

(No Model.)

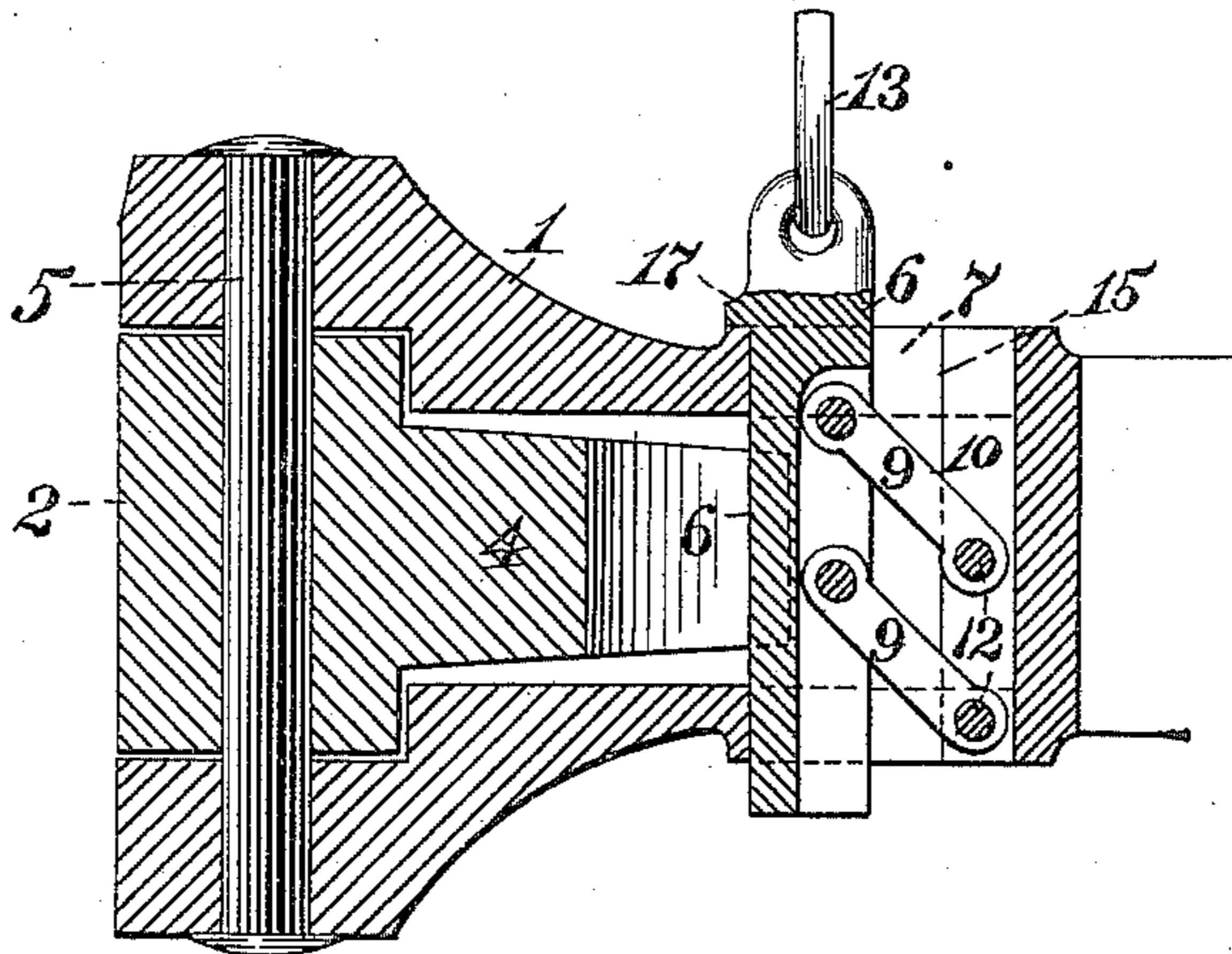
W. McCONWAY.  
CAR COUPLING.

