

No. 756,826.

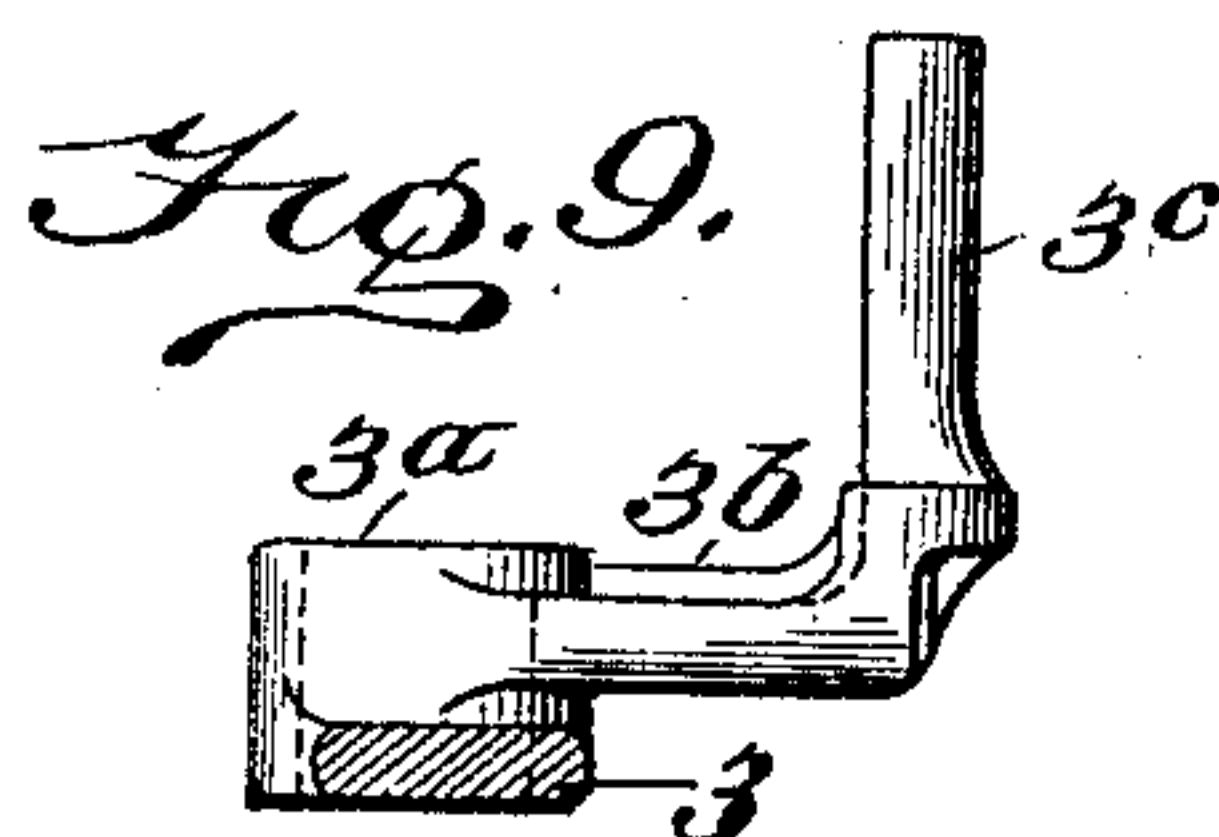
