

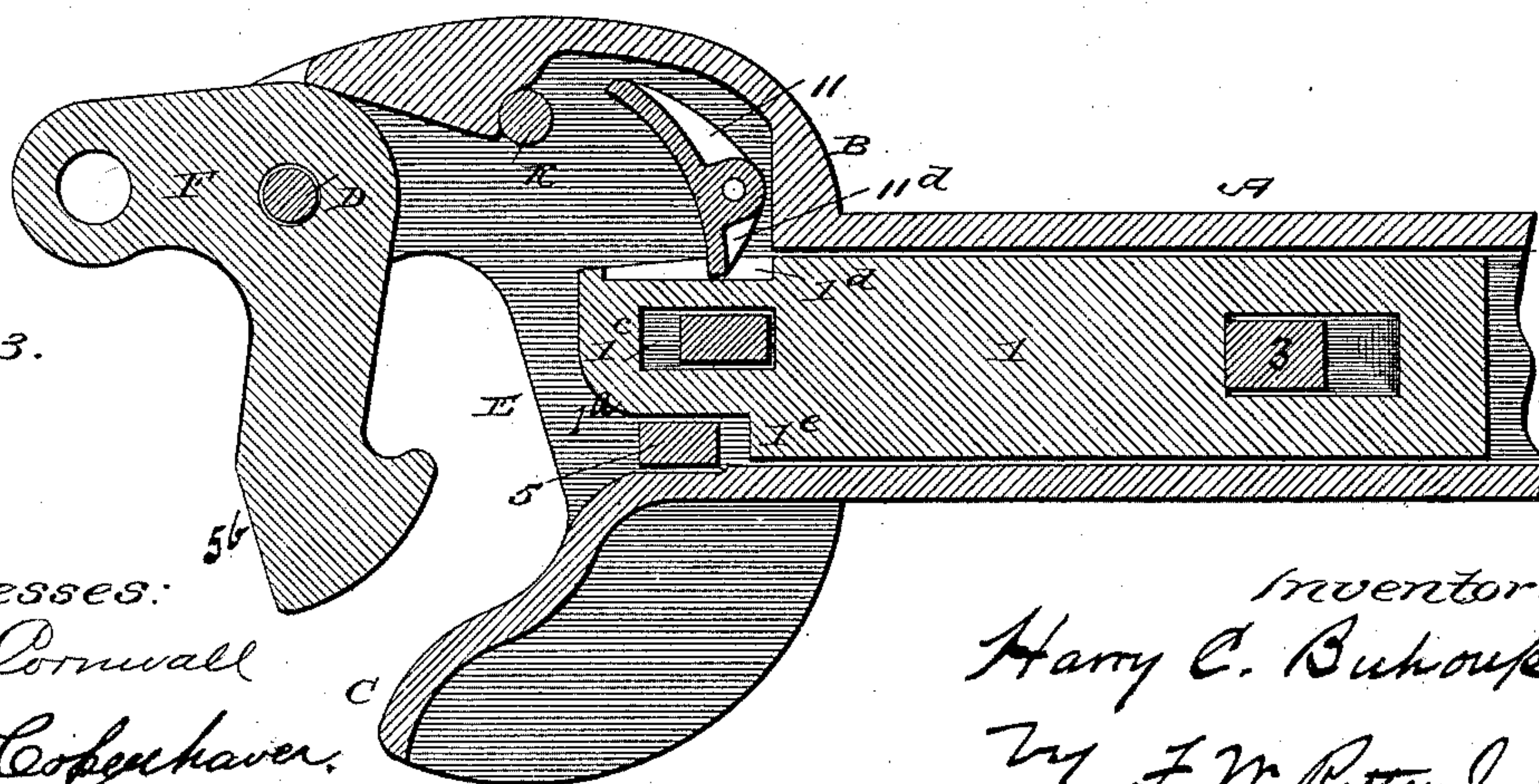
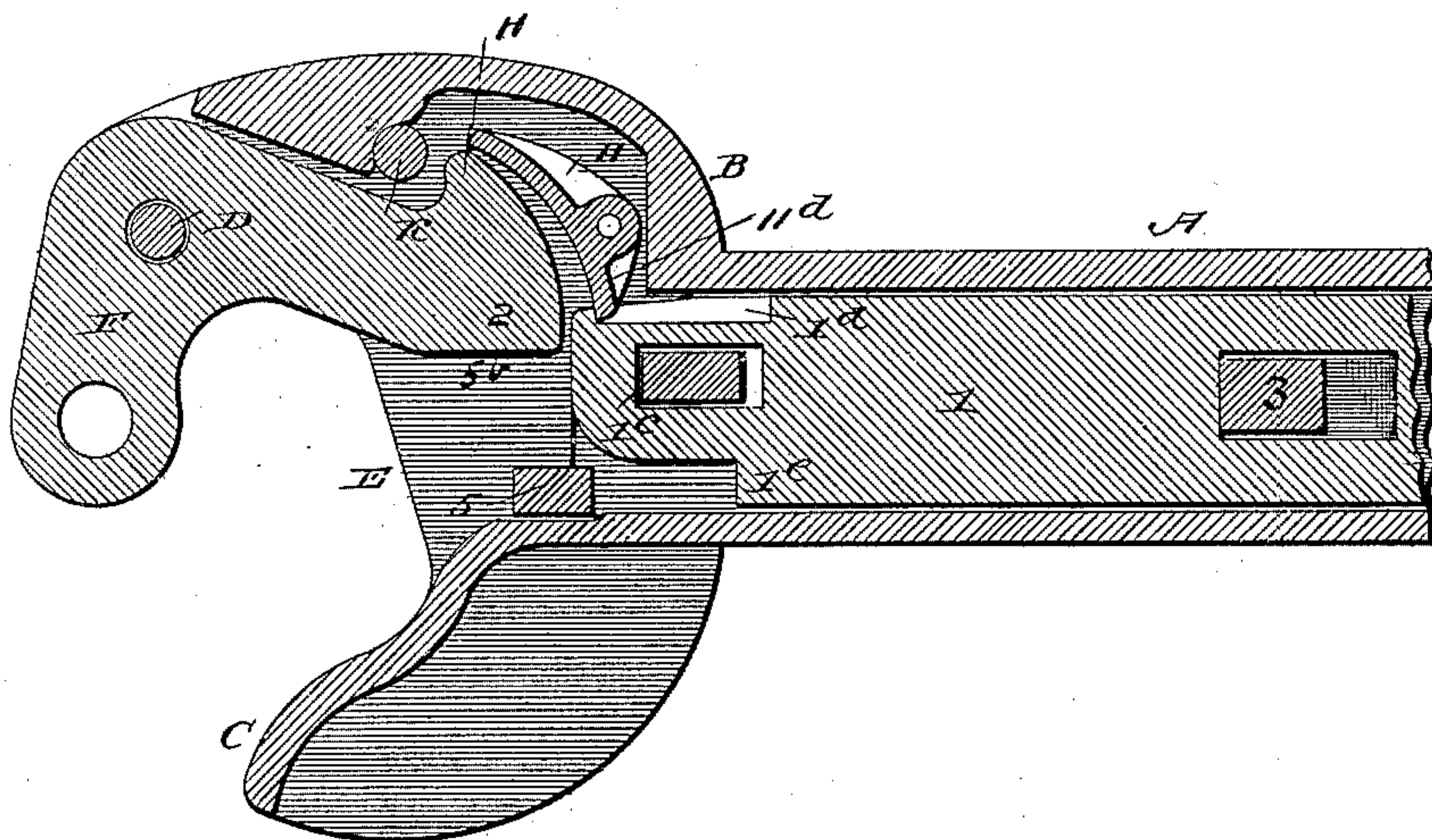
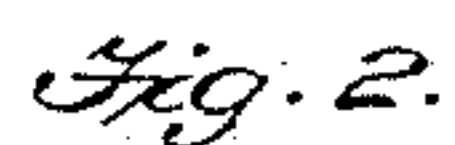
