

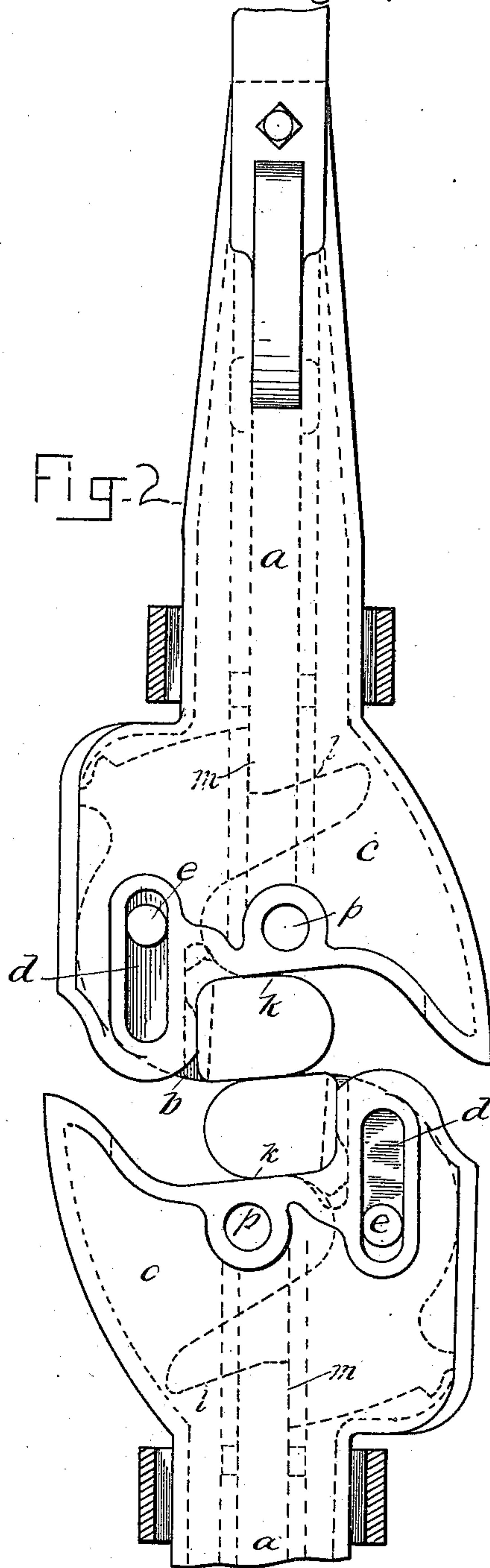
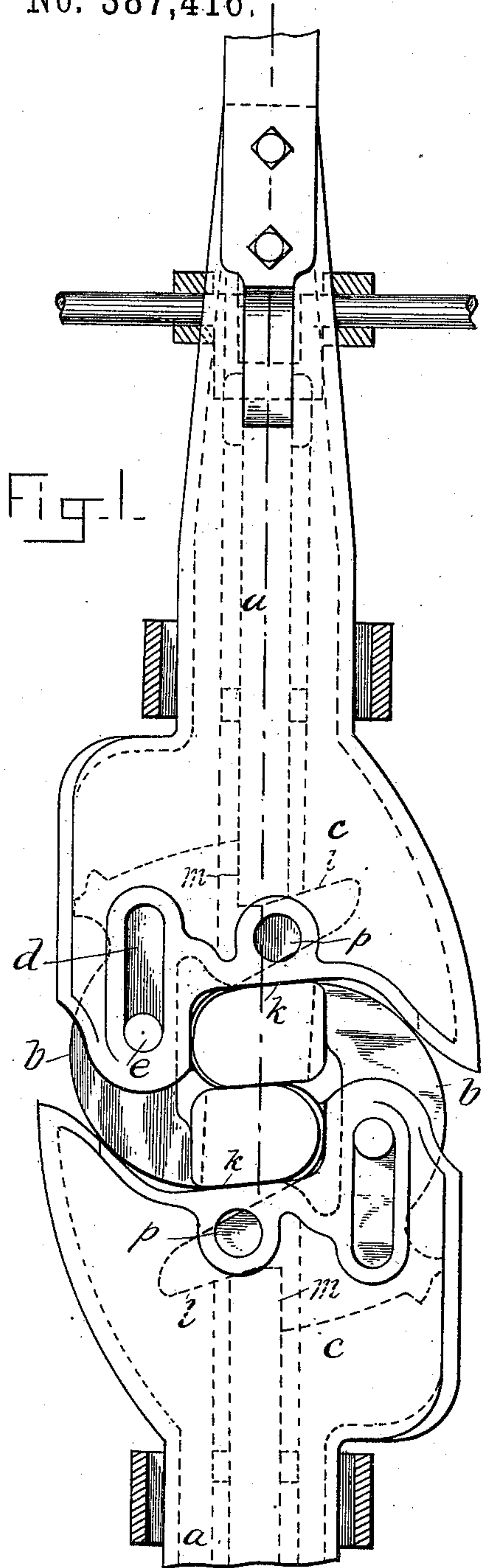
(No Model.)

