

No. 708,681.

Patented Sept. 9, 1902.

C. A. TOWER.
CAR COUPLING.

(Application filed Nov. 15, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 4.



Fig. 5.

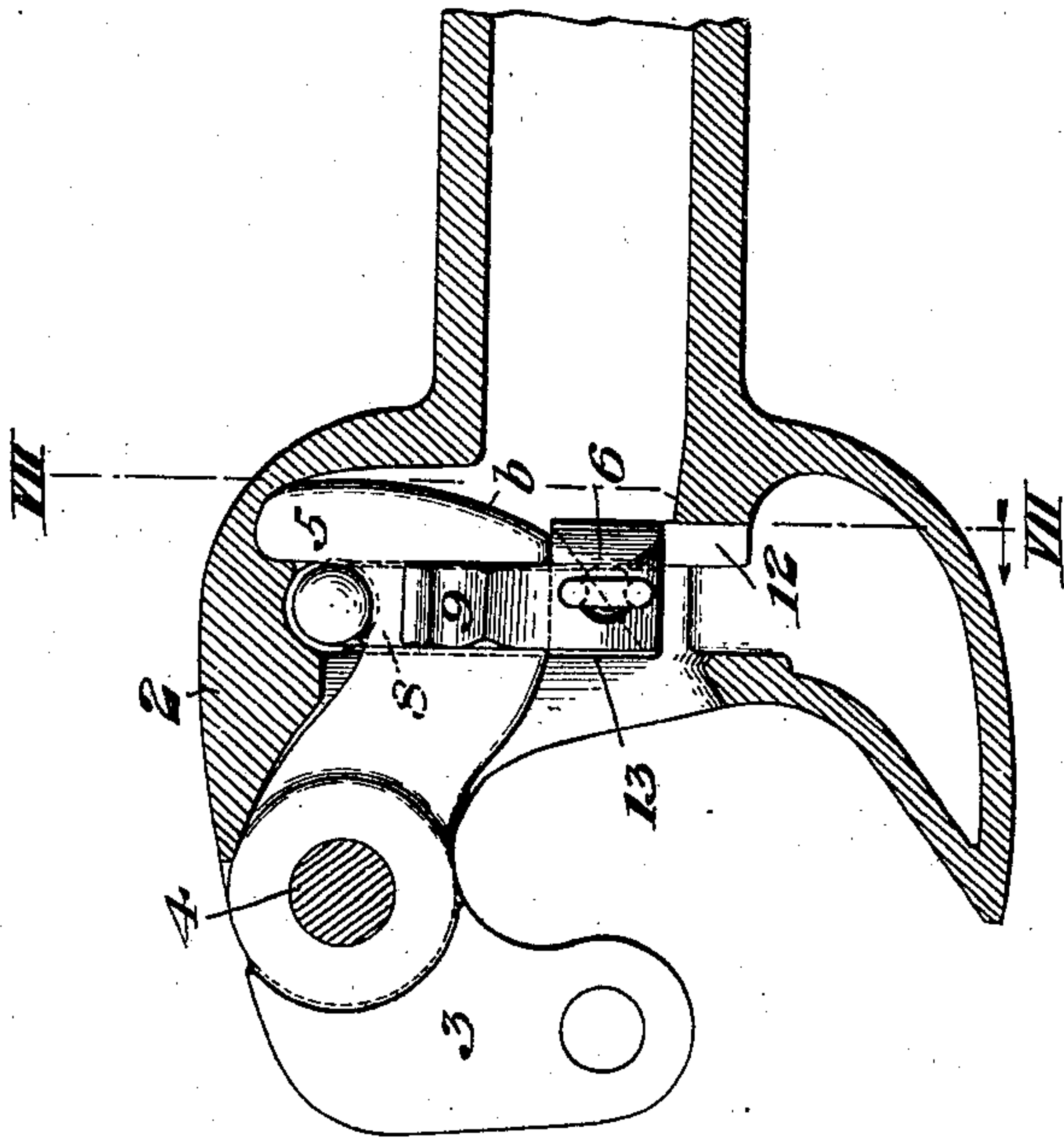


Fig. 1.

