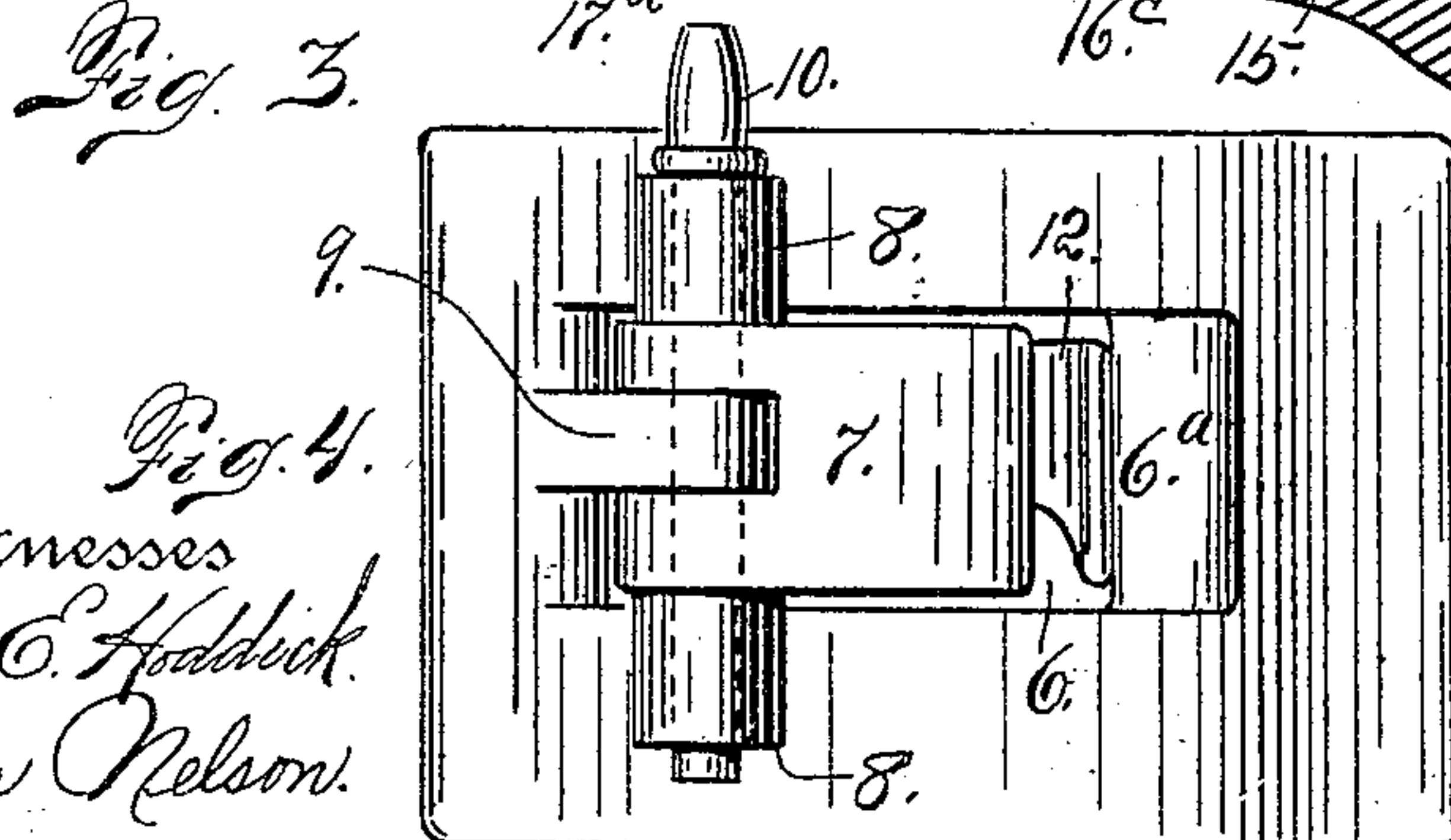
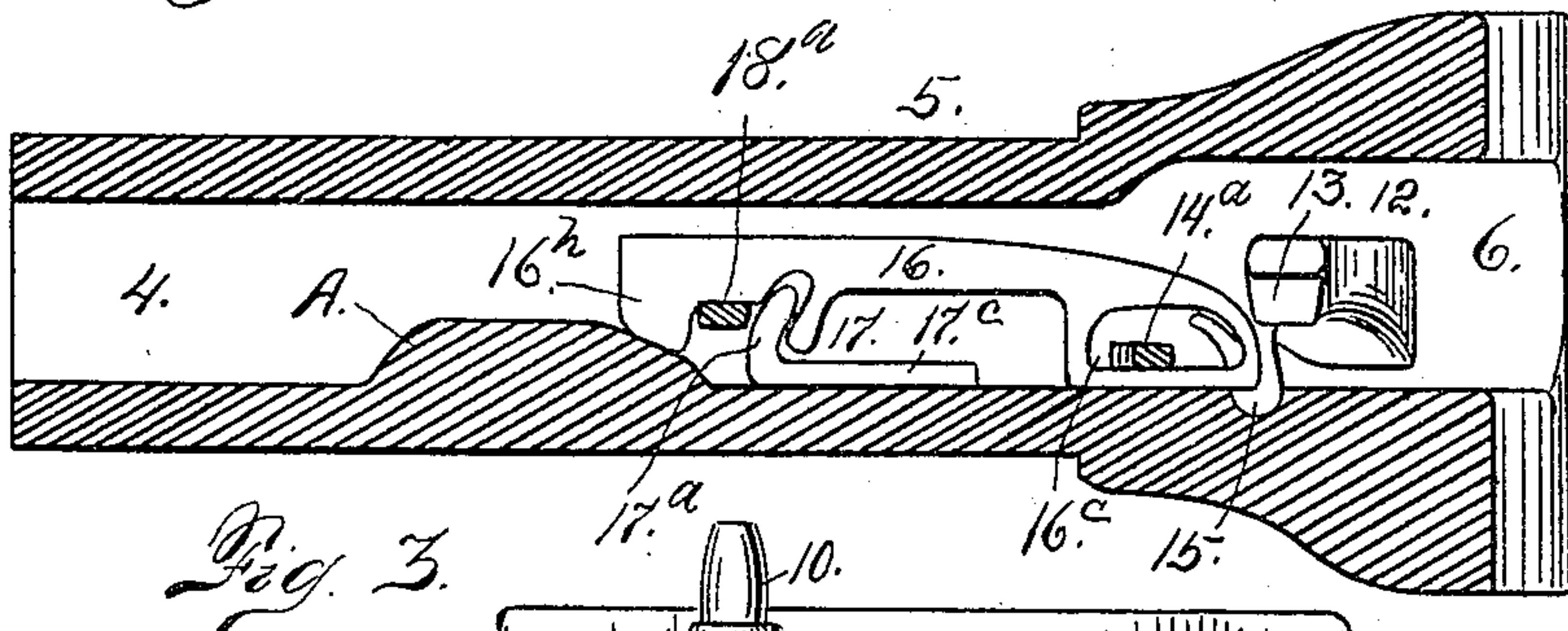
