

No. 688,763.

Patented Dec. 10, 1901.

M. I. WELCH.  
CAR COUPLING.

(Application filed Feb. 26, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

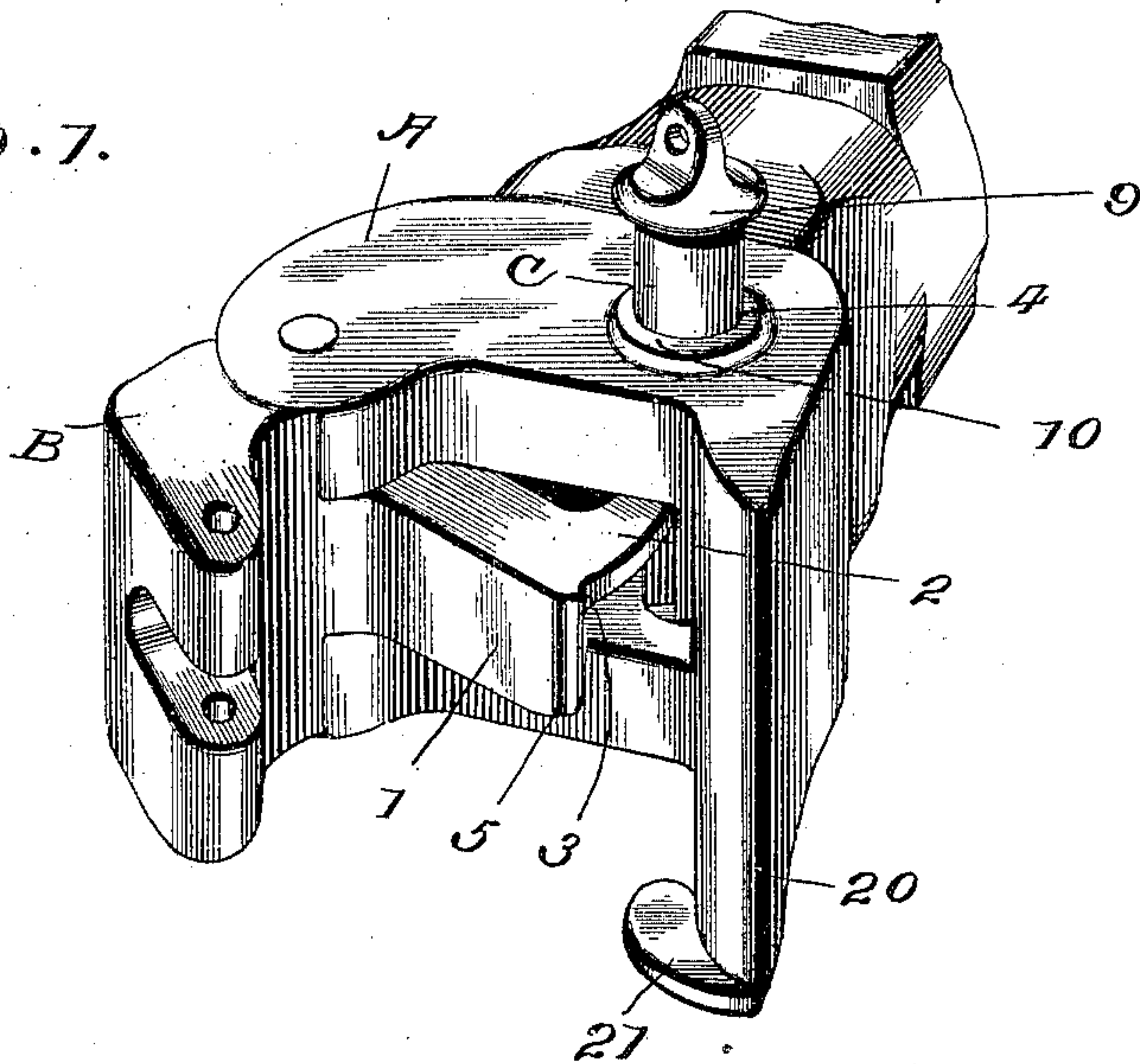
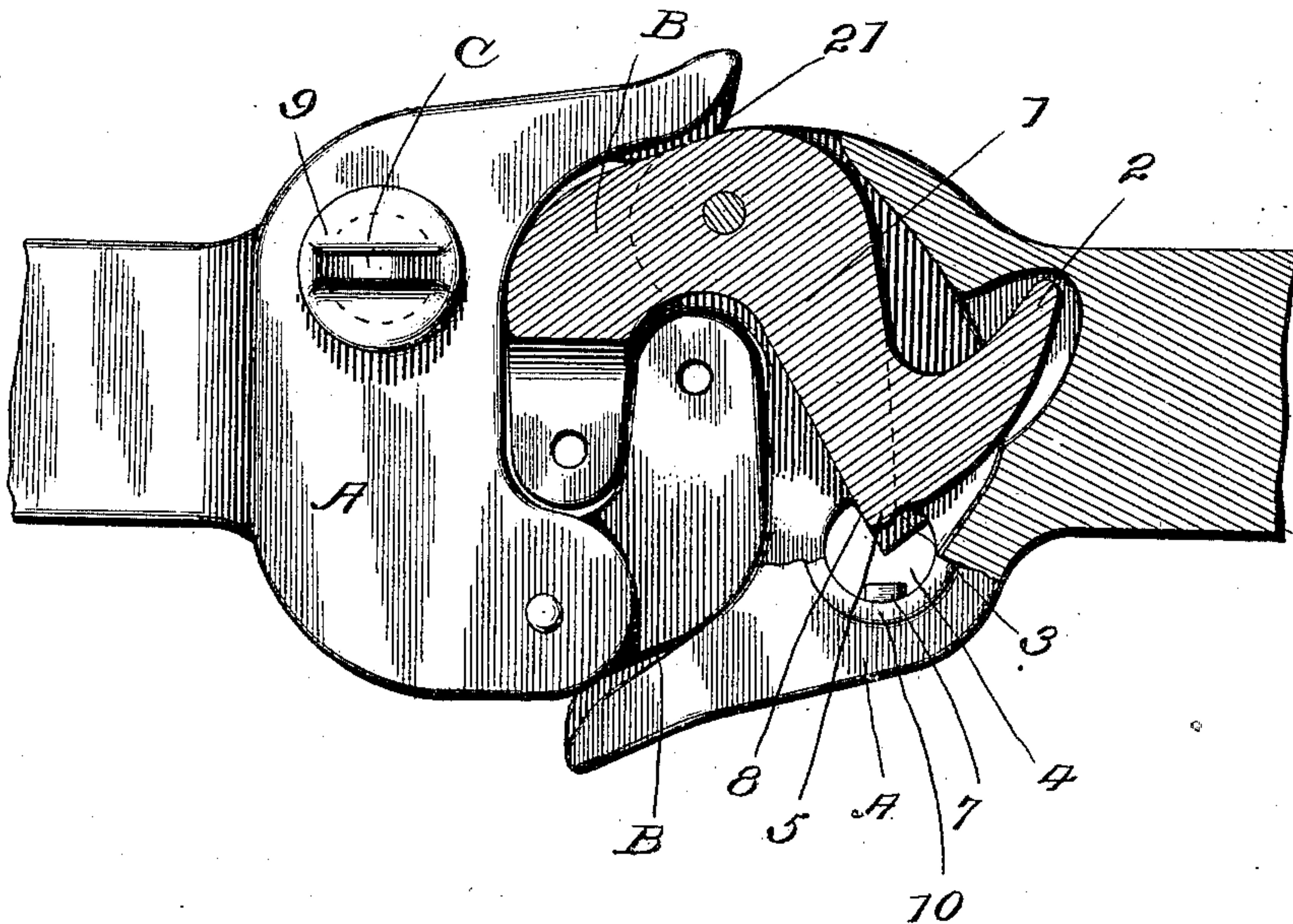


