

(No Model.)

3 Sheets—Sheet 1.

M. I. WELCH.
CAR COUPLING.

No. 571,030.

Patented Nov. 10, 1896.

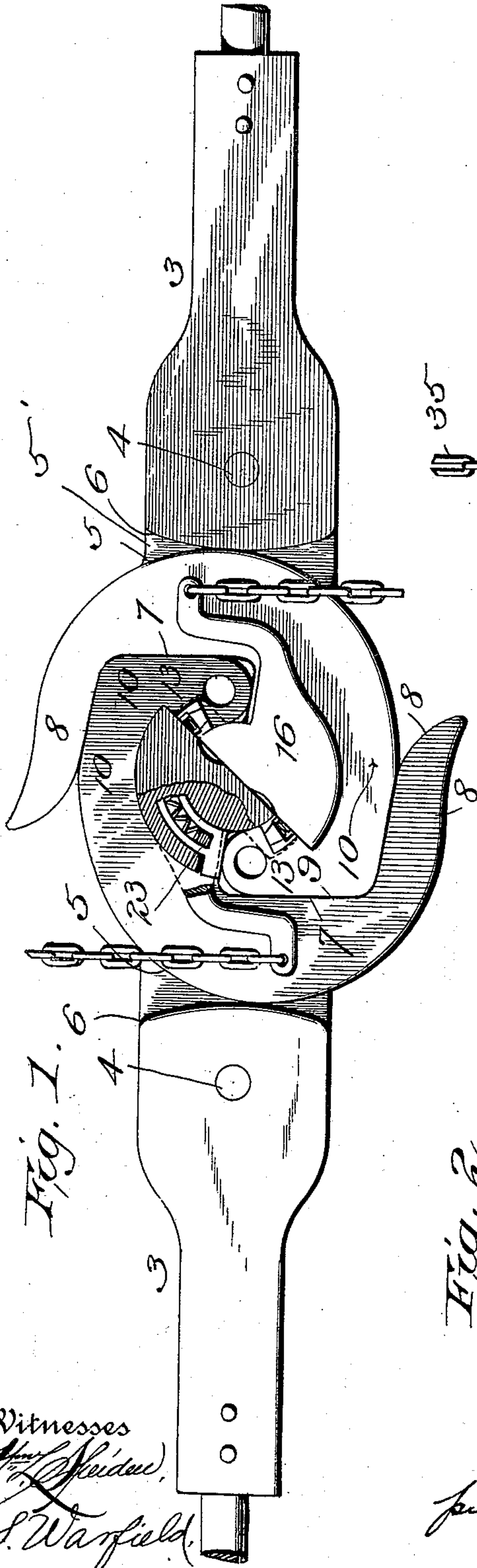


Fig. 1.