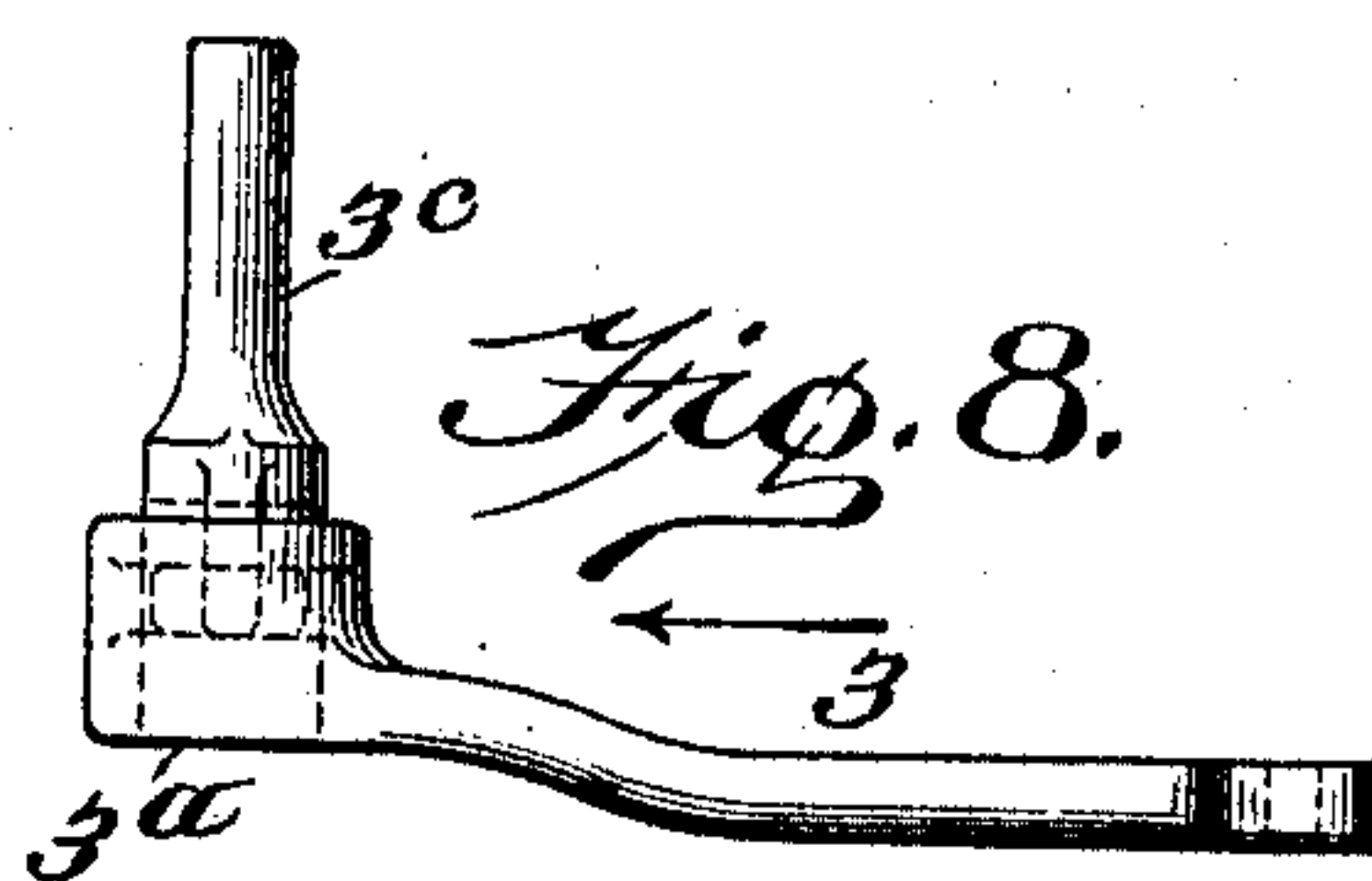
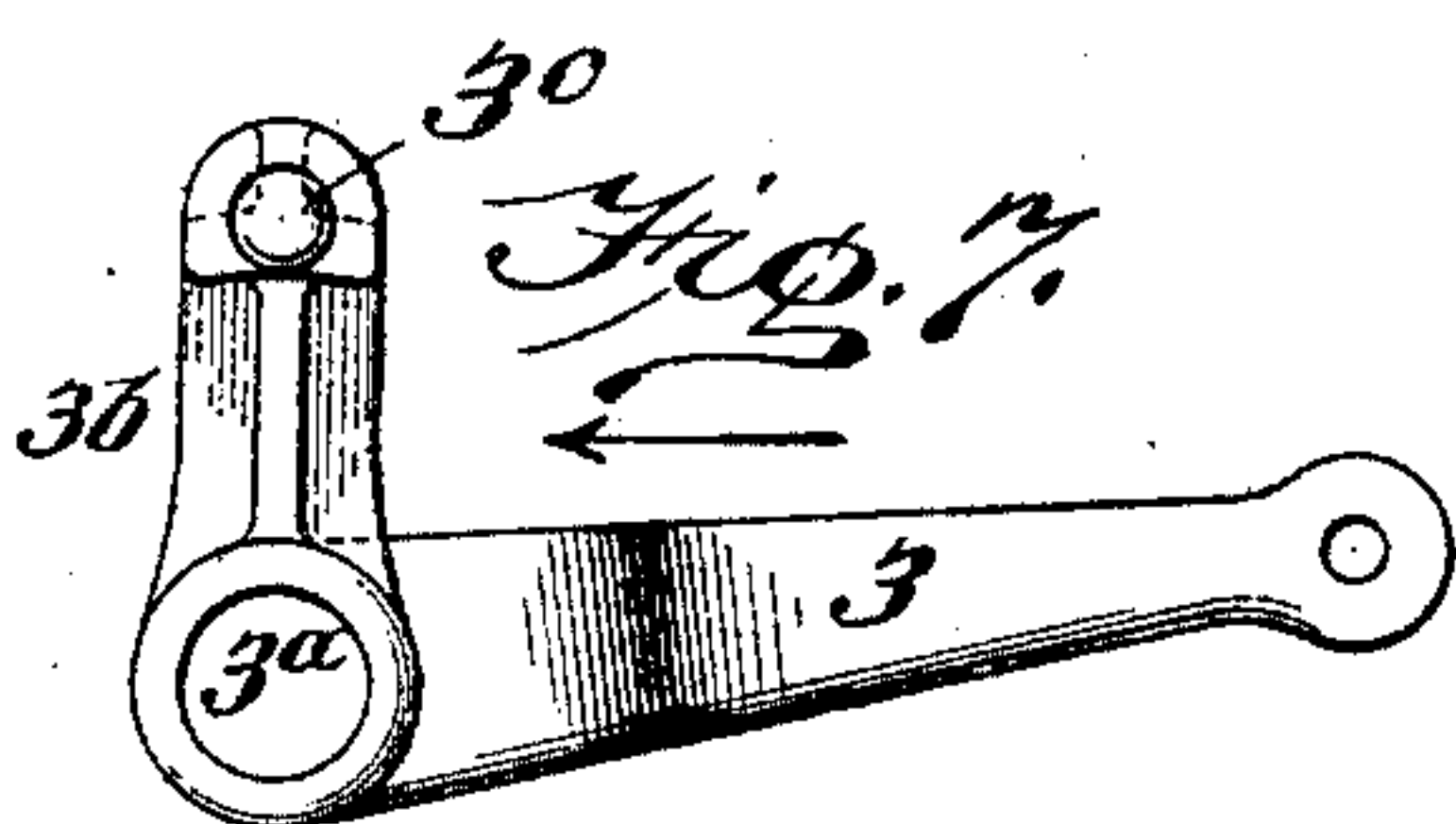
