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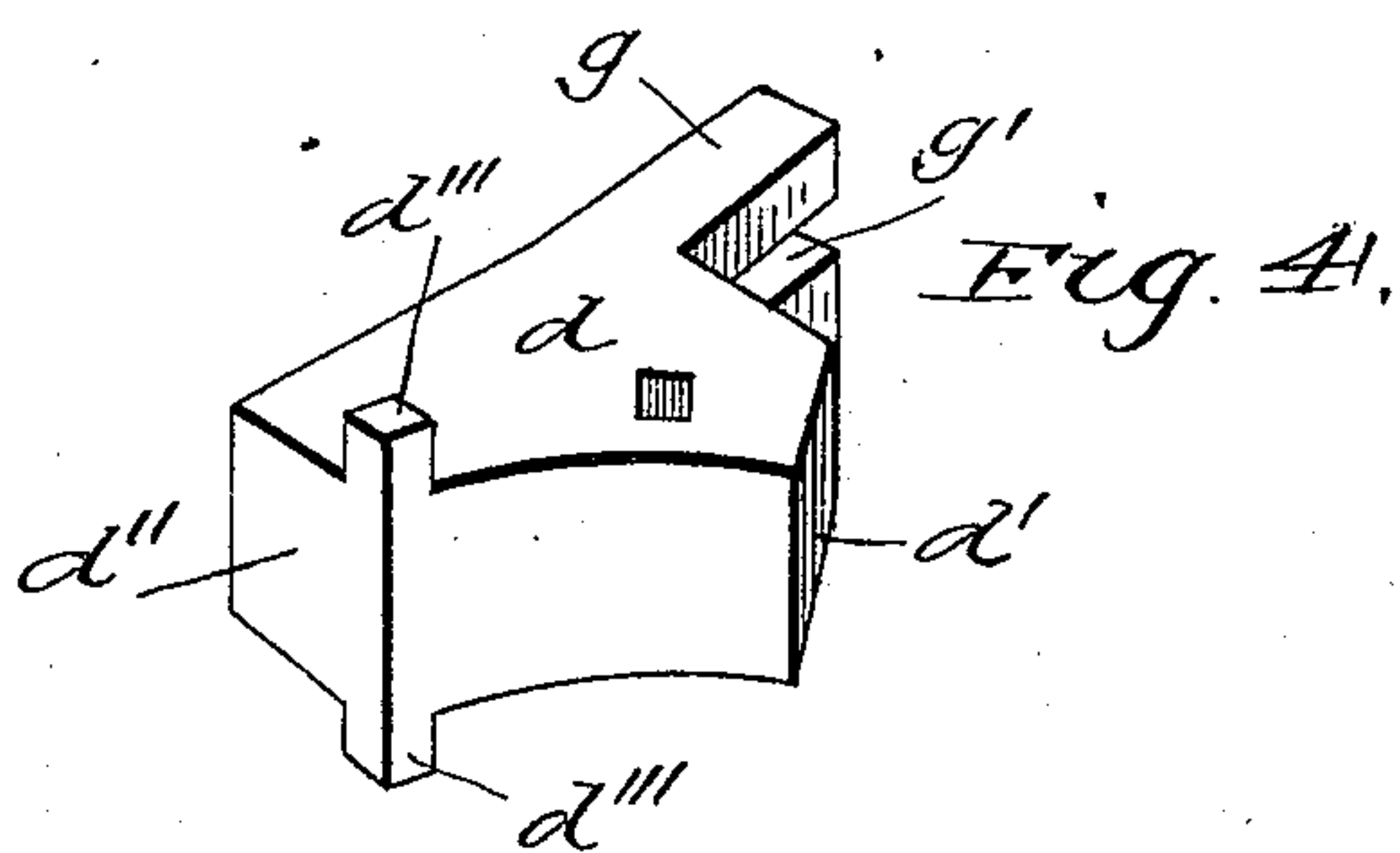
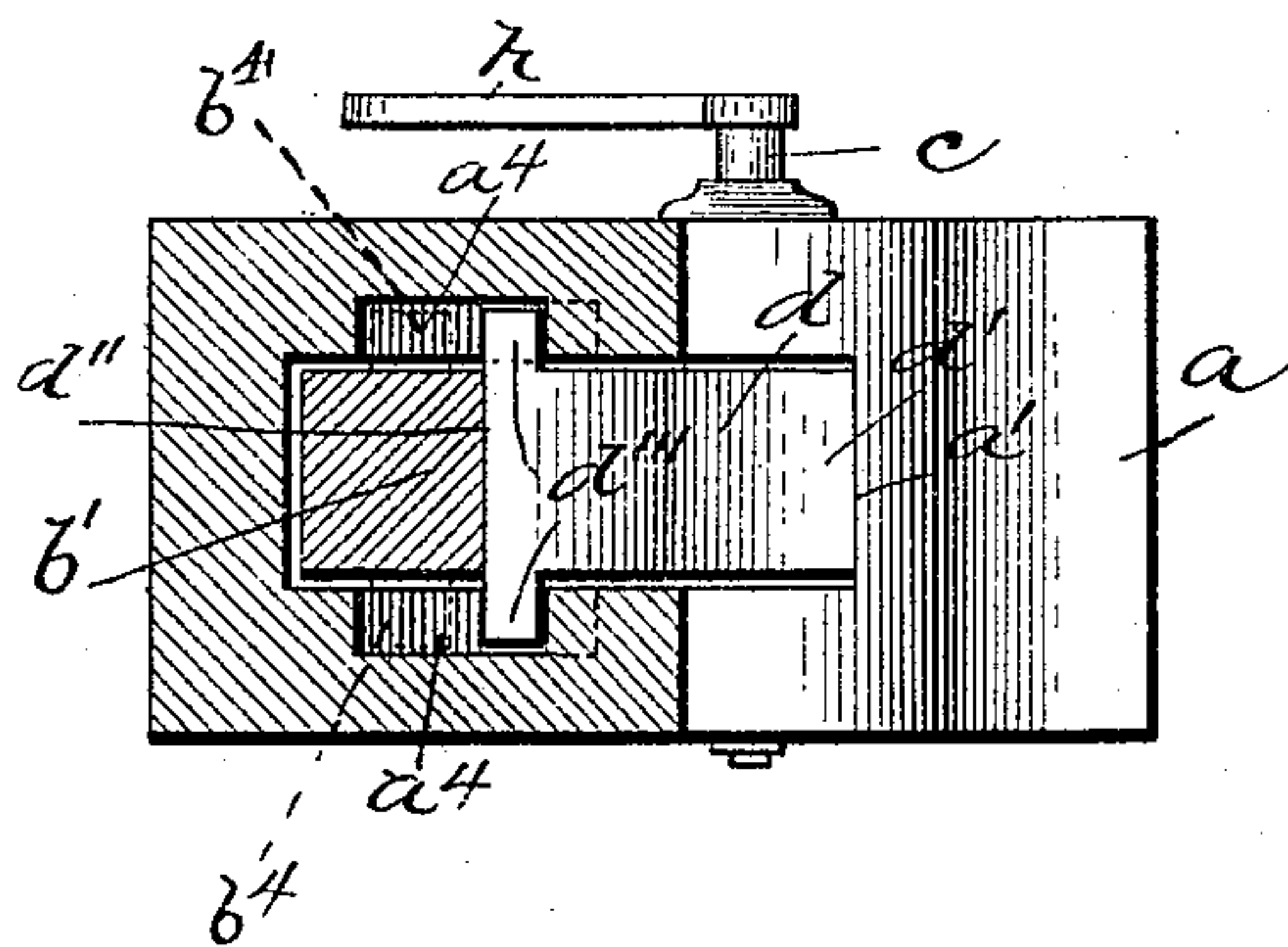