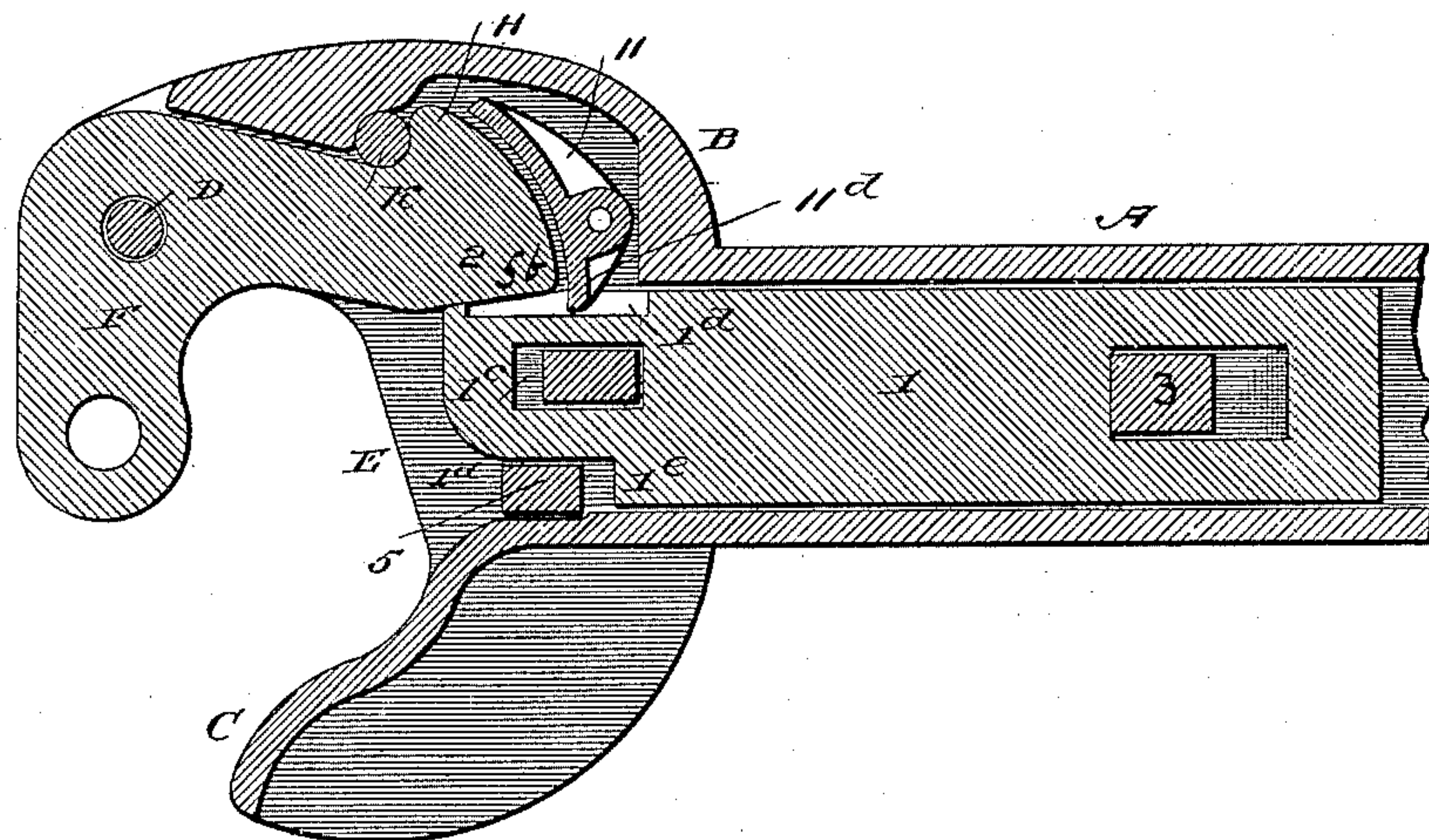
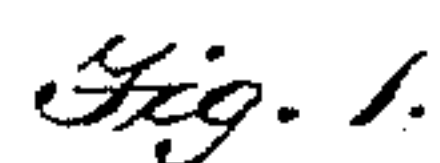
(No Model.)