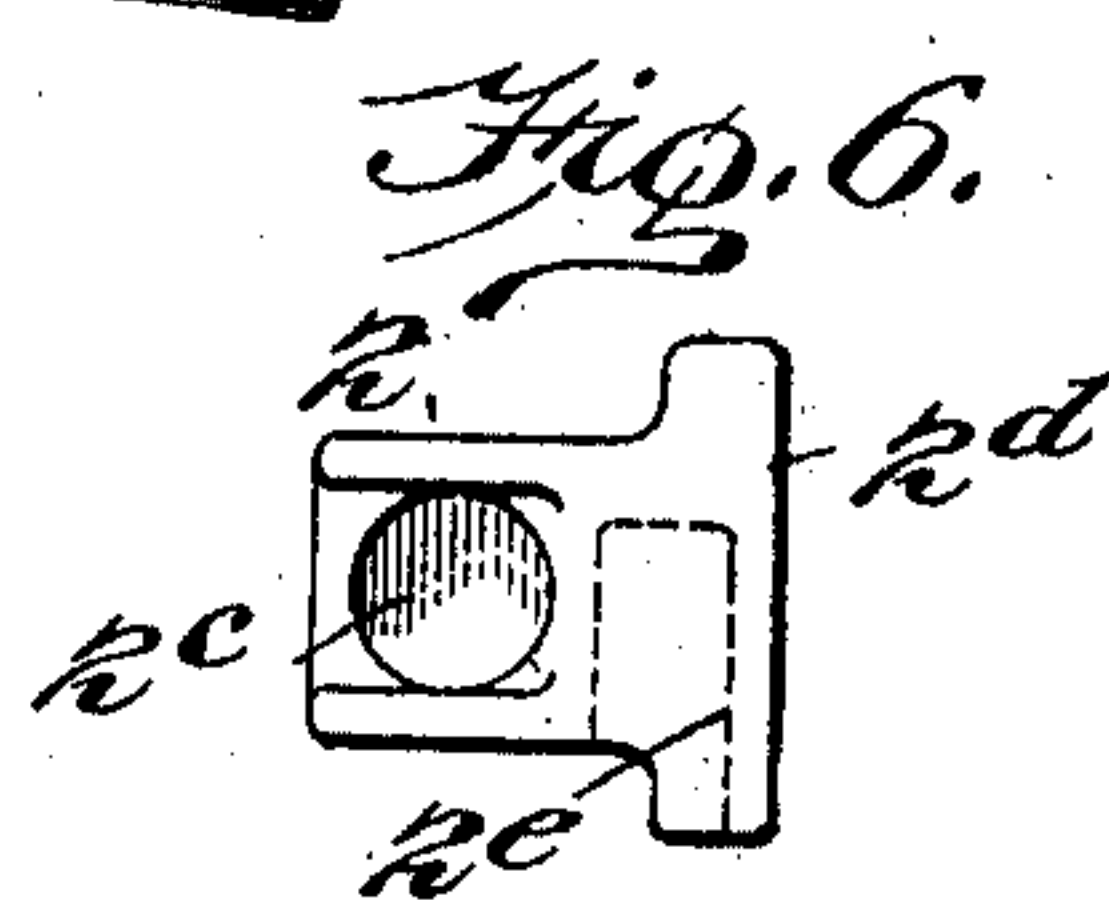