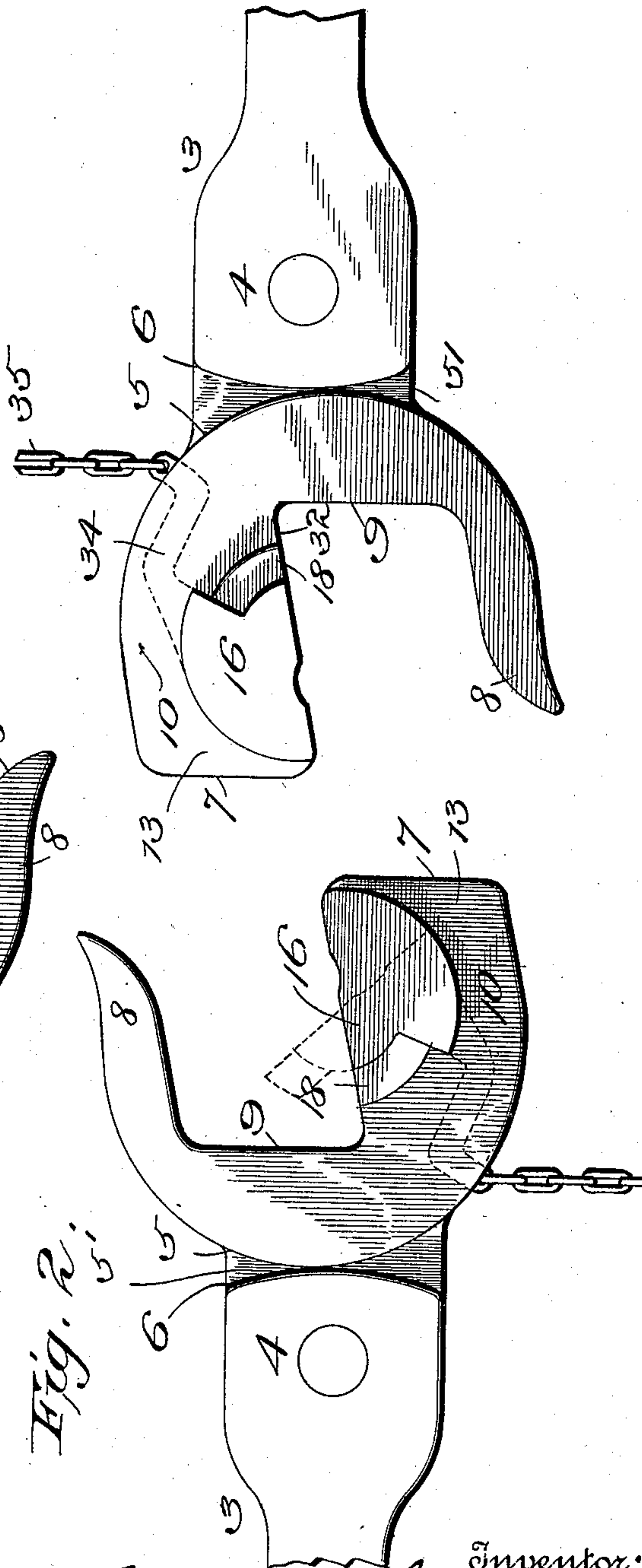


Fig. 2.

Witnesses
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Michael I. Welch
per *Charles G. Dwyer*
Attorney