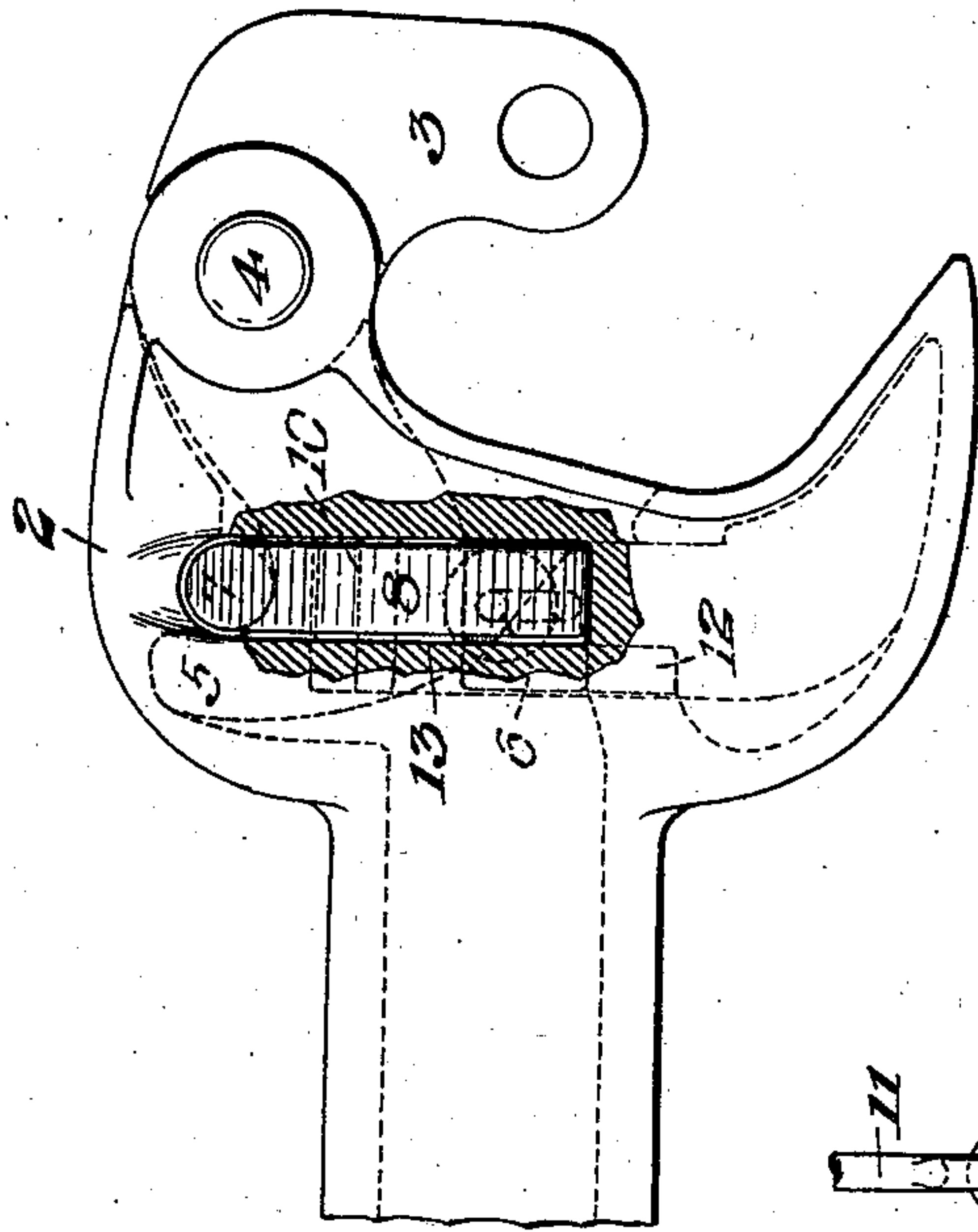