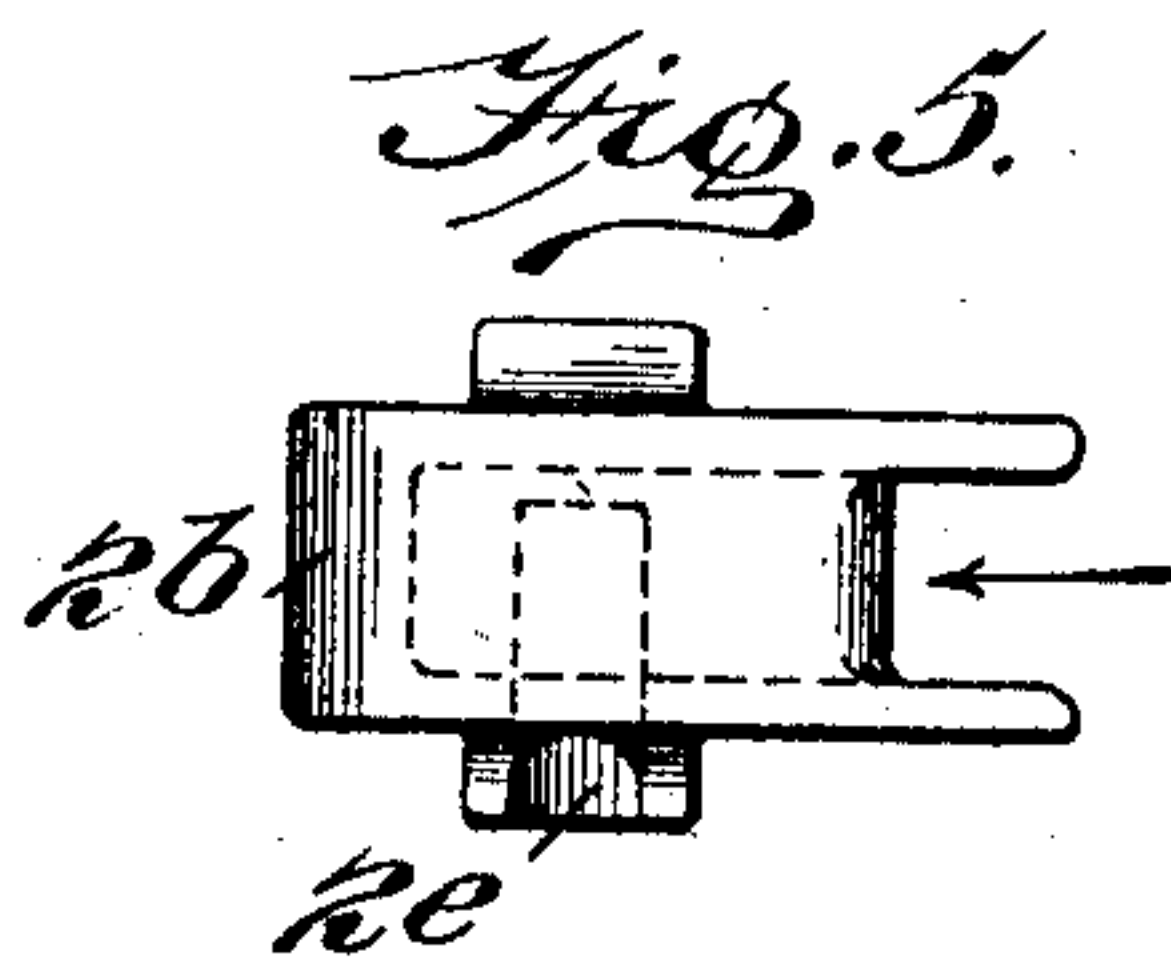
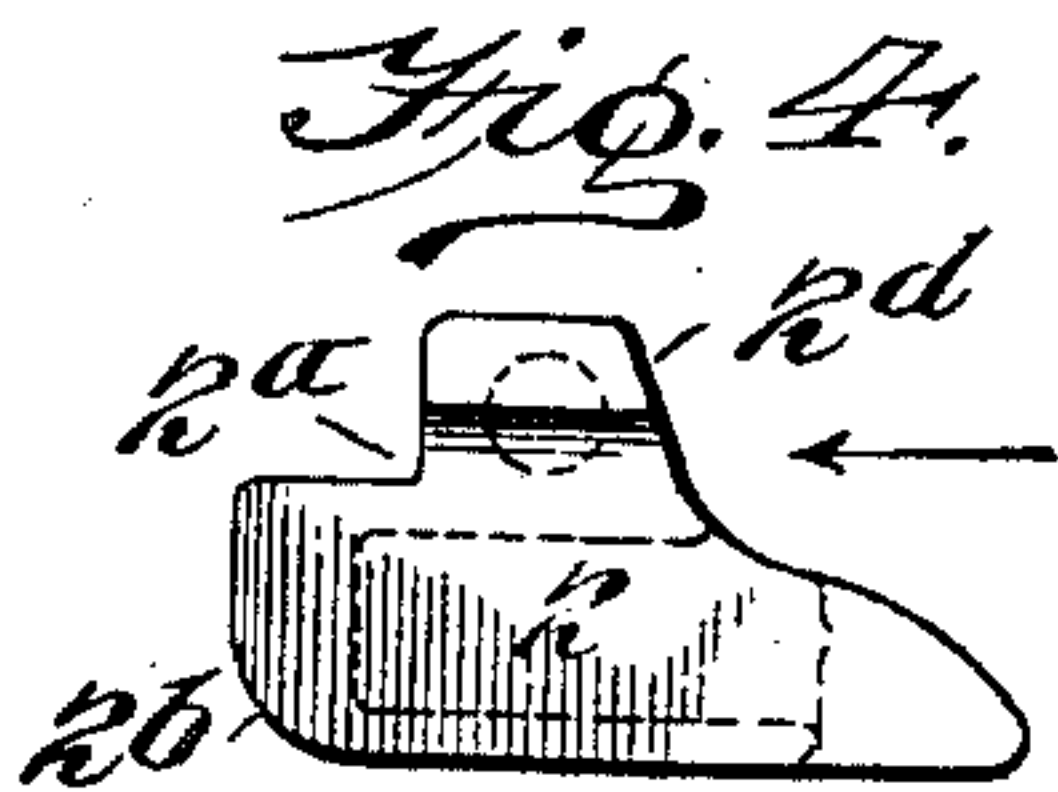