Fig. 2.



Witnesses

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FIG. 3.

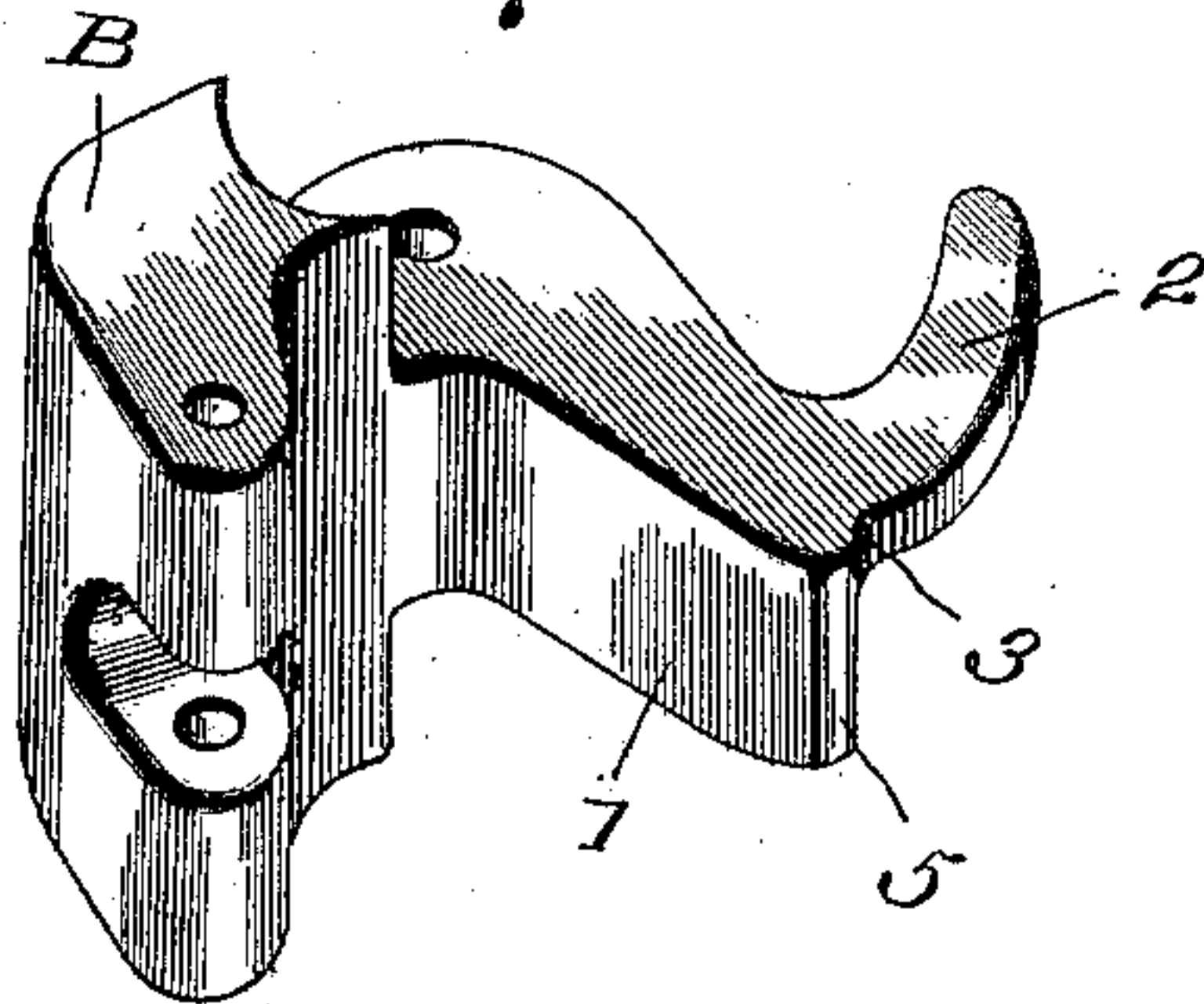


FIG. 4.

