

No. 760,233.

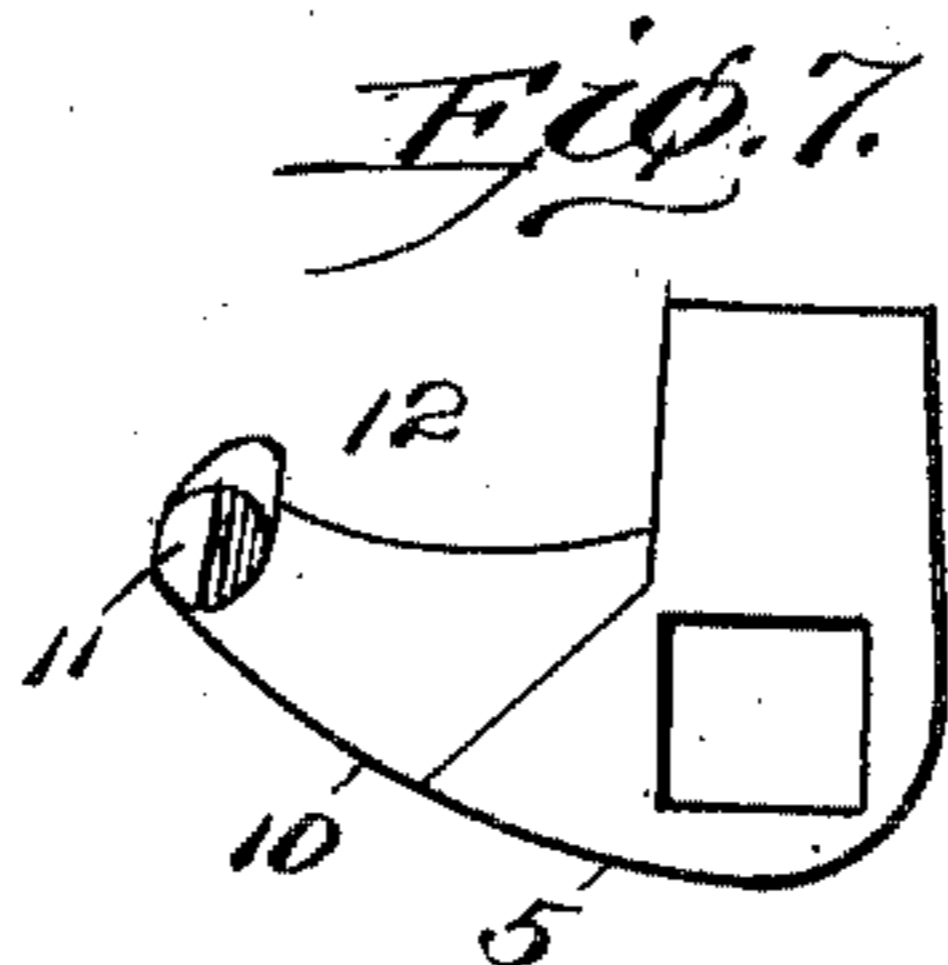
