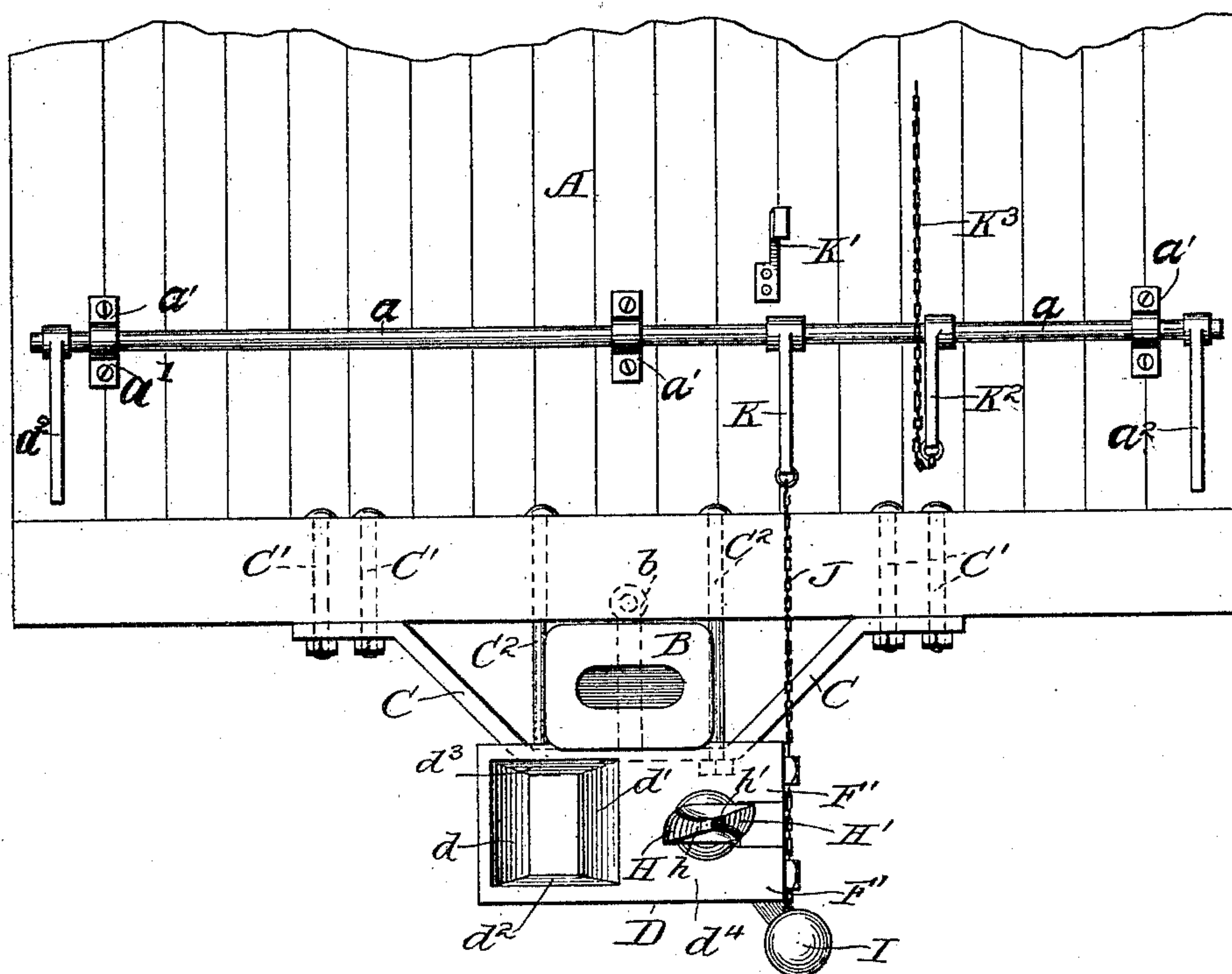


Fig 5.



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# UNITED STATES PATENT OFFICE.

MILO JACKSON ALTHOUSE, OF WAUPUN, WISCONSIN.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 491,504, dated February 7, 1893.

Application filed August 11, 1892. Serial No. 442,780. (No model.)

*To all whom it may concern:*

Be it known that I, MILO JACKSON ALTHOUSE, residing at Waupun, in the county of Fond du Lac and State of Wisconsin, have  
5 invented certain new and useful Improvements in Car-Couplers, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description, sufficient  
10 to enable those skilled in the art to make and use the same.