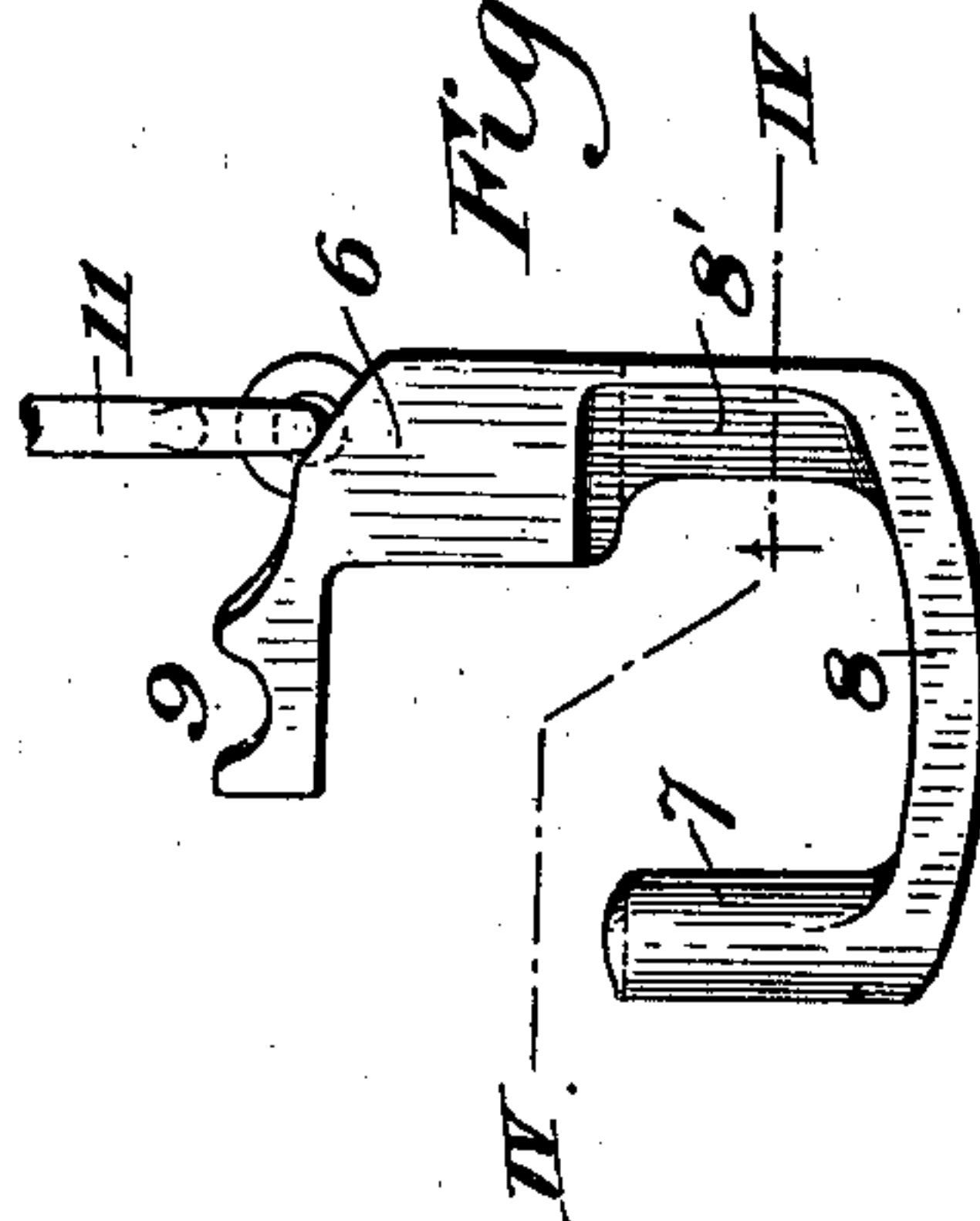


