

(No Model.)

D. DONAHUE
CAR COUPLING.

No. 474,373.

Patented May 10, 1892.

Fig I.

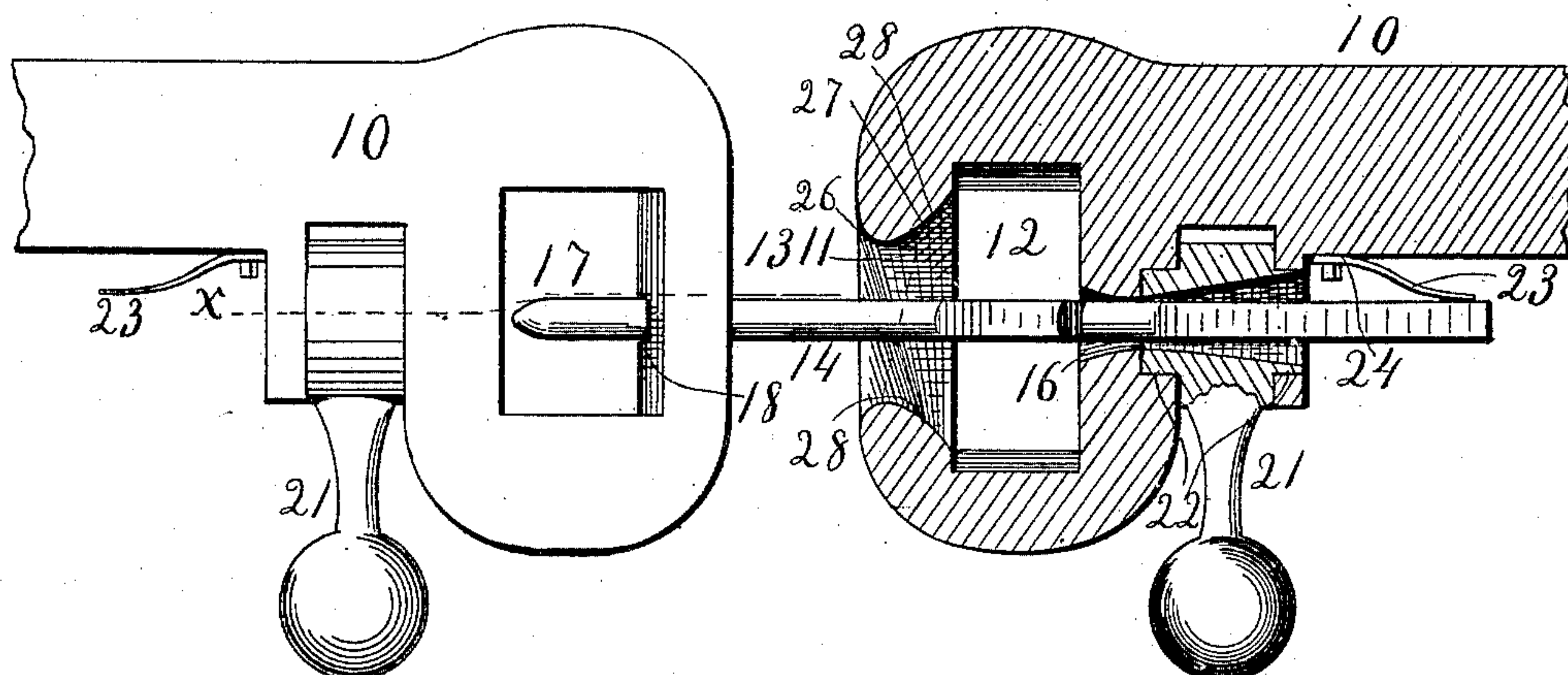


Fig II.