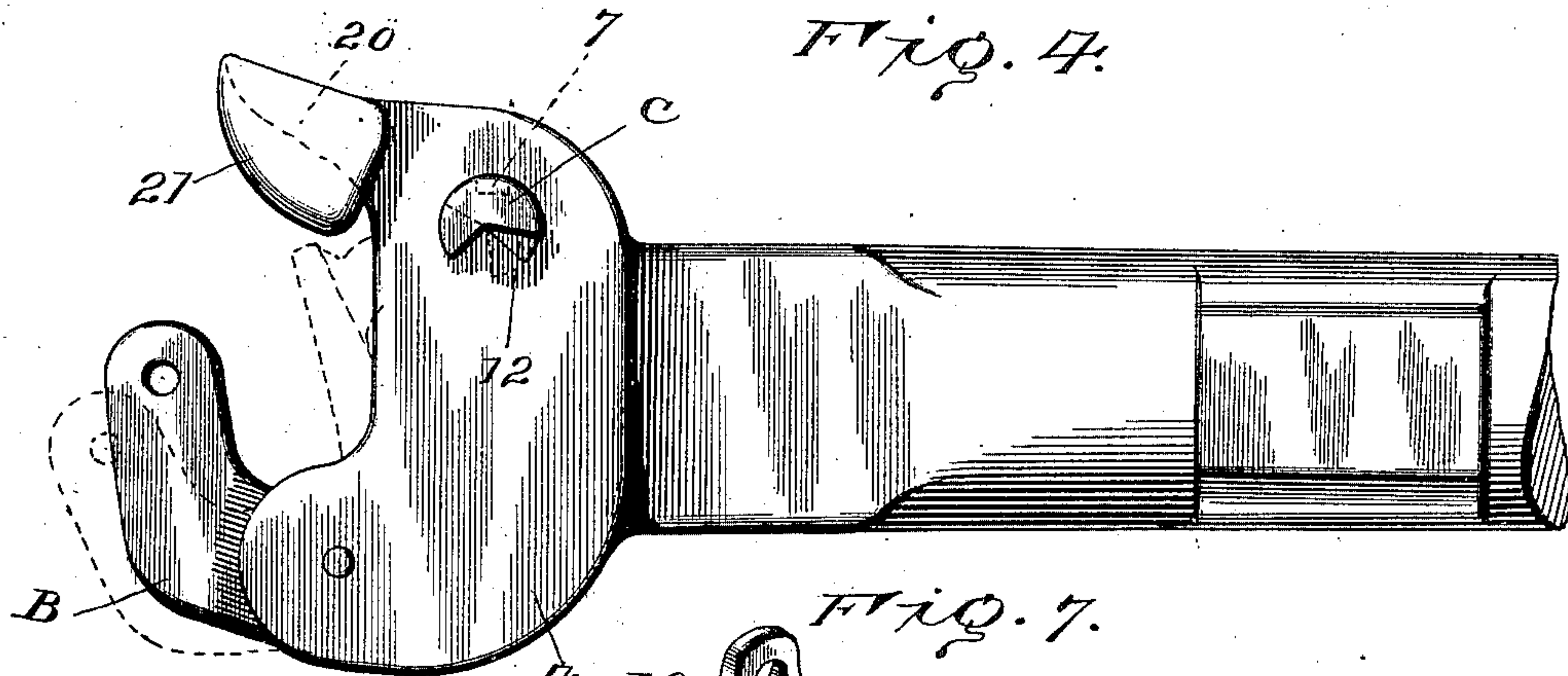
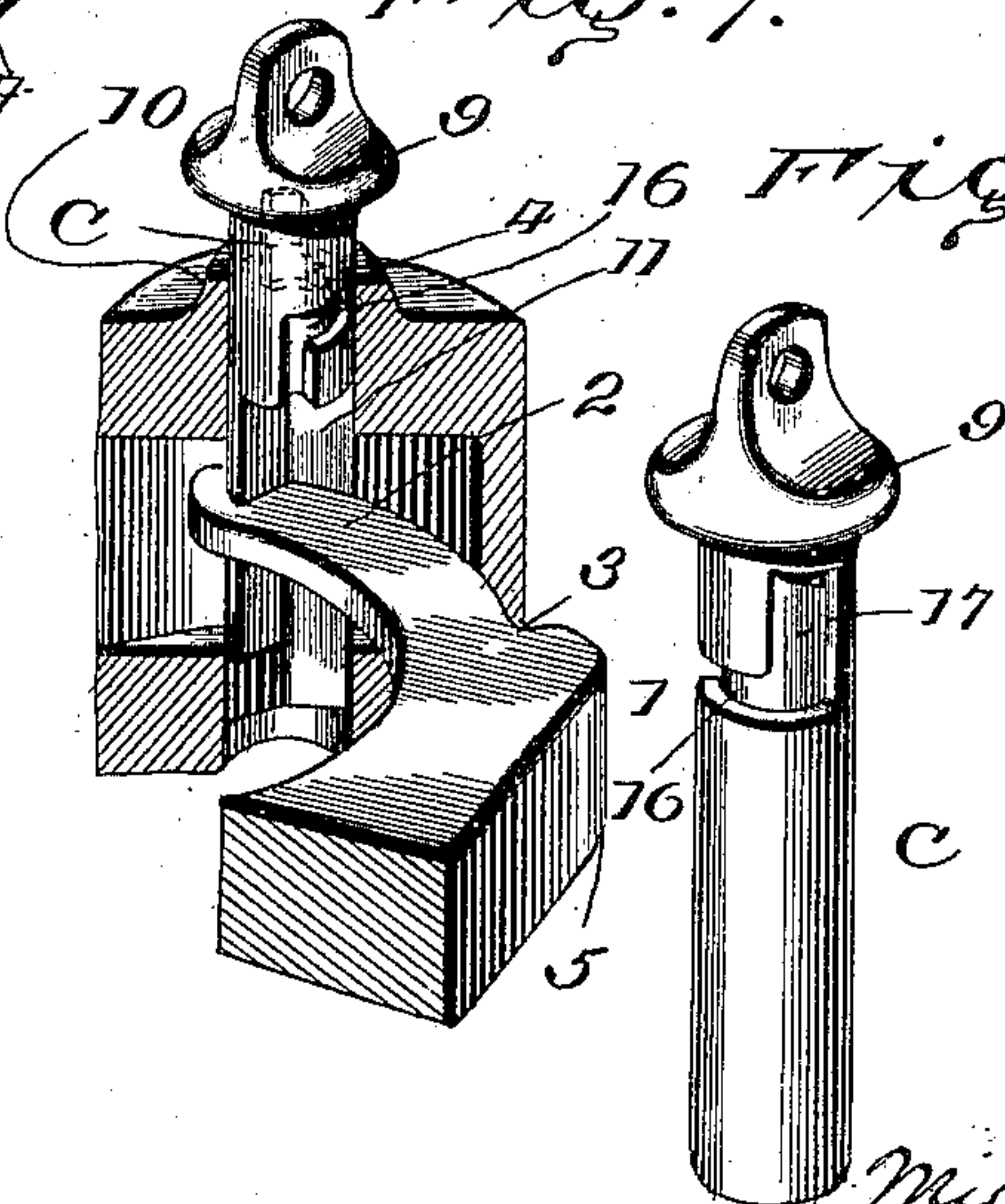