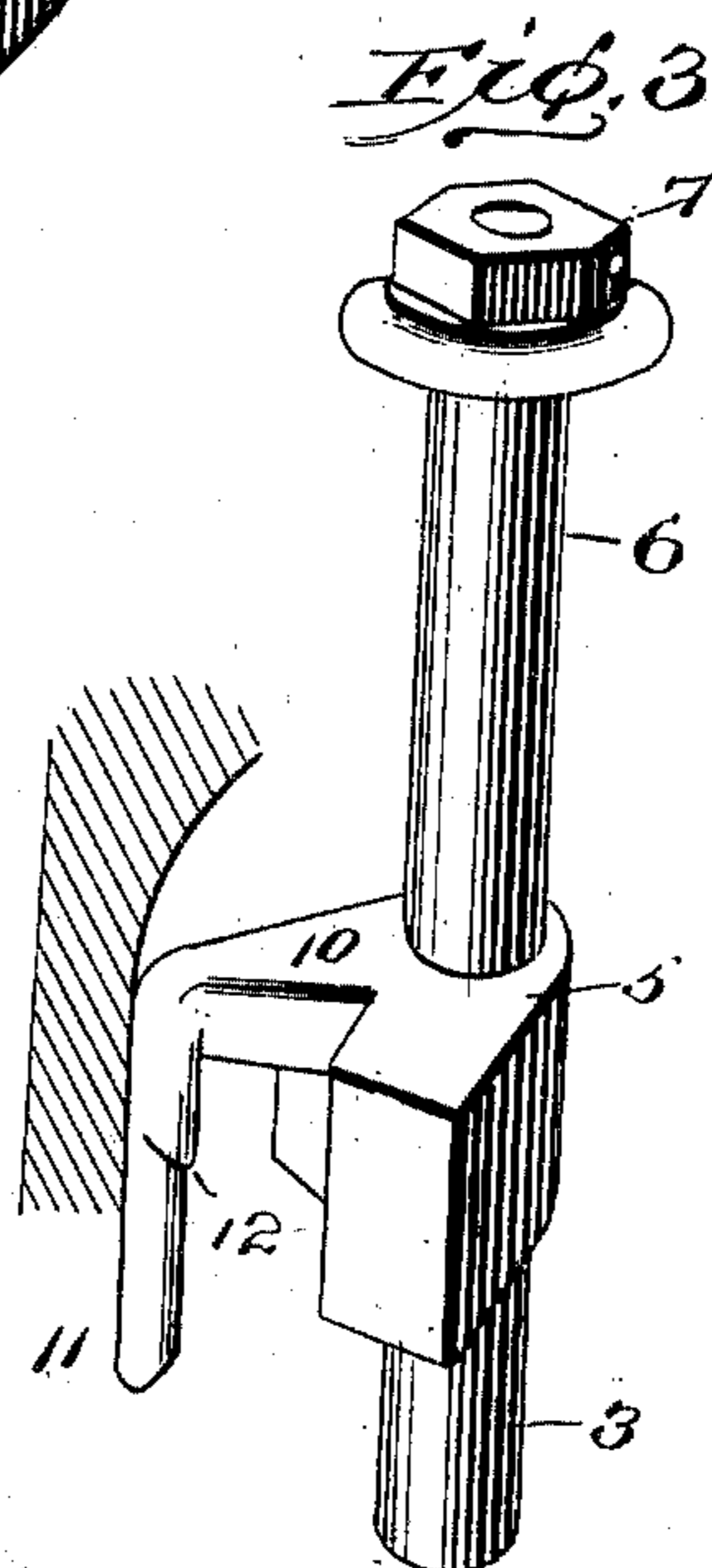
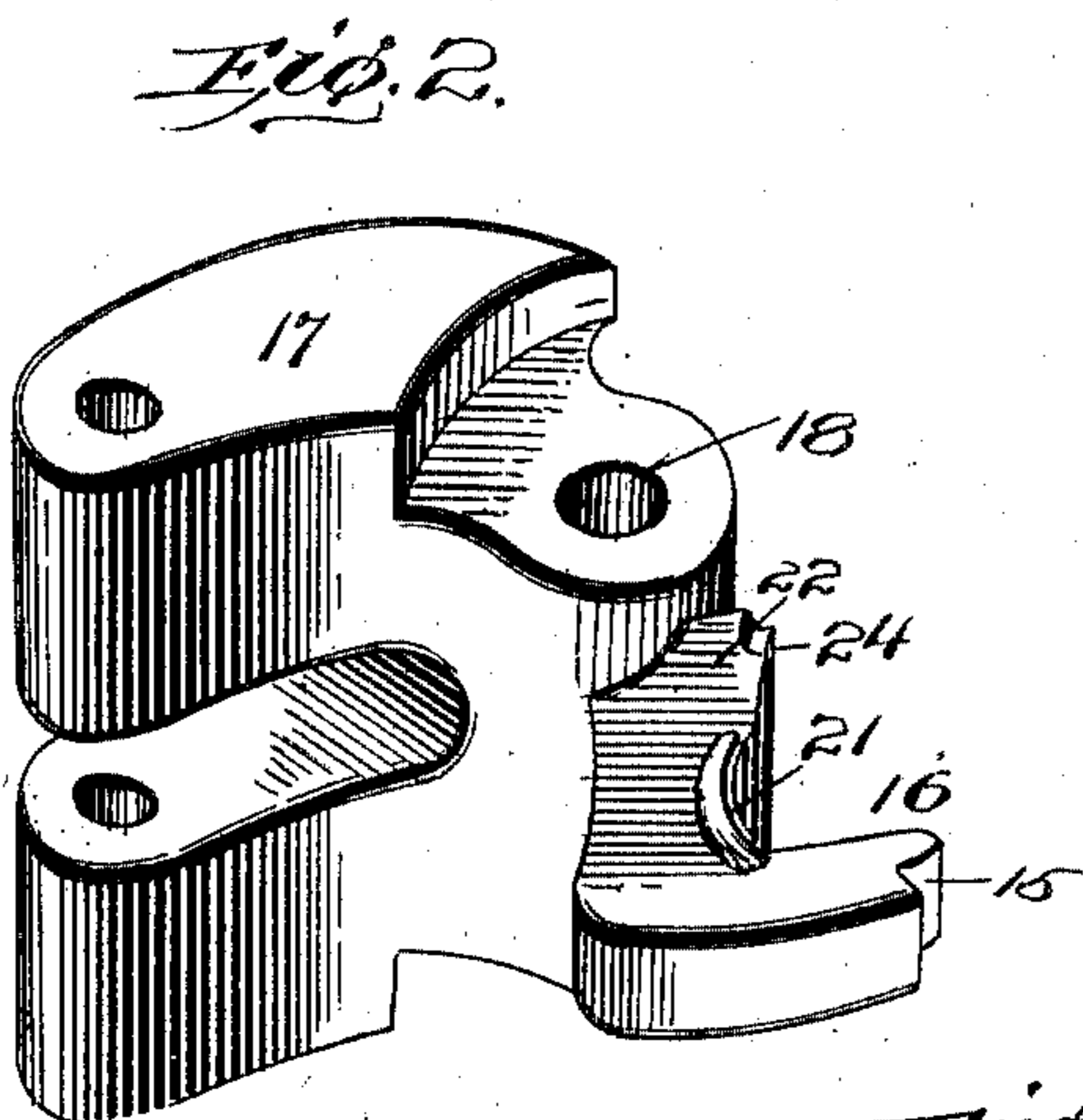