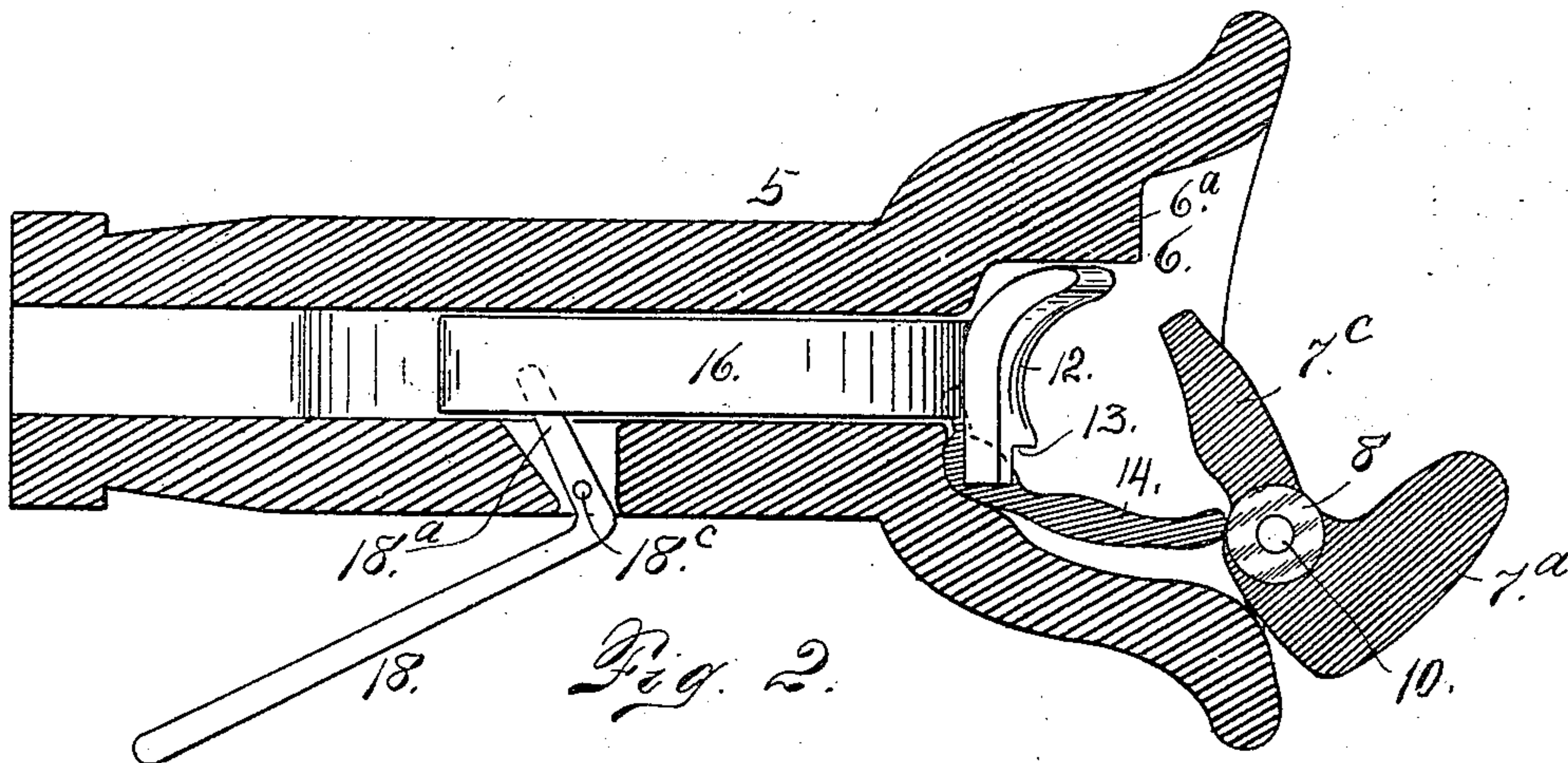
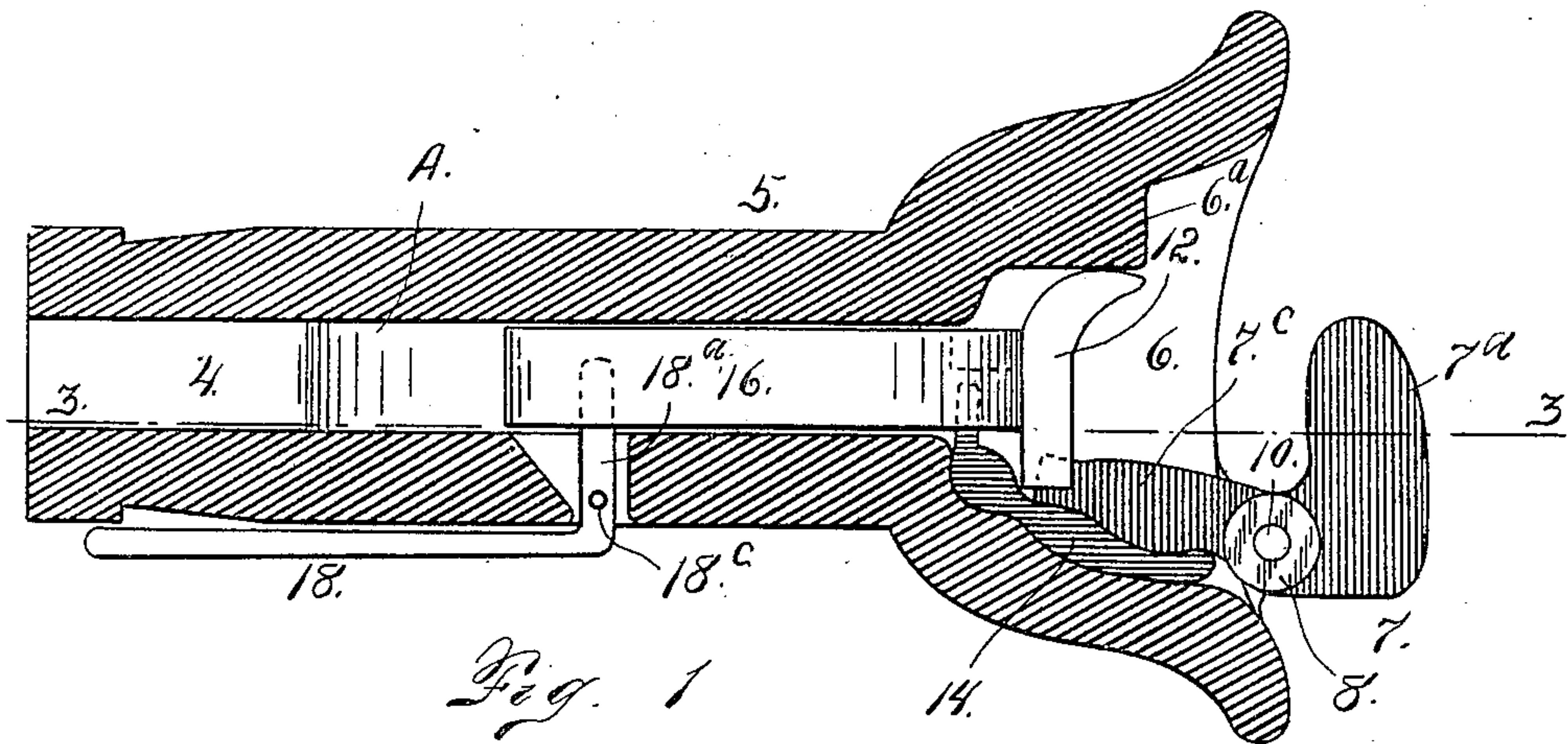