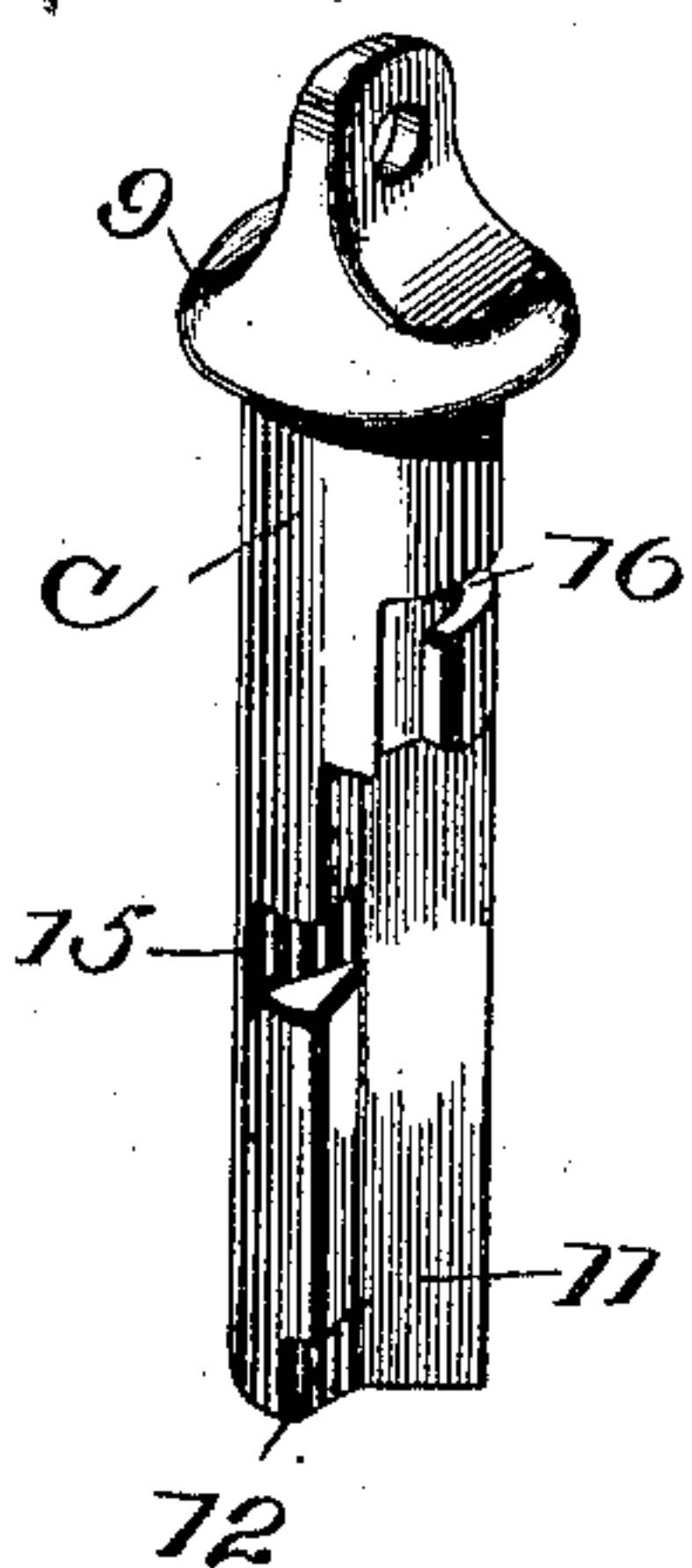