3 Sheets—Sheet 1.

H. C. BUHOUP.
CAR COUPLING.

No. 467,680.

Patented Jan. 26, 1892.



Witnesses:

F. R. Cornwall

J. M. Copenhagen.

Inventor:

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Attorney.

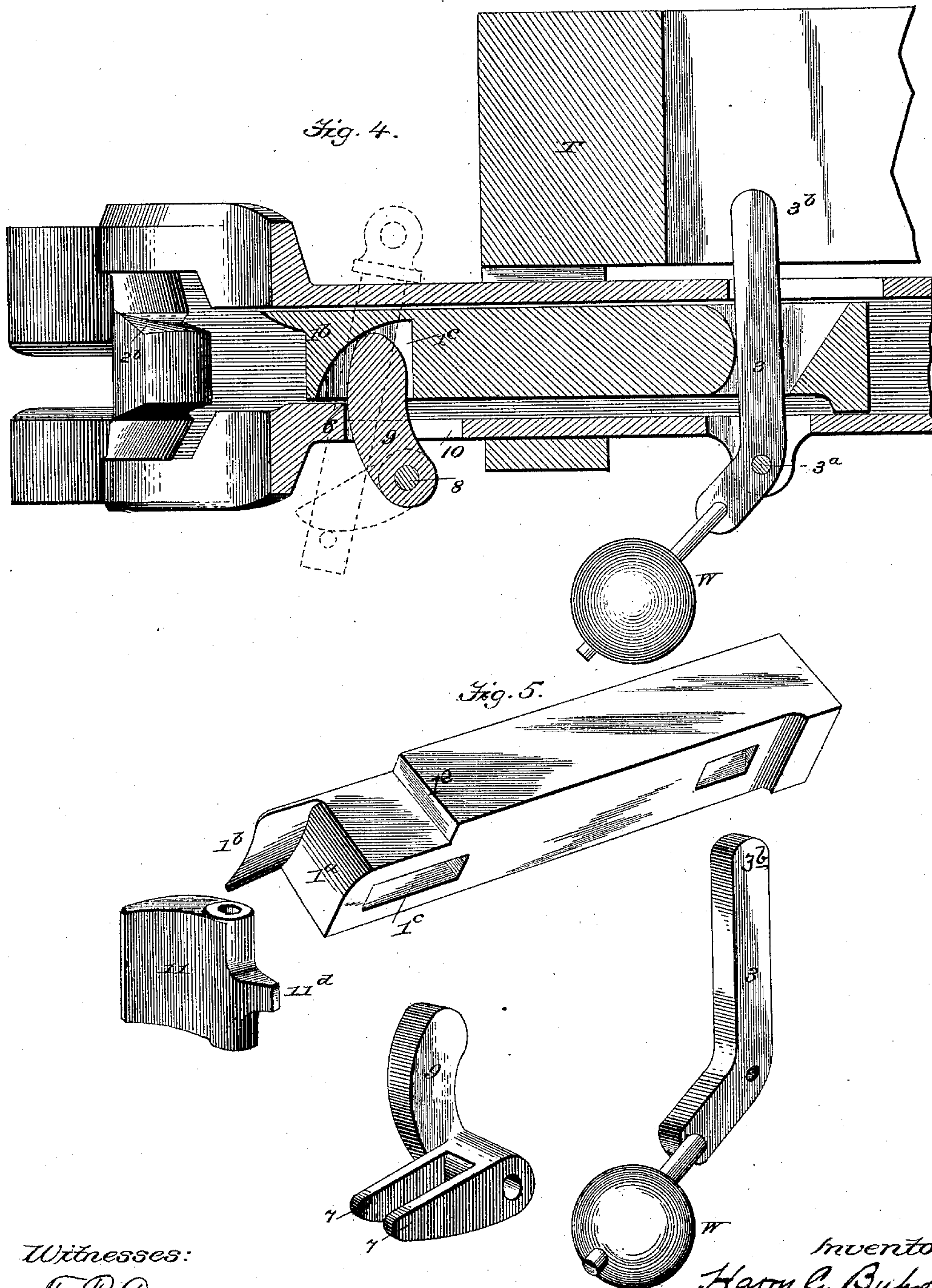
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3 Sheets—Sheet 3.

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Fig. 6.