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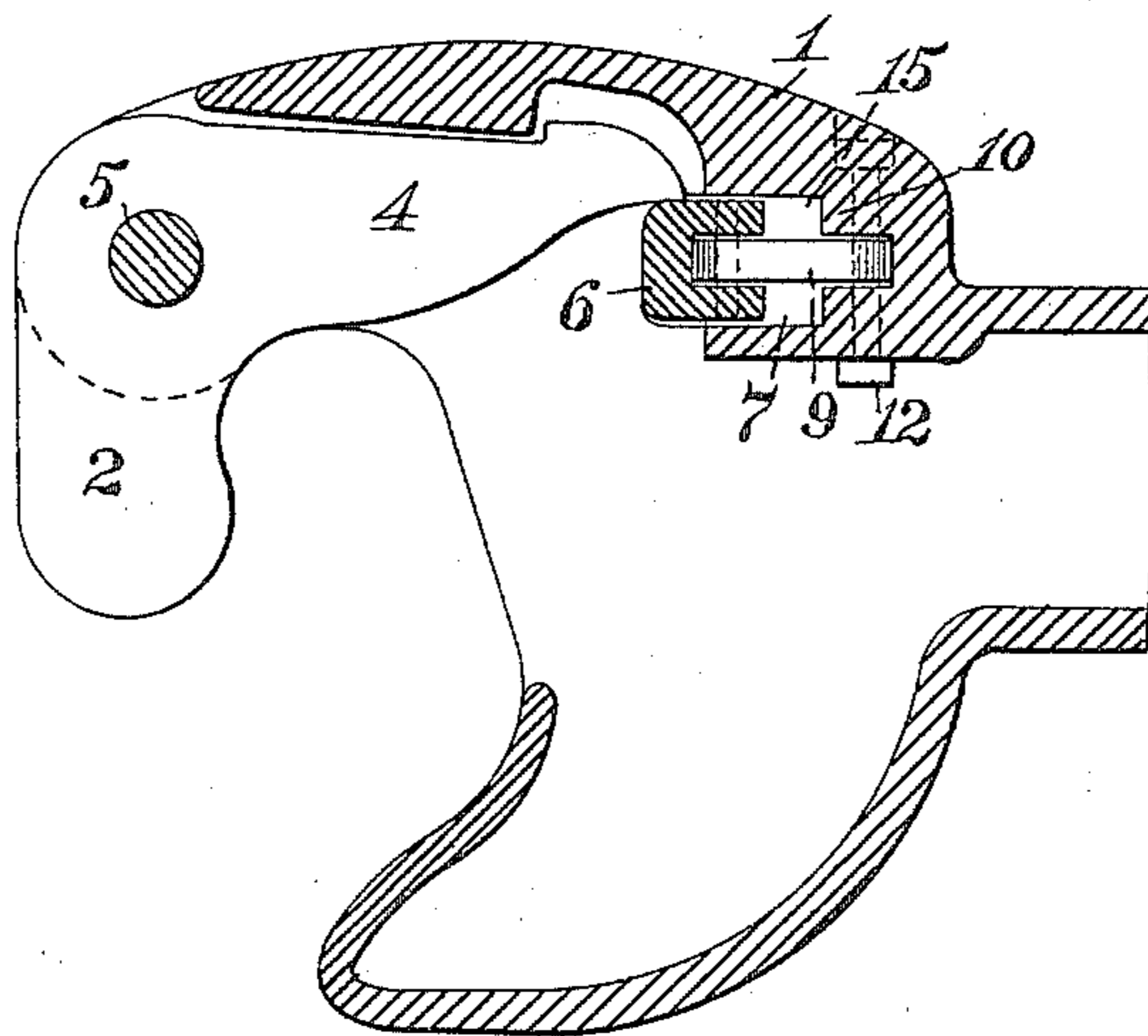
No. 446,602.

Patented Feb. 17, 1891.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

Darius S. Wolcott  
F. E. Gaither.

INVENTOR,

William McConway  
by George H. Christy  
Atty.

(No Model.)