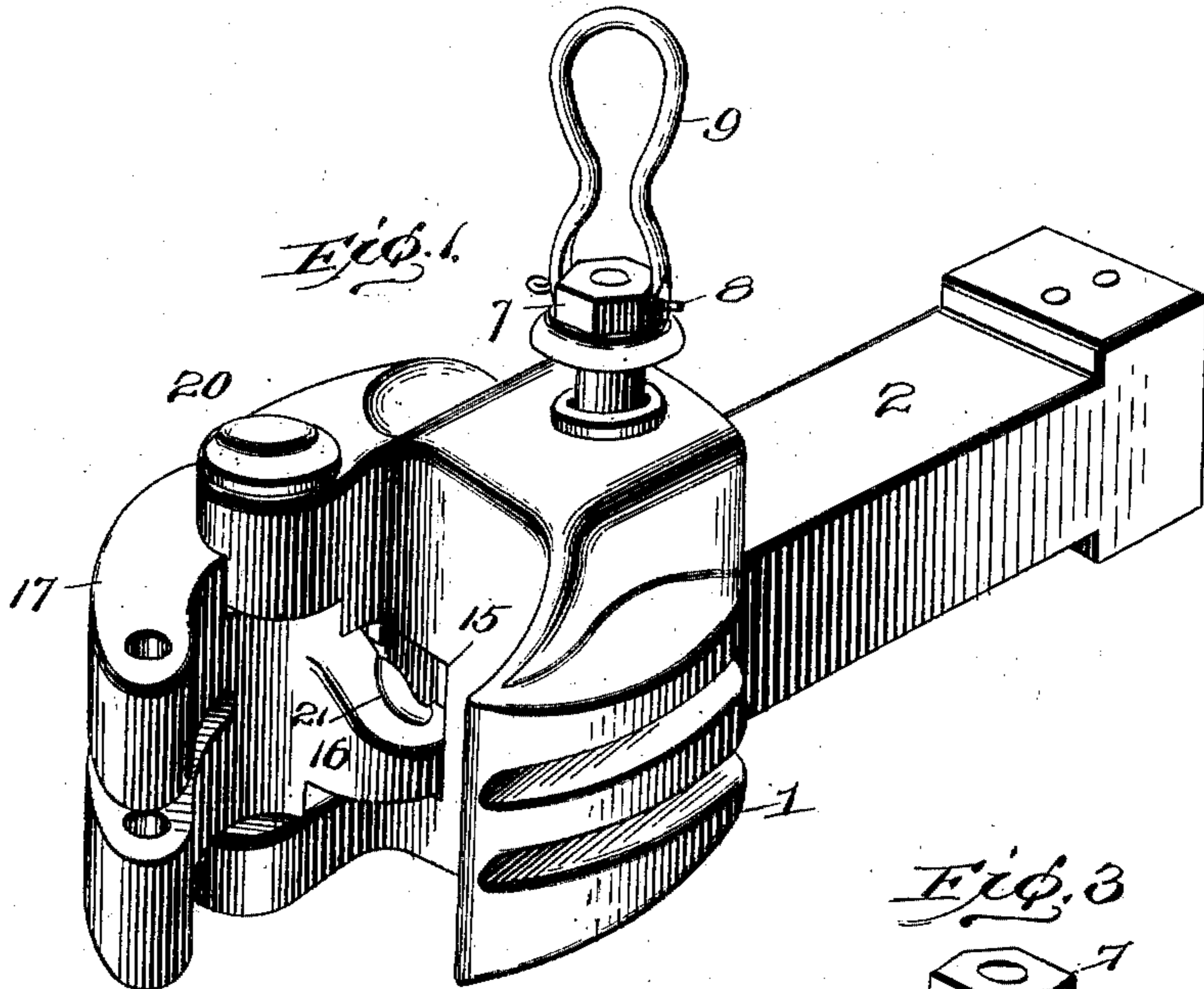
PATENTED MAY 17, 1904.