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CAR COUPLING.

APPLICATION FILED JAN. 3, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

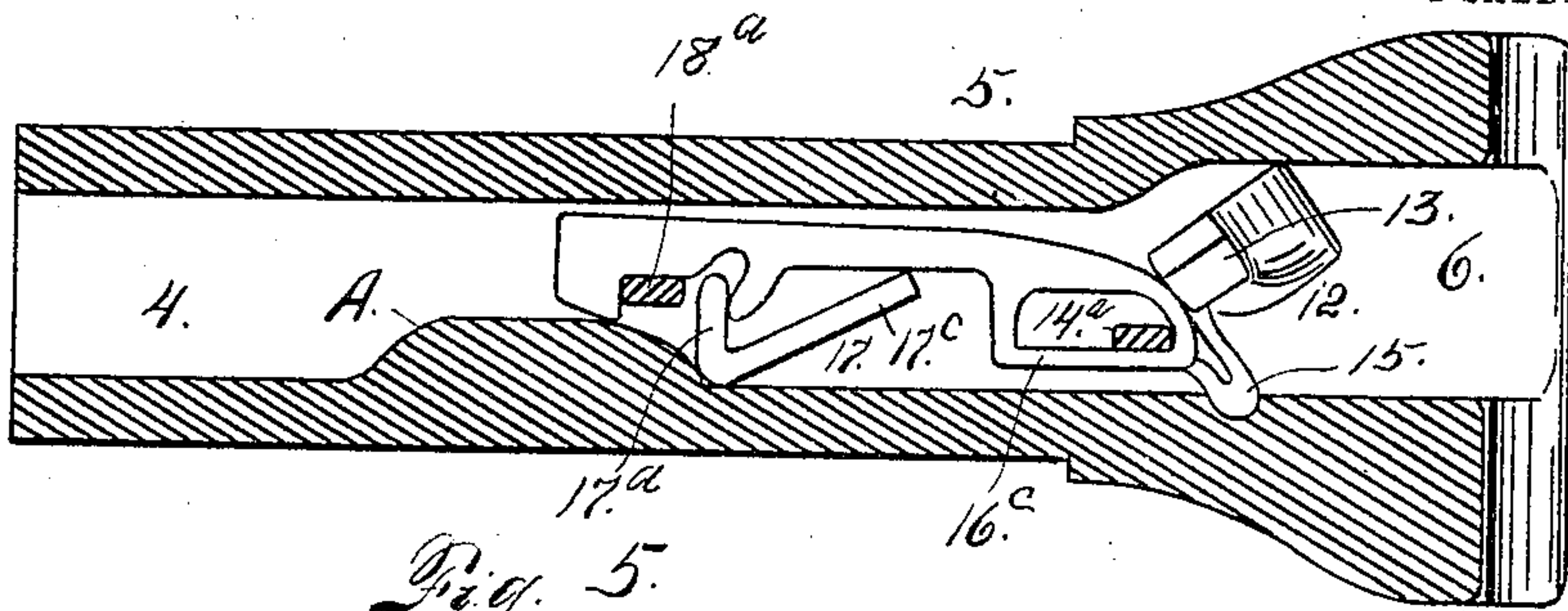


Fig. 5.