Fig. 3.



WITNESSES

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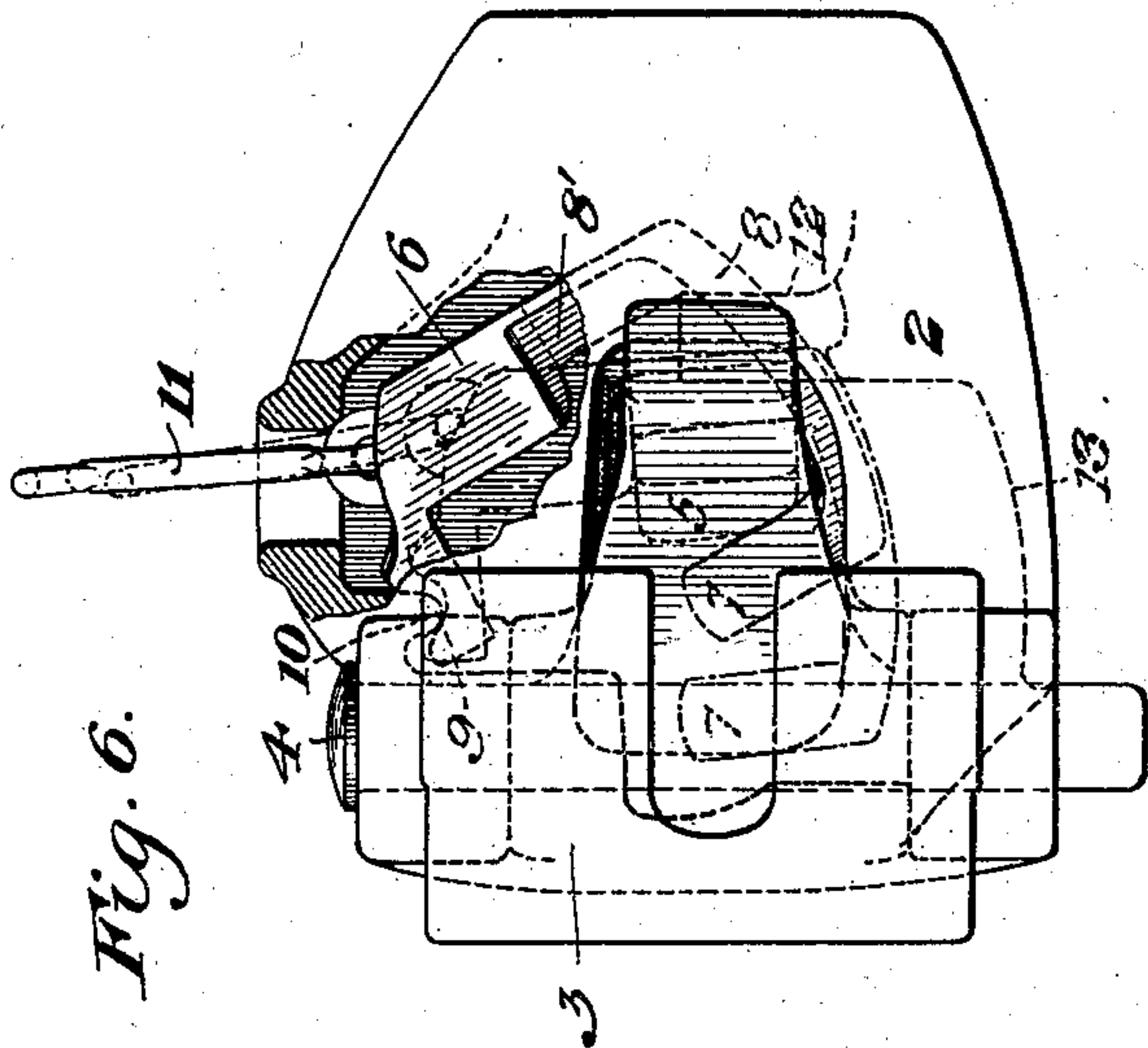


Fig. 6.