A. MORITZ.
COUPLING.

APPLICATION FILED DEC. 10, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES
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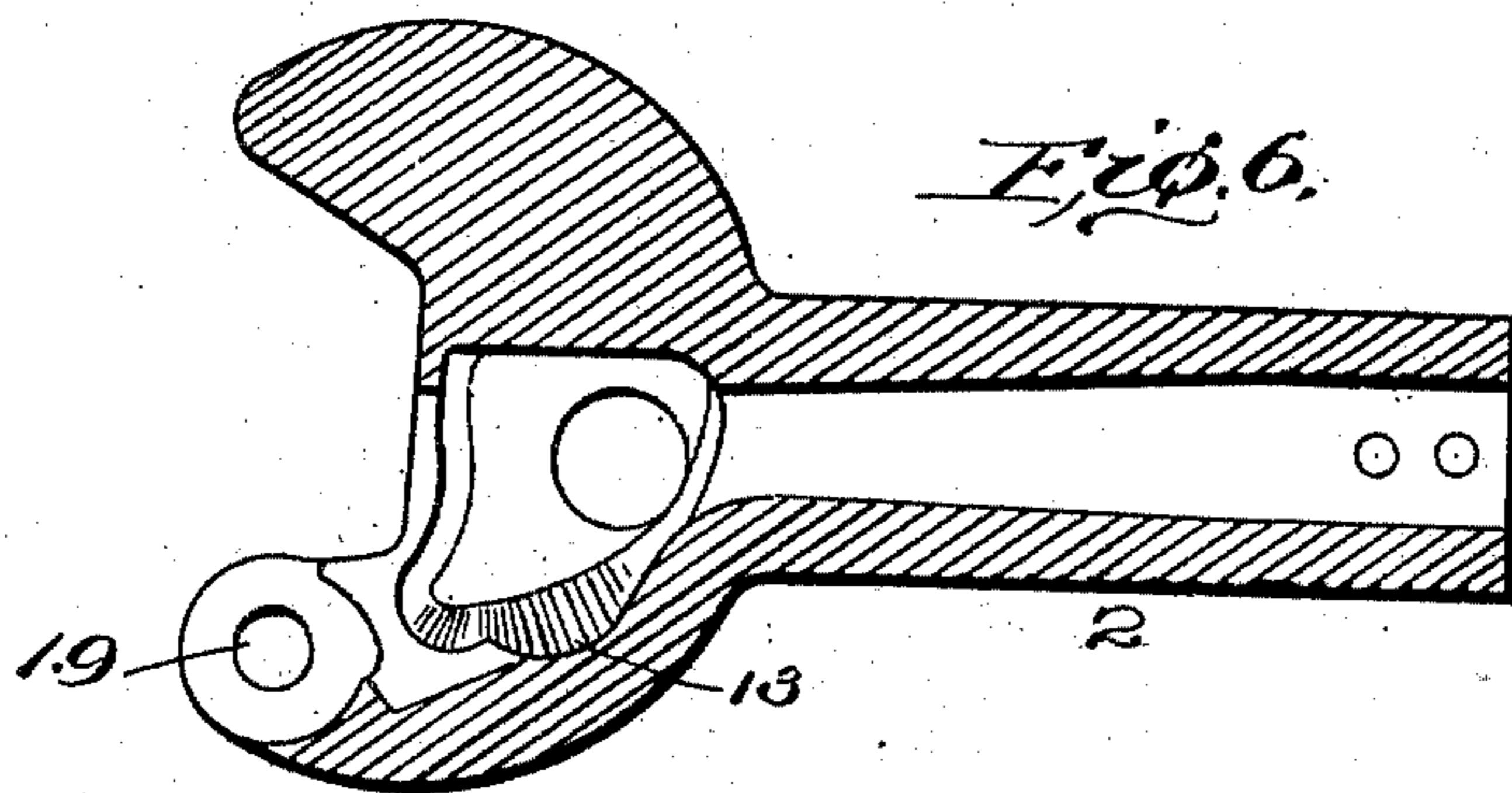
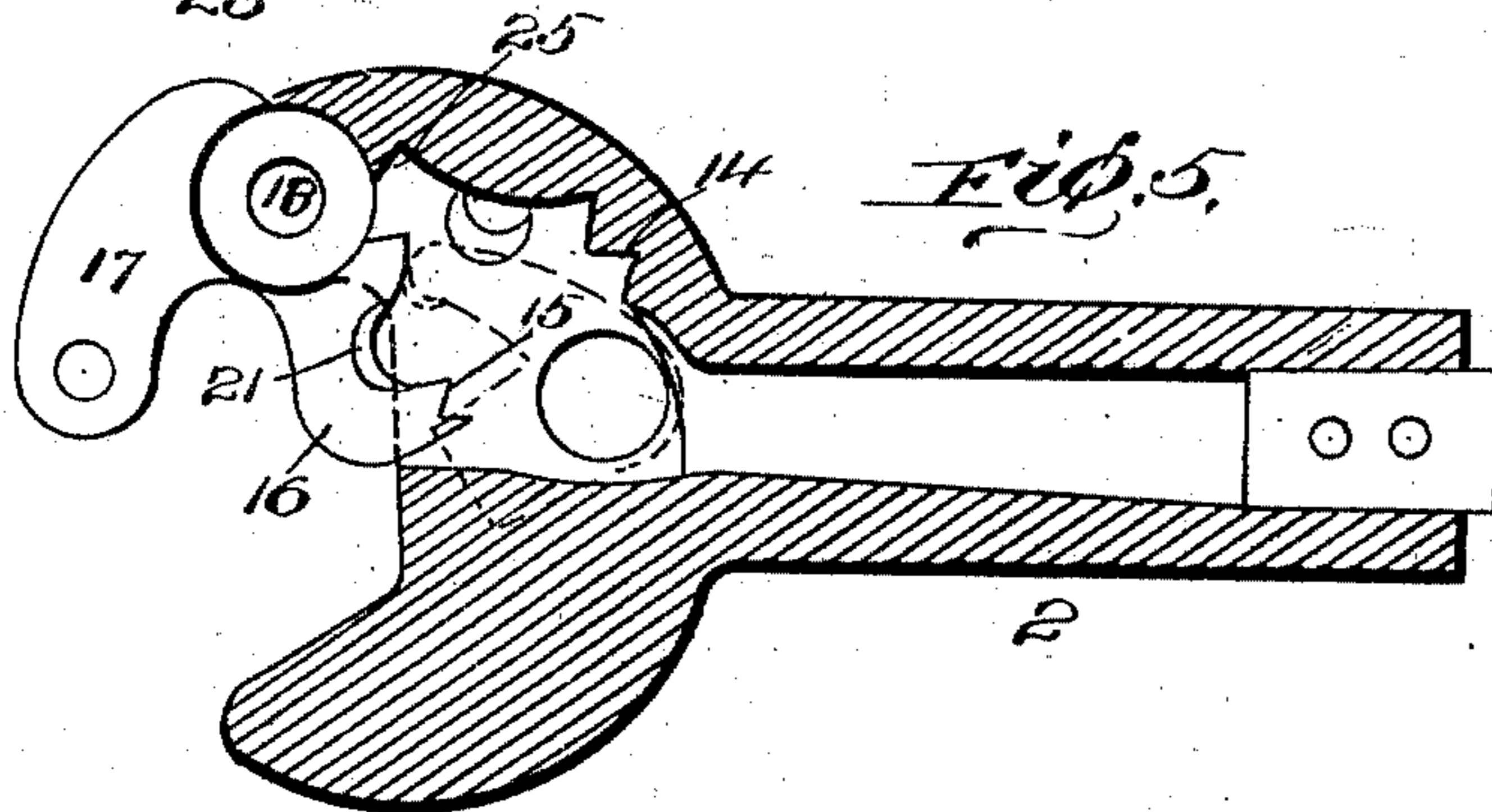
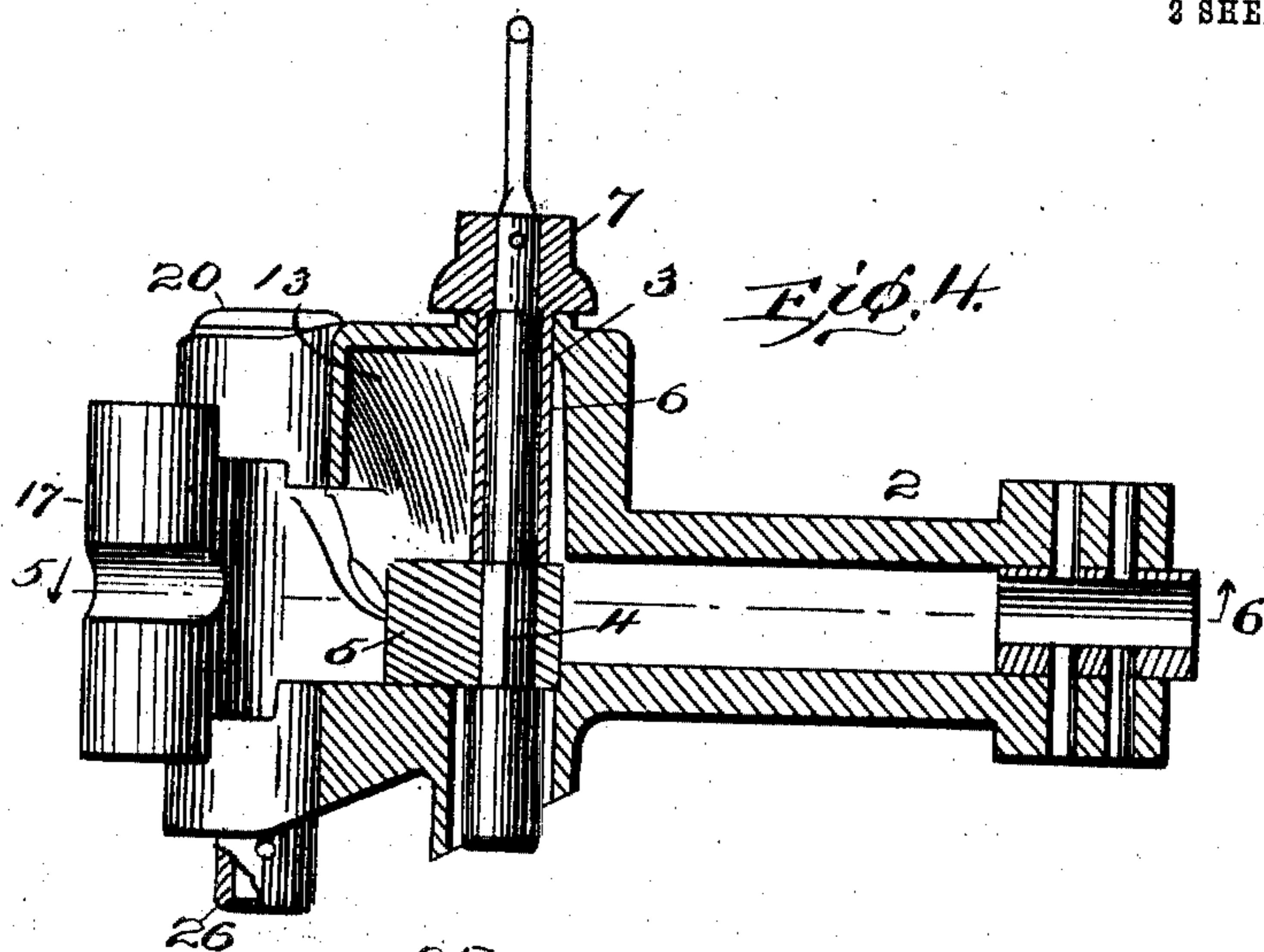
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ADOLPH MORITZ, OF MONTGOMERY, ALABAMA, ASSIGNOR OF FOUR-FIFTHS TO CHARLES A. WICKERSHAM, OF FULTON COUNTY, GEORGIA, AND WILLIAM N. COX, OLIVER H. ATTRIDGE, AND FREDERICK G. BENNETT, OF MONTGOMERY COUNTY, ALABAMA.