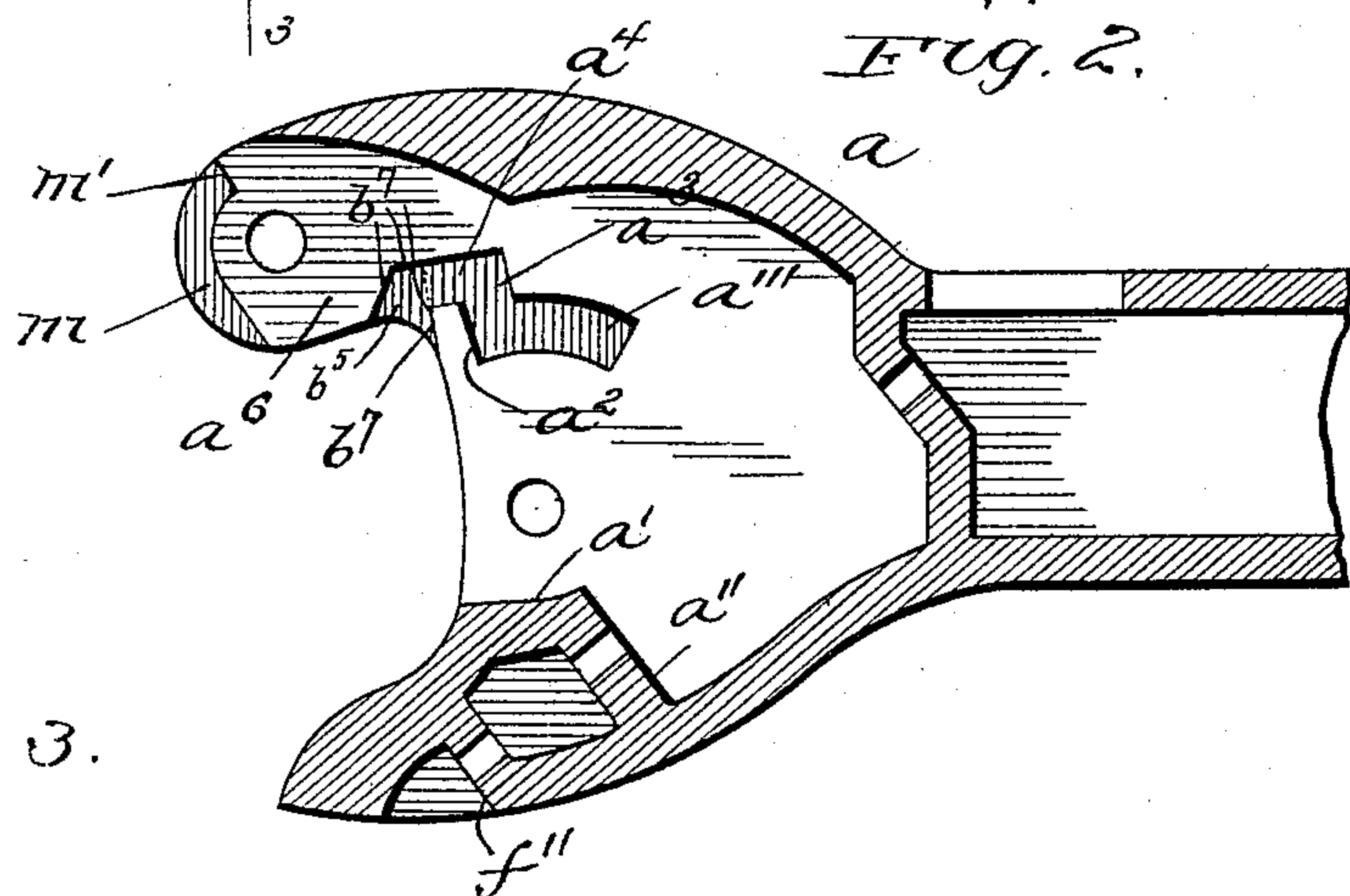
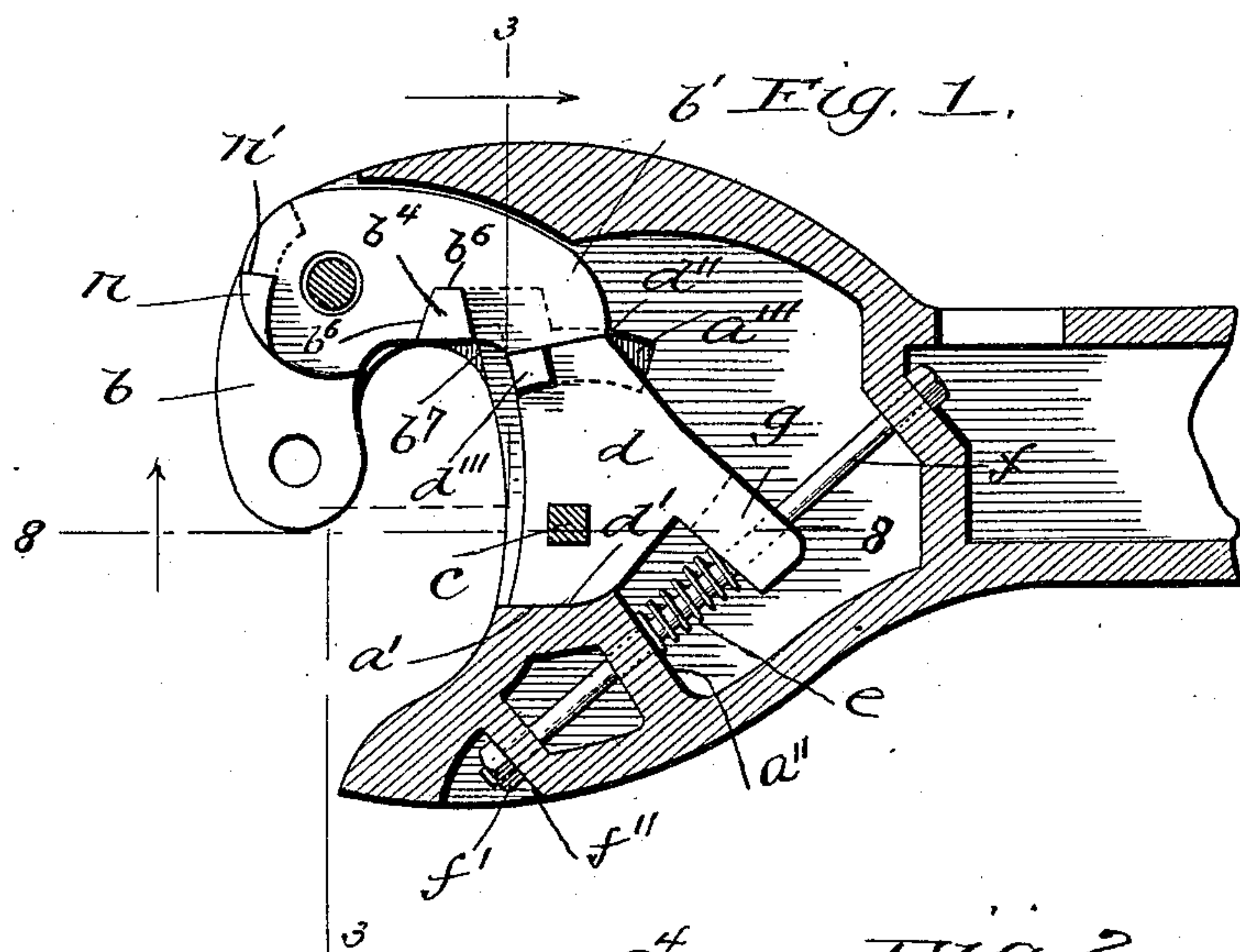
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H. E. MOOMAW.