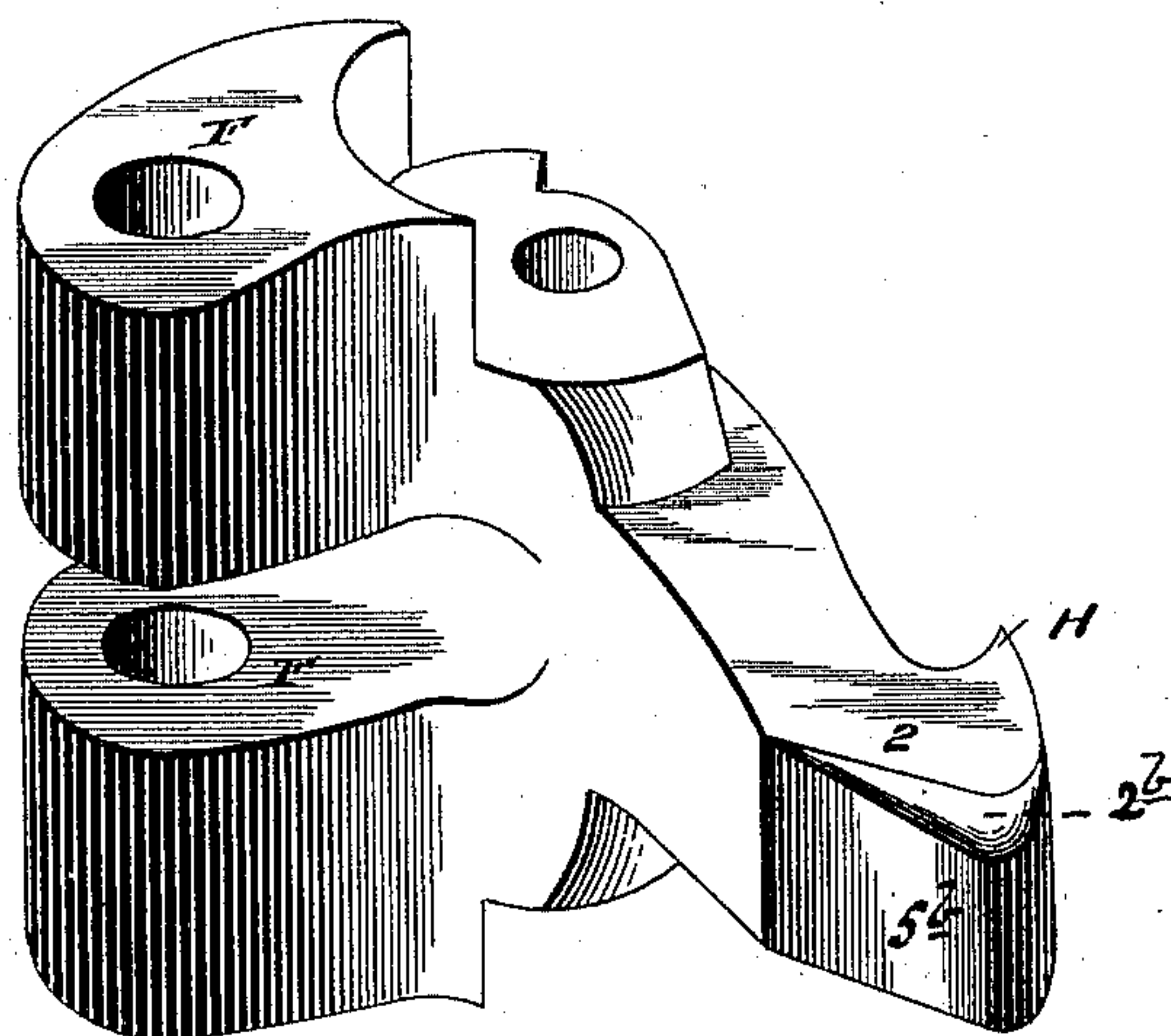