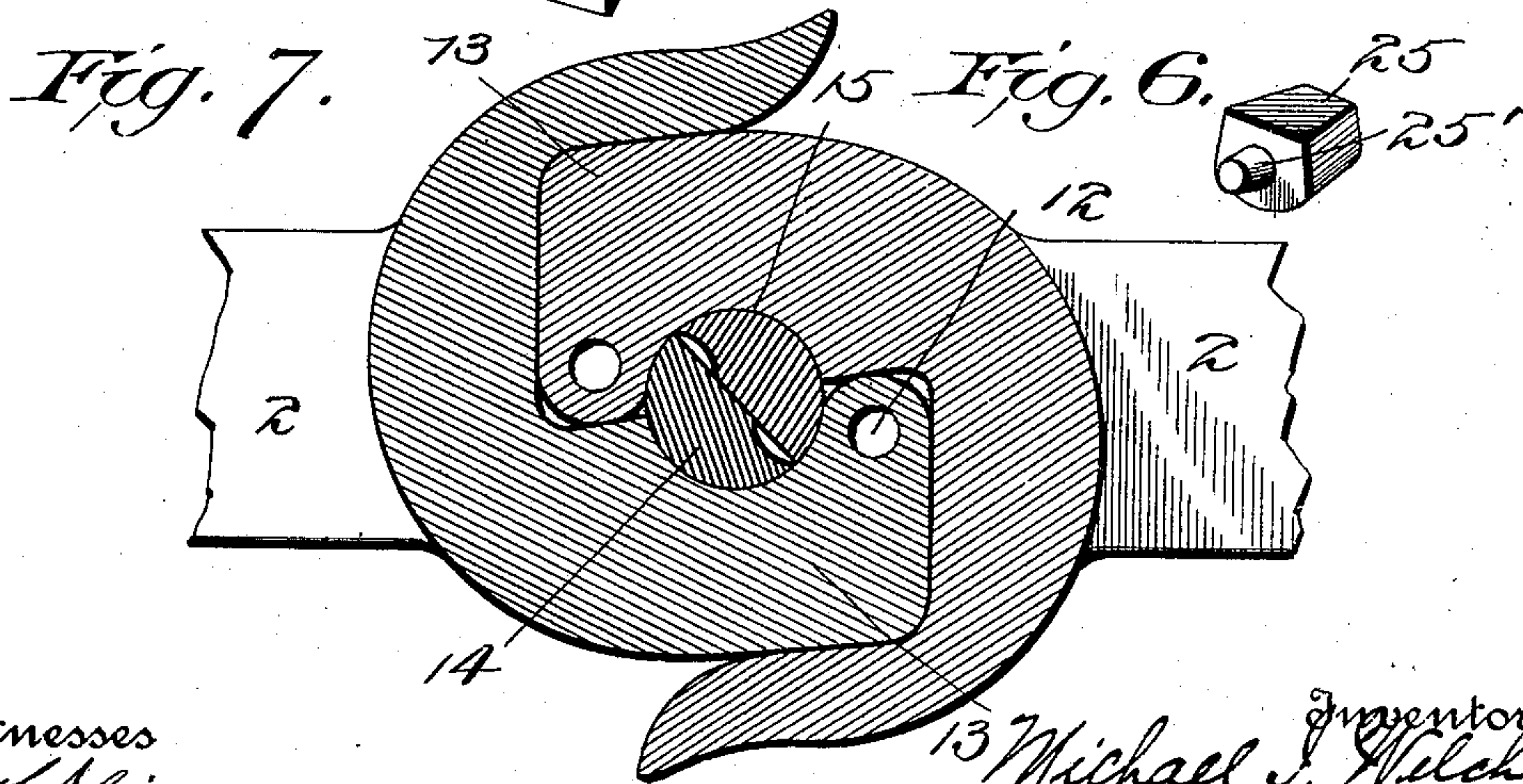
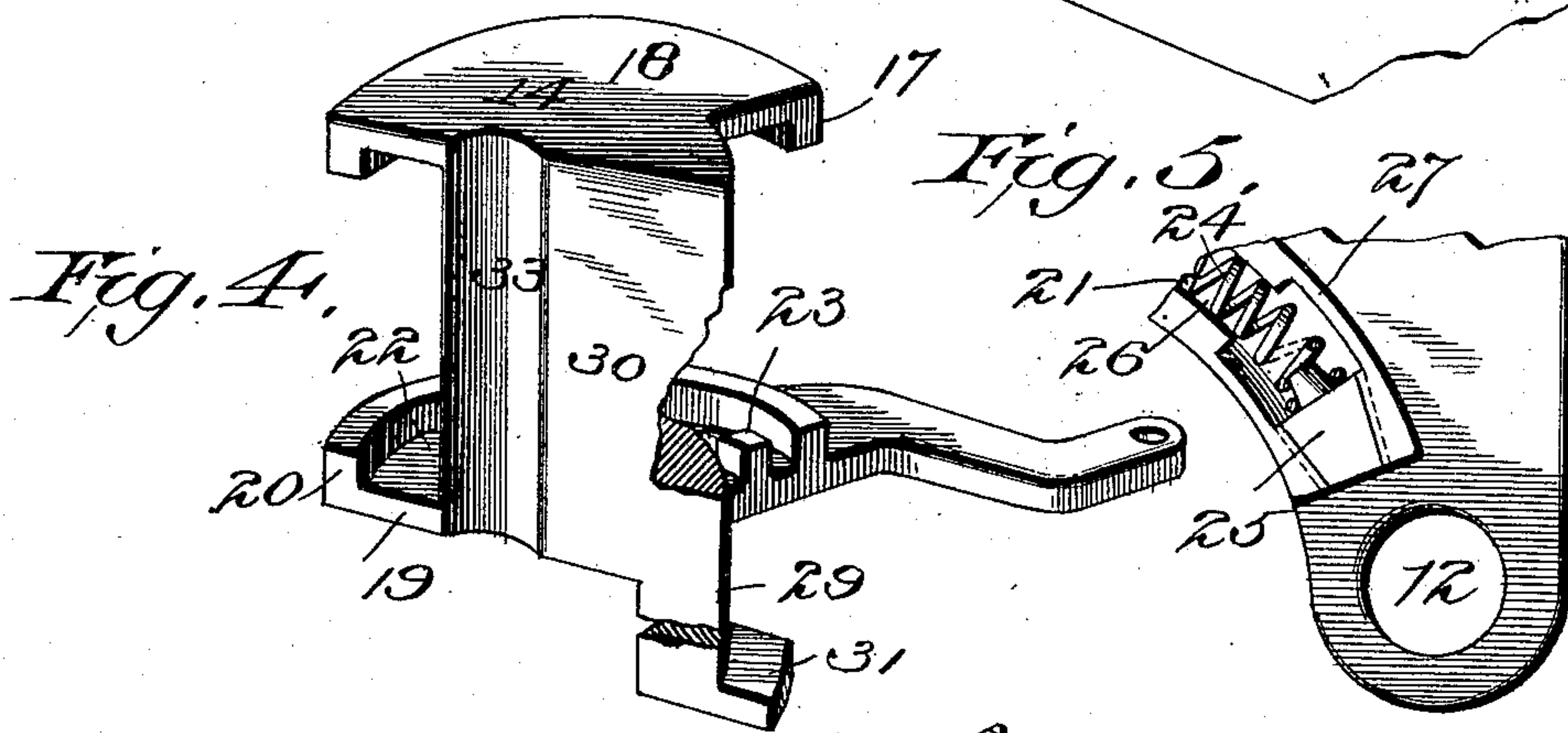
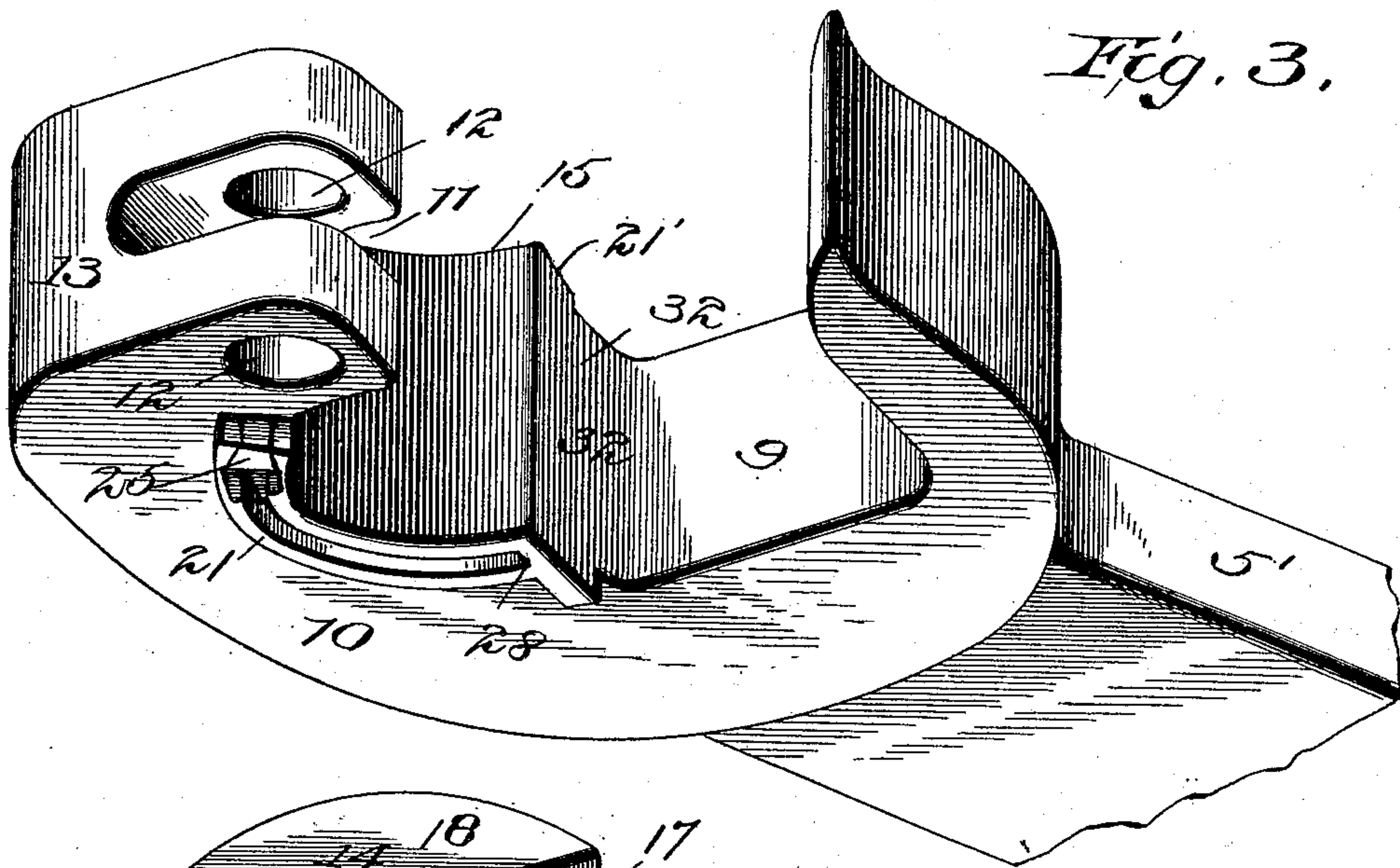
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Witnesses
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A. S. Warfield.