CAR COUPLING.

No. 539,389.

Patented May 14, 1895.



WITNESSES  
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(No Model.)

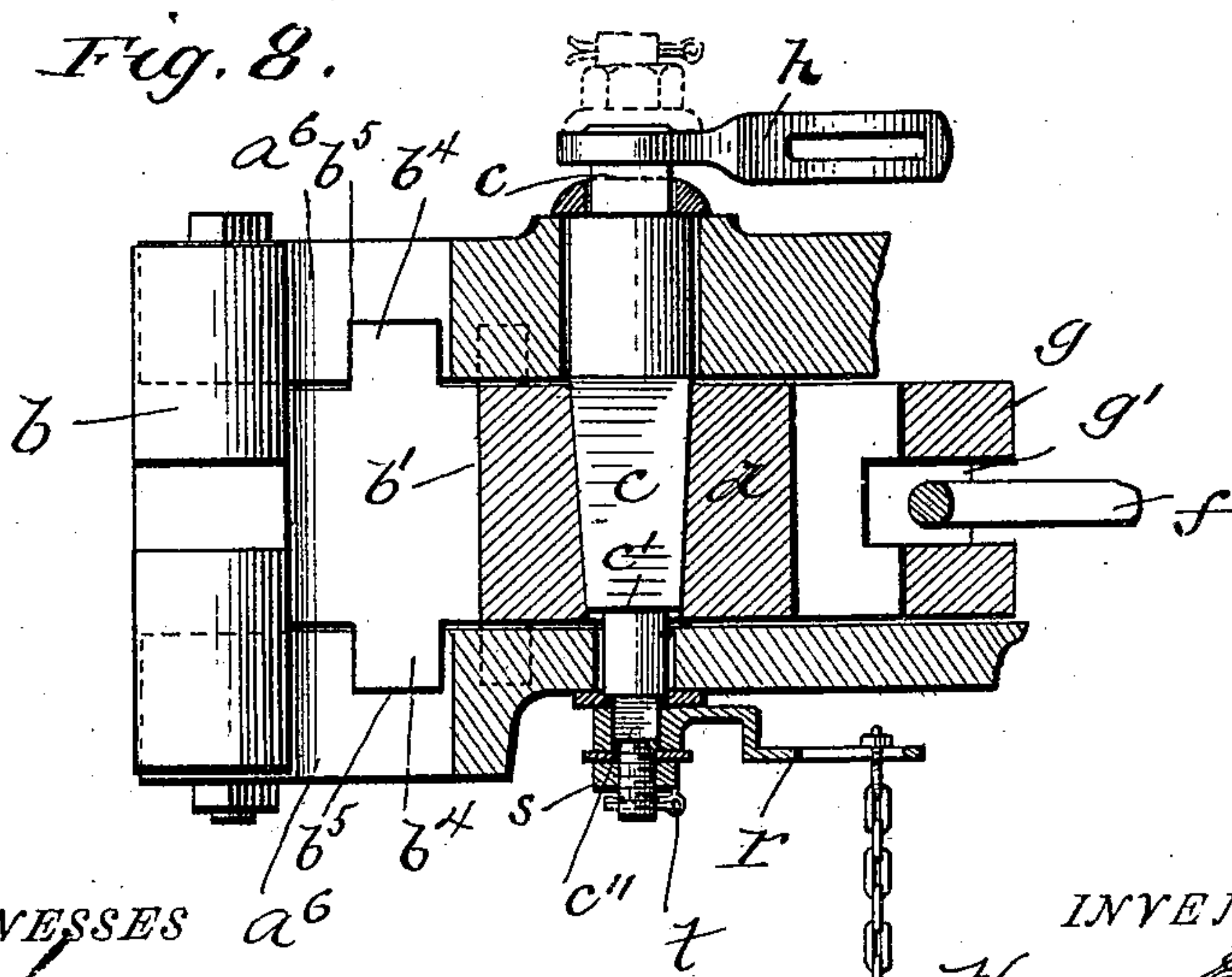
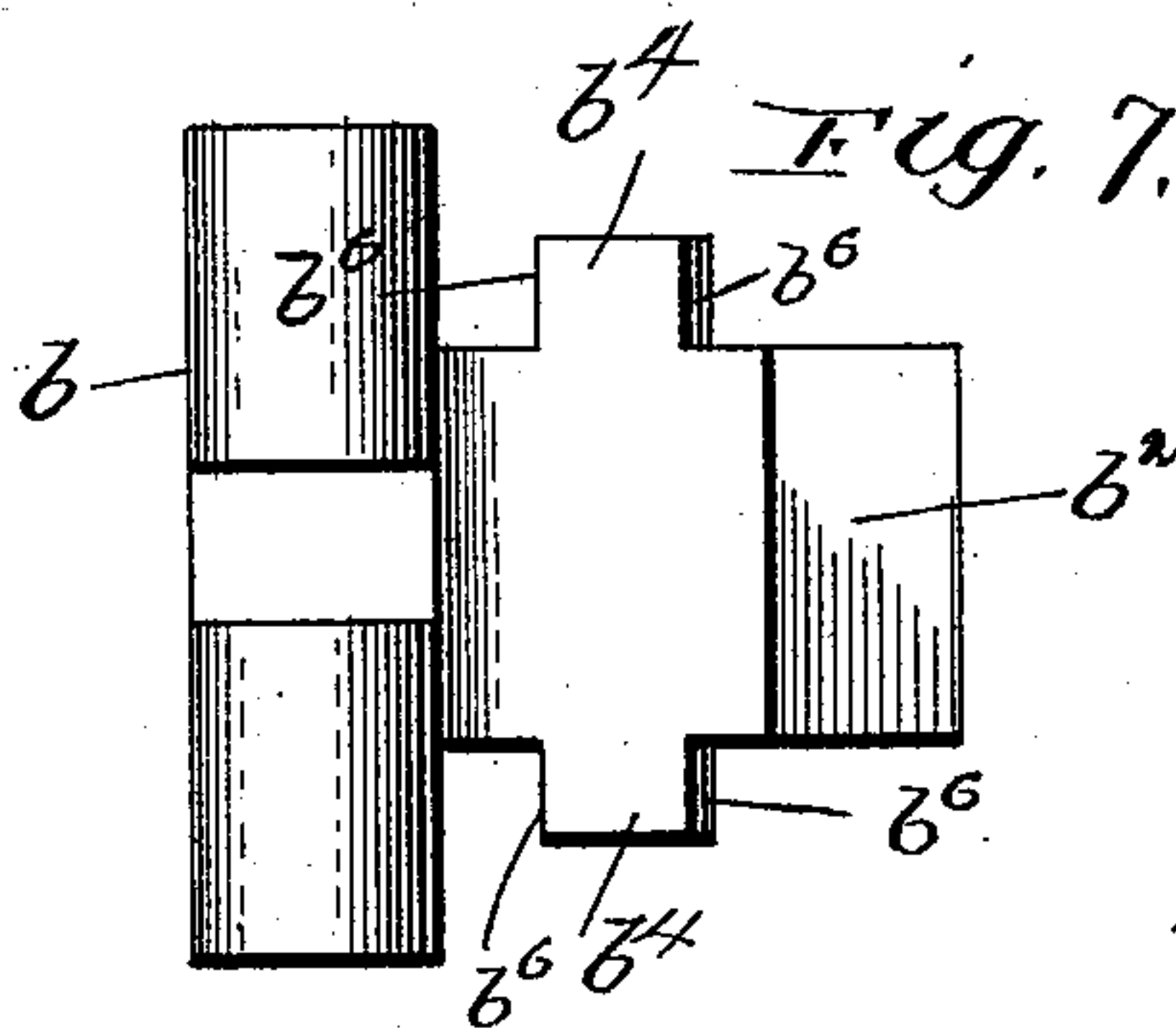