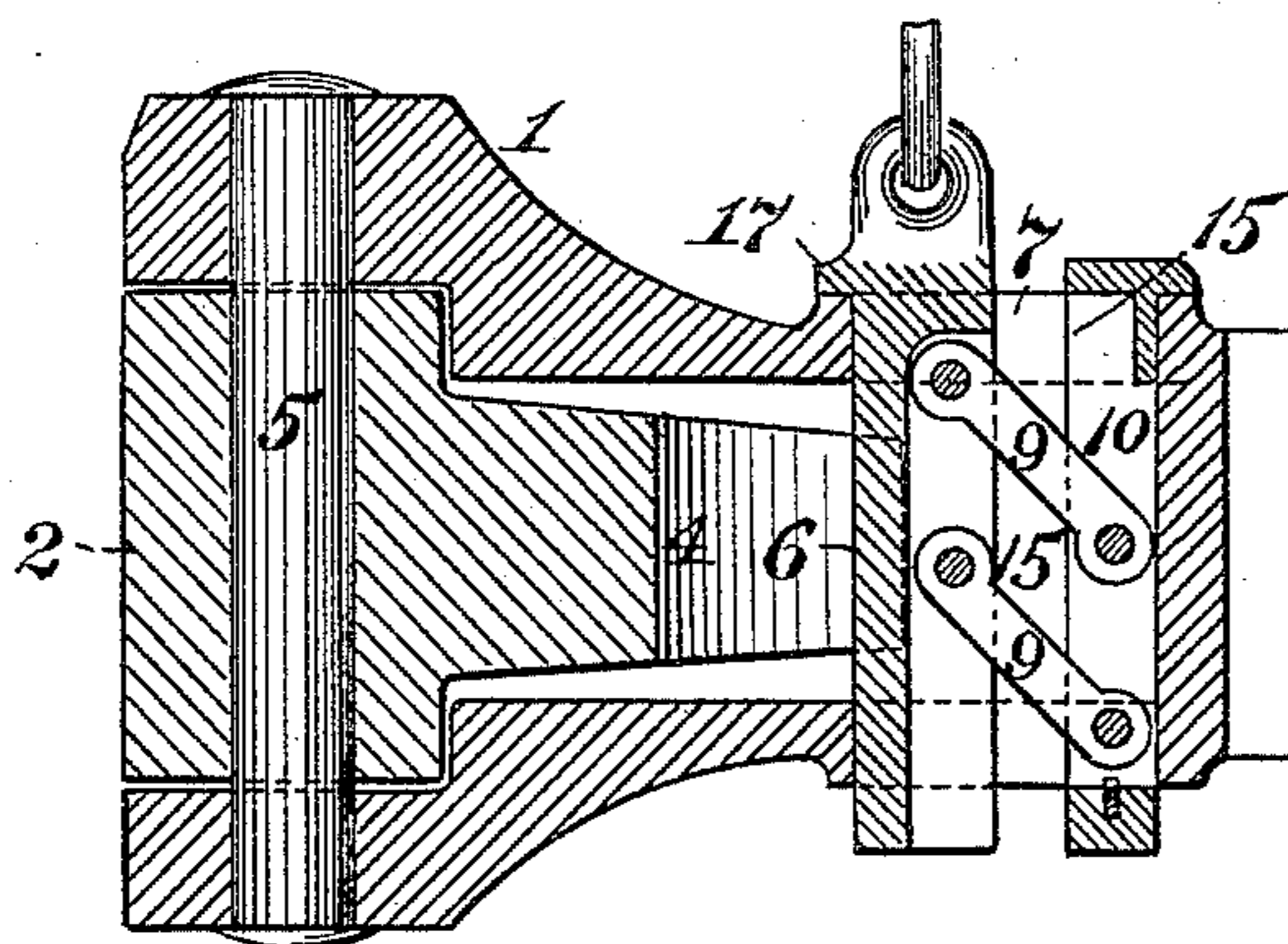
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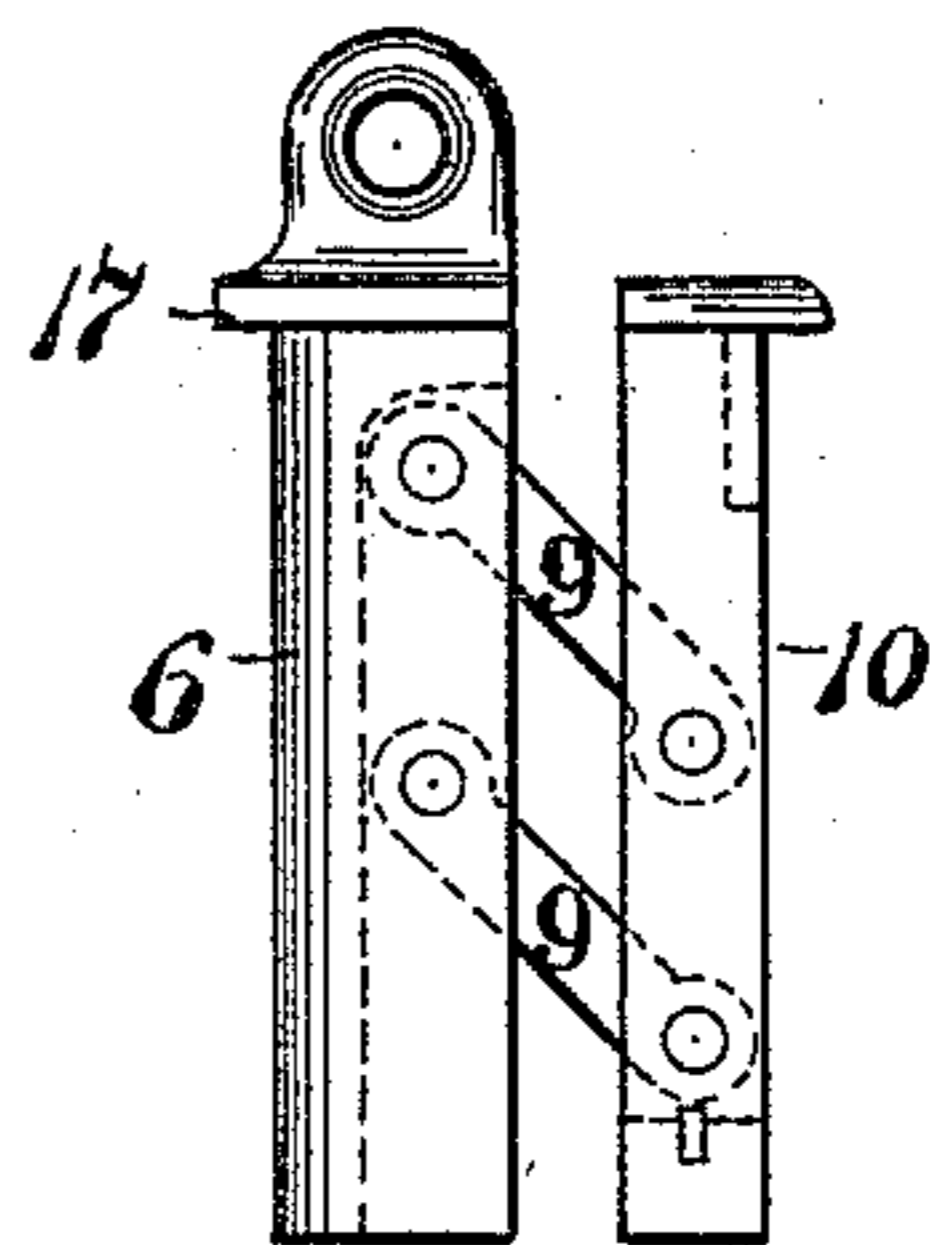