FIG. 7.

FIG. 6.

FIG. 5.



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 688,763, dated December 10, 1901.

Application filed February 26, 1901. Serial No. 48,985. (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 a new and useful Improvement in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly to that type of car-couplings known as the "Janney" or "twin-jaw," in which the knuckle is locked automatically by the pin; and the object is to provide a simple, safe, strong, and durable coupling which will not accidentally uncouple, and so constructed and arranged that the rotary locking-pin which holds the knuckle cannot creep or turn axially.

A further object is to provide a coupling composed of few parts which will couple on curves and on rough and uneven track.

With the foregoing in view my invention consists in certain novel features of construction and combinations of parts, which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved coupling with knuckle open. Fig. 2 is a plan view with a portion in horizontal section and with the cars in their coupled position. Fig. 3 is a detail of the knuckle in perspective. Fig. 4 is a bottom plan of one coupling. Figs. 5 and 6 are perspective views of the locking-pin, taken from opposite sides; and Fig. 7 is an enlarged detail in section, showing the relative position of the curved segment on the knuckle and the locking-pin when in uncoupled position.

A A represent the draw-heads of the coupling. They are precisely alike, and for the most part one only will in consequence be described in detail.

B is the knuckle. This is pivoted in the usual way at one end of the mouth of the draw-head. The knuckle is in the main of the usual form, it being provided with the accustomed tailpiece 1, which swings into the mouth of the draw-head and is fastened to effect a coupling. A curved segment 2 extends backward from the tailpiece 1 in the arc of a circle struck from the pivot of the knuckle as a center. This seg-

ment is preferably flush with the upper surface of the knuckle, and consequently swings just beneath the roof of the mouth of the draw-head in coupling. A notch 3 is formed in this segment where it joins the tailpiece, it being for a purpose which will be hereinafter mentioned.

A round hole 4 is formed vertically in the draw-head at the end of the mouth opposite the point where the knuckle is pivoted and such distance from the pivot that the end of the tailpiece and the attached segment cross it as the knuckle swings open or closed, while the sharp angle 5 at the extreme end of the tailpiece remains in the hole always while the draw-heads are coupled together.

In the hole 4 two lugs extend, the lug near the upper end being designated by numeral 7 and the V-shaped lug at the lower end by the numeral 8. These lugs are located diametrically opposite each other and the V-shaped lug at the bottom is in alinement with the end of the tailpiece when the knuckle is in its coupled position. Each lug has special functions, which will be hereinafter described.