Inventor,
Michael I. Welch,
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Attorney

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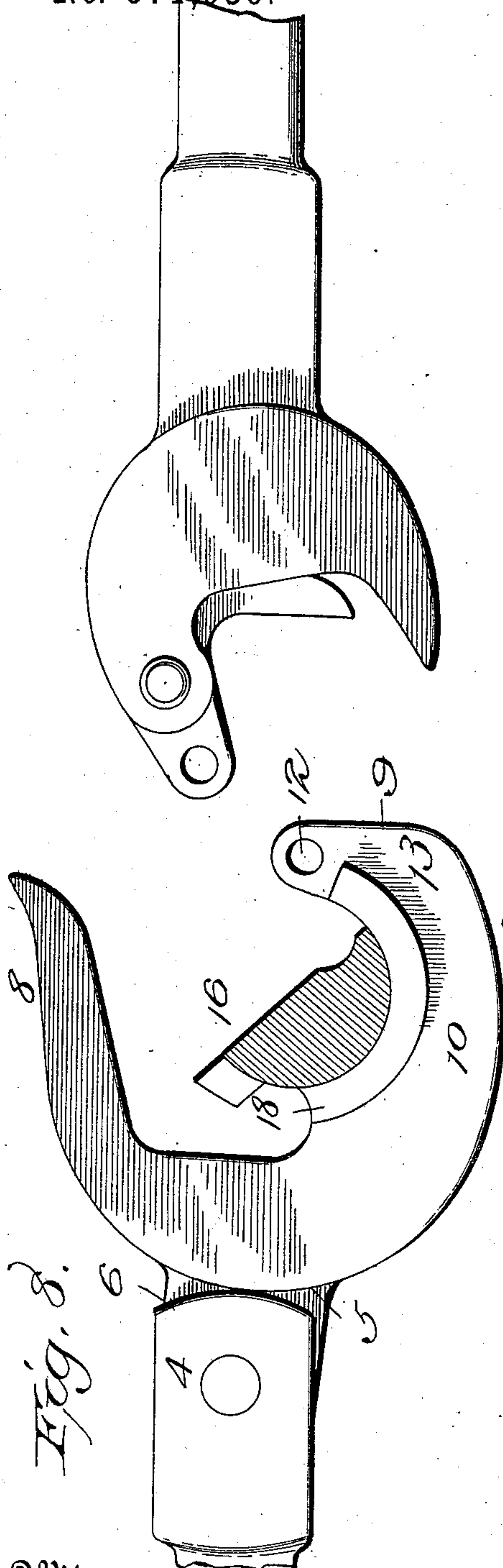


Fig. 8.

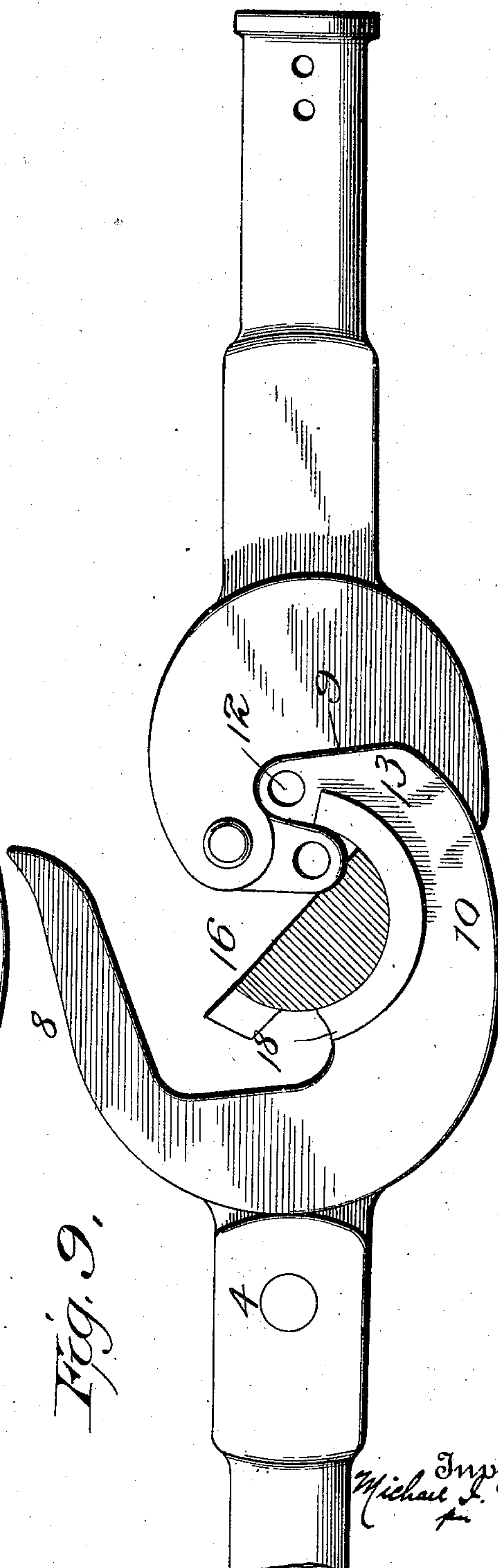


Fig. 9.