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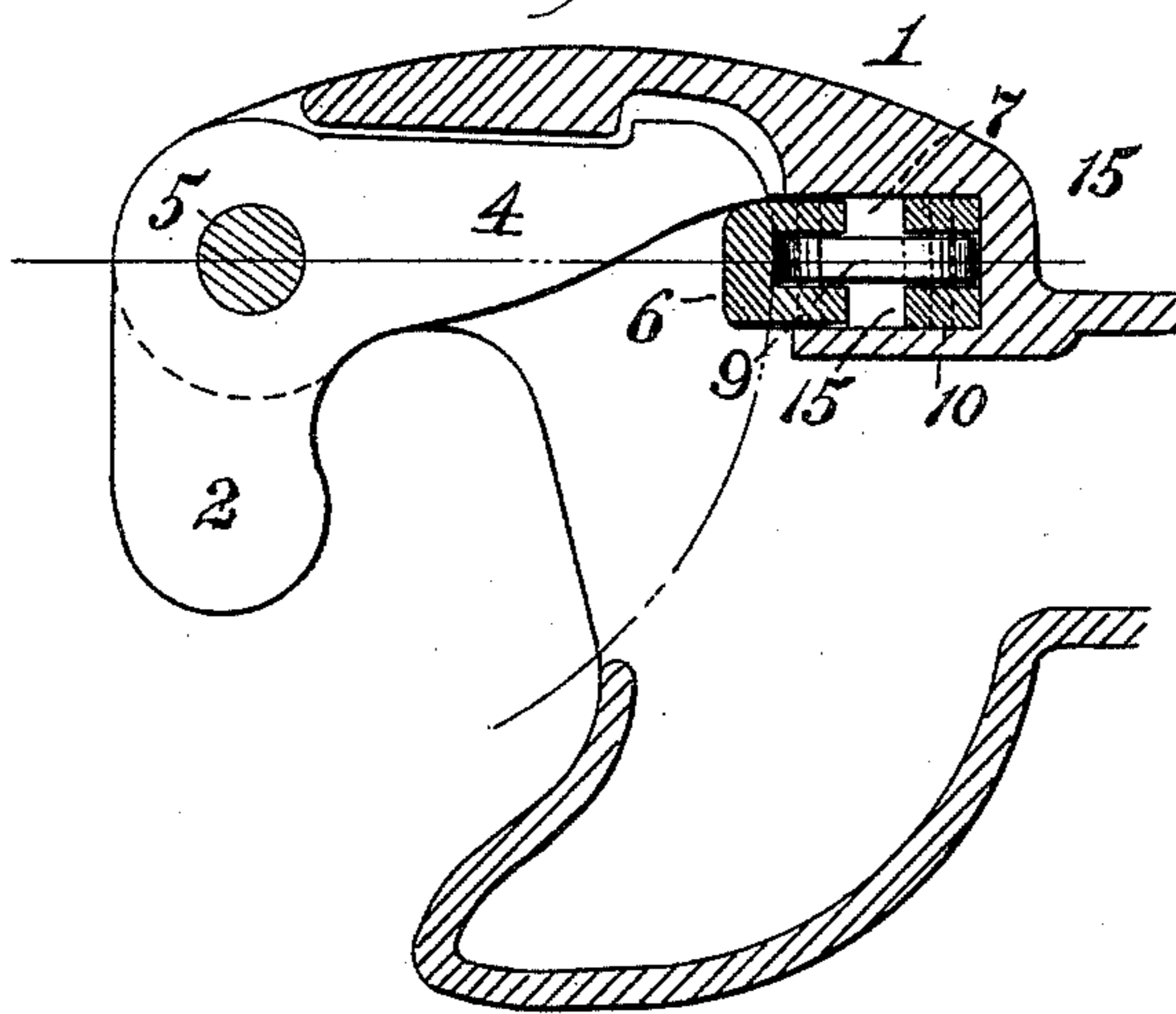
*Fig. 3.*