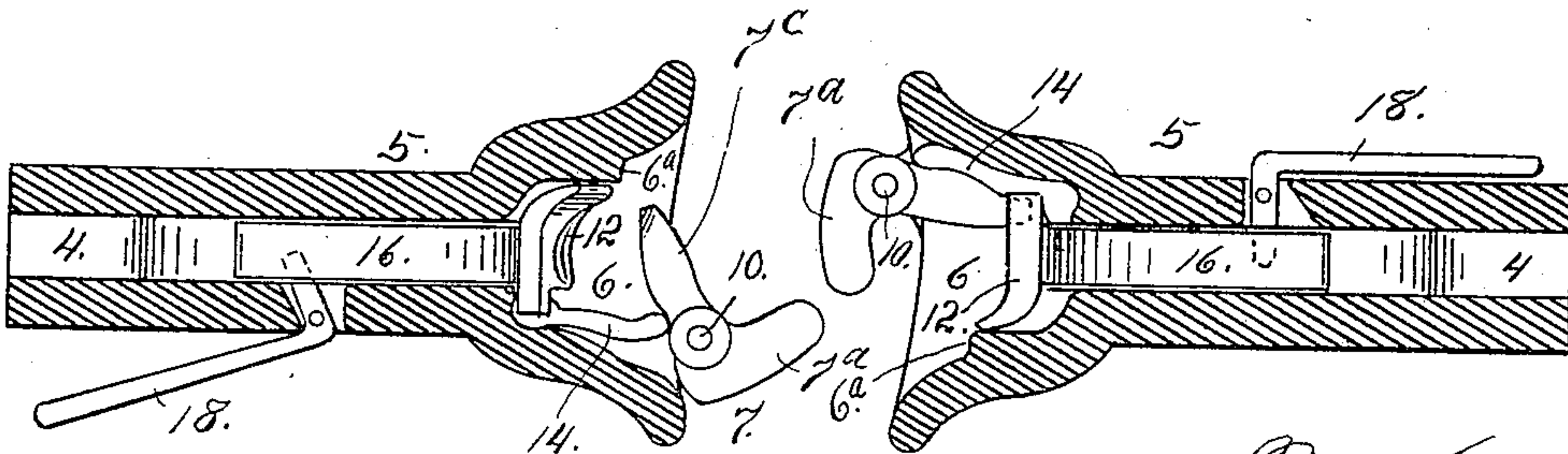


Fig. 6.

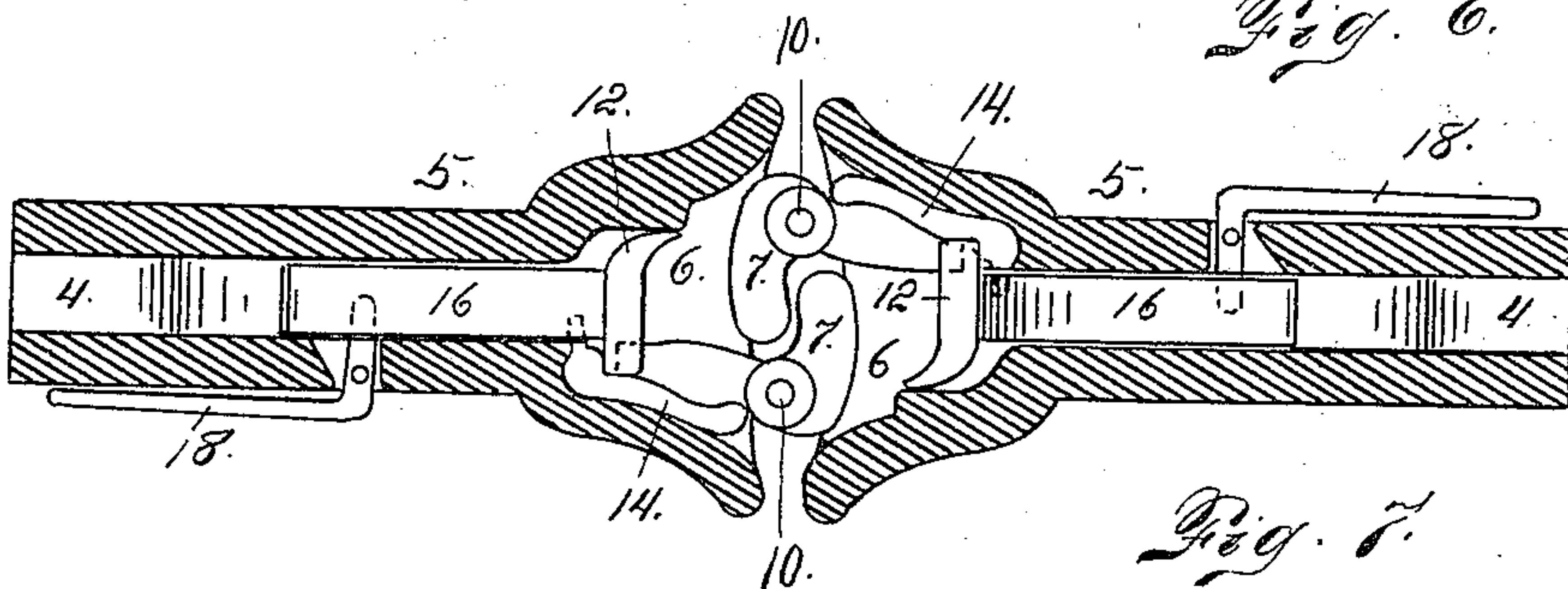


Fig. 7.