COUPLING.

SPECIFICATION forming part of Letters Patent No. 760,233, dated May 17, 1904.

Application filed December 10, 1903. Serial No. 184,630. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH MORITZ, a citizen of the United States, residing at Montgomery, in the county of Montgomery and State of Alabama, have invented new and useful Improvements in Couplers, of which the following is a specification.

This invention relates to improvements in car-couplers, and particularly to that class in which the coupler-head is provided with a hinged knuckle adapted to engage a similar knuckle in the coupler-head of an opposite car.

The object in view is the provision of means for retaining a knuckle in a coupling position regardless of the presence of the knuckle-pin.

A further object in view is the provision of means for preventing lateral twisting or strain upon portions of a coupler-head due to pressure upon a portion of a broken knuckle-pin.

With these and further objects in view the invention comprises, in combination with a coupler-head, a knuckle pivotally carried thereby, a tailpiece projecting from said knuckle, a coupler-pin extending through said head, means carried by said pin for moving said tailpiece, and means carried by the pin for locking the tailpiece against movement.

It further comprises certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a coupler embodying the features of the present invention. Fig. 2 represents an enlarged detail perspective view of the present improved knuckle. Fig. 3 represents a similar view of the coupling-pin and parts carried thereby. Fig. 4 represents a longitudinal vertical central section taken through the structure disclosed in Fig. 1. Fig. 5 represents a longitudinal horizontal section taken on the plane of line 5 6 of Fig. 4 looking down. Fig. 6 represents a similar view taken on the same plane, but looking up. Fig. 7 represents an inverted plan view of the pin-carried block detached.