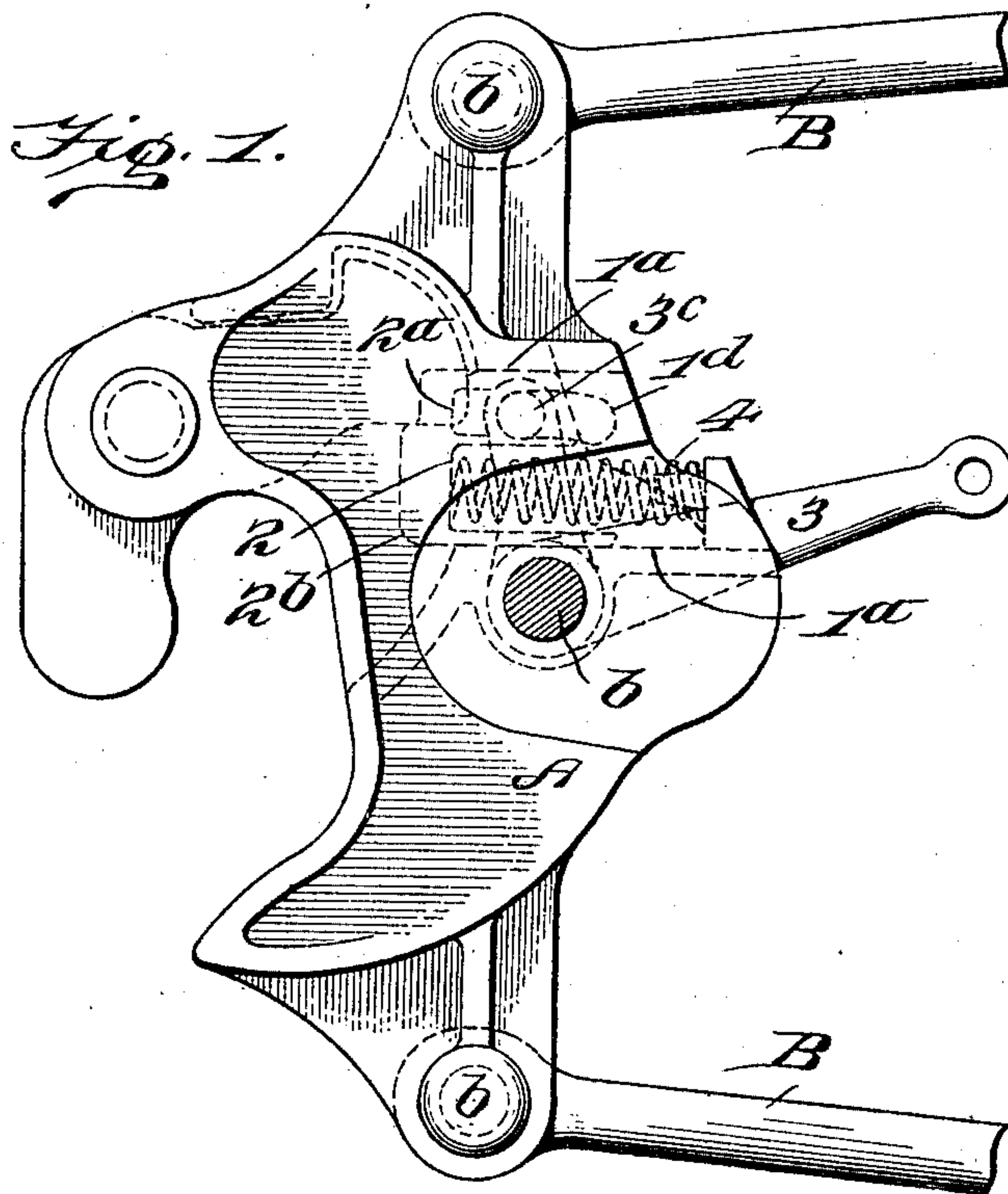
PATENTED APR. 12, 1904.