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UNITED STATES PATENT OFFICE.

MICHAEL I. WELCH, OF CORDELE, GEORGIA, ASSIGNOR OF ONE-HALF TO
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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 571,030, dated November 10, 1896.

Application filed September 22, 1896. Serial No. 606,637. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL I. WELCH, a citizen of the United States, residing at Cordele, in the county of Dooly and State of Georgia, 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to those couplers which employ a split locking-pin, adapted to make a partial turn on a vertical axis in the operation of coupling and uncoupling, and my object is to improve upon my prior patent, No. 496,026, wherein is shown such a construction.

A further object contemplated is that of constructing my coupler on the lines of those indorsed by the Master Car-Builders' Association, so that one of my coupling members will not only couple with one of its own kind, but will automatically couple with the other kinds now in general use, such as the Master Car-Builders' and link-and-pin-patterns.

A still further object of my invention is the simplification of the parts in such a manner as to greatly solidify, strengthen, and cheapen the coupler, whereby the breakage of any one part will not necessarily disable the others, and whereby the broken part can be quickly substituted by a new one.

A still further object sought to be accomplished is to construct the aforesaid parts so that the drawheads will swing on a pivot laterally to accommodate themselves to each other, whereby the coupling can be done on a curve or uneven track.

With these and sundry other minor objects in view, my invention consists in three principal parts, a coupling-head having the general outline of the Master Car-Builders' type, a semicylindrical rotatable member within the head, and an inclosed righting-spring, all peculiarly constructed and adapted to operate in the manner more fully described hereinafter and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a bottom view of my complete de-

vice, showing the jaws coupled, parts being cut away to disclose the mechanism within; Fig. 2, a top view of a pair of my couplers separated and showing the parts unlocked; Fig. 3, a bottom perspective view of one member of my coupler, showing the spring-receiving groove and the means for opening and closing the end thereof; Fig. 4, a top perspective view of one of the sections of the split pin, part of which is cut away to show the lug thereon which engages the end of the spring on the head above; Fig. 5, an enlarged view of one end of the drawhead and the groove, showing the means for permitting the latter to be inserted and removed; Fig. 6, a perspective view of the removable plug which closes the end of the chamber for the spring; Fig. 7, a horizontal sectional view of a pair of closed couplers, showing the manner in which the sections of the split pin interlock; Fig. 8, a top view of one member of my coupler, and another species, such as the Master Car-Builders', just before coupling; and Fig. 9, a view of the same after having coupled.

Both of my coupling members being exactly alike, a description of one will suffice for the other.

The reference-numeral 1 denotes the drawhead proper, which is constructed on the lines of the Master Car-Builders' type, and is provided with forwardly-projecting jaws 8 and 10. The jaw 8 flares outwardly with the usual curved inside face for the guidance of an incoming jaw 10. The head is provided with a neck 5', which passes into the end of a draw-bar 3 and is pivoted to swing laterally thereon by a pivot 4 passing vertically through the two parts. Curved shoulders 5 are formed on the draw-head and abut against the oppositely-curved ends 6 on the draw-bar for the purpose of receiving the concussion of the heads when coupling and relieving the pivot of the strain. The jaw 10 is given a width and length corresponding closely to that of the Master Car-Builders' coupler for the purpose of enabling the latter to couple therewith, as illustrated in Fig. 9. In other words, the outlines of the jaw 10 of my coupler correspond with the knuckle and jaw of a Master Car-Builders' coupler, but in place of the knuckle I substitute a solid inwardly-projecting arm 13, made

integral with the head and provided with a horizontal link-slot 11 and pin-holes 12 for the reception of a link and pin when necessary.