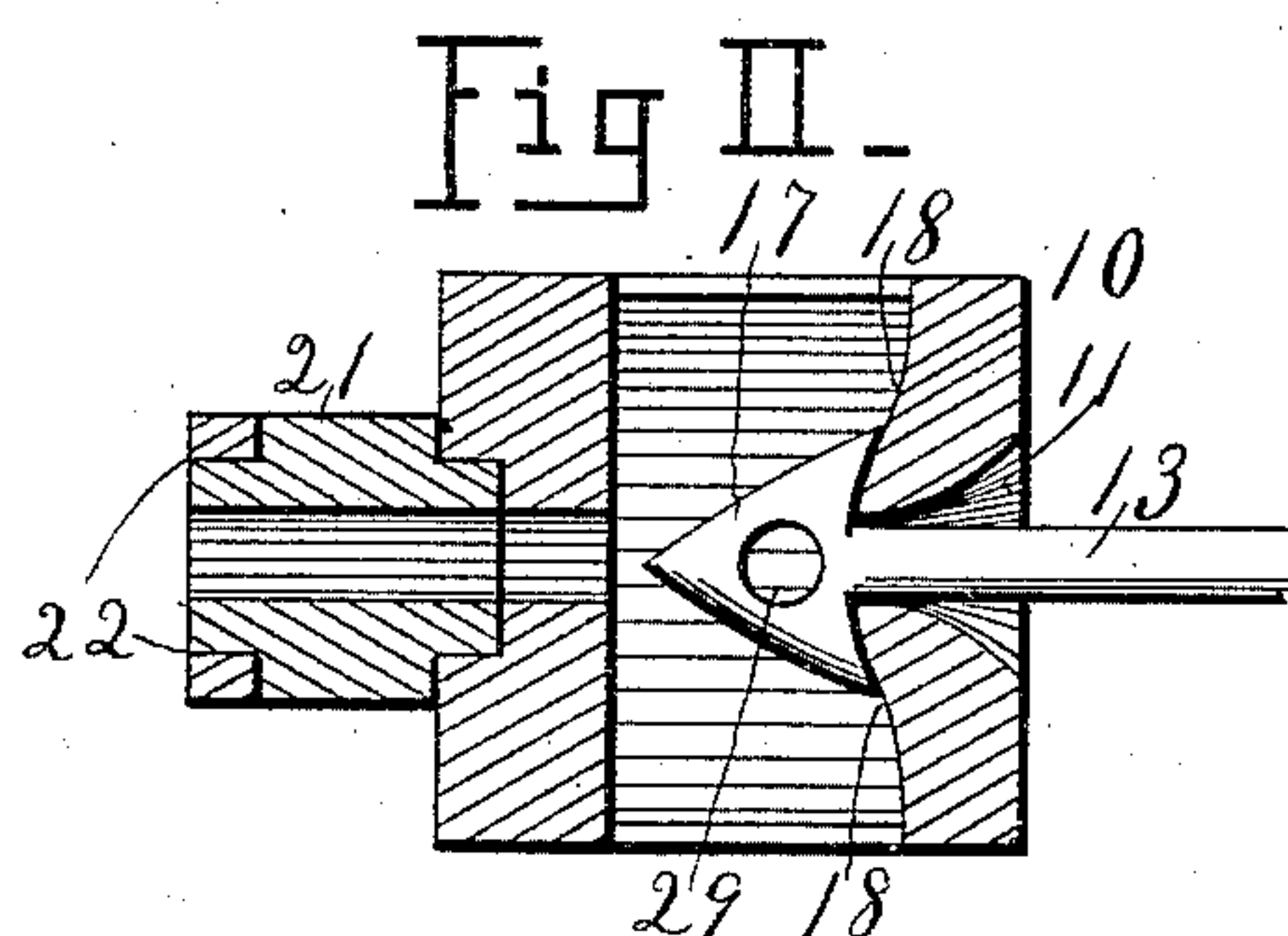


Fig III.