H. C. BUHOUP.
LOCK MECHANISM FOR VERTICAL PLANE COUPLINGS.

APPLICATION FILED NOV. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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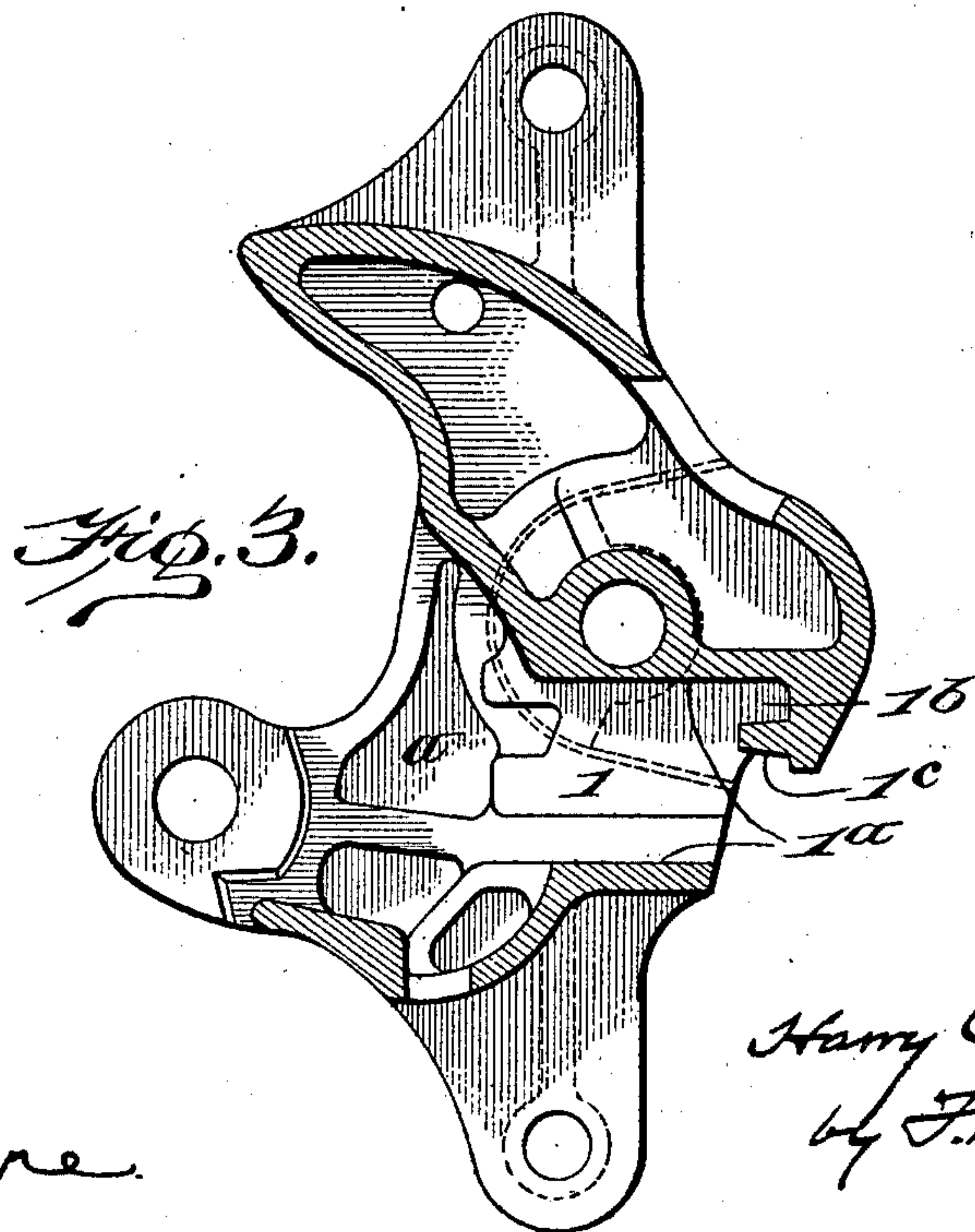
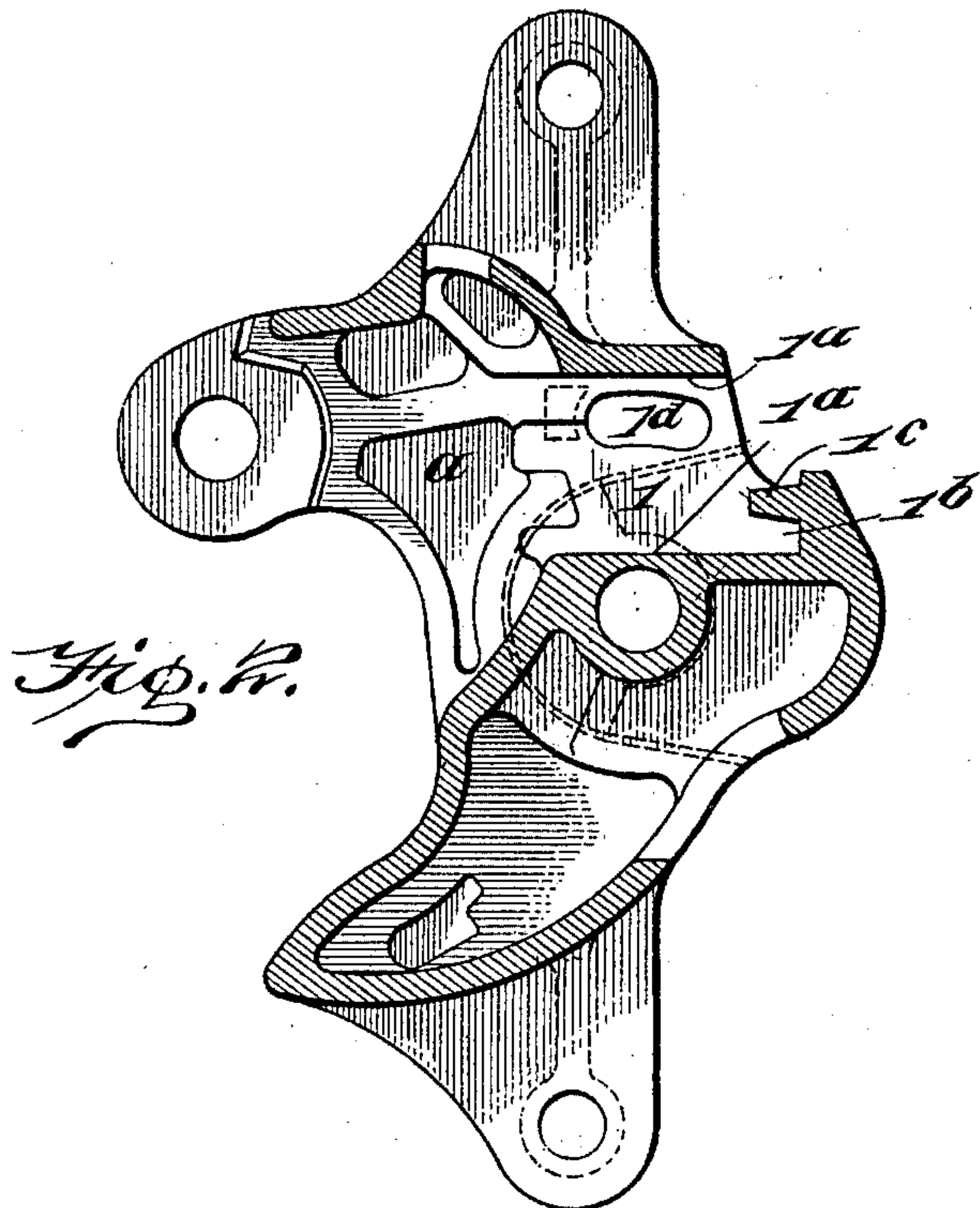
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE McCONWAY & TORLEY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

LOCK MECHANISM FOR VERTICAL-PLANE COUPLINGS.

SPECIFICATION forming part of Letters Patent No. 756,826, dated April 12, 1904.