2 Sheets—Sheet 1.

O. P. HIX.  
CAR COUPLING.

No. 387,416.

Patented Aug. 7, 1888.



WITNESSES:

A. D. Hainson.  
H. B. Ramsay.

INVENTOR:

Oliver P. Hix.  
By his Atty.  
Wm. Brown & Crossley.

(No Model.)

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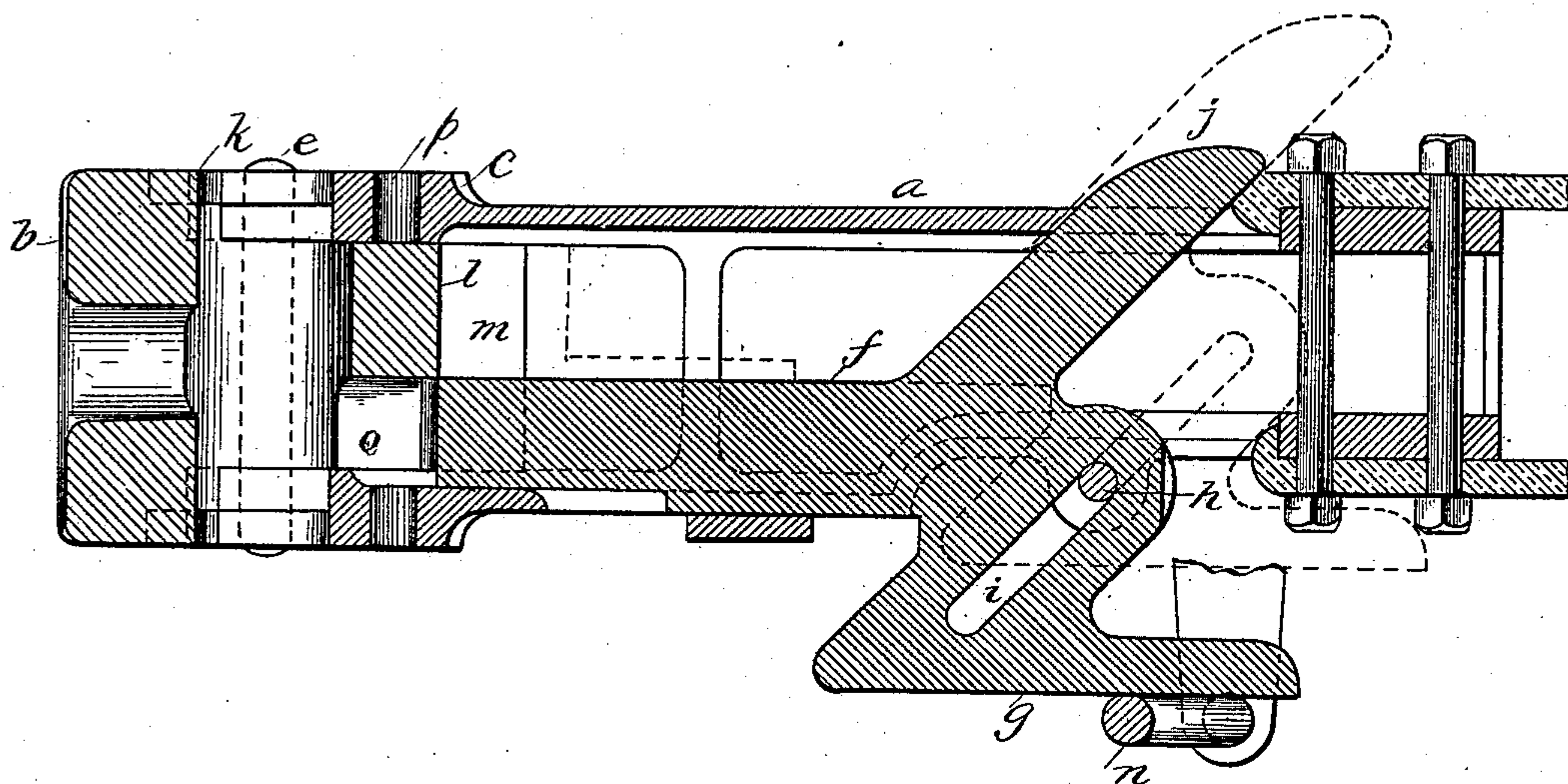