*Fig. 5.*



*Fig. 4.*



Witnesses  
Darius B. Wolcott  
F. E. Gaither.

William McConway Inventor  
By his Attorney George H. Christy

(No Model.)

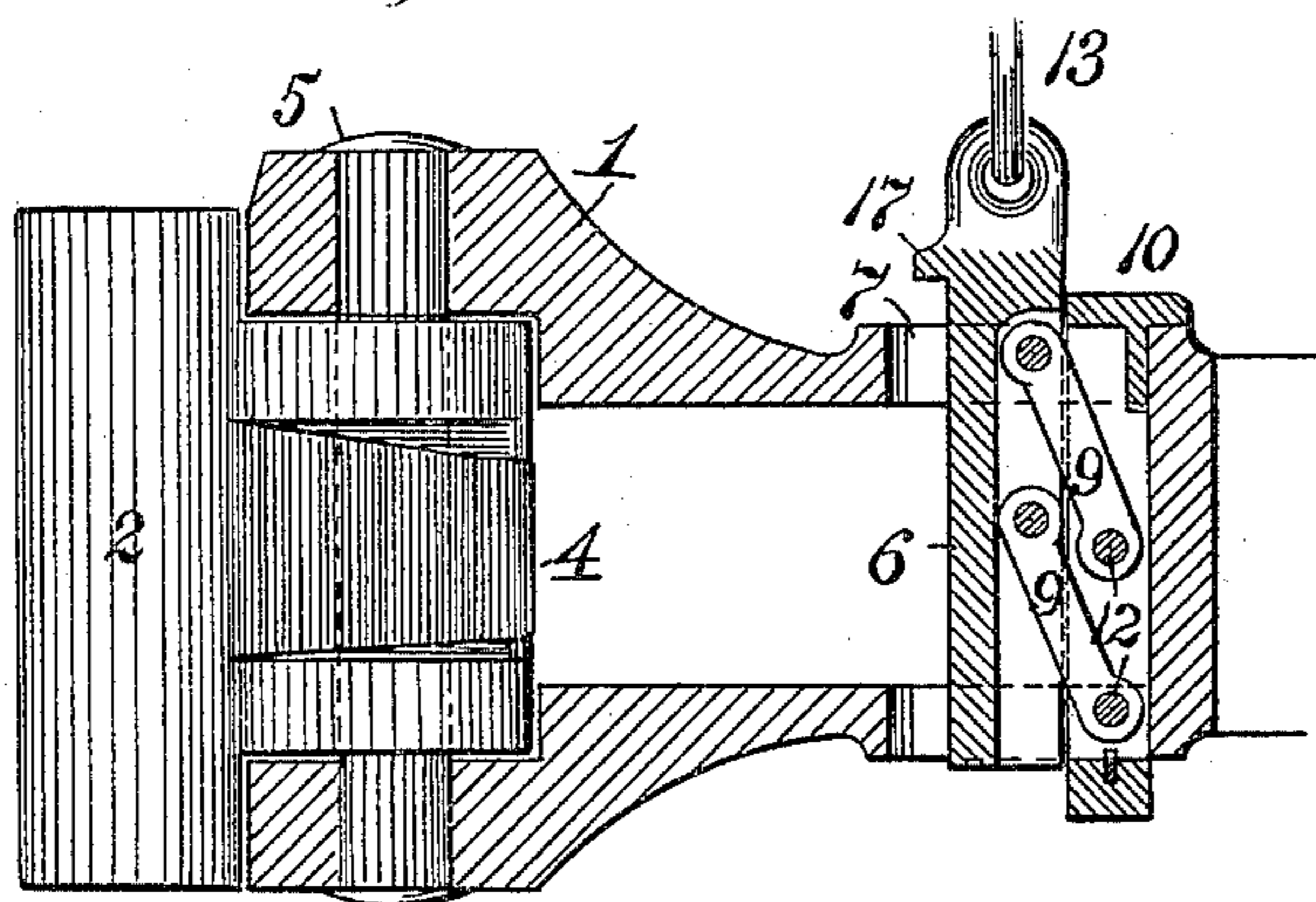
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W. McCONWAY.  
CAR COUPLING.