C indicates the locking-pin. This is fitted to and adapted to slide or turn in the hole 4. As its name implies, it locks the knuckle when in its coupled position. Normally it rests with the cap 9 upon the boss 10, thus closing the hole 4 against the ingress of rain, snow, or dirt. The body of the pin is provided with a V-shaped groove 11, which extends from its extreme lower end about two-thirds of its length. The size of this groove is equivalent to about one-fourth of the body of the pin, and in transverse section it receives and fits the V-shaped lug 8 at the lower end of the hole 4, which locks the pin against axial movement, and likewise it receives and substantially fits the end of the tailpiece, thereby locking the knuckle securely when the tailpiece enters it in the operation of coupling. An offset in the form of a shoulder 12 at the lower end of the pin serves to catch the pin when coupling upon a curve, as this shoulder by resting upon the V-shaped projection allows the pin to drop and lock when the tailpiece of the knuckle has not swung inward to its fullest extent, which full in-



ward swing would preclude coupling upon a curve. With the full inward swing of the knuckle upon the train reaching a straight piece of track the pin C would turn until the shoulder clears the V-shaped projection upon which it dropped and rested when on the curve to its lowest or normal position. When coupling on a curve, clearance for the edge of the pin is afforded by the notch 3 in the segment 2 on the tailpiece 1 of the knuckle. A transverse slot 15 extends laterally from the groove 11, about midway of the length of the pin, and the inner edge of this slot bears such relation to the opposite side of groove 11 that the two approximately conform in shape to the segment 2, which traverses it and which in so doing always leaves the locking-pin in position to automatically lock the moment the knuckle is forced inward and at the same time performs the additional function of preventing the pin from withdrawal from the coupling, which withdrawal, by the way, can only be accomplished by first removing the knuckle, and that, of course, is only done at a time of construction or repair. In other words, the pin absolutely cannot in consequence become accidentally displaced, which quality is always a desideratum in all rolling-stock equipment. Extending axially from the upper end of groove 11 and to the right is the horizontal groove 16, and vertically from the end of the horizontal groove is the groove 17. These two grooves 16 and 17 constitute a pathway for lug 7 in the upper end of hole 4, the function of these parts being solely to limit the upward movement of the locking-pin in uncoupling to the length of vertical groove 17. There is a time when the segment 2 is out of the slot 15, and that is when the parts are coupled, and were it not for these grooves 16 and 17 there would be nothing to hinder the withdrawal of the locking-pin at any time from the draw-head; but when in uncoupling cars the pin is raised until the lower end of vertical groove 17 is reached and the pulling apart of the cars causes the knuckles to swing open the locking-pin is turned axially, the horizontal groove 16 being opposite lug 7, and by the time the end of the tailpiece is clear of the locking-pin the segment has entered slot 15, thus preventing further withdrawal of the pin, as previously mentioned. The pin is sufficiently heavy to always remain seated by gravity, and in any event it would never creep sufficiently high to make an accidental uncoupling possible. To uncouple, the pin is simply raised as far

as it will go by hand or usual hand-bar mechanism and then the cars will pull apart, as described. After pulling apart the knuckle does not have to be reset to again close or couple automatically. In other words, when once opened the coupling is in condition to perform its function of automatic action.

To prevent a broken coupling from dropping to the road-bed a depending arm 20 extends from one jaw of the draw-head, and a horizontal lip 21 on this arm serves to catch a broken coupling should a break occur.

It is evident that slight changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

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

1. In a car-coupling, the combination with a draw-head and a knuckle therein and provided with a notched segment, the draw-head having a round vertical hole with lugs projecting thereinto, of a locking-pin provided with vertical grooves at each end which receive and fit these lugs and a horizontal groove which connects adjacent ends of vertical grooves, the pin also provided with a transverse slot to receive the segment, and having shoulder at the lower end to rest upon a lug in the hole of the draw-head when coupling upon a curve.

2. In a car-coupling, the combination with a draw-head having a vertical hole at one end of its mouth and a lug extending into an end of the hole, and a knuckle pivoted in the mouth of the draw-head, the end of the tailpiece of which is adapted to swing across the hole in the draw-head, of a locking-pin fitted to the hole and capable of turning therein, said pin provided with a vertical groove adapted to receive and fit the lug and end of the tailpiece whereby to lock the knuckle and be locked against turning in the hole when the coupling is made, and a shoulder at the lower end of the pin to admit of coupling on a curve.

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

MICHAEL I. WELCH.

Witnesses:

SAMUEL R. BOLTON,  
JOHN B. ARNETT.