Referring to the drawings by numerals, 1 indicates a coupler-head provided with suitable draw-bar connections 2 and vertically apertured for the reception of a coupling-pin 3. Said pin 3 is of peculiar construction, having its upper portion of relatively small diameter and its lower portion of relatively large diameter, said portions being of cylindrical contour, while the intermediate portion of the said pin is formed polysided, as at 4. An operating-block 5 is carried by pin 3 at the polysided portion, and a sleeve 6 surrounds the upper portion of said pin and is of a diameter equal to the diameter of the lower portion of the pin. Thus an annular shoulder is formed below the polysided portion 4, and a similar shoulder is formed above the same, which shoulders retain the block 5 against longitudinal movement upon the pin. A cap or nut 7 is preferably formed integral with sleeve 6 and positioned on the upper end of the pin 3 for supporting the pin within the apertures in the head 1, a suitable cotter or other locking means 8 being passed through the element 7. Of course the element 7 may be made in the form of a nut and threaded into position. A suitable bail or other operating-handle 9 is preferably carried by the pin 8 for facilitating lifting of the pin 3 for purposes hereinafter mentioned. The block 5 is made up of a body portion surrounding the polysided portion of pin 3 and an arm 10, projecting laterally from said body portion and formed with a curved inner edge, said arm 10 carrying a depending finger 11. A lug 12 extends from the side of finger 11 for purposes hereinafter mentioned.

The head 1 is of substantially hollow interior formation, the side portion thereof being curved into a wide guiding-surface of cam-like formation, as at 13, adapted in operation to engage the curved inner edge of arm 10 and the upper end of finger 11 for swinging said finger about when the pin 3 and block 5 are lifted. A vertical shoulder or corner portion 14 is formed at one side within the head 1 beneath the cam portion 13, the said shoulder being designed in operation to receive the

cut-out portion 15 of the end of the tailpiece 16 of a coupler-knuckle 17, said knuckle being provided with a pin-receiving opening 18, adapted to be brought into register with openings 19 19, formed in the head 1, through which pin 20 is passed for locking said head and knuckle in their operative relation. The tailpiece 16 is curved to fit snugly the contour of block 5 opposite the finger 11, said tailpiece in operation being adapted to swing between said finger and wall beneath the arm 10. A lug 21 projects upwardly from the inclined surface 22 of the tailpiece 16, said lug in operation being adapted to engage lug 12 for supporting the pin 3 in a partially-raised position for purposes hereinafter specified.

In operation when the parts are in the position indicated in Fig. 5, with the knuckle in its open position, the same is in condition for coupling. To accomplish the coupling operation, it is only necessary to bring the knuckle of the coupler designed to engage the present improved coupler into contact with the tailpiece 16, whereupon said tailpiece is caused to move inwardly between the block 5 and finger 11, said block, as seen in Fig. 1, having previously rested upon said tailpiece. As the tailpiece 16 moves inwardly the said block is permitted to drop on one side of said tailpiece in contact with the outer wall of the same, while the finger 11 moves down upon the opposite side of said tailpiece, an aperture 23 being formed in the floor of the head 1 for the reception of said finger when in its lowermost position. The parts are thus in a locked position, and the knuckle 17 cannot possibly swing upon its pin 20, owing to the locking engagement of the tailpiece 16 with the block 5. The tailpiece 16 at the point it joins the pivot of knuckle 17 is formed with a vertical shoulder 24, designed to engage an undercut corner 25, formed in the wall of head 1, said shoulder engaging said corner at the time the tailpiece lies between the finger 11 and the block 5. Due to the fact that the shoulder 24 is comparatively sharp and the corner 25 is undercut, the only manner in which the knuckle 17 can be removed from its locking position is by swinging upon its pivot, and this is true regardless of the presence of the pin 20. Therefore the engagement of the tailpiece 16 with the block 5 at the same time the shoulder 24 engages the corner 25 will prevent the uncoupling of the present improved coupler even though the pin 20 be moved or broken.

When a train is at a standstill or in motion and it is desired to uncouple the car, it is only necessary to grasp the handle 9 and lift the pin 3 upwardly, whereupon the arm 10 strikes the cam-surface 13, and if a releasing jar is caused to effect the coupler the said arm rotates the block 5, moving the finger 11 outwardly. The outward movement of the finger 11 effects the outward movement of the

tailpiece 16, and thus releases the knuckle 17. However, if no release of the knuckle is permitted by movement of the train it would be comparatively impossible to throw the tailpiece 16 outwardly, and I therefore provide means for setting the parts in a released condition, which consists simply in lifting the block 5 to such position as to permit the lug 12 to engage the lug 21. When the block is thus positioned, the said lugs will retain the same in the raised condition, with the lower surface of the block above the path of movement of the tailpiece 16. Thus when the cars are moved apart the knuckle 17 is free to swing outwardly. Of course it will be observed that the cam-surface 13 is positioned above the arm 10 when in its lowermost position a distance equal to the width of that portion of tailpiece 16 which is adapted to swing between the finger 11 and the block 5, whereby the block 5 is free to move vertically without rotation for the said distance, after which further vertical movement of said block will cause the arm 10 to engage said cam-surface and swing the tailpiece 16 outwardly by contact with the finger 11 unless the knuckle 17 is prevented from swinging by the contact of a knuckle upon a contiguous car when both cars are at a standstill. If the tailpiece 16 is not in condition to be moved, it is only necessary to lift a bolt 3 until the arm 10 strikes the cam-surface 13 and moves the lug 12 over into contact with the lug 21.