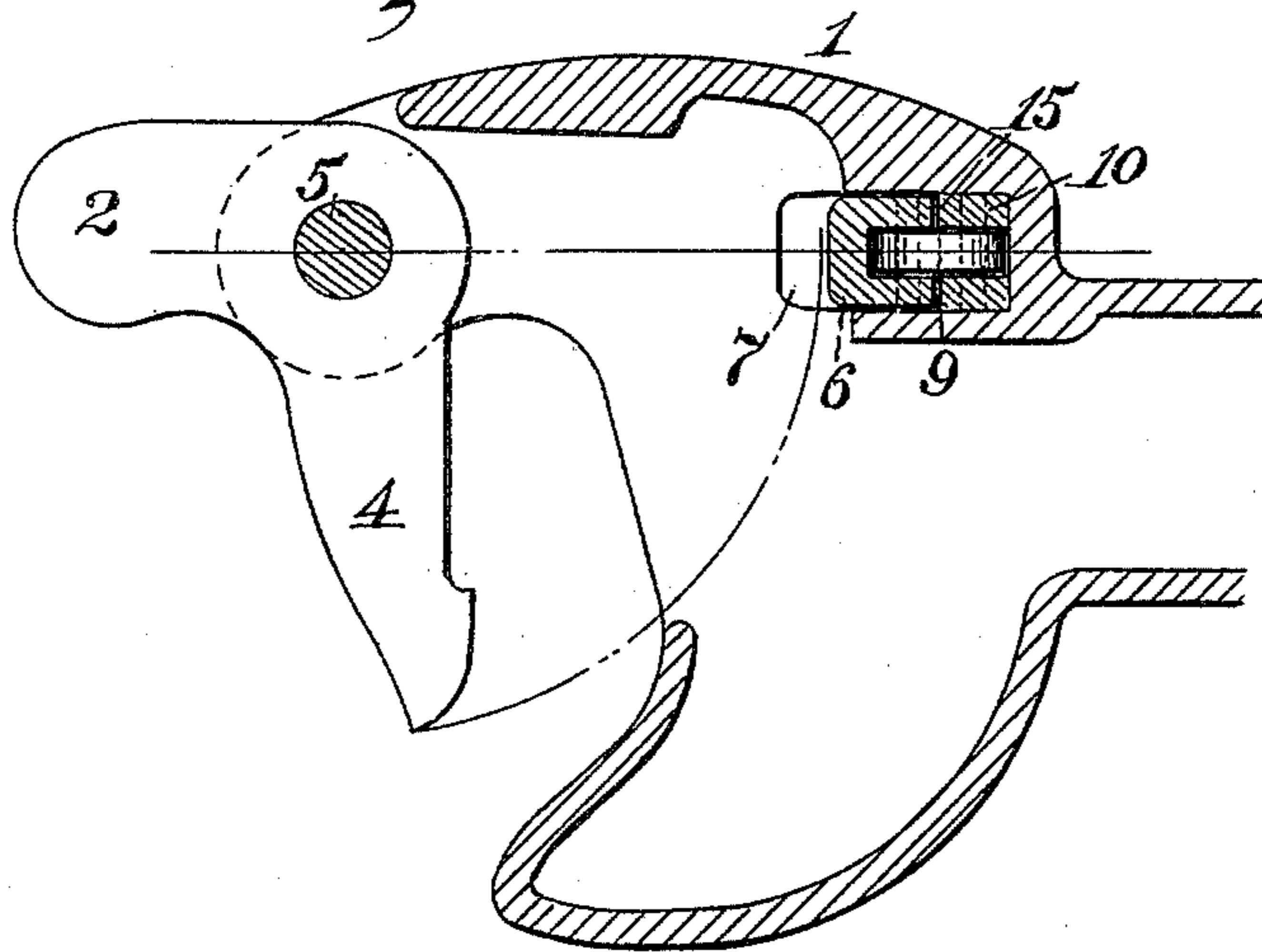
No. 446,602.