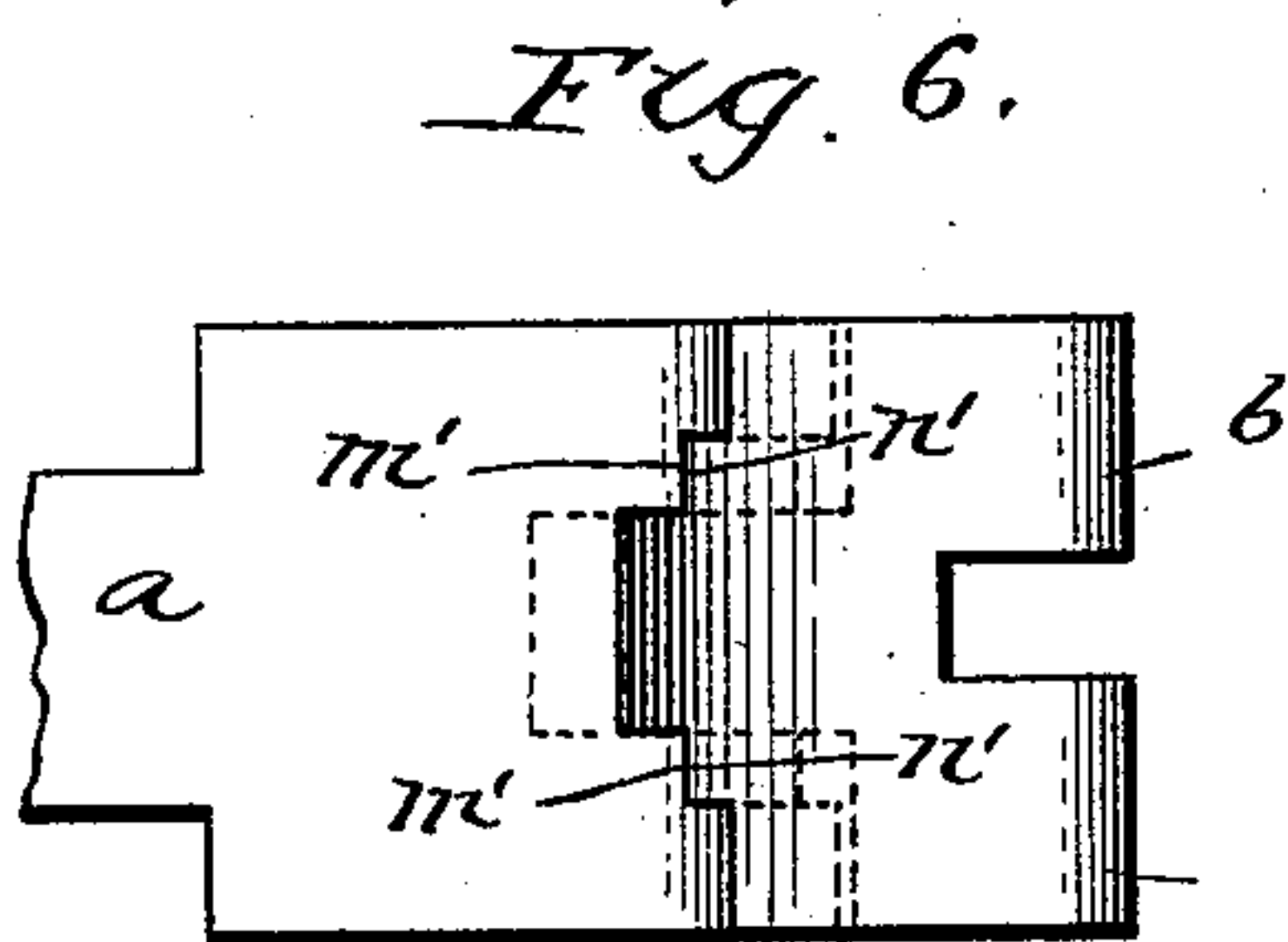
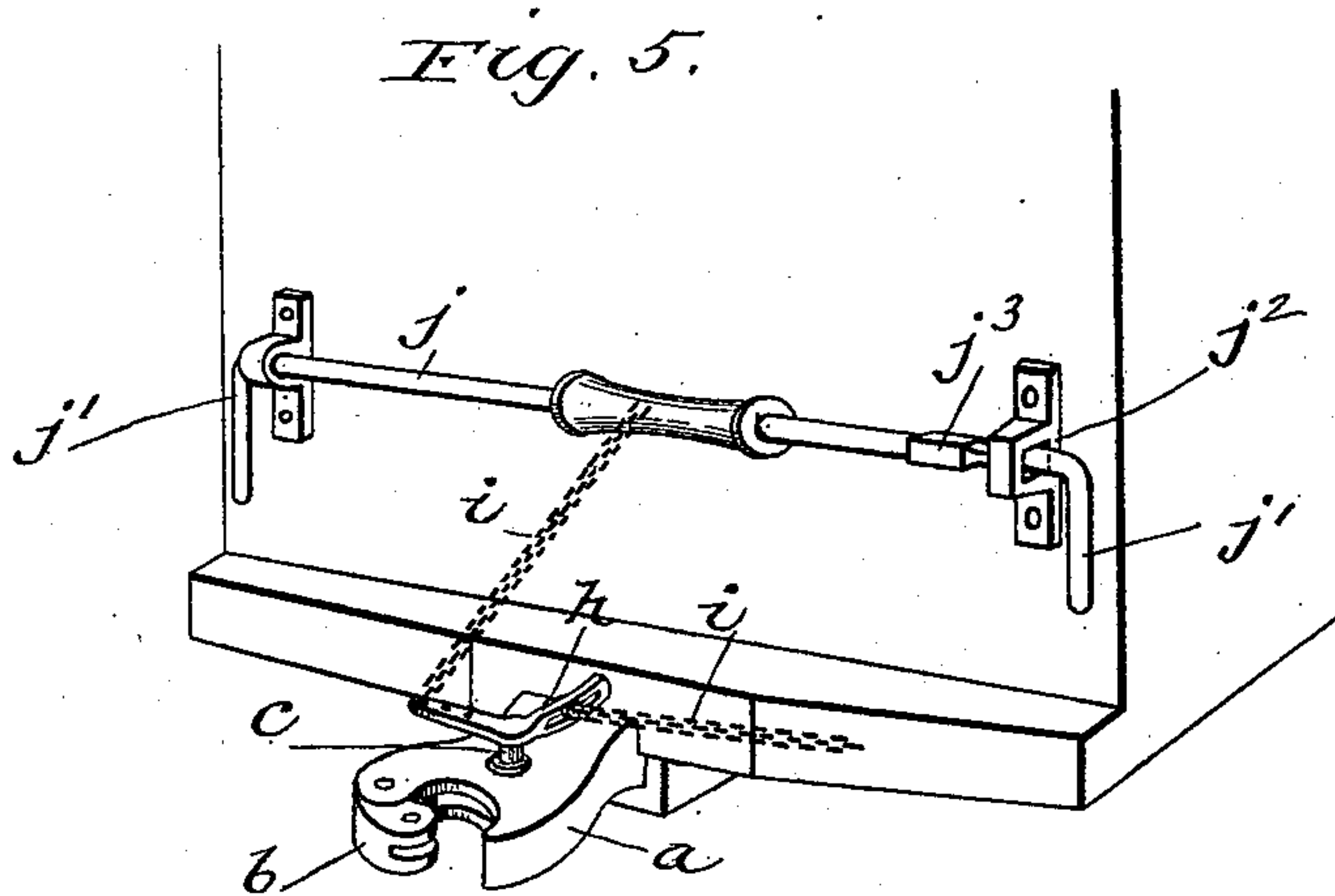
H. E. MOOMAW.