My invention relates to automatic car couplers, that is, car couplers adapted to automatically become coupled when cars in which  
15 such couplers are placed are brought together, without the interference or assistance of the person or persons in charge thereof, and such invention consists in the detail construction, combination and arrangement of the parts  
20 hereinafter fully shown and described, and particularly set out in the claims.

The objects of my invention are, to obtain a car coupler having an arrow rotatably journaled therein and a slot formed of side bars  
25 having flaring outer faces thereon, the arrow whereof will, when two cars are brought together, each having such coupler thereon, enter the slot in the coupler on the adjacent car, and such arrow be thereby turned in its journal bearing until the head thereof has fully  
30 entered the slot in the adjacent coupler, when such arrow will resume its initial position and such arrow head by one and one only of the wings of the head thereof automatically engage  
35 or couple with one, and the inner one, of the side bars of the slot on the adjacent coupler; to obtain a car coupler of the kind described, coupling in the manner stated, which can be uncoupled readily at any time by a person  
40 standing at the side of or upon the cars; to obtain a coupler of the type desired, which will permit cars, whereon the same is placed, to be hauled upon and around a sharp curve, as it is called; to obtain a car coupler of the  
45 type described which will not be readily broken or pulled from the car; and to obtain a coupler wherein the arrow of the coupler will, in the use of the coupler, abut against a strong and rigid portion of the coupler in  
50 which it is rotatably journaled.

A further object of the invention is to obtain a simply constructed, and extremely

strong and durable coupler, of the type named, in combination with an ordinary link and pin coupler.

In the drawings, Figure 1, is a perspective  
55 view of a coupler embodying my invention with the side plate thereof and the arrow forming a part of the coupler removed; Fig. 2, is such side plate; Fig. 3, a side elevation  
60 of the coupler, the arrow forming a part thereof held so that the wings of the head of such arrow are in a vertical plane and in position not to couple when brought in contact with the coupler on an adjacent car; Fig. 4, a sectional  
65 view on line 4—4 of Fig. 3, viewed in the direction indicated by the arrows; Fig. 5, an end elevation of a portion of the body of a car having a coupler embodying my invention placed thereon with the arrow forming a  
70 part of the coupler in position to couple.

The same letter of reference is used to indicate a given part where more than one view thereof is shown in the several figures of the  
75 drawings.

A, represents a portion of one end of a car.  
a, is a rod extending across the end of the car and journaled in strap a', a'.

a<sup>2</sup>, a<sup>2</sup>, are handles by which rod a may be  
80 partially turned.

B, is the portion of my coupler forming the ordinary link and pin coupler, draw-head or draft-iron, as it is termed.

b, is a pin indicated by dotted lines by which  
85 a link is secured in the coupler.

b', is the yoke of the coupler.

b<sup>2</sup>, b<sup>3</sup>, are followers in yoke b'; and b<sup>4</sup>, is an ordinary car spring.

C, (Figs. 3 and 5,) is a strap secured to the end of the car A by bolts C', C', C'. Such  
90 strap C extends underneath the portion of the coupler actuating my device which forms the ordinary link and pin coupler, and holds the outer end or head of such coupler in position.

C<sup>2</sup>, C<sup>2</sup>, are bolts or straps extending, respectively, from strap C to the car body on  
95 each side of the portion of the device embodying my invention forming the ordinary link and pin drawhead and limiting the lateral movement of the head of the coupler.

D, is that portion of the coupler embodying my invention by which I obtain the automatic coupling feature of the device and consists of the parallel bars d, d', bottom  
100



plate  $d^2$ , top plate  $d^3$ , (such top plate being integral with part B of the coupler and forming a dividing line between part B and part D of the coupler,) part  $d^4$  in which is contained the journal bearing of the rotatable arrow used in the coupler, and plate  $d^5$  secured to part  $d^4$  by bolts  $d^6$ ,  $d^6$ , and forming a cap to the journal bearing of such rotatable arrow. Part D of the coupler is cast integral with part B thereof; and  $D'$ , is a brace extending from part B of the coupler downward and forward to the lower portion of the part D.

$D^2$ , is an opening between parts B D of the coupler and brace  $D'$  and in this opening  $D^2$  the strap C extends.

E, is a rotatable arrow.

$e$ , is the shaft of arrow E rotatably fitting into the journal bearing provided therefor, in part D of the coupler and hereinafter described.