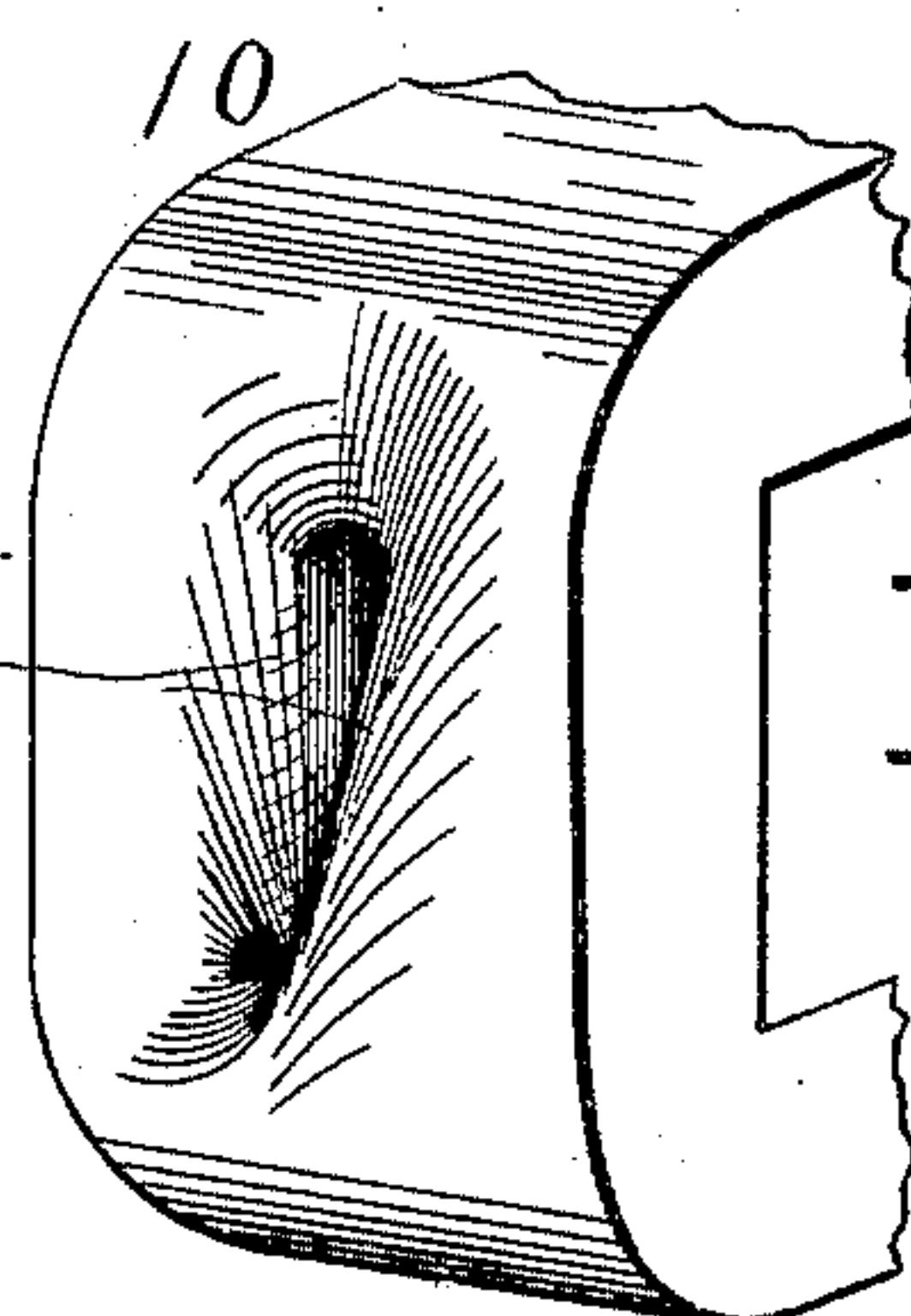


Fig IV.