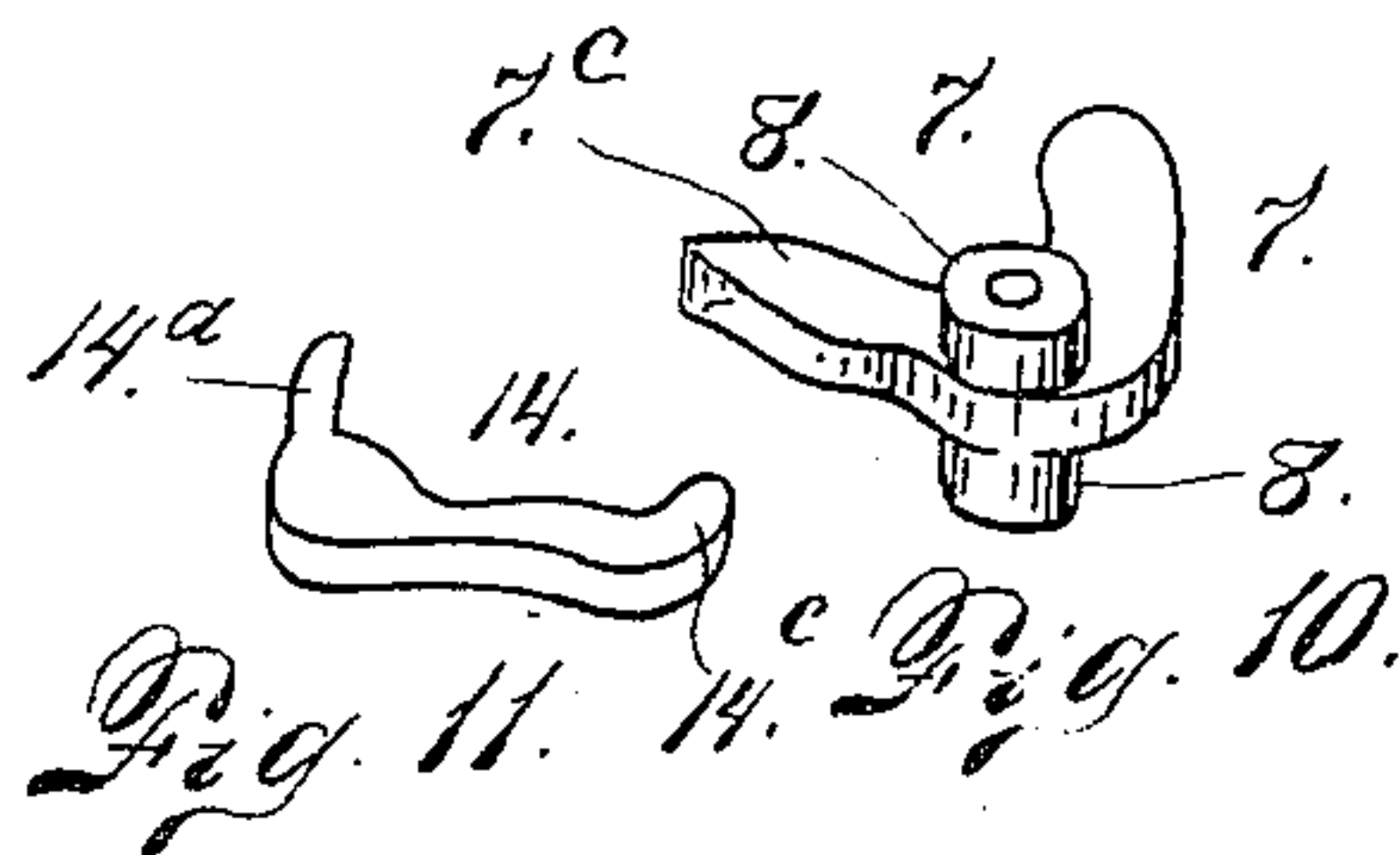


Fig. 10.

