J. L. DADDOW.

CAR COUPLING.

APPLICATION FILED JULY 9, 1908.

948,606.

Patented Feb. 8, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

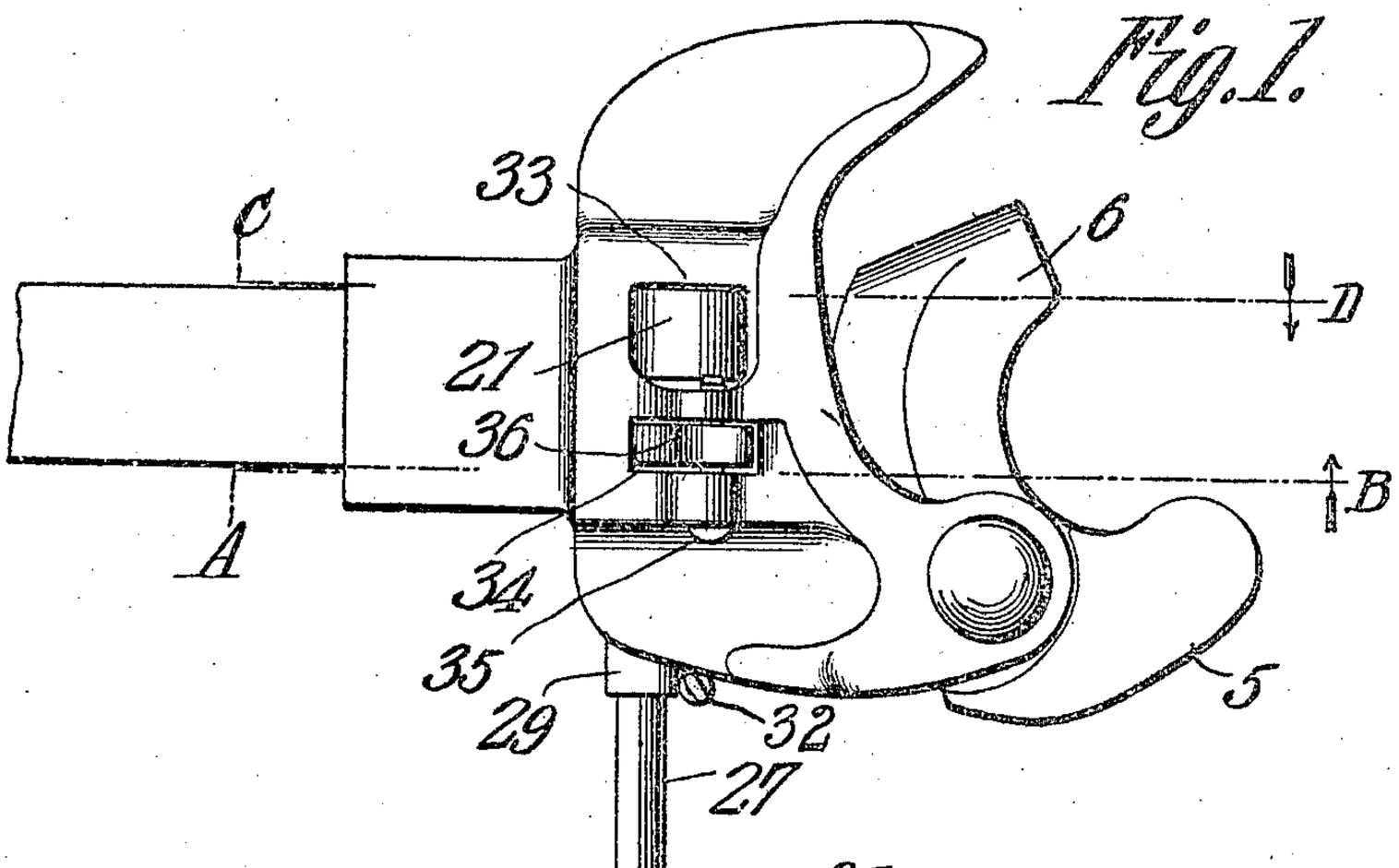

Fig. 2.