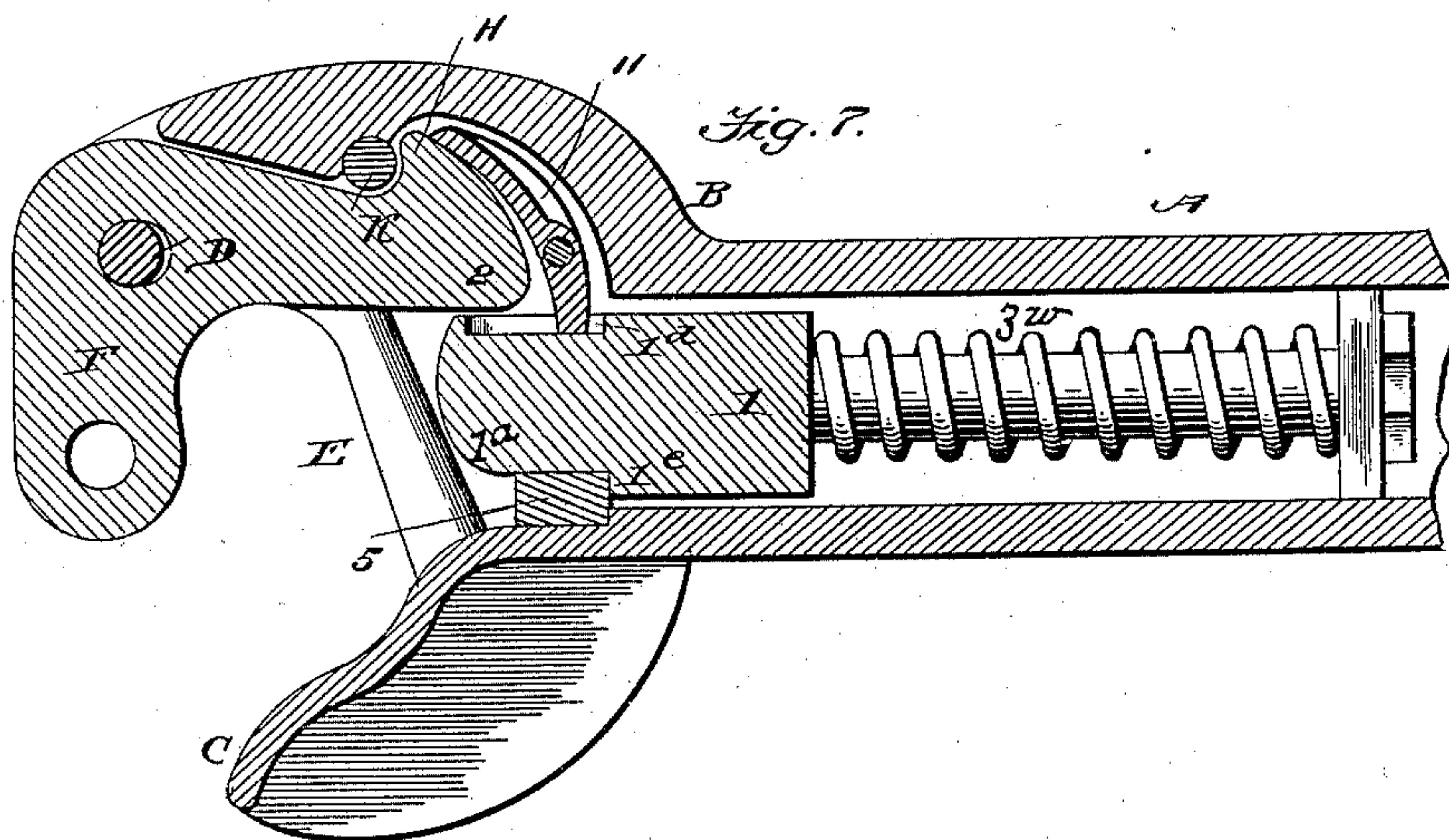