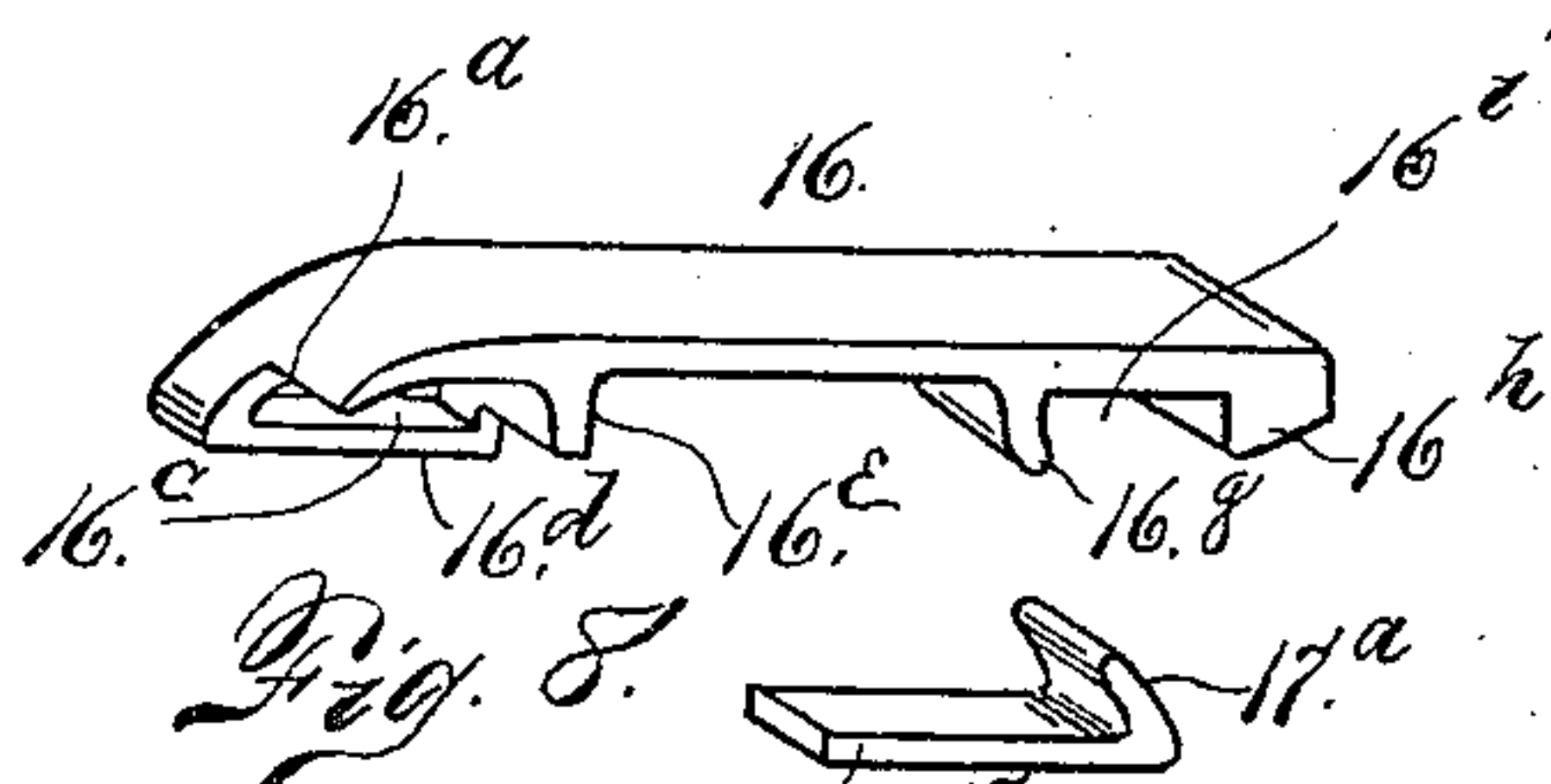


Fig. 8.

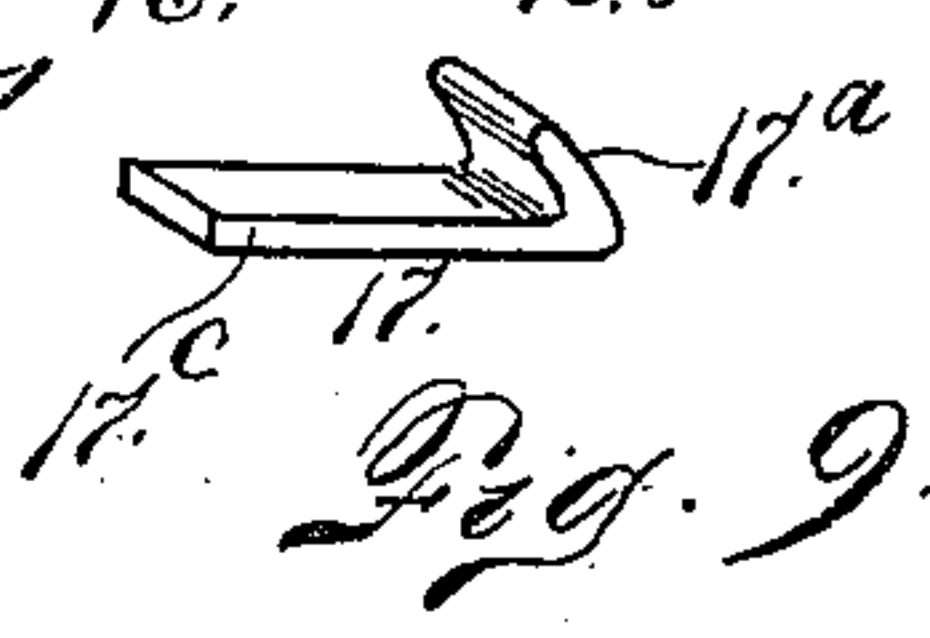


Fig. 9.

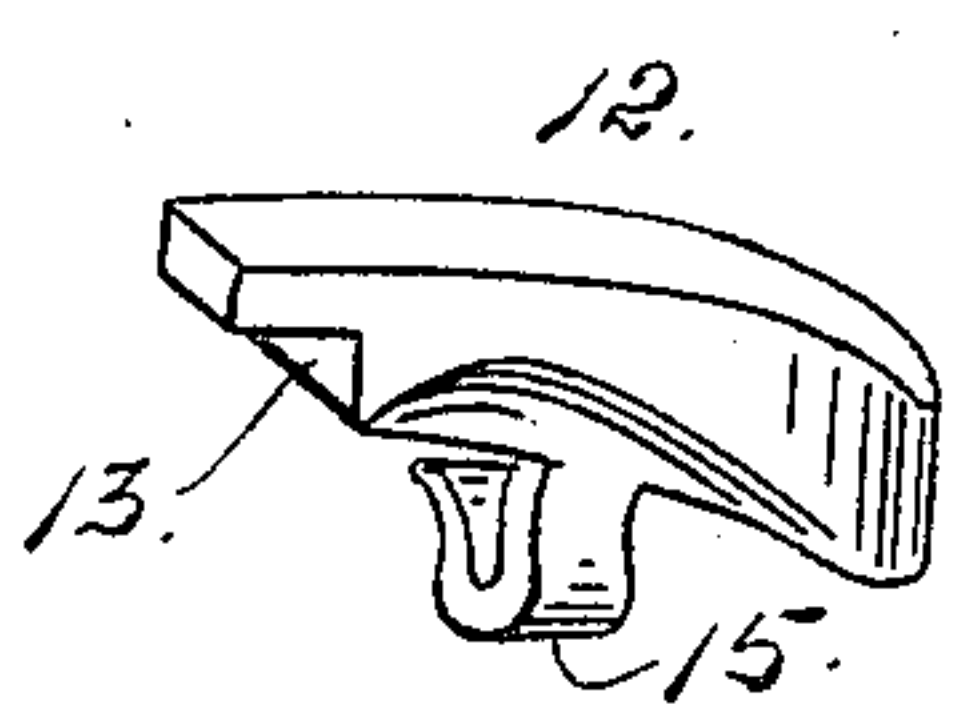


Fig. 12.