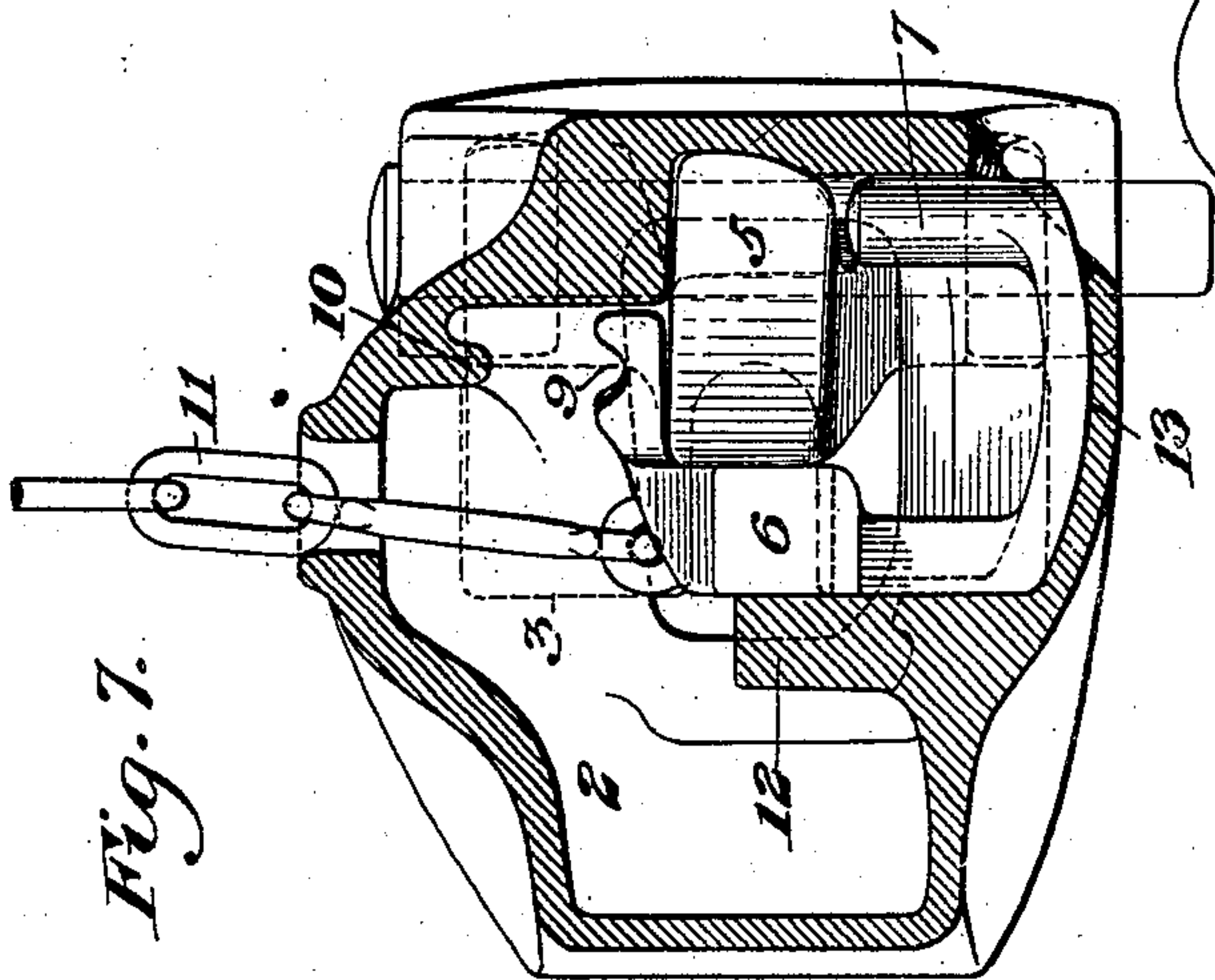


Fig. 7.