Fig. 7.



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UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 467,680, dated January 26, 1892.

Application filed September 14, 1891. Serial No. 405,602. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplings; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of a coupler embodying my invention, the parts being in the first position or when the coupler is closed as in use. Fig. 2 is a similar section, the parts in the second position, as in uncoupling or when set for uncoupling. Fig. 3 is a similar section in the third position, as when uncoupled or set for coupling. Fig. 4 is a vertical longitudinal section. Fig. 5 is a detached view of the locking-block, the cam-finger by which it is operated, the trigger operated thereby, and the weight which moves the locking-block. Fig. 6 is a detached view of the pivoted nose or knuckle. Fig. 7 is a view of the devices, wherein a spring instead of a weight is employed to move the locking-block.

Like symbols refer to like parts wherever they occur.

My invention relates to that class of couplers commonly termed "twin-jaw" couplers, whether the same are formed with solid or buttress journal-bearings for the pivoted nose or knuckle, as in the Browning or like couplers, or whether provided with a pivot-pin, as in the well-known Janney type of couplers, though for the purpose of illustration and without any intention of limitation, I have chosen the Janney type of coupler.

The object of my present invention is to facilitate the coupling and uncoupling of the devices, to automatically insure at all times such a relation of the coacting parts as shall guard against jamming or injury of the coupler, and to insure the release of the knuckle or pivoted nose in case the coupler should become detached from the car and pull out.

To this end the main feature of my invention embraces a movable or sliding locking-block and a trigger or kicker actuated thereby, and which in turn actuates the knuckle or pivoted nose, so as to move the knuckle or

pivoted nose positively when the locking-block is withdrawn for uncoupling.

A second feature embraces such a combination or relative arrangement of the knuckle or pivoted nose-piece and the sliding locking-block, that the return or outward movement of the latter shall complete the opening of the knuckle or pivot-block in case the trigger or kicker shall not move it sufficiently.

A third feature embraces the combination with a sliding locking-block and means for holding the same in a retracted position of a knuckle arranged to release the locking-block on either its opening or closing travel.

A fourth feature embraces a combination between the sliding block and car by suitable intermediate connections, that the sliding block shall be retracted to release the knuckle whenever the coupler shall become detached from the car.

There are other minor features of invention relating to specific combinations of elements and details of construction, all of which will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the hollow stem of a draw-bar, in which the sliding locking-block is located; B, the draw-head having the usual guard-finger C, the journal D for the pivoted nose or knuckle, and the curved buffing-face E.

F indicates a knuckle or pivoted nose provided with the pivot-pin or journal D, said knuckle having sufficient play on the pivot-pin D to permit the hooked tail-piece H to engage the through bolt K.

The features of construction thus far specified will be found described and claimed, in my patent, No. 431,644, granted July 8, 1890, and are not herein claimed, being simply used for purposes of illustration, and for which any equivalents may be substituted.