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*Fig. 6.*



*Fig. 7.*



Witnesses  
Samuel Wolcott  
F. C. Gaithen.

William McConway Inventor  
By his Attorney George N. Christy

# UNITED STATES PATENT OFFICE.

WILLIAM McCONWAY, OF PITTSBURG, PENNSYLVANIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 446,602, dated February 17, 1891.

Application filed October 23, 1890. Serial No. 369,121. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM McCONWAY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Car-Couplers, of which improvements the following is a specification.

My invention relates to improvements in that class of car-couplers in which the head of the coupler carries a pivoted hook formed with two branches, one of which engages or hooks with a similar branch on the coupling of the next car when coupled and the other of which is moved back into a recess formed in the interior of the head and locked in position by a locking device which holds the hook in the coupled position. The part of the hook with which the locking device engages is called the "lever-arm" or "tail-piece," and the object of my invention is to provide means for automatically locking the said lever-arm or tail-piece in the coupled position.

To this end my improvement consists of a locking-pin which is automatically movable into and out of the locking position, and which is simple in construction, not liable to get out of repair, and not liable to become jammed or bent.

In the accompanying drawings, which illustrate my improvement, Figure 1 is a vertical section of a car-coupler with my improved locking device, and Fig. 2 is a horizontal section of the same, both of these figures showing the hook and locking device in the coupled or locked position. Figs. 3 and 4 are views similar to Figs. 1 and 2, but showing a modification of the locking device. Fig. 5 shows the locking device of Figs. 3 and 4 detached. Fig. 6 is a vertical section of the modification shown in Figs. 3, 4, and 5 with the parts in the unlocked position. Fig. 7 is a horizontal section of the construction shown in Fig. 6 with the parts in the unlocked position.

The coupling-head 1 and hook 2 are of the usual or any well-known construction. The hook 2 is pivoted to the head by means of a pin 5 and an arm 4, called the "lever-arm" or "tail-piece," which, when the hook 2 is in the coupled position, is swung back into the interior of the coupler-head and locked there

by the locking-pin 6 for the purpose of holding the hook in the coupled position.

The locking pin or bar 6 is arranged to move in a vertical slot 7, formed in the coupler, and has pivoted to it the end of one or more links 9, the other end or ends of which are pivoted within the slot in rear of the pin to a part 10, which may be formed integral with the coupler-head, as shown in Figs. 1 and 2, or may be a separate piece secured in place, as shown in Figs. 3, 4, 5, 6, and 7.

The part 10, to which the links are pivoted at the back of the slot, forms a shoulder 15, against which the rear side of the pin strikes when moved upward and backward. The object of this shoulder is to prevent the pivot on the locking-pin from getting vertically over the fixed pivot at the lower end of the link or passing beyond the vertical and being caught there in such a manner as to prevent the pin from being moved downward by gravity.

When the pin is in the locking position, (shown in Figs. 1, 2, and 3,) it rests with its front edge against the forward side of the slot, and is held there by the inclined links, which are of such a length relatively to the length of the slot and the thickness of the locking-pin that they are always in an inclined position, the slot not being large enough to permit them to swing down to or below the horizontal position.