2 Sheets—Sheet 2.

CAR COUPLING.

No. 539,389.

Patented May 14, 1895.



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# UNITED STATES PATENT OFFICE.

HENRY E. MOOMAW, OF SALEM, VIRGINIA, ASSIGNOR OF ONE-FOURTH TO  
O. L. & R. S. STEARNES, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 539,389, dated May 14, 1895.

Application filed March 14, 1895. Serial No. 541,791. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY E. MOOMAW, a citizen of the United States, residing at Salem, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in car couplings of the Janney type of drawhead, and it has for its object the provision of improved means for relieving the pivots of the coupling-jaw and locking-block of all pulling strain, thereby materially strengthening the coupler, and to improve the general construction of couplers of this type with particular reference to the means for locking and unlocking the coupling-jaw and the locking-block.

In the drawings, Figure 1 is a horizontal sectional view of my improved coupler. Fig. 2 is a similar view of the drawhead, the operating parts being removed. Fig. 3 is a vertical sectional view on line 3 3 of Fig. 1. Fig. 4 is a detail perspective view of my locking-block. Fig. 5 is a perspective view of the end of a car, showing two forms of mechanism for releasing the coupling-jaw. Fig. 6 is a detail side view of the coupler. Fig. 7 is a detail view of the coupling-jaw, and Fig. 8 a sectional view on line 8 8 of Fig. 1.

Referring to the drawings by letter, *a* designates the draw-head which is of substantially the same form as the Janney couplers, and is provided with the pivoted coupling-jaw *b* of the usual Janney construction. This jaw is pivoted loosely on its pivot pin, as shown, to permit of a slight lateral motion of said jaw on its pivot.

Formed on the upper and lower sides of the nose of the coupling jaw *b* are vertical projections or lugs *b*<sup>4</sup>, which when the coupling-jaw is in its coupled position, rest in grooves *b*<sup>5</sup> formed in the inner sides of the arms *a*<sup>6</sup> of the draw-head between which the jaw *b* is pivoted. These projections are formed with the square vertical faces *b*<sup>6</sup> which abut squarely against square shoulders *b*<sup>7</sup> formed by the walls of the grooves *b*<sup>5</sup>, and limit the lateral movement of the coupling-jaw on its pivot.

The forwardly extending arms *a*<sup>6</sup> of the

drawhead between which the coupling-jaw is pivoted, are provided at their forward edges with the recesses *m m*, the upper lug being recessed on its under side and the lower one on its upper side, as shown. The outer ends of these recesses terminate in square shoulders *m'* against which the square ends *n'* of the projections *n* formed on the coupling-jaw abut. These projections are formed on the upper and lower sides of the coupling-jaw and work in the recesses *m*, their square ends abutting against the shoulders *m'* when the coupling-jaw is open or in its uncoupled position and limit the outward movement of said jaw, preventing it being jammed in its open position by being thrown too far around in its outward motion.

Pivoted in the drawhead on the vertical pin *c* is the locking-block *d*. This locking block extends across the mouth of the coupler and is formed with the approximately square ends *d'* *d''* one of which *d'* abuts against a corresponding approximately square shoulder *a'* formed on the drawhead. The inner end *b'* of the nose of the coupling jaw *b* is square as shown at *b*<sup>2</sup> and in its coupled position abuts against the squared end *d''* of the locking block as clearly shown in Fig. 1.