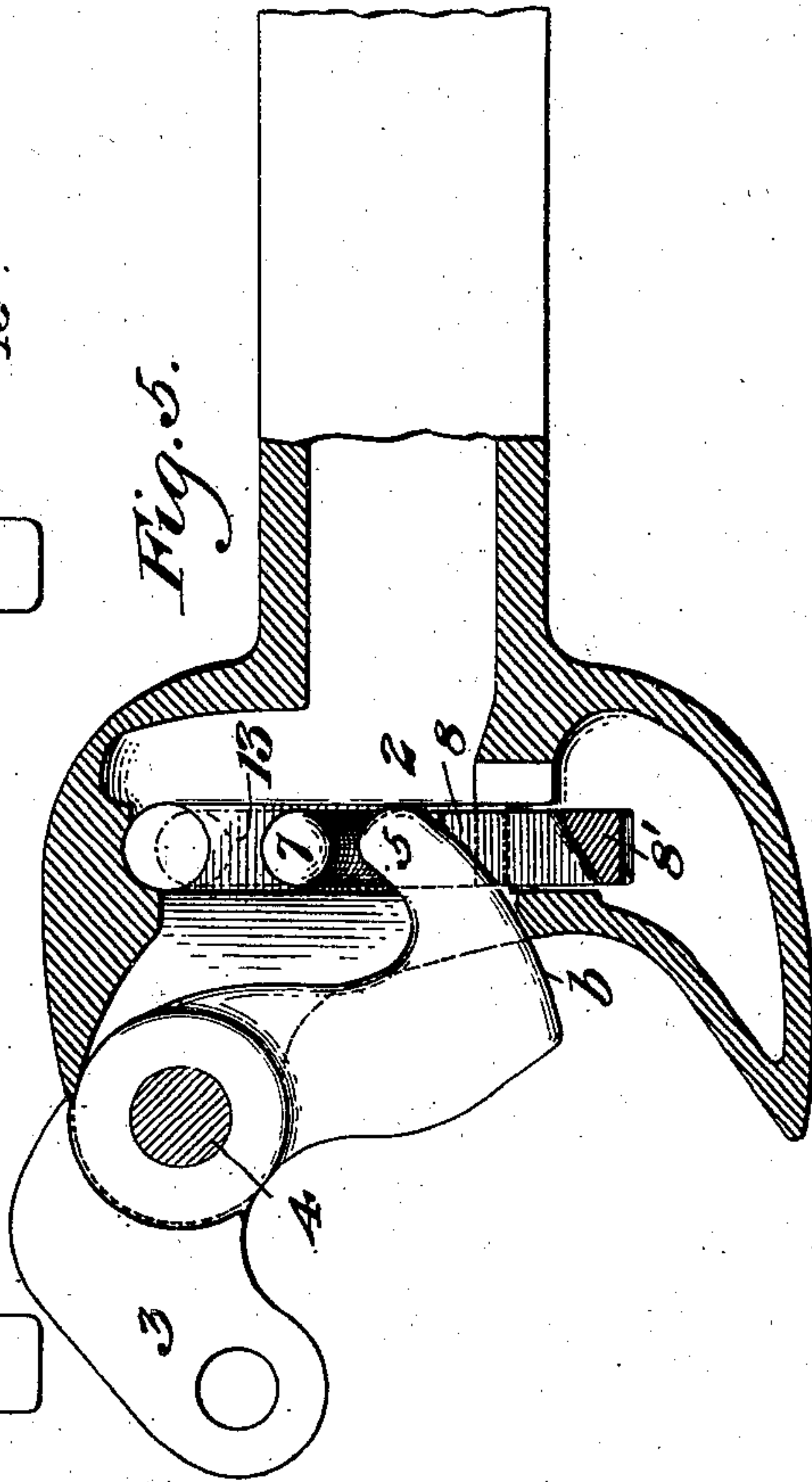


Fig. 5.