$e^2$ , is a shoulder formed by the joining of part  $e$  of the shaft of arrow E with part  $e'$  thereof.

$E'$ , is the back end of arrow E, and is of larger diameter than shaft  $e$  thereof; and  $E^2$ , is the shoulder formed by the joining of part  $E'$  of arrow E to shaft  $e$  thereof.

F, F', F', F', are abutments on part D of the coupler.  $f, f, f', f'$ , are projections on plate  $d^5$ . Projections  $f, f, f', f'$ , fit between abutments F, F', F', F', respectively, as is particularly illustrated in Figs. 1 and 2.

The bolts  $d^6$ ,  $d^6$ , securing plate  $d^5$  to the part D of the coupler extend through projections  $f, f$ . Projections  $f', f'$ , are of substantially the same width as the diameter of shaft  $e$  of arrow E, and of less width than the diameter of end  $E'$  of such arrow. Projection  $f$  extending between lugs F, F', does not reach back to the back face of part D of the coupler, that is, or to the back face of such lugs F', F'. By this construction the shoulder  $E^2$  of arrow E, is, when two or more cars coupled together by arrows E, E, are hauled in either direction, brought against a rigid abutment formed by the back face of part D, and abutments F', F', thereon: and when two or more cars coupled together by arrows E, E, are pushed in either direction shoulders  $e^2$  of such arrows are, respectively, brought against a solid abutment formed by the front face of part D of the coupler and abutments F, F, thereon.

G, is the journal bearing for arrow E in part D. Journal G is, in the front thereof, elliptical in cross-section, with its vertical axis of about the diameter as that portion of the shaft of the arrow contained therein, and with its horizontal axis longer; while the back end of such journal bearing G is circular in form and of slightly larger diameter than the diameter of the shaft E contained therein.

H, H', are the wings of the head of arrow E, and  $h, h'$ , are the curved faces thereof. The wing H has, at the rear end thereof, face  $h^2$  adapted to come in contact with the back face of the bar  $d'$  of part D of the coupler. Wing

H' has the back end thereof cut away, leaving face  $h^3$  not adapted to come in contact with the back face of the bar  $d$ . By cutting away the back of the wing H' in such manner as to leave the face  $h^3$  thereon, while the wing H is extended back to face  $h^2$ , wing H is the only one of the two wings of the head of the arrow E which performs any function in regard to the holding of the cars together when coupled, the only function of the wing H' being to act, in conjunction with wing H, and bars  $d, d'$  on an adjacent coupler, to force the arrow E around in the process of coupling, so that the wings will be in a vertical plane, thereby allowing the head of the arrow to pass through the slot formed by such bars  $d, d'$ , on the coupler on the adjacent car.

I, is a weight secured to arrow E on one side of the axial line thereof in order that the wings H, H' of the arrow E will thereby be ordinarily extended in a horizontal plane.

J, is a chain attached at one end to weight I and at the other end to arm K on rod  $a$ .

Handles  $a^2, a^2$ , placed on rod  $a$ , as hereinbefore described, enable a person standing at the side of the car to raise the weight I and thereby turn the arrow E so that the wings H, H' shall be in a vertical plane, thereby uncoupling the car, if coupled, or placing it in proper position for the car to come in contact with an adjacent car without coupling thereto.

K', is a spring catch on the end of the car A adapted to engage with lever K and hold such lever in an upraised position.

In order to uncouple the cars from the top of the car, lever K<sup>2</sup> is placed on rod  $a$  and chain K<sup>3</sup> is attached at one end thereof extending therefrom to the top of the car.

By the cutting away of wing H' of the arrow head, as hereinbefore described, when two cars are coupled together by the automatic engagement of the arrows E contained in the couplers on such cars, wing H of the head of the arrow on one car will engage with bar  $d'$  of the coupler on the adjacent car, and wing H of the head of the arrow on such adjacent car will engage with bar  $d$  on the first named car. When the cars are upon a sharp curve, the engagement of the inner wing only of each head of the two arrows with the inner bars of the adjacent couplers permits the couplers to assume a position wherein the axial line extending longitudinally through one coupler will intersect the axial line extending longitudinally through the other coupler at an angle considerably less than one hundred and eighty degrees; and by the elliptical form given to the forward part of the journal bearing G the angle at which such axial lines may intersect is still further reduced; and further, I have found in practice that by the cutting away of one of the wings of the arrow-head, as described, part  $e^2$  of the shaft of the arrow can be made from an inch to two inches shorter than when such wing is not so cut away and cars having the couplers thereon coupled by such arrows can pass over



a much shorter curve than when the wing is not so cut away even where the greater length of the shaft of the arrow heretofore given thereto is retained.