Fig. 3.

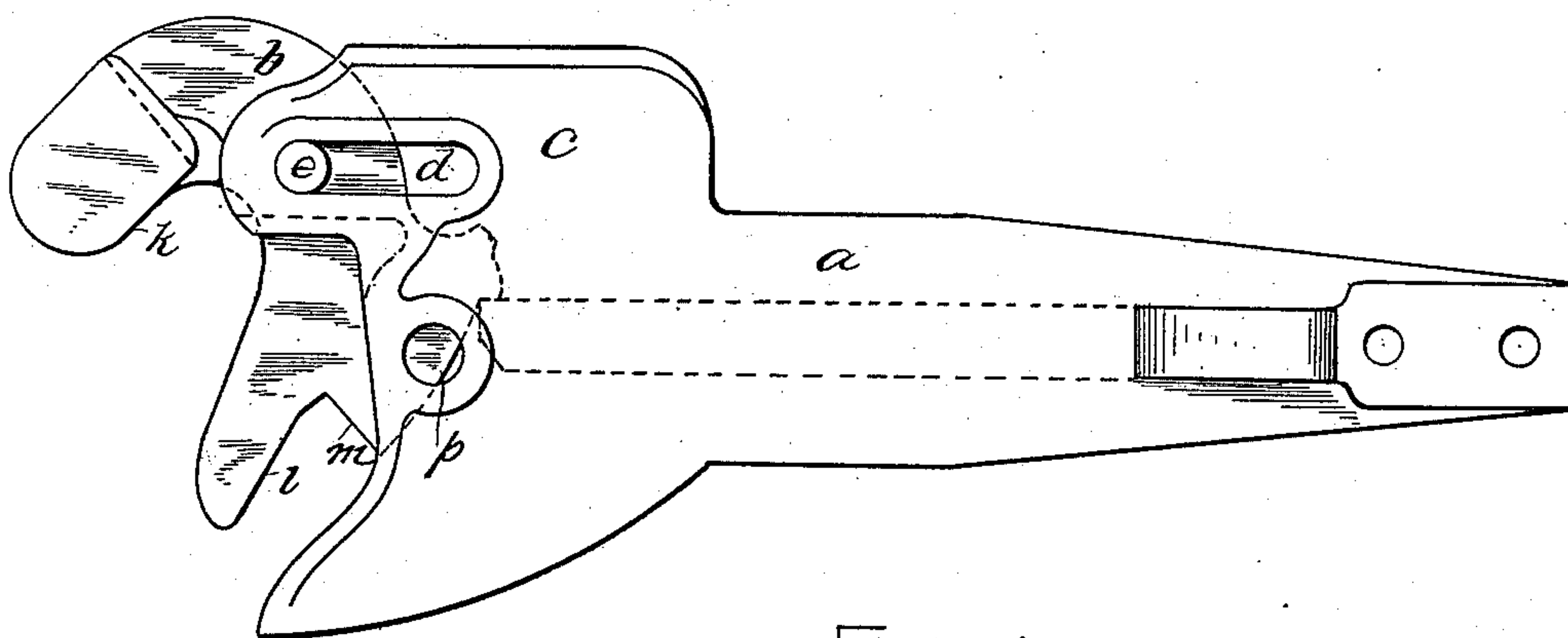


Fig. 4.