As shown in the drawings, the pin 6 may be provided with a shoulder 17 to rest on the upper side of the slot; but this may be dispensed with, as the connection of the pin with the links, as shown, will serve to hold it in position.

It will be seen in my improvement that as the links have a rotary motion about their pivot-pins 12 they give to the pin in moving it a vertical and a horizontal movement, and as this movement of the links is limited in one direction by the front side of the slot and in the other by the pin striking the front side of the shoulder 15, thereby limiting such movement to an angle somewhat less than ninety degrees, it will be seen that there is no danger of the locking-pin becoming jammed.

The manner in which the pin is connected to the links, and thereby to the coupler-head,

prevents the necessity of closely fitting the pin to the slot and permits it to be moved with little friction.

The pin 6 may be made somewhat longer than the vertical depth of the slot 7, so that when it is in the locked position its end projects below the coupler-head, and when in the unlocked position its end is just flush with the bottom of the coupler-head. The back of the locking-pin may be hollowed out, as shown, to receive the ends of the links, or the links may be connected outside of the pin on its back face.

In order that the lever-arm or tail 4 may act properly in moving the locking-pin when being swung into the coupled position, it is formed with a curved or cam-like surface on its end, and the locking-pin is also formed on its front edge in such a manner that the contact of the lever-arm or tail with it tends to push it backward, the links 9 at the same time lifting it into a position from which it is returned by gravity after the end of the lever-arm or tail has passed it. This return movement of the pin locks the lever-arm in the coupled position.

In order to unlock the lever-arm, the pin 6 is lifted by the links 13, either by hand or by means of uncoupling mechanism connected to the link 13.

My improvement is simple in construction, both in regard to the locking-pin and its connected parts and in the formation of the slot in which those parts are fitted. This slot 7, it will be seen, is a simple vertical slot through the coupler-head, with parallel vertical sides and without shoulders or offsets of any kind which would cause it to be difficult to make or to fit. The pin 6 is as simple in construction as the slot, and is formed with vertical parallel sides, which have no bearing against the slot except at the two ends, where it rests when at the two limits of its movement, except in so far as it is loosely guided by the parallel sides of the slot in moving from one position to the other. There are no inclined surfaces or edges against which it must rub and on which it must ride in changing its position, the path of its motion being determined entirely by its connection with the links 9, which move with comparatively little friction and permit it to drop into the locking position with little more resistance than it would have in dropping freely through space.

I claim herein as my invention—

1. The combination, in a car-coupler, of a swinging hook and a vertical locking-bar which is pivotally connected to the coupler-

head so as to be capable of vertical and backward motion, while retaining its vertical position in its unlocking movement, substantially as set forth.

2. The combination, in a car-coupler, of a coupling-hook and a locking-pin pivotally connected to a fixed portion of the coupler and adapted by its connection with the coupler to be moved in a vertical plane backward and upward from the locking position and automatically returned to the locking position by gravity when released, said pin being always in a vertical position, substantially as set forth.

3. The combination, in a car-coupler, of a coupling-hook and a locking-pin which is connected to the coupler by means of one or more links in such a manner that any backward motion of the locking-pin from locking position produces a corresponding upward motion, substantially as set forth.

4. The combination, in a car-coupler, of a coupling-hook, a locking-pin for holding the coupling-hook in the coupled position, and links connecting the locking-pin to the coupler-head in such a manner that the locking-pin is constrained to move in a vertical plane, substantially as set forth.

5. The combination, in a car-coupler, of a pivoted coupling-hook, a locking-pin for locking the coupling-hook in the coupled position, and a link-connection between the locking-pin and the coupler-head by which the locking-pin is constrained to move in a vertical plane and to retain at all times a vertical position, substantially as set forth.

6. The combination, in a car-coupler, of a coupling-hook, a locking-pin for engaging with a part of the hook to lock it in the coupled position, and a link-connection between the locking-pin and the coupler-head, adapted to guide the locking-pin and so arranged that when the locking-pin has been moved from the locking position and released it is always in a position to be returned to the locking position by gravity, substantially as set forth.

7. The combination, in a car-coupler, of a pivoted coupling-hook, a locking-pin with straight vertical sides, and a vertical slot in which the pin is swung by a link-connection which connects it to the coupler-head, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM MCCONWAY.

Witnesses:

DARWIN S. WOLCOTT,  
R. H. WHITTLESEY.