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# UNITED STATES PATENT OFFICE.

LLEWELLYN V. H. BURNELL, OF DENVER, COLORADO.

## CAR-COUPLING.

No. 801,438.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed January 3, 1905. Serial No. 239,433.

*To all whom it may concern:*

Be it known that I, LLEWELLYN V. H. BURNELL, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Car-Couplers; and I do 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in car-couplers, my object being to provide a device of this class which shall be simple in construction, economical in cost, reliable, durable and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a horizontal section taken through a draw-head equipped with my improvements, the mechanism within the draw-head being shown in plan view with the parts in the coupled position. Fig. 2 is a similar section showing the parts in the uncoupled position or in a position ready for coupling. Fig. 3 is a section taken approximately on the line 3-3, Fig. 1, the locking device, however, being shown in elevation. Fig. 4 is a front end view of the draw-head equipped with my improvements. Fig. 5 is a section of the draw-head similar to Fig. 3, but with the parts in the uncoupled position. Fig. 6 is a horizontal section taken through two draw-heads with the parts shown in position for coupling. Fig. 7 is a similar view showing the draw-heads coupled. Figs. 8, 9, 10, 11, and 12 are detail views of the different elements of the coupler.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the draw-head, having an enlarged front opening 6 and reduced longitudinal opening 4 extending rearwardly therefrom. Connected with the forward extremity of the draw-head and at one side thereof is a coupling device 7, having knuckles 8 formed integral therewith and extending both above and below the openings 6, whereby they have a bearing upon the

draw-head. The coupling device is slotted to receive an eye 9, formed on the body of the draw-head, so that when the coupling device is in position the openings of the knuckles register with the opening of the eye. A pin 10 connects the coupling device with the draw-head. The coupling device 7 has two parts 7<sup>a</sup> and 7<sup>c</sup> extending approximately at right angles to each other, being similar in shape to a bell-crank lever. The part 7<sup>a</sup> of the coupling device projects outside of the draw-head, while the part 7<sup>c</sup> extends into the recess 6 thereof. When in the coupled position, the coupling device is locked in place by a latch 12, having a notch 13, which when in the position shown in Fig. 1 engages the rear extremity of the part 7<sup>c</sup> of the coupling device, thus preventing the latter from turning or assuming the uncoupled position. When the coupling device is thus locked, the vertical face of the notch 13 engages the adjacent face of the part 7<sup>c</sup> of the coupling device, thus locking the latter, as before stated.

The latch 12 is provided with a hook 15, which is engaged by the part 16<sup>a</sup> of a plate 16, which occupies a position in the forward portion of the longitudinal opening 7 of the draw-head. One side of the forward extremity of the plate 16 is provided with an opening 16<sup>c</sup>, which is closed at the bottom by a part 16<sup>d</sup>. Into the opening 16<sup>c</sup> projects one extremity 14<sup>a</sup> of a finger 14, being a device of irregular shape occupying a position in one side of the forward recess of the draw-head. This feature is best illustrated in Fig. 11. Its forward extremity 14<sup>c</sup> engages the part 7<sup>c</sup> of the coupling device. This finger acts to throw the coupling device to the uncoupled position when the plate 16 is pulled rearwardly, as hereinafter explained. The plate 16 is provided with three depending parts 16<sup>e</sup>, 16<sup>g</sup>, and 16<sup>h</sup>. The part 16<sup>e</sup> is immediately in the rear of the opening 16<sup>c</sup> and closes the rear extremity of said opening. The part 16<sup>d</sup> is connected with this lug 16<sup>e</sup>. The lugs or projections 16<sup>g</sup> and 16<sup>h</sup> form a part of the rear portion of the plate, leaving a recess 16<sup>i</sup> between them. Into the forward portion of this recess 16<sup>i</sup> projects the hook-shaped extremity 17<sup>a</sup> of a small lifting-plate 17, which is located within the opening 7 of the reduced part of the draw-head and engages the lower wall of said opening. The part 17<sup>c</sup> of this lifting-plate extends forwardly, as shown in the assembled views. Into the rear portion



of the recess 16<sup>i</sup> projects an arm 18<sup>a</sup> of an unlocking lever 18, which is pivotally connected with the draw-head, as shown at 18°.