The pivot pin *c*, where it passes through the block *d*, is square and is tapered toward its lower end and passes through a square tapered opening in the locking-block; and where it passes through the upper and lower portions of the drawhead it is round. The openings in the drawhead for said rounded portions are slightly larger than said rounded portions of the pin and permit of a slight lateral motion of the block *d* and its pivot pin. It will thus be seen that the pulling strain on the coupling-jaw will be transferred to the locking block, and through said block to the shoulder *a'* on the drawhead, entirely relieving the pivotal pin of the locking-block of any strain whatever, which insures the accurate and easy working of said block as its pivot will not be forced out of place or in any way bent or injured. Part of the strain brought on the coupling-jaw will, because of the slight lateral movement of said jaw on its pivot, be transferred to the projections *b*<sup>4</sup> and through them to the draw-head proper, there-



by relieving the pivot of said jaw, as is manifest.

The rear curved side of the nose of the coupling jaw strikes the forward curved side of the locking block in the act of coupling, and forces it rearwardly, turning it on its pivot in the well known manner.

To force the locking block forward to its coupled position after the nose of the coupling-jaw has passed it in its rearward movement, I provide a coil spring *e* which surrounds a rod *f*, one end of said spring bearing on the forward side of an outwardly projecting extension *g* of the locking-block, its other end bearing against a shoulder *a''* formed in the drawhead. The rod *f* extends diagonally across the drawhead and passes through the shoulder *a''* and through a slot *g'* formed in the extension *g* of the locking block. A suitable washer may be interposed between the spring *e* and the extension *g* of the locking block if desired.

At the outer corner of the squared end *d''* of the locking block, on its upper and lower sides, are formed vertical projections *d'''* which extend into segmental grooves or slots *a'''* formed in the upper and lower sides of the drawhead. When the block *d* is in its locked or coupled position these projections bear against the inner walls of the segmental slots and against the shoulders *a<sup>2</sup>* formed at the forward ends of said slots, and thereby aid in relieving the pivot pin *c* of the strain, and limiting the forward movement of said block.

In order to provide for the removal of the locking-block from the drawhead I connect the slots *a'''* at their forward ends (by outwardly extending grooves *a<sup>3</sup>*) with forwardly extending grooves *a<sup>4</sup>* whose forward ends open into grooves *b<sup>5</sup>* as shown, at the forward end of the drawhead. To remove the locking block from the drawhead it is simply necessary to remove its pivotal pin, and then move said block so that its projections will follow the grooves *a<sup>3</sup>* and *a<sup>4</sup>* and *b<sup>5</sup>*, as is evident.

At the lower end of the squared portion of the pin *c* is formed a shoulder *c'* which is adapted to rest on the lower portion of the drawhead and prevent said pin dropping through the opening therein should the pin pass sufficiently far through the locking-block. Below the drawhead the pin *c* is squared, as at *c''*, for the reception of an operating lever *r*, which lever is secured in place by a nut *s* which is screwed on the lower end of the pin *c*, a split pin *t* being passed through said pin below the nut to prevent the accidental removal of said nut. A suitable operating chain is connected to the lever *r*, as shown.

By tapering the pin *c* toward its lower end where it passes through the locking block and fitting it in a tapering hole in the locking block, any wear of the block about the pin may be taken up by screwing up the nut *s* on the lower end of the pin. This may be done

until the shoulder *c'* abuts against the lower part of the drawhead.

The upper end of the pin *c* has formed integral therewith an angle-lever *h*, one of whose arms is slotted and extends rearwardly, its other arm being formed with a series of holes and extending substantially parallel with the end of the car. The upper end of the pin may, if desired be formed similar to the lower end, and the lever *h* may be secured in the same manner as lever *r*, as shown in dotted lines. Suitable washers are secured on the pin *c* above and below the drawhead to prevent water and dirt entering the pivot openings.

Adjustably secured to the arms of the angle-lever *h* at one of their ends are chains *i*, *i*. The other end of the chain which is secured to the laterally extending arm of the lever is connected to a horizontal shaft *j* which is journaled in bearings on the end of the car, said shaft being provided with suitable operating arms *j'*. One of the bearings is formed with an angular opening *j<sup>2</sup>*, and adjacent said bearing the shaft is of an angular formation, *j<sup>3</sup>*, corresponding to the form of the bearing. The shaft is loosely mounted in its bearings and is capable of a lateral movement. To lock the block *d* out of operative position, the chain *i* is wound on the shaft *j*, and said shaft is moved laterally until the angular portion engages the angular opening in the bearing. This mechanism is adapted for use on freight cars.

The chain which is secured to the rearwardly extending member of the angle-lever has its other end secured to the usual form of uncoupling lever when the coupling is in use on passenger cars. It will thus be seen that by the use of the angle-lever *h* the coupling is adapted for use on freight or passenger cars without the least alteration, the coupling levers of the passenger cars being the same as those already in use on such cars.

The use of the straight shaft *j* is advantageous on freight cars as the necessity of the brakeman passing between the cars is obviated, the uncoupling being done from the sides of the cars. Another advantage of the shaft is that the operating chain *i* may be left slack to prevent it being broken by the drawhead swinging around or when it is drawn outwardly by the strain.

The object of the lever *r* on the lower end of the pin *c* is to adapt the coupling without alteration, for use on coal and flat cars where it is desirable to work the uncoupling mechanism from under the drawhead.

By providing the lever *h* and connecting its lateral arm with the shaft *j*, when the coupling is employed on freight cars, it will be seen that should the usual rear fastenings of the drawhead (not shown) be pulled out the chain will turn the locking block and uncouple the cars before the drawhead is pulled entirely out of its place, thereby preventing it



being pulled bodily from the car and dropped on the track. It will thus be seen that the chain connecting the lateral arm of angle lever *h* to shaft *j* performs the double purpose of uncoupling the cars when the lever *j* is turned by hand and also of automatically uncoupling the cars in case of accident to rear fastenings of drawhead.