1 indicates a sliding block arranged in the hollow stem of the draw-bar and adapted to be automatically projected across the path of the tail-piece 2 of the knuckle or pivoted nose by a weighted lever 3 or equivalent means, though a spiral spring 3^w, (see Fig. 7,) arranged on the stem 4 of the sliding block may be used, if desired. When the weighted le-

ver 3 is employed, it is preferably pivoted on the head, as at 3^a, and is formed with an extension 3^b, which stands back of and in line with the cross-timber T of the car-frame, so that in case the draw-bar A shall become detached and pull out, said extension 3^b will strike the frame-timber T, retract the locking-block 1, and release the knuckle F, said lever acting in conjunction with or independent of the pin 5, according to circumstances, as will hereinafter appear. The forward end of said sliding locking-block 1 is preferably slightly rounded, as at 1^a, to facilitate the engagement of the tail-piece 2 therewith in the inward or coupling movement, when said tail-piece causes the sliding block to recede, and said block is provided with rounded overhang or projection 1^b, (see Figs. 4 and 5,) under which the tail-piece 2 passes to lift and release the automatically-sliding block 1 on either the inward or outward movement of the said tail-piece 2. The projection 1^b is preferably inclined or tapering, for purposes which will hereinafter be pointed out. The under surface of sliding locking-block 1 is slotted, as at 1^c, to receive a cam-finger, by means of which the block is retracted, and said block is provided at the side next the knuckle-cavity with a recess 1^d to receive a lug or projection on the trigger or kicker, which is actuated by the locking-block. Opposite the recess 1^d is a shoulder 1^e, which engages a pin 5, that limits the outward movement of the locking-block, and said pin 5 may be the same which forms part of the mechanism for retracting block 1.

In the draw-head B and substantially in line with the travel of the end of tail-piece 2 of the knuckle F is a shoulder 6, which serves to arrest the outward movement of the sliding block 1 until said block is lifted and released therefrom by the tail-piece 2.

5 indicates a pin arranged in suitable holes in the draw-head at one side of the path of the sliding block 1. This pin 5 is set at an inclination to the line of draft (see Fig. 4) and is connected to the pull-rod on the car in the usual or any approved manner. In case the coupler should become detached and pull out, the connection between the pin 5 and pull-rod will, owing to the inclination of said pin, operate the pin and release the knuckle, and the lever 3^o will supplement this operation of inclined pin 5, as well as act independently in case the connection between the pull-rod and pin 5 fails. The lower end of said pin 5 passes between fingers 7, secured to a rock-shaft 8, pivoted on the under side of draw-head B, and to said shaft 8 is attached the cam-finger 9, which projects through a slot 10 in the draw-head and serves to operate the sliding block 1, so that said pin 5 not only acts as a side support for the sliding block, but also as part of the means for retracting said block. The tail-piece 2 of the knuckle or pivoted nose F, which coacts with the sliding block 1 and its projection 1^b, is pref-

erably formed with an incline 2^b, which, in conjunction with the incline under surface of projection 1^b, hereinbefore referred to, insures the lift of the locking-block 1, so that it shall ride over shoulder 6 at the proper time. The tail-piece 2 is also provided with an inclined vertical face 5^b, (see Figs. 1, 3, and 6,) which permits of the locking-block 1 moving forward to compensate for any wear that may take place on the end of said tail-piece 2.

11 indicates a trigger or kicker pivoted in the draw-head B, adjacent to the rear end of the tail-piece 2 of knuckle F, and of such form and so located that when the knuckle is in position (see Fig. 1) the tail-piece 2 thereof shall not bear on said trigger, nor will the trigger be liable to be injured by the said tail-piece of the knuckle. The trigger or kicker 11 is provided with a projection 11^d, which enters the recess 1^d in the sliding locking-block 1, (hereinbefore referred to,) and said recess 1^d is of such length and so placed in the side of the locking-block that the projection 11^d is struck just as the forward end of locking-block 1 reaches the shoulder 6 in the draw-head, and the continued backward movement or recession of the locking-block causes the trigger 11 to strike the tail-piece 2 of the knuckle F and throw the knuckle sufficiently far forward to couple.