Application filed November 28, 1903. Serial No. 183,029. (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, county of Cook, State of Illinois, have invented certain new and useful Improvements in Lock Mechanism for Vertical-Plane Couplers; 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 plan view of the head of a three-stem coupler embodying my invention, the operative parts of the lock mechanism being shown in dotted lines, the middle stem omitted, and the lateral stems broken off. Fig. 2 is a horizontal central section of the head looking from above, showing the chamber in the lower portion of the coupler-head for the reception of the lock mechanism. Fig. 3 is a section similar to Fig. 2, looking from below, showing the chamber in the upper portion of the coupler-head for the reception of the lock mechanism. Fig. 4 is a plan or top view of the spring-actuated sliding lock. Fig. 5 is a side elevation of the sliding lock. Fig. 6 is an end view of the sliding lock looking in the direction of the arrows, Figs. 4 and 5. Fig. 7 is a plan or top view of the lever for actuating the lock mechanism. Fig. 8 is a side elevation of the lever for actuating the lock mechanism. Fig. 9 is an end view of the lever for actuating the lock mechanism looking in the direction of the arrows, Figs. 7 and 8, parts broken away.

Like symbols refer to like parts wherever they occur.

My invention relates to the locking mechanism for the rotary knuckle of what is known as the "vertical-plane" or "Janney" type of couplers in general, but has been especially devised for use with what is generally termed the "three-stem" coupler, or a coupler having a plurality of pivoted stems.

The lock itself may be generally stated as belonging to the type known as "horizontally-sliding latches," the utilization of which, especially in connection with pivoted-stem couplers, has heretofore been considered imprac-

ticable for reasons which will hereinafter appear.

In sliding latches as heretofore commonly constructed and operated an extensive longitudinal movement in the axis of the coupler has been necessary in order to properly support the lock under the thrust of the knuckle and provide for the housing of the mechanism by means of which the lock is actuated. Consequently such latches or locks have not been adapted to other than rigid-stem couplers. Therefore in the case of couplers having pivoted stems either vertical pin-locks or wing-locks have been used, the former of which is objectionable, as the pin is liable to creep, and the latter by reason of the leverage on the spring of the lock tending to overcome the spring and release the knuckle of the coupler while trains are in motion, often causing loss of life and great damage. To overcome these several objections and to obtain a simple and compact locking mechanism adapted not only for couplers in general, but especially for the latter class of couplers, such as tender-couplers or pivoted-stem couplers, is the subject of my present invention.

To this end the main feature of my invention embraces the combination with a coupler-head and pivoted knuckle of a horizontally-movable lock therefor and means whereby the unlocking movement of the knuckle tends to cause an outward movement of the lock across the path of the tail of the knuckle.

There are other minor features of invention, all as will hereinafter more fully appear.

In the drawings, A indicates a coupler-head having a plurality of stems B B B pivoted to the head, as at b, which stems may be provided with the usual draft and buffing springs or the equivalent thereof. In the present instance the class of pivoted-stem couplers chosen for purposes of illustration is what is termed a "three-stem" coupler or one having a central stem, the object of which selection will hereinafter appear.

The coupler will be provided with the usual pivoted knuckle, the tail of which and its relation to the lock within the coupler-head be-

ing shown in dotted lines, Fig. 1, and the knuckle-chamber within the head and in which the tail of the knuckle travels being shown at *a*, Figs. 2 and 3, all of which may be of any of the present well-known constructions for vertical-plane couplers.

Within the coupler-head and just back of the chamber *a* for the tailpiece of the knuckle is a chamber 1 for the lock mechanism of the sliding latch, said chamber being situated at one side of and in a plane parallel to the longitudinal axis of the head and provided with parallel side or guide walls 1^a and a spring-seat 1^b, which may have a center pin 1^c to retain in position the spring which projects the sliding latch. In the bottom wall of the coupler-head and within the lock-chamber 1 back of and in line with the knuckle-pivot is an arc-shaped slot 1^d for the passage of a post on the bell-crank lever which actuates or retracts the lock to release the knuckle. The arc-shaped slot 1^d is located opposite the pivot *b* of the center stem (which in the present instance is the pivot of the lever which actuates the sliding lock) and should be of such extent as will allow the post or pin 3^c, which engages the sliding lock, to stand forward of the pivot *b* when the sliding lock 2 is in its advanced position.

2 indicates the lock or sliding latch which occupies and operates within the lock-chamber 1 of the head. This latch 2 is notched, as at 2^a, to engage the tail of the knuckle and hold the knuckle in its locked position and is rounded or beveled on its outer face, as at 2^b, so as to be forced back by the inward movement of the tail of the knuckle in coupling. The interior of the sliding latch or lock 2 is cored out, as at 2^c, for the reception or housing of a spring which projects the lock, and at the inner side of the lock is an offset 2^d, which when the lock 2 is in position stands over the slot 1^d in the bottom of the coupler-head, and said offset 2^d or lug has a pin or post hole 2^e therein for the reception of a pin or post on the actuating-lever, which pin or post passes through the coupler-head and engages the sliding latch or lock.

3 indicates the actuating or retracting lever for the sliding latch. This lever 3, which in the present instance is shown as a bell-crank having its fulcrum at the apex, is provided at said apex with a pintle-eye 3^a and at the extremity of its short arm 3^b with a pin or post 3^c, which when the lever 3 is in position passes through the slot 1^d in the bottom of the coupler-head and enters the post-hole 2^e of the lock or sliding latch 2 in line with the pivot of the coupler-knuckle.

In a three-stem coupler of the class shown, or in any pivoted head-coupler having a pivot-pin suitably situated said pin or bolt *b* may be utilized as the pivot of the lever 3, as in the present instance; but where such is not the case a pintle suitably located on or within the coupler-head will be provided.