The automatic locking device which I employ in place of the knuckle used in the Master Car-Builders' coupler consists of a semicylindrical section constituting one-half of what, for convenience, I have termed a "split pin" 14, which fits snugly within a vertical concaved socket 15 in the inside of the wider jaw 10, in which it rocks during the operation of coupling and uncoupling, and it is held in place by means of a pair of segmental flanges 18 and 19, provided with inwardly-projecting rims 17 and 20, respectively, which overlap a pair of segmental guide-bosses 21 and 21', located at the top and bottom edges of the socket 15. The locking-section 14 is automatically thrown out and held in its normal or locking position by means of a coiled righting-spring 24, located in a curved groove 26 in the guide-boss 21 on the under side of the coupler-head. The spring may be inserted and removed with facility by the removal of a block 25 at the end of the groove. This block is wedge-shaped to prevent it from slipping out endwise, and it is also dovetailed to prevent it from dropping out laterally. A pin 25' on the wide end of the block enters the coiled end of the spring and holds it centrally on the block within the groove, and at the same time the expansive force of the spring serves to retain the block in its seat. An enlargement 27 in the end of the groove opposite the block permits the latter to be moved endwise out of its socket and taken out when desired. The opposite end 28 of the groove serves as an abutting-wall for a stop 23 on the pin-section 14 and prevents the latter from turning beyond the position shown in Figs. 8 and 9. Hence it will be seen that the coiled spring extends lengthwise concentric with the arc of the circle in which the locking-section 14 turns. The lower flange 19 on the pin-section overlaps the groove and holds the spring in place, so that it cannot possibly drop out.

The front end of the jaw 13 is made straight and flat to strike against the throat 9 of the opposite jaw, which is given a shape exactly corresponding thereto in order to form a satisfactory fit. The flat face 32 of the jaw 13 is made to extend obliquely to the line of draft, but when the locking-section 14 is thrown back into uncoupling position, as in Fig. 1, its face 30 will coincide with the face 32. 33 represents a vertical concaved groove extending from the top to the bottom of the locking-section 14. This groove is given a concavity to correspond with the rounded end of the knuckle on the Master Car-Builders' coupler in order to allow the latter to pass behind the arm 10 on the jaw 13 far enough to let the latter up snugly into the throat of the Master Car-Builders' coupler, as seen in Fig. 9.

It is important that groove 33 should lie in front of the vertical axis of the locking-section in order to bring the force of the knuckle on the right side of the axis of the section, otherwise the parts would not couple as well.

The means for uncoupling consist of a horizontal laterally-extending lever 34, cast integral with the flanges of the locking-section. To the outer end of the lever is secured a chain 35, adapted to be pulled upon by the operator to turn the sections around to uncoupling position.

A safety attachment is applied to my coupler, so that in the event of one coupler-head pulling out of the car the other will catch and hold it up so that it will not fall down and wreck the train. This device consists of a downwardly-extending vertical arm 29 at the lower end of the locking-section 14 and provided with an outwardly-extending shelf 31. This arm is cast integral with the locking-section and its front face lies flush with that of the latter, so that when the two sections are together they will slide up and down on each other without interference. The shelf is made wide enough to project out under the arm 13 of the opposite draw-head, so that when the latter pulls out or drops down an abnormal distance it will come in contact with the shelf and be prevented from falling. The guide-boss 21' slopes downwardly from the top of the socket 15.

The preferred construction of the parts having been set forth, I will now proceed to describe their operation. The righting-spring holds the locking-section 14 around, so that its flat face will stand obliquely to the line in which the couplers advance toward each other. As the jaws pass into each other the end 10 strikes the opposite outwardly-projecting face of the locking-section and presses it back against the tension of the spring until the end 7 comes in contact with the throat 9 of the opposite jaw, whereupon the locking-section will be released and the spring will throw it back into its former position and the two locking-sections will be placed base to base to form a complete cylindrical pin, as seen in Fig. 7. When draft is brought upon the couplers in the opposite direction to pull the train, the strain will be brought to bear upon the back portions of the sections, which, being unable to turn by reason of the lug 23 being in contact with the end wall 28, will prevent the parts from uncoupling. The pivot 4 allows the head to swing laterally on the draw-bar and gives it a greater range within which to perform the coupling operation and allows them to accommodate each other sufficiently to couple on curves and uneven surfaces where the ordinary Master Car-Builders' coupler could not possibly operate. It also maintains a straight draft on the couplers and prevents lateral strain when rounding curves.