Devices constructed and combined substantially as hereinbefore specified will operate as follows: The knuckle F being closed, as shown in Fig. 1, or in the position which it occupies when the cars are coupled, and it being desired to uncouple or to set the knuckle F for coupling up, the pin 5 is lifted, which through fingers 7 actuates rock-shaft 8 and cam-finger 9 to cause the recession of sliding locking-block 1. When sliding locking-block 1 has receded to that point where its forward lower end is in position to drop behind shoulder 6 in the bottom of draw-head B, the forward wall of recess 1^d strikes projection 11^d on the kicker or trigger 11, after which farther recession of the sliding locking-block actuates the trigger 11, causing it to strike or kick the tail-piece 2 of the knuckle F and throw the knuckle into position to couple, as shown in Fig. 3. When the pin 5 is released and drops down, the automatic locking-block 1 is free to advance or move forward, and if the kicker or trigger 11 has only thrown the tail-piece 2 of knuckle F in front of the sliding locking-block, as shown in Fig. 2, said block in its forward movement will strike the tail-piece 2 and force the knuckle into the coupling position, as shown in Fig. 3. In coupling up, the parts being in the position shown in Fig. 3, the tail-piece 2 is struck by the knuckle of the opposite coupler and is forced back into the position shown in Fig. 1. In moving to said position, the end of tail-piece 2 strikes the forward end of the locking-block 1 and causes said block to recede to permit the passage of the tail-piece, and the tail-piece in its passage passes under the overhang or projection 1^b

and forces up or lifts the block 1, so that it rides past the shoulder 6, and on escaping from the tail-piece the block 1 is projected forward in front of tail-piece 2 (see Fig. 1) until the shoulder 1^a strikes pin 5 and arrests the forward movement of the sliding locking-block. When the pin 5 is lifted to actuate the sliding locking-block 1 and set the devices for uncoupling in case the tail-piece 2 is not thrown in front of the locking-block, said block in its forward movement will be arrested by the shoulder 6 and held back of the path of the tail-piece 2, so that on the separation of the cars the tail-piece 2 will be free to move or swing past the front end of the locking-block in its outward movement, and in so doing its end will pass under the projection 1^b of block 1, lift the block, thereby releasing it from shoulder 6 and permitting it to continue its forward movement after the tail-piece 2 has escaped, so that when the knuckle is in proper position to couple the locking-block 1 will also be in proper position therefor.

Having thus set forth the nature, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a coupler, the combination, with a knuckle or pivoted nose, of a trigger or kicker fulcrumed in the head back of the tail-piece of the knuckle, and a sliding locking-block having means for engaging the fulcrumed trigger or kicker, substantially as and for the purposes specified.

2. In a coupler, the combination, with a knuckle or pivoted nose, of a movable locking-block having an overhang or projection adapted to engage the tail-piece of the knuckle, and a shoulder in the draw-head adapted to engage and retain the movable locking-block, substantially as and for the purposes specified.

3. In a coupler, the combination, with a knuckle or pivoted nose having an inclined face on the tail-piece, of a movable locking-block having an inclined overhang or projection which engages the tail-piece of the knuckle, substantially as and for the purposes specified.

4. In a coupler, the combination, with a knuckle or pivoted nose, of a movable locking-block having an overhang or projection which engages the tail-piece of the knuckle or nose-piece, and a trigger or kicker actuated by the sliding locking-block, substantially as and for the purposes specified.

5. In a coupler, the combination, with a knuckle or pivoted nose, of a movable locking-

block having an overhang or projection which engages the tail-piece of the knuckle, a trigger or kicker actuated by the movable locking-block, and a shoulder in the draw-head adapted to engage and retain the movable locking-block, substantially as and for the purposes specified.

6. In a coupler, the combination, with the knuckle or pivoted nose and a movable locking-block, of an inclined pin for actuating the locking-block, substantially as and for the purposes specified.

7. In a coupler, the combination, with the knuckle or pivoted nose and locking-block therefor, of a pivoted weighted lever for moving the locking-block in one direction, said lever having an extension which projects above the coupler, substantially as and for the purposes specified.

8. In a coupler, the combination, with the knuckle or pivoted nose, of a movable locking-block, a weighted lever for moving the block in one direction, said lever having an extension which projects above the coupler, and an inclined pin for moving the block in the other direction, substantially as and for the purposes specified.

9. In a coupler, the combination, with a sliding locking-block having a vertical bevel, of a knuckle or pivoted nose provided with a tail-piece having its vertical face, which engages the sliding block, inclined or beveled to permit the advance of the locking-block to compensate for wear, substantially as specified.

10. In a coupler, the combination, with the knuckle or pivoted nose, of a movable locking-block having a slot in its bottom for a cam-finger and provided with a pin-shoulder on one side, a cam-finger for actuating the block, and a movable pin for actuating the cam-finger and limiting the movement of the locking-block, substantially as and for the purposes specified.

11. In a coupler, the combination of a knuckle or pivoted nose, a locking-block therefor, a cam for actuating the locking-block, said cam provided with pin-fingers, and a pin for actuating the cam, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 12th day of September, 1891.

HARRY C. BUHOUP.

Witnesses:

R. E. JANNEY,
P. HIEN.