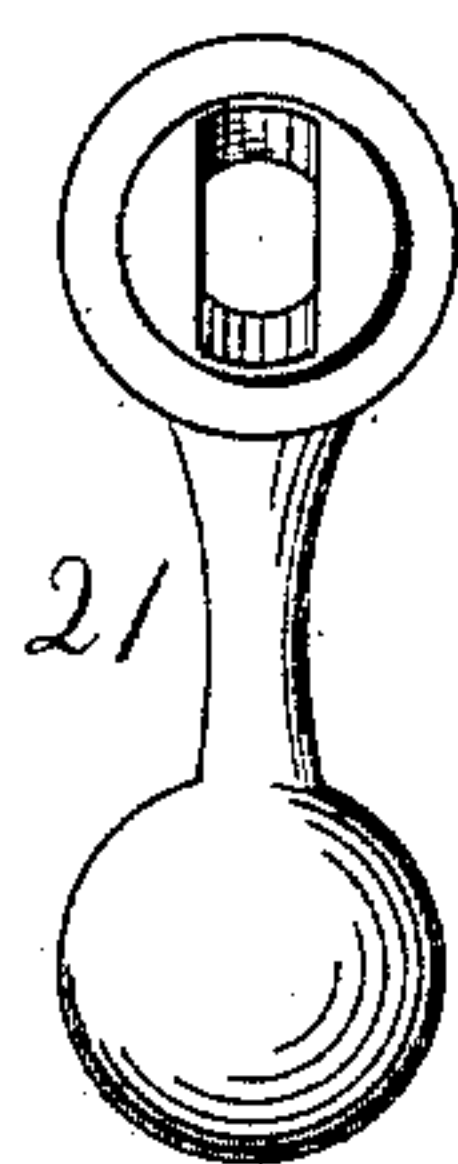
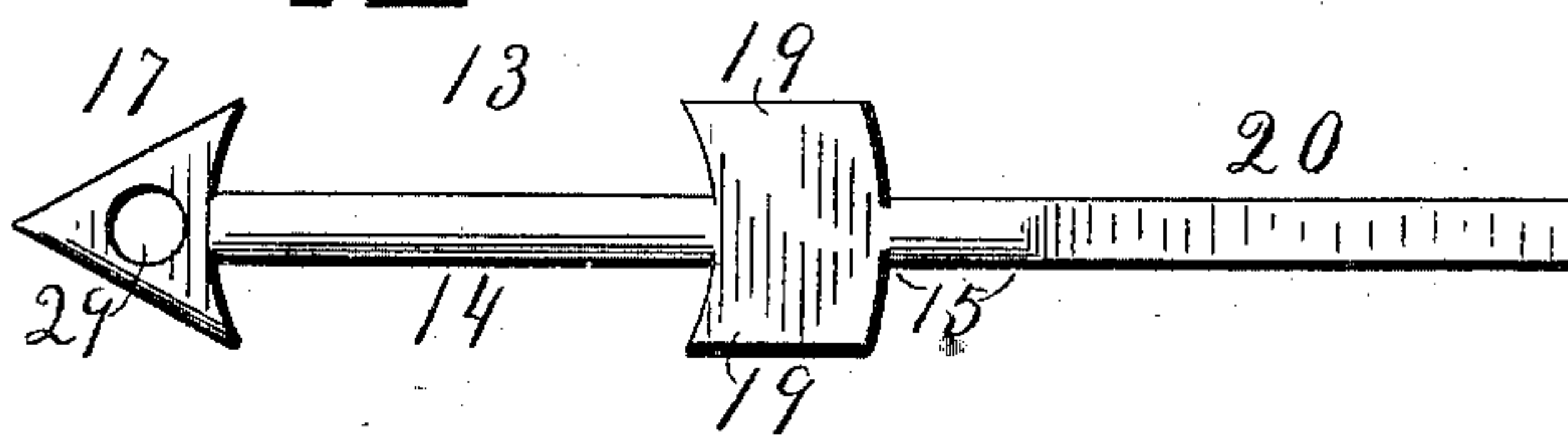


Fig V.



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 474,373, dated May 10, 1892.

Application filed January 23, 1892. Serial No. 419,057. (No model.)

To all whom it may concern:

Be it known that I, DANIEL DONAHUE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Car-Couplings; and I do hereby declare the following to be a full clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic car-couplings; and its object is to adapt an arrow-headed link and draw-bars of suitable shape to coact in guiding the said link to its seat in the draw-bar, thereby automatically coupling the cars when they come together; and it consists of means to permit the said link to be readily removed to uncouple the cars, whether the draw-bars are at the same level or not, means to enable the same link to be reversed between any two draw-bars, and means whereby the arrow-headed link may serve to couple one of my draw-bars with a draw-bar of the old style.

To this end my invention consists in the construction and combination of parts forming an automatic car-coupling, hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I shows my car-coupling partly in side elevation and partly in longitudinal vertical section. Fig. II is a longitudinal horizontal section at line *x* of Fig. I. Fig. III is an end view in perspective of part of a draw-bar. Fig. IV is an end view of the balance-weight; Fig. V, a top view of a link, all according to my invention.

10 represents a draw-bar, which may be shaped at its rear end in any usual form to be attached to a car; but its forward end or head is peculiarly shaped, as follows: The mouth 11 consists of a vertical slot extending through the front end to an opening 12, which passes crosswise through the head horizontally.

13 is the link, made cylindrical along the neck 14, so that it may revolve freely in the narrow mouth 11, also made cylindrical along the region 15, in order that it may revolve freely in a vertical slot 16, which passes through the rear portion of the draw-head. The head 17 of the link is made arrow shape, with the

barbs of the arrow projecting sidewise to engage the inner shoulders 18 of the draw-head beside the mouth. The link is provided midway with two side flukes 19 to engage the draw-head, in which it normally rests. The shank 20 of the link is flattened on its vertical sides to be engaged by a weighted lever 21, which is slotted longitudinally through to receive it. This lever has trunnions 22, journaled in bearings of the draw-head, upon which trunnions it may swing from side to side, so as to tip the link either to the right or the left to bring its plane in a vertical position, so that the arrow-head may slide out of the mouth and be disengaged from the draw-bar.