It will be noted that the pivot of the knuckle, the arc-shaped slot, and the pivot *b* or pivot of the lever which actuates the lock are so located as to form an obtuse angle or, in other words, the point of engagement of the lever 3 with the sliding lock 2 is forward of its pivot *b* and back of the pivot of the knuckle. Consequently when the knuckle is locked by the locking-block any tendency of the knuckle to swing outward (or any unlocking movement of the knuckle) will induce a tendency to a forward or locking movement of the sliding latch or locking-block, and this tendency is augmented by the notch 2^a in the lock, which brings the tailpiece of the knuckle in front of and in line with the pin or post 3^c of the lever 3. It will also be noted that where a pivot other than the pivot *b* is provided for the lever 3 it should be so located that the pin or post 3^c when in position will be located forward of the pivot and back of the pivot of the knuckle.

4 indicates a coiled spring for projecting the lock or sliding latch 2 and maintaining it in the path of the tailpiece of the knuckle at such times as the latch or lock is not retracted by the lever 3. This spring 4 is located in the cavity of the lock or latch 2, having one end bearing on the latch and the other end bearing on the spring-seat 1^b in the coupler-head.

In assembling the devices the projecting spring 4 will be first placed in the cavity 2^c of the sliding latch or lock-block 2. The lock-block 2 is then introduced into the chamber 1 of the coupler-head through the chamber *a* of said head, after which the post or pin 3^c of the operating-lever 3 is passed through the slot 1^d in the bottom of the coupler-head into the post-hole 2^e of the sliding latch 2. The pintle-eye 3^a is passed over the lower end of the center bolt *b* or its equivalent (the fulcrum-pin of said lever) and secured against displacement in any suitable manner, after which the knuckle of the coupler may be applied to the coupler-head in the usual way.

In operation the sliding latch 2 will when the knuckle is closed stand in the path of the tailpiece of the knuckle and maintain the knuckle in its locked position. The force exerted by the tailpiece of the knuckle, which is transverse of the sliding lock, is resisted by the parallel side wall 1^a, and the tendency of the locking-block to tilt under this force is, by reason of the location of the pin or post 3^c, converted into a tendency to a locking movement of the lever 3 and a forward or locking movement of the locking-block.

When the tail of the knuckle is in advance of the lock or sliding latch 2 and is moving inward, as in the act of making a coupling, the relation of the lever 3 and its pin or post 3^c to the sliding latch is such that no resistance to the retreat of the lock is caused thereby.

In order to release the knuckle, the sliding latch 2 is retracted against the spring 4 by a lateral pull on the lever 3.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with a coupler-head and its pivoted knuckle, of a horizontally-movable lock therefor, and means whereby the unlocking movement of the knuckle tends to cause an outward movement of the lock across the path of the tail of the knuckle, substantially as and for the purposes specified.

2. In a car-coupling, the combination with a coupler-head and its knuckle, of a sliding locking-block, a lever for actuating the locking-block, and means whereby an unlocking movement of the knuckle tends to cause a locking movement of the actuating-lever, substantially as and for the purposes specified.

3. In a car-coupling, the combination with a coupler-head and its pivoted knuckle, of a locking-block, and a pivoted lever for actuating the locking-block, said lever adapted to engage the locking-block back of the pivot of the knuckle and forward of its own pivot, the pivots and the point of engagement of the lever and locking-block forming an obtuse angle at the locking-block and in the plane of movement of the knuckle, substantially as and for the purposes specified.

4. In a car-coupling, the combination with a coupler-head and its pivoted knuckle, of a locking-block located within the head, a spring housed within the locking-block for projecting the locking-block, and a lever for retracting the locking-block, said lever pivoted on the coupler-head and provided with a pin adapted to enter a pin-hole in the locking-block, substantially as and for the purposes specified.

5. The combination with a coupler-head and its pivoted knuckle, of a sliding latch located within the head at one side of and parallel to the longitudinal axis of the head, and a lever for actuating the latch said lever having a member which engages the sliding latch at a point off the longitudinal axis of the sliding latch and in line with the pivot of the knuckle, substantially as and for the purposes specified.

6. The combination with a coupler-head and its pivoted knuckle, of a sliding spring-pressed

latch having a pin-opening on one side of the longitudinal axis of the latch, and a horizontally-movable bell-crank lever pivoted on the coupler-head and having a post or pin on one arm thereof which engages in the pin-hole of the sliding latch, substantially as and for the purposes specified.

7. The combination with a pivoted stem-coupler having a pivoted knuckle, of a sliding spring-pressed latch or lock arranged within the coupler-head on one side of the longitudinal axis thereof, and a bell-crank lever pivoted on the stem-pivot and having a member which engages the sliding latch for actuating the same, substantially as and for the purposes specified.

8. In a car-coupling, the combination with a coupler-head and its pivoted knuckle, of a sliding locking-block having at its forward end a notch for the reception of the tail of the knuckle, and a pivoted lever for actuating the locking-block, said lever adapted to engage the locking-block back of the pivot of the knuckle and in line with the notch in the locking-block, the pivots of the knuckle and lever and the point of engagement of the lever and locking-block forming an obtuse angle at the locking-block and in the plane of movement of the knuckle, substantially as and for the purposes specified.

9. In a car-coupling, the combination with a coupler-head and its pivoted knuckle, of a sliding locking-block having a notch for the reception of the tail of the knuckle, a spring housed within the locking-block for projecting the locking-block, and a lever pivoted on the coupler-head for retracting the locking-block, said lever adapted to engage the locking-block in line with the notch therein, the pivots of the knuckle and lever and the point of engagement of the lever with the locking-block forming an obtuse angle at the locking-block and in the plane of movement of the knuckle, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 21st day of November, 1903.

HARRY C. BUHOUP.

Witnesses:

HUGH M. STERLING,
G. P. RITTER.