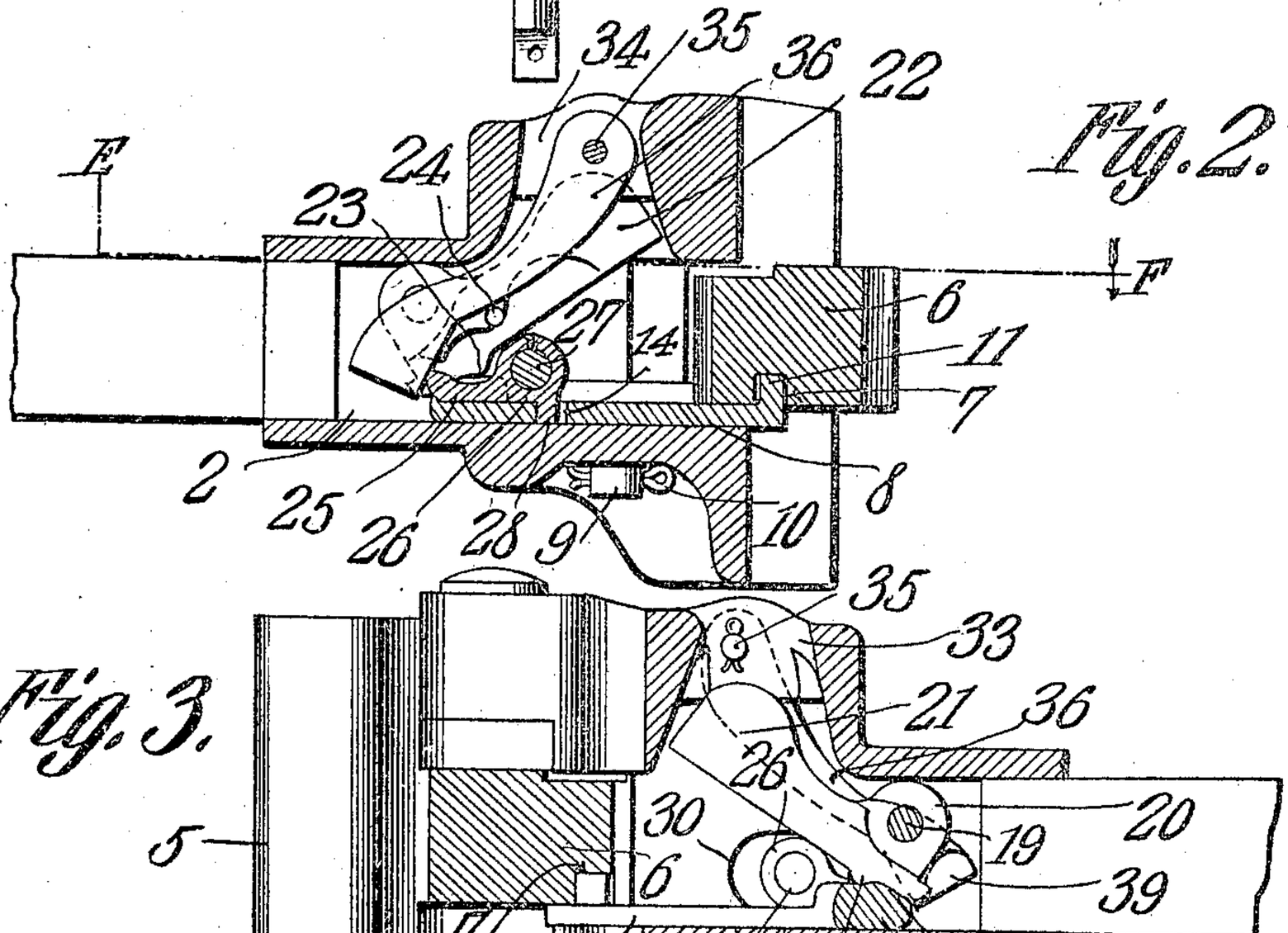

Fig. 3.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 4.