From the foregoing description the use  
 5 and operation of my improved device will be readily understood. Assuming that the parts are in the position shown in Fig. 1, if it is desired to throw them to the uncoupled position, or that shown in Fig. 2, the outer arm  
 10 of the lever 18 is pulled outwardly and its arm 18<sup>a</sup> thrown rearwardly, thereby acting on the plate 16 to give the latter a corresponding movement. As the plate 16 moves rearwardly it raises the locking-latch 12 sufficiently to release the coupling device, and  
 15 at the same time the rearward movement of the plate 16 acts on the part 14<sup>a</sup> of the finger 14, causing its extremity 14° to throw the coupling device to the uncoupled position, or  
 20 to the position shown in Fig. 2 of the drawings and at the left of Fig. 6 thereof. Furthermore, as the plate 16 is moved rearwardly its depending part 16<sup>e</sup> acts on the hook-shaped extremity 17° of the part 17 to throw the forwardly-extending part 17° of the said part  
 25 upwardly. The plate 16 is thus raised to the position shown in Fig. 5, whereby the forward extremity of said plate rests on the upper part of the hook 15, and the gravity of the  
 30 plate holds the latch 12 in the unlocked position. Now assuming that it is desired to couple two cars equipped with my improvement the mechanism of the draw-heads of these cars should be in the position shown in Fig. 6—  
 35 that is to say, one should be in the unlocked position, (shown in Fig. 2 and at the left of Fig. 6,) while the other should be in the locked position, as shown at the right of Fig. 6. Then as the two cars come together the part  
 40 7<sup>a</sup> of the coupling device of the car on the right will engage the part 7° of the coupling device of the car on the left and throw the coupling device 7 of the left-hand car to the locking position, causing the coupling devices  
 45 of the two draw-heads to interlock, as shown in Fig. 7. During the movement of the part 7° of the coupling device on the left inwardly to the coupling position it acts on the finger 14 to throw the part 14<sup>a</sup> of the finger rearwardly, thus giving a corresponding movement  
 50 to the plate 16, whereby the locking-latch 12 is allowed to assume by gravity the locking position, or the position in which its notch 13 engages the rear extremity of the  
 55 part 7° of the coupling device. Now if it is desired to uncouple the cars the coupling mechanism of the one draw-head or the other is thrown to the position indicated in Fig. 2 and at the left of Fig. 6, when the cars may  
 60 be separated, as will be readily observed. The only requirement in uncoupling is to throw the lever 18 to the position shown in Fig. 2 and at the left of Fig. 6. In further explanation of the operation of the unlocking  
 65 mechanism attention is called to the fact that

the draw-head is provided on its lower wall with a projection A, whose forward extremity is slightly in the rear of the part 17 when the parts are in the locked position. However,  
 as the plate 16 is moved rearwardly, the part 70 17 slides with it until the latch 12 is raised sufficiently to unlock the coupling device 7. When this occurs, the part 17 has reached the forward extremity of the projection A and its rearward movement ceases. Then as the part 75 16 is moved farther toward the rear the part 17 is tilted sufficiently to throw its forward extremity 17° upwardly against the under surface of the plate, whereby the latter is lifted  
 80 to cause its forward extremity to rest on the upper end of the hook 15, as shown in Fig. 5, whereby the gravity of the plate holds the latch in the unlocked position until the plate is again moved forwardly, as heretofore explained.  
 85

Attention is called to the fact that the locking-latch 12 engages the wall of the draw-head at one extremity, whereby it is locked against lateral movement in response to the pressure of the part 7° of the coupling device  
 90 when the cars are coupled. The part of the draw-head engaged by the latch is designated 6<sup>a</sup> in the drawings. This part forms a projection extending into the forward recess of the draw-head.  
 95

Having thus described my invention, what I claim is—

1. The combination with a draw-head, of a coupling device pivotally connected with the forward extremity of the draw-head and having  
 100 knuckles engaging the upper and lower walls of the draw-head in front, the coupling device being hook-shaped and having one arm projecting into the front of the draw-head  
 105 when in the coupled position, a gravity locking-latch engaging the inner arm of the coupling device to lock the latter in the coupled position, a finger also engaging said arm, a plate extending rearwardly of the latch and  
 110 finger but connected with both, and means for moving the said plate rearwardly in the draw-head, substantially as described.

2. In a car-coupler, the combination with a draw-head, of a coupling device pivotally mounted thereon and having one arm extending  
 115 into the forward end of the draw-head, a locking-latch engaging said arm, a finger also engaging the arm, a plate extending rearwardly of the latch and finger but connected with both, and means for moving the said plate  
 120 rearwardly in the draw-head, the connection between the plate, the latch and the finger being such that the rearward movement of the plate raises the latch and causes the forward  
 125 extremity of the finger to act on the coupling device to throw the latter to the uncoupled position.

3. The combination with a draw-head, of a pivoted coupling device having one extremity projecting into the draw-head, a gravity lock-  
 130



ing-latch engaging the inwardly-projecting arm of the coupling device, the said latch having an upwardly-projecting hook, a finger located between the inwardly-projecting arm of the coupling device and the wall of the draw-head, a plate located in the draw-head and whose forward extremity engages the hook of the locking device, the said plate having an opening into which the rear extremity of the finger passes, and means for moving the said plate rearwardly for the purpose set forth.

4. The combination with a draw-head, of a coupling device pivotally mounted thereon, and having an inwardly-projecting arm, a finger engaging said arm, a locking device engaging the arm on the opposite side from the finger, the locking device having a hook, a plate located in the rear of the finger and locking device, its forward extremity engaging the hook and being provided with an opening to receive the rear extremity of the finger, a hook-shaped device located below the plate and engaging a depending part with which the latter is provided, and a lever pivotally mounted on the draw-head and having one arm engaging the rear extremity of the plate whereby as the lever is actuated, the locking

device is raised, the forward extremity of the finger actuated to throw the coupling device to the uncoupled position, and the hook-shaped device underneath the plate, thrown to such a position as to raise the plate to cause the latter to hold the locking device in the unlocked position.

5. The combination with a draw-head, of a coupling device having an inwardly-projecting arm, a locking device engaging said arm, a finger engaging the arm on the opposite side from the locking device, an unlocking plate movable longitudinally in the draw-head and whose forward extremity engages the locking device together with the rear extremity of the finger, a lifting device located below the plate and actuated thereby, and a lever pivotally mounted on the draw-head and having an inwardly-projecting arm engaging the plate to move the latter longitudinally for the purpose set forth.

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

LLEWELLYN V. H. BURNELL.

Witnesses:

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A. J. O'BRIEN.