When the coupling is used on passenger cars, the chain *i* which is connected to the lateral arm of lever *h* above described, or the chain connected to lever *r* on under side of drawhead, will be fastened to any convenient point on or under the platform, sufficient slack being left in them to admit of free longitudinal motion of drawhead in connection with the usual buffing springs. In case of breakage of rear fastening of drawhead either of these chain connections will automatically uncouple the cars, as soon as the slack in the chain is taken up, thus retaining the drawhead in its recess and preventing it from dropping on the track.

The object of slotting and perforating the outer ends of the members of the angle lever is to admit of the adjustment of the operating chains to or from the pivot of said lever in order to regulate its leverage and the speed of operating the locking block.

It will thus be seen that I provide an extremely practical car coupling. By constructing the locking-block and the coupling-jaw as described I secure a solid bearing across the drawhead, which prevents the pin of the locking-block or the block itself and the pivot of the coupling-jaw being injured in any way.

By providing for a slight lateral movement of the locking-block as described it will be seen that said block will be forced squarely against the shoulders on the drawhead and yet it may readily, and without friction between the block and said shoulders, be turned on its pivot. Heretofore, in this class of couplers, the objection has been that the great strain on the pivotal pin would soon bend it sufficiently to prevent the spring actuating it with the necessary promptness. This objection is avoided by setting the pin loosely in the draw head and bringing the strain all on the block itself and the drawhead.

Having thus fully described my invention, what I claim is—

1. A car coupling consisting of a drawhead formed with the square shoulder *a'*, a coupling-jaw pivoted therein and capable of a slight lateral movement in addition to its swinging movement, a projection formed on said coupling-jaw, said projection entering a groove formed in the drawhead and abutting against shoulders formed by the walls of the groove, a locking-block formed with the vertical end *d'*, a pivot-pin therefor, said pin being rigidly secured to the locking block and loosely mounted in the drawhead whereby the locking-block and its pivot pin will have a slight bodily movement in addition to its swinging motion, and means for oscillating

the locking block, substantially as described and for the purpose set forth.

2. A car coupling consisting of a drawhead formed with the shoulder *a'*, a coupling-jaw pivoted therein, a locking-block formed with the square end *d'*, a pivot pin therefor, one end of which extends outside of the drawhead, the locking block being rigidly mounted on the pivot pin, said pin being loosely mounted in the drawhead whereby the block and pin of the block will have a lateral movement and the end *b'* will be brought against the shoulder *a'*, and devices carried by the projecting end of the pivot pin for oscillating the locking block, substantially as described and for the purpose set forth.

3. A car coupling consisting of a drawhead, a coupling jaw pivoted therein and capable of a slight lateral movement on its pivotal pin, a projection *b<sup>4</sup>* formed on the coupling-jaw and entering a groove *b<sup>5</sup>* in the drawhead, and abutting against shoulders formed by the walls of said groove, a locking-block pivoted in the drawhead and means for oscillating said locking block, substantially as described and for the purpose set forth.

4. A car coupling consisting of a drawhead provided with the grooves *a'''* *a<sup>3</sup>* and *a<sup>4</sup>* and shoulder *a<sup>2</sup>*, a coupling-jaw and a locking-block pivoted in said drawhead, vertical projections formed on said locking-block and working in the grooves *a'''* and adapted to bear on shoulder *a<sup>2</sup>* and, to pass through grooves *a<sup>3</sup>* and *a<sup>4</sup>* when desired, substantially as described.

5. In a car coupling, a drawhead of the form described provided with a groove *a'''* and with a groove or channel connecting said groove with the front of the drawhead, a locking-block pivoted in the drawhead and provided with a projection working in the groove *a'''* and in its normal position abutting against the wall which forms the forward end thereof, and adapted to pass through the groove or channel which connects the groove *a'''* with the front of the drawhead, and a coupling-jaw and means for oscillating the locking block, substantially as described.

6. A car coupling consisting of a drawhead of the form described provided with the groove *a'''*, and shoulder *a'*, a coupling-jaw and a locking-block pivoted in said drawhead, the locking-block being formed with shoulders *d'—d''* and projections *d'''* and extension *g*, a spring working between the extension *g* and the shoulder *a''* on the drawhead and means of oscillating the locking block, substantially as described.

7. A car coupling consisting of a drawhead, a pivoted coupling-jaw, a pivoted locking-block, the pivot of said block extending above the drawhead, an angle lever secured on the upper end of said pivot, and suitable operating devices connected to said angle-lever, for oscillating the locking block, substantially as described.

8. A car coupling consisting of a drawhead



of the form described provided with the groove  $a'''$  and shoulder  $a'$ , a coupling jaw and a locking block pivoted in said drawhead, the coupling-jaw being formed with the square face  $b^2$ , the locking block being formed with the shoulders  $d'$ ,  $d''$  and projections  $d'''$ , said block being capable of a slight lateral movement, means for normally holding the locking block in its forward position, and means for oscillating the locking block, substantially as described and for the purpose set forth.

9. A car coupling consisting of a drawhead, a coupling-jaw, a pivoted locking-block, the pivot of said block being tapered downwardly where it passes through the locking block, said block being formed with a correspond-

ingly tapered hole, a shoulder  $c'$  formed at the lower end of the tapered portion of the pin, a squared portion  $c''$  thereon below the drawhead, a threaded portion below the portion  $c''$ , a lever adapted to fit upon the squared portion  $c''$ , and a nut to clamp said lever in place and to draw the pin downwardly, substantially as described and for the purpose set forth.

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

HENRY E. MOOMAW.

Witnesses:

JOHN M. THORNE,

J. JOHN HENDERSON.