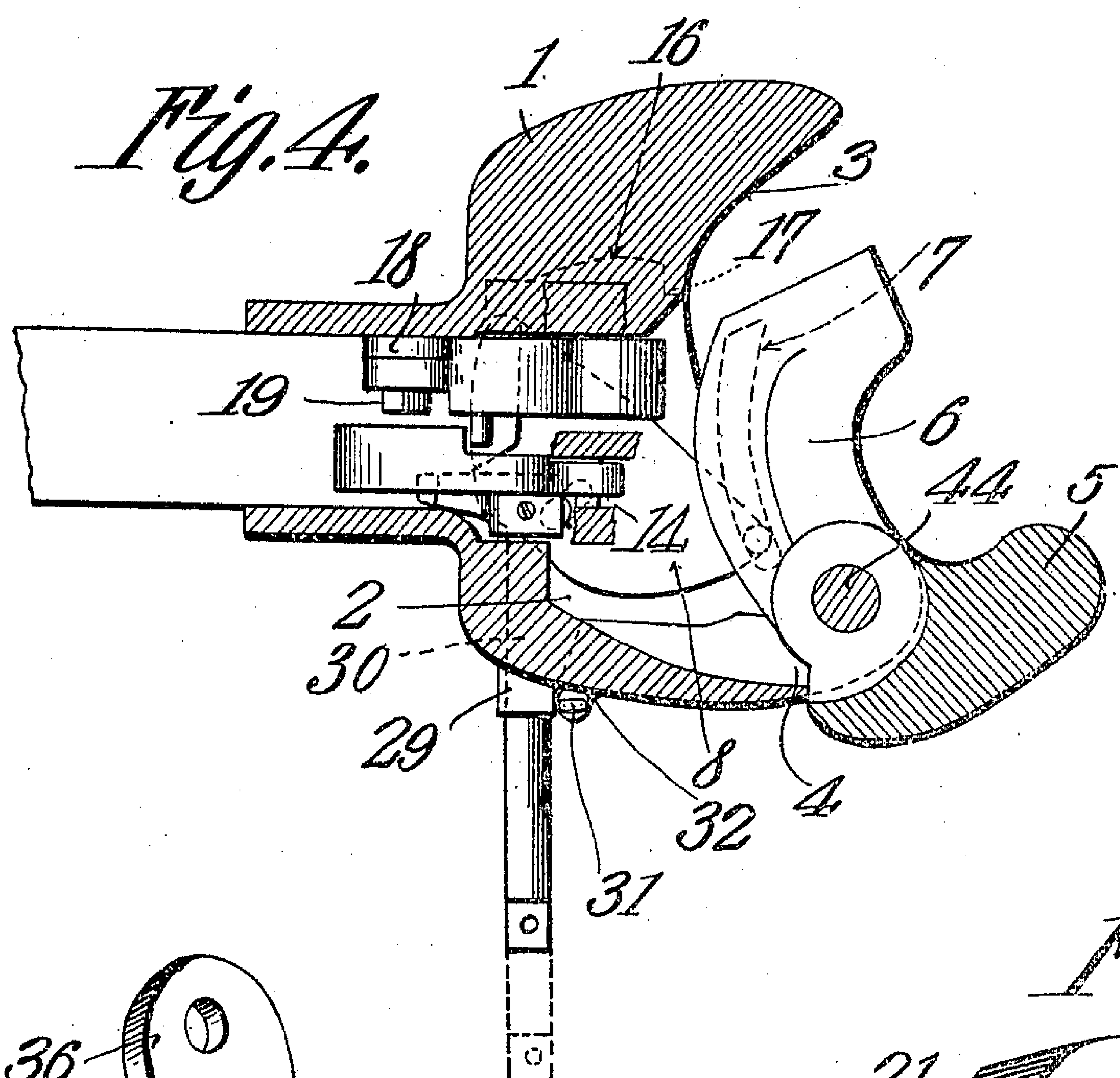


Fig. 5.