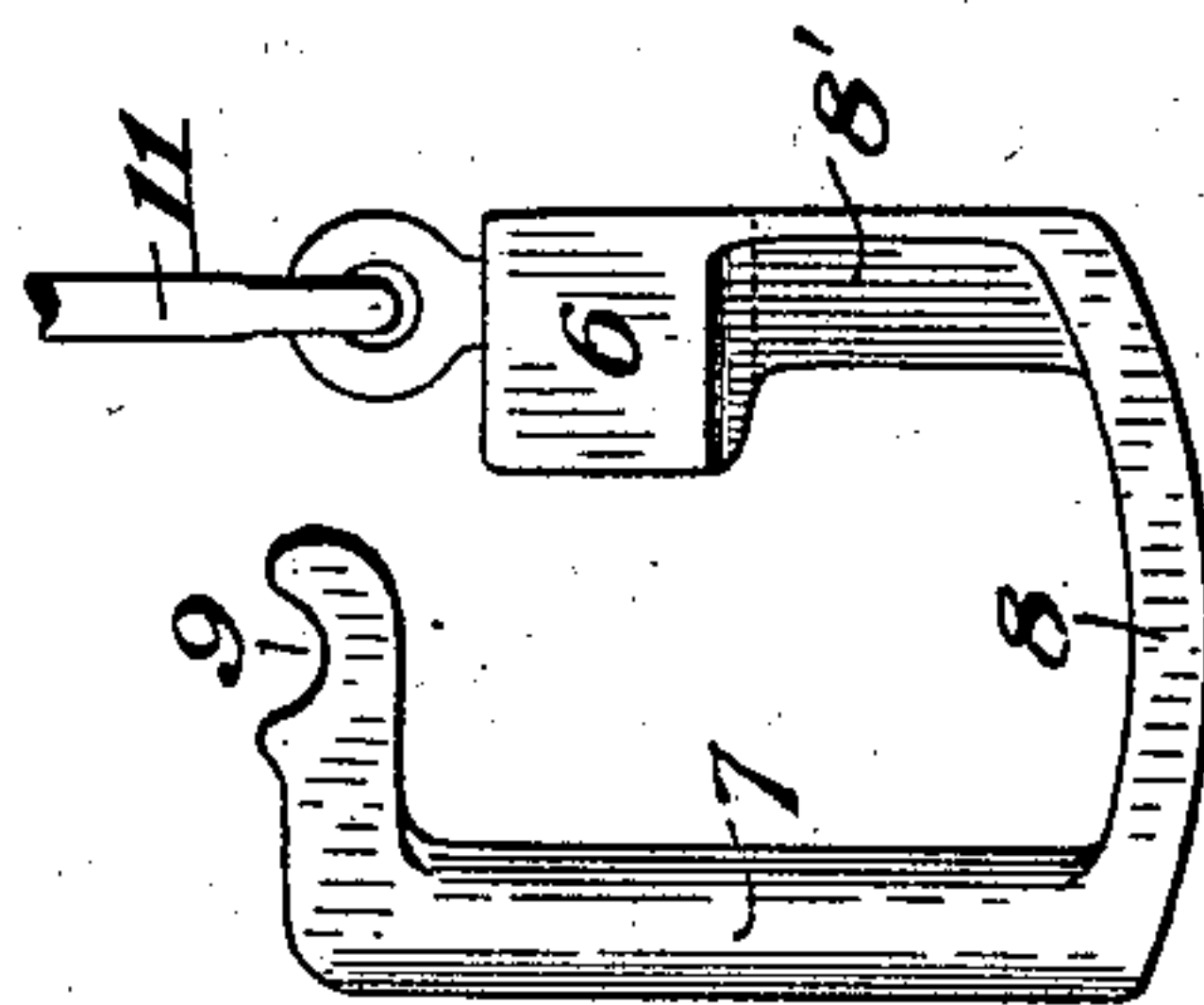


Fig. 8.

WITNESSES

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UNITED STATES PATENT OFFICE.

CLINTON A. TOWER, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 708,681, dated September 9, 1902.

Application filed November 15, 1901. Serial No. 82,391. (No model.)

To all whom it may concern:

Be it known that I, CLINTON A. TOWER, of Cleveland, Cuyahoga county, Ohio, have invented a new and useful Car-Coupler, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 shows the coupler in plan view, a portion of the top of the coupler being broken away for purposes of illustration. Fig. 2 is a horizontal section through the coupler, showing the knuckle and the knuckle opening and locking piece in plan view. Fig. 3 is an elevation of the knuckle locking and opening piece. Fig. 4 is a horizontal section on the line IV IV of Fig. 3. Fig. 5 is a view similar to Fig. 2, but showing the parts in the positions which they occupy when the knuckle is open. Fig. 6 is a front elevation of the coupler with the knuckle open, a part of the wall of the coupler being broken away. Fig. 7 is a vertical cross-section on the line VII VII of Fig. 2, showing the parts as viewed in the direction of the arrow in that figure. Fig. 8 is a view similar to Fig. 3, showing a modified construction of the knuckle locking and opening piece.