WITNESSES:

A. D. Harrison.  
H. B. Ramsay.

INVENTOR:

By his Atty's. Oliver P. Hix.  
Might, Brown & Crossley.



# UNITED STATES PATENT OFFICE.

OLIVER P. HIX, OF ROCKLAND, MAINE, ASSIGNOR TO THE HIX AUTOMATIC CAR COUPLER COMPANY, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 387,416, dated August 7, 1888.

Application filed February 23, 1888. Serial No. 264,885. (No model)

*To all whom it may concern:*

Be it known that I, OLIVER P. HIX, of Rockland, in the State of Maine, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

It is the object of my invention to provide such improvements in what is generally known as "vertical-plane" couplers for cars, where the hook, knuckle, or coupler acts also as a buffer, as that when the cars "bunt" or come together the knuckle will virtually be one with the head, and it will be as though the head received the impact shock substantially the same as does the old "link-and-pin" coupler, thus relieving the axial or supporting pin of the strain that would otherwise be put thereon.

The difficulty with vertical plane couplers as heretofore constructed has been that the axial pin of the hook or knuckle has been almost wholly, if not entirely, depended upon to receive the strain of the draft and the bunting shocks of the cars, and, as such strains and shocks are cumulative in their effects, there must come a time when the sag of the pin will interfere with the operation of the hook or knuckle or lead to the destruction of the head, or both, because of the strain brought upon a part not strong enough to bear it and (by reason of the size to which practice limits it) which cannot be made sufficiently strong to bear such strain and shock.

By my present improvements these difficulties and objections are entirely overcome, as I will now proceed to fully describe and claim, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification.

Of the drawings, Figure 1 is a top plan view (parts being shown in section) of two heads and draw-bars or parts of draw-bars equipped with vertical-plane coupling devices constructed in accordance with my invention, the devices being shown as in coupled position. Fig. 2 is a view similar to Fig. 1, showing the devices as in uncoupled position and as they will be on the bunting or coming together of the cars. Fig. 3 is a vertical longitudinal section of one of the draw-bars and associated

parts. Fig. 4 is a top plan view of a draw-bar and associated parts, showing the hook as opened or released.

Like letters of reference designate like parts and features in all of the views.

In the drawings, *a* designates a draw-bar equipped with vertical-plane coupling devices consisting of a hook or knuckle, *b*, having a pivotal and sliding connection with the head *c* of the draw-bar; and just here it may be mentioned that it is this pivotal and sliding connection of the hook or knuckle with the draw-bar that constitutes the essence of my invention, since it is by this that I am enabled to overcome the objections and accomplish the objects set out at the beginning of this specification. Various forms of devices may be adopted to secure this end, that here shown consisting of a slot, *d*, formed in the draw-bar through which the axial pin *e*, passing through or secured to the knuckle or hook *b*, extends, so that said hook may have a limited movement longitudinally of the draw-bar as well as to be allowed to turn on its axial pin, though it is obvious that the same result would be attained if the pin were secured in the draw-head or draw-bar and the hook or knuckle were slotted substantially as the head is here shown to be.

The draw-bar is chambered to receive the weighted sliding bolt or bar *f* as well as the hook *b*, which bar is designed as a means for locking the hook in closed position, as when the cars are coupled or releasing said hook, as when it is desired to uncouple the cars, also for the purpose of pushing the hook or knuckle forward when from any cause it has been pushed rearward in the chamber of the draw bar or head. While other means may be employed for this purpose, that mentioned and here shown and described has been found efficient by way of meeting the desired end.

The bar or bolt *f* is, as shown particularly in Fig. 3, adapted to slide vertically in an inclined direction, which to all intents and purposes in this device is a vertical and longitudinal movement in the draw-bar, the vertical and rearward movement being effected by any suitable means, pressing upward against the foot or projection *g*, formed on the lower



side of the bar *f*, and the forward and downward movement being effected by the gravity or weight of the bar or bolt itself. Said bar *f* is guided in its movements by any suitable appliances, those here shown being a pin, *h*, extending laterally through an inclined slot, *i*, formed in the bar or bolt, and bearings in the draw-bar, through which the projection *j* of said bar or bolt extends.