It sometimes happens that the knuckle-pin breaks in the middle and the lower portion thereof drops out. The entire strain carried by said pin is thus thrown upon the upper half and tends to twist the upper portion of the coupler-head. I prevent this disastrous tendency by the provision of a depending housing 26, adapted to inclose the lower end of pin 20, the said housing being apertured for permitting the introduction of a cotter, if desired. The lower half of a broken pin will thus be prevented from falling and will equalize the strain upon the coupler-head.

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

1. In a mechanism of the class described, the combination with a coupler-head, of a knuckle pivotally carried thereby, a tailpiece projecting from said knuckle, a coupler-pin carried by said head, a block carried by said pin adapted to engage said tailpiece for locking the same in a closed position, a finger connected to said block, and coacting parts carried by said finger and tailpiece for supporting the finger in position for retaining said block in condition for releasing said tailpiece.

2. In a mechanism of the class described, the combination with a coupler-head, of a knuckle pivotally carried thereby, a tailpiece projecting from said knuckle, a pin carried by said head, means for locking said knuckle

in a coupling position independently of its pivot, a vertically-depending finger adapted to engage said tailpiece, and a cam-surface above said finger adapted to be engaged thereby when said pin is actuated for effecting release of said knuckle.

3. In a mechanism of the class described, the combination with a coupler-head, of a coupling-pin carried thereby, a block carried by said pin, a finger carried by and spaced from said block, a knuckle pivotally carried by said head, a tailpiece carried by said knuckle adapted to be moved between said finger and block, means for locking said tailpiece in a coupling position independently of its pivot, and a cam-surface above said finger for swinging the finger laterally for releasing said lock when the finger is elevated.

4. In a mechanism of the class described, the combination with a coupler-head, of a knuckle pivotally connected thereto, a tailpiece carried by said knuckle, means for locking said tailpiece in position for retaining said knuckle in a coupling condition, a coupling-pin, a finger carried thereby, a lug projecting laterally from said finger and adapted to engage said tailpiece for supporting the finger in an elevated position, said finger being adapted to be moved vertically, and means for swinging the finger laterally when the same is moved vertically.

5. In a mechanism of the class described, the combination with a coupler-head, of a knuckle pivotally connected thereto, a tailpiece carried by said knuckle, means for locking said tailpiece in position for retaining said knuckle in a coupling condition, a coupling-pin, a finger carried thereby, a lug projecting from said finger, and a lug carried by said tailpiece and adapted to engage the lug on said finger for supporting the finger, and means for releasing said locking means connected with said finger.

6. In a mechanism of the class described, the combination with a coupler-head formed with an undercut corner, a knuckle pivoted to said head, a tailpiece carried by said knuckle, a shoulder on said tailpiece designed to engage said corner, a coupling-pin, means carried thereby for locking said tailpiece against release independently of the pivot of said knuckle, and means actuated by said pin for

swinging said tailpiece out of engagement with said corner.

7. In a mechanism of the class described, the combination with a coupler-head formed with an internal cam-surface, and a knuckle pivoted to said head, of a tailpiece carried by said knuckle, a coupling-pin carried by said head, a block carried by said pin, an arm projecting from said block designed to engage said cam-surface when said pin is moved vertically, means for locking said tailpiece in position for retaining said knuckle in a coupling condition, and a finger depending from said arm beyond said tailpiece when the same is in its closed position and designed to engage said tailpiece when the arm is brought into contact with said cam-surface.

8. In a mechanism of the class described, the combination with a coupler-head and a knuckle pivotally carried thereby, of a coupler-pin carried by said head having a relatively large lower portion and a comparatively small upper portion, an annular shoulder being formed intermediate the length of the pin, a sleeve carried by the upper portion of the pin and constituting an annular shoulder at its lower end, a block disposed between said shoulders and carried by said pin, a tailpiece carried by said knuckle, and actuating means for said tailpiece carried by said block.

9. In a mechanism of the class described, the combination with a coupler-head having an undercut shoulder and a corner portion, of a knuckle pivoted to said head, a tailpiece projecting from said knuckle, a shoulder on said tailpiece adapted to engage the undercut portion of said undercut shoulder of the head, the end of said tailpiece being formed with a transverse groove adapted to engage the corner portion of said head, and means for preventing lateral movement of said tailpiece when the same is in such engagement, whereby said tailpiece is adapted to be prevented from being removed from said head independently of the retention of the knuckle-pivot.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ADOLPH MORITZ.

Witnesses:

F. J. POUNDSTONE,
L. D. HALE.