My invention is an improvement on the coupler for which Reissue Letters Patent No. 11,477 were granted to me on March 5, 1895.

In the drawings, 2 represents the coupler-head.

3 is the knuckle, which is mounted so as to swing on a pivot 4, and the rear end of the tail of the knuckle is preferably formed with a hook 5.

The knuckle locking and opening piece has a locking member 6, which is adapted when the knuckle is locked to fit in front of the knuckle's tail, as shown in Fig. 2, and an opening-arm 7, which fits back of the tail and is connected with the locking member by a member 8, which extends under the tail. The vertical portion 8' of the member 8 is of less width than the locking member 6, so that when the locking member is lifted above the knuckle the tail of the knuckle can pass the portion 8' and can swing open. The locking and opening device has also a bearing 9 above

the level of the tail of the knuckle. This bearing is preferably formed on the locking member 6, as shown in Fig. 3; but it may be on the opening-arm 7, as in the modification shown in Fig. 8. It is adapted to engage a fulcrum or shoulder 10 on the coupler-head when the locking and opening device is raised and to cause it to tip radially. The device is lifted, preferably, by a link 11 or other suitable means. When the parts are in locked position, as shown in Figs. 1, 2, and 7, the locking member fits in front of the tail of the knuckle and is braced on its opposite side by bearing against a portion 12 of the coupler-head, while the member 8 fits, preferably, in a groove 13, formed in the floor of the coupler-head. In order to unlock and open the knuckle, the operator raises the lifting-link 11, whereupon the opening device is first raised bodily, so as to lift the locking member above the knuckle and to free the latter and to cause the bearing portion 9 to engage the fulcrum 10. Continued motion of the link 11 will then cause the locking and opening piece to tip on said fulcrum, as shown in Fig. 6, and the forward motion of the opening-arm 7, caused by such tipping action, will move the knuckle into open position. When the knuckle is moved back, its tail will push before it the opening-arm 7, thus bringing the locking and opening piece into the vertical position shown by dotted lines in Fig. 7, and it will then drop into the locked position shown by full lines, as above described. The rear end surface *b* of the tail of the knuckle is preferably made on an arc of a circle which is nearly concentric with the pivot-pin 4, so that in every position of the knuckle when open its tail will bear or nearly bear against the member 8' and will thus hold the knuckle and opening-piece from moving back into locking position until the knuckle itself has been moved back.

Among the advantages of my invention are the very extended locking-surface which it enables me to afford to the knuckle. The parts also have an easy action in the opening of the knuckle. This form may be varied by those skilled in the art, since

What I claim is—

1. A coupler having a swinging knuckle, and a tipping locking and opening piece, said piece being bodily movable upwardly and comprising a locking member, an opening-arm, and a connecting member which extends under the knuckle and connects the opening-arm with the locking member; substantially as described.
2. A coupler having a swinging knuckle, and an upwardly-movable and tipping knuckle locking and opening piece comprising a locking member, an opening-arm, and a connecting member which extends under the knuckle and connects the opening-arm with the locking member; said piece having a tipping-bearing above the knuckle and above the position of the said piece when locked; substantially as described.
3. A coupler having a swinging knuckle, and a tipping locking and opening piece, said piece being bodily movable upwardly and comprising a locking member, an opening-arm and a connecting member between the locking member and opening-arm, said connecting member being shaped to permit the

passage of the knuckle when the said piece has been raised; substantially as described.

4. A coupler having a swinging knuckle, and a tipping locking and opening piece, said piece being bodily movable upwardly and comprising a locking member, an opening-arm, and a connecting member which extends under the knuckle and connects the opening-arm with the locking member, the rear end of the knuckle being shaped to prevent the back movement of the opening-arm when the knuckle is open; substantially as described.

5. A knuckle locking and opening piece having in a single piece a locking member, a top bearing or fulcrum, a rear vertical opening-arm and a connecting member extending from the lower portion of the opening-arm horizontally and upwardly to the locking member; substantially as described.

Witness my hand this 9th day of November, 1901.

CLINTON A. TOWER.

In presence of—

THOMAS W. BAKEWELL,
HENRY F. POPE.