Upon the abolition of the link-and-pin

couplers the arm 10 of my draw-head can be made solid and the slot and pin-hole dispensed with, thereby greatly strengthening the draw-head by relieving it from chambers which weaken and make it liable to breakage.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupler, the combination with a pivoted draw-head, of a semicylindrical locking-section secured to rock therein and provided with flanges, concentric guide-lugs on the head under the flanges, a righting-spring in one of the lugs, and having one end in engagement with the locking-section and the other with the draw-head, substantially as described.

2. In a car-coupler, the combination with a draw-head having a concaved socket, of a semicylindrical locking-section secured to rock therein, means for retaining the section in place on the head, and a righting-spring disposed longitudinally in an arc concentric with that in which the section turns, substantially as described.

3. In a car-coupler, a draw-head having a concaved socket, in combination with a semicylindrical locking-section entirely filling said socket and movable therein and provided with a vertical concavity extending across its flat face, and a righting-spring, substantially as described.

4. In a car-coupler, the combination with a pivoted draw-head having a concaved socket, a semicylindrical locking-section movable therein, lateral flanges on the section which overlap the top and bottom edges of the socket, guide-bosses for retaining and guiding the movements of the section, and a righting-spring having its extremities in connection with the section and head respectively, and being covered by one of the flanges, all arranged and adapted to operate in the manner and for the purpose set forth.

5. In a car-coupler, the combination with a pivoted draw-head having forwardly-projecting jaws one of which is provided with an inturned arm and link-and-pin openings, of a semicylindrical locking-section secured to turn within one of the jaws, means for holding and guiding said section during its movement, and a righting-spring disposed longitudinally in an arc concentric with that in which the locking-section turns, with its opposite ends in engagement with the jaw portion and the section, substantially as described.

6. In a car-coupler, the combination with a draw-head having the usual forwardly-projecting jaws, of a semicylindrical locking-section secured to turn in one of the jaws, segmental guide-bosses on the head at the top and bottom edges of the socket, laterally-extending flanges on the top and bottom of the locking-section to overlap and engage the guide-bosses, a compressible spiral spring located within a groove in one of the bosses,

and having its opposite ends in engagement with the head and section portions, as and for the purposes set forth.

7. In a car-coupler provided with the usual forwardly-projecting jaws, the combination with the semicylindrical locking-section movable in one of the jaws and having laterally-extending flanges projecting over the top and bottom faces of the jaw, guide-bosses on the jaw adapted to engage the flanges, one of said bosses being provided with a longitudinal groove, a compressible righting-spring within the groove, and a removable plug in the end of the groove, substantially as described.

8. In a car-coupler provided with the usual forwardly-extending jaws, one of which is provided with a concaved socket, a movable semicylindrical locking-section adapted to fit within the socket, means for retaining the section on the jaw, a concentrically-disposed righting-spring confined within a corresponding groove in the draw-head portion, and a plug at the end of the groove by means of which the latter is opened and closed for the insertion and removal of the spring, substantially as described.

9. In a car-coupler having the usual forwardly-projecting jaws, a movable semicylindrical locking-section retained on one of the jaws, in combination with a righting-spring located within a concentric groove, said groove being provided with an enlargement at one end, and a removable plug closing the end of the groove near the enlargement, substantially as described.

10. In a car-coupler of the character described, a jaw provided with a semicylindrical locking-section, and a righting-spring located within a groove having an enlargement in its side near one end, and a wedge-shaped plug closing the end of the groove, and arranged and adapted to be held therein by the pressure of the spring, and to be removed and inserted through said enlargement, substantially as described.

11. In a car-coupler of the character described, a semicylindrical locking-section, in combination with a righting-spring located in a groove in one of the jaws of the coupler, said groove being closed at the end by a wedge-shaped plug placed base inward and being provided with an inward projection adapted to enter the coils of the spring, substantially as described.

12. In a car-coupler, a coupling-head provided with the usual forwardly-projecting jaws one of which has a concaved socket, in combination with a semicylindrical locking-section provided with a safety-catch consisting of a downwardly-projecting arm on the lower end of said section and a laterally-projecting shelf on the arm arranged and adapted to overlap the opposite draw-head member, substantially as described.

13. In a car-coupler, the herein-described

locking-section provided with a downwardly-projecting arm cast integral with the section and having on its lower end an outwardly-extending shelf arranged and adapted to overlap the opposite member to catch the same in the event of one of the couplers accidentally pulling out, substantially as described.

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

MICHAEL I. WELCH.

Witnesses:

RHESA G. DU BOIS,
SOLON C. KEMON.