10 The hook *b* is provided on its outer end with shoulders or vertical offsets *k*, which are constructed and arranged to strike or bear against the end of the draw bar or head when said hooks are moved or slid inwardly as far as  
15 may be, as when the cars are uncoupled and two cars come together, as represented in Fig. 2, in which case the axial pin *e* will not have been moved entirely to the rear end of the slot *d*, so that said pin will not be made to receive any of the impact or strain resulting  
20 from the shock, and when the cars are coupled, as represented in Fig. 1, and they bunt or come together by reason of the fact that the hooks are allowed to have a limited sliding movement with respect to the draw-bar, the knuckles  
25 or hooks will come together and against the ends of the draw bars or heads, and so be virtually one with the head, and be so seated as to call out its full resistance, substantially as does the link-and-pin coupler. When the  
30 hook or knuckle *b* is closed, as when the cars are coupled, as represented in Fig. 1, and said hook is forced rearwardly, the bolt or bar *f* will also be pushed back or rearwardly, and  
35 when the hook is left free to be moved forward the bar or bolt *f* will move by its own gravity downward and forward, keeping its forward end against the rear face of the projection *l*, so that the shoulder or offset *m* on  
40 the rear of the hook or knuckle will come against the side of the forward end of bar *f* and prevent the hook from turning on its axial pin *e* and uncoupling the cars. When, however, it is desired to uncouple cars or open  
45 the hook, the crank-rod *n* will be turned so as to raise and move rearwardly bolt or bar *f* from the full to the dotted line position, Fig. 3, in which position the forward end of said bolt or bar will be moved back and free of  
50 the offset *m* of the hook, and so allow the latter to turn on its axial pin *e* from the position shown in Fig. 1 to that shown in Fig. 4. The weight or pressure of the bolt or bar *f* against the rear face, *y*, of the hook will press said  
55 hook forward and turn it on its axial pin, as represented in the last-mentioned figure.

It is obvious that other means may be employed for locking the hook in closed position and releasing it, though that here shown has  
60 been found convenient and effective.

*o* represents a recess formed in the hook *b* for the reception of an old form of link, and

*p* designates a hole through which an old form of pin may be passed, so that a draw-bar equipped with my improvements may be connected with a car provided only with a link and pin as a coupling means. 65

Various changes may be made in the form and arrangement of parts and features of my improvements without departing from the 70 nature or spirit of the invention.

Having thus described my invention, what I claim is—

1. In a car-coupler, a draw bar or head combined with a coupling hook or knuckle 75 pivoted in a vertical plane to the head or bar, and having a limited sliding movement longitudinally of the same, the construction and arrangement of the hook and bar with respect to each other being such that the hook may be 80 moved inward or rearward and bear or be seated against the end of the bar and become virtually one therewith, as set forth.

2. In a car-coupler, a draw bar or head combined with a coupling hook or knuckle 85 pivoted to the head and having a limited sliding movement longitudinally of the same, and a weighted bolt or bar for locking said hook against, and releasing it to permit of, action on its pivot, said weighted bolt being constructed and arranged to bear against the 90 hook or knuckle and hold it normally pressed forward, as set forth.

3. In a car-coupler, a draw bar or head combined with a coupling hook or knuckle 95 pivoted to the head and having a limited sliding movement longitudinally of the head, and a weighted bolt or bar having a movement vertically and longitudinally with respect to the head for locking said hook against, and releasing it to permit of, action on its pivot, 100 substantially as set forth.

4. In a car-coupler, a draw bar or head combined with a coupling hook or knuckle 105 pivoted to the head and having a limited sliding movement longitudinally of the head, and a weighted locking bolt or bar having a movement vertically and longitudinally with respect to the head, said bolt or bar being arranged to bear against the coupling hook or 110 knuckle, whereby when the latter is pressed rearwardly in the draw bar or head and left free the weighted locking-bolt will push it forward again to its normal position and turn it on its axial pin when uncoupled or released, 115 substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of February, A. D. 1888.

OLIVER P. HIX.

Witnesses:

ARTHUR W. CROSSLEY,  
A. D. HARRISON.