23 is a spring fixed at 24 to the draw-bar, with its free end adapted to bear on the projecting shank of the link, whereby the forward end of the link will be held in a horizontal position without the aid of a person's hand to guide it into a coming draw-head. The vertical sides or lips 25 of the mouth 11 of the draw-head are made spiralling or inclined, the base of the incline on one side being upward, as shown in full lines 26, Fig. I, and downward, as shown by dotted line 27 on the other side.

The draw-heads are in all respects exactly alike, each being provided with a lever 21. By raising the lever to a horizontal position at either side the link will be turned with its flukes 19 to coincide with the vertically-slotted mouth 11 of the draw-head, so that by applying a little force against the resistance of the spring 23 the link may be pulled out of one draw-head and its shank may be inserted in the opposite draw-head if it should chance to be more convenient for use in that one.

As the shank 20 of the link is only flattened on its vertical sides, it cannot enter the slot in the weight the wrong way, and the link can only be placed in its normal position or removed therefrom when the weight is raised, as before described. The oppositely-inclined lips 25, being met by the incoming arrow-head, bear spirally on the opposite sides of the barbs thereof and twist the link so that its head will enter the mouth of the draw-bar, the weight 21 being raised to one side by the twisting action, and as soon as the barbs pass beyond the shoulders 18 the link is free to be

revolved into a horizontal position by the action of the weight 21, so that the barbs may engage the shoulders 18, which are square or acute-angled to hold the barbs of the arrow-head. The slot through the lever is made wedge-shaped, with the base of the wedge opening forward to permit the link to rise and fall to accommodate the motion of the cars or to enter a higher or lower draw-head. It is thought that this weight 21 will be sufficient in service to maintain the link in its horizontal position of engagement with the two draw-heads against any twisting or rolling effect which might be produced on the link by the rolling motion of the cars in passing around curves or under any circumstances when the body of the link is closely pressed by the sides of the mouth, and yet, if it should be found necessary, one or more springs may be added to assist the weight in keeping it in its normal position.

The shoulders above and below the mouth at 28 are slanted inward to permit the barbs of the arrow-head to slide freely over either of them when being disengaged therefrom, and yet it is necessary that these shoulders should be left in and not slotted out as a portion of the mouth, in order that they may support the neck of the incoming link, so that its barbs may be revolved without interfering with the top or bottom of the draw-head.

29 represents a hole vertically through the head of the link, whereby it is adapted to be connected with an old-fashioned coupling-head by means of a common pin passing through the hole, so that a car provided with my coupling is adapted to be used in connection with the cars having the old style of coupling. As before described, this link may be normally carried either by the stationary car or by the coming car, and it will guide itself to enter the mouth of the opposite draw-head and be turned by the lips thereof to pass through the mouth and again be righted to its normal position by the weight 21 to couple the cars without any other attention on the part of the operator than to see that there is only one link in the draw-heads to be coupled,

thus making the act of coupling purely mechanical and automatic and avoiding all danger to the operators.

To uncouple the cars, an operator at either side of the car may pull the weight 21 toward him into a horizontal position, and it will turn the link up edgewise into position to be disengaged when either car starts forward.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. The combination, in a car-coupling, of a draw-bar having a horizontal cross-opening, a slotted mouth with spiral lips, a weighted lever journaled in the draw-bar to the rear of the cross-opening and having a vertical-sided slot through its axis, the said slot having a vertically-narrow point and being wider beyond, and an arrow-headed link having side flukes midway and a shank flattened at its sides to engage the said slotted lever, substantially as described.

2. The combination, in car-couplings, of a draw-head having a horizontal cross-opening and vertically slotted through the walls both at the front and rear of said opening, a weighted lever journaled in the draw-head in line of the said slot and slotted to register therewith, and a link having an arrow-shaped head, a shank flattened on its vertical sides, and laterally-projecting flukes midway, substantially as described.

3. The combination, in car-couplings, of a draw-head having a cross-opening and a vertical slot-shaped mouth leading to the opening, the sides of the mouth being formed as oppositely-slanting or spiral lips in front and as square or acute-angled shoulders in the rear, and an arrow-headed link having lateral flukes midway, both head and flukes being adapted to engage the said shoulders, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL DONAHUE.

Witnesses:

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M. C. HILLYARD.