5 The retraction of the arrow head obtained by the cutting away of the part  $e^2$  of the shaft thereof greatly lessens the liability to injury thereto and also lessens the liability of injury to brakemen and others operating cars  
10 equipped with the coupler, particularly, where a car equipped with this coupler is coupled by a link and pin to an ordinary link and pin coupler. I therefore consider the construction of the head of the arrow E, hereinbefore  
15 described, as giving materially different results from those obtained where both wings of the arrow engage with both bars forming the slot through which such wings extend, as is the case, so far as I am aware, in the operation of all couplers of this kind heretofore  
20 made.

By connecting the part B and the part D of my combined link and pin and automatic coupler by the brace D', the combined coupler  
25 is made extremely rigid and by leaving the space lettered D<sup>2</sup> through which the supporting strap C can pass the coupler will be retained in the car by such supporting strap, and such brace D' even if the followers in the  
30 yoke of the coupler be broken or torn out, or if the abutments on the car against which such couplers extend are torn away or broken.

Having thus described my invention, what I claim as new and desire to secure by Letters  
35 Patent is:—

1. In a car coupler, the combination of a link and pin coupling with a head underneath such link and pin coupling, parallel bars in such head to one side of its center, a  
40 rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal  
45 plane, with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner wing, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space  
50 between the parallel bars of the adjacent coupler, and the inner wing of the head of the arrow on one coupler will engage with the inner one of the parallel bars of the adjacent  
55 coupler; substantially as described.

2. In a car coupler, the combination of a link and pin coupling with a head underneath such link and pin coupling, a brace integral with the link and pin coupling and with the  
60 head underneath it, and extending from the bottom plate of such head upward and backward to the under side of the link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally  
65 journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that

the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of  
70 the arrow curved, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space between the parallel bars of the adjacent coupler, and engage therewith  
75 and the shock incident to the making of the coupling will be partially distributed by such brace throughout the entire coupling; substantially as described.

3. In a car coupler, the combination of a  
80 link and pin coupling with a head underneath such link and pin coupling, a brace integral with the link and pin coupling and with the head underneath it, and extending from the bottom plate of such head upward and back-  
85 ward to the under side of the link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on  
90 one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved and the outer wing shorter than the  
95 inner, wing, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space between the parallel bars of the adjacent coupler, and engage with the  
100 inner one of the parallel bars of the adjacent coupler, such brace tending to resist the breaking of the coupler in the coupling thereof; substantially as described.

4. In a car coupler, the combination of a  
105 link and pin coupling with a head underneath such link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such ar-  
110 row weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved, the journaled shaft  
115 of the arrow of less diameter than the extension of such journaled shaft, lugs on the side of such head and a plate having projections thereon fitting between such lugs, the horizontal ones of the projections on such plate  
120 being of about the width of the journaled shaft of the arrow, whereby in the moving of cars coupled thereby the shoulders adjacent to the journaled shaft of the arrows therein will be brought in contact with a rigid abut-  
125 ment on such head; substantially as described.

5. In a car coupler the combination of a link and pin coupling with a head underneath such link and pin coupling, parallel bars in  
130 such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are nor-



mally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner wing, the journaled shaft of the arrow of less diameter than the extension of such journaled shaft, lugs on the side of such head and a plate having projections thereon fitting between such lugs, the horizontal ones of the projections on such plate being of about the width of the journaled shaft of the arrow, whereby in the moving of cars coupled thereby the shoulders adjacent to the journaled shaft of the arrows therein will be brought in contact with a rigid abutment on such head; substantially as described.

6. In a car coupler the combination of a link and pin coupling with a head underneath such link and pin coupling, a brace integral with the link and pin coupling and with the head underneath it, and extending from the bottom plate of such head upward and backward to the under side of the link and pin coupling, parallel bars in such head to one

side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner wing, the journaled shaft of the arrow of less diameter than the extension of such journaled shaft, lugs on the side of such head and a plate having projections thereon fitting between such lugs, the horizontal ones of the projections on such plate being of about the width of the journaled shaft of the arrow, whereby in the moving of cars coupled thereby the shoulders adjacent to the journaled shaft of the arrows therein will be brought in contact with a rigid abutment on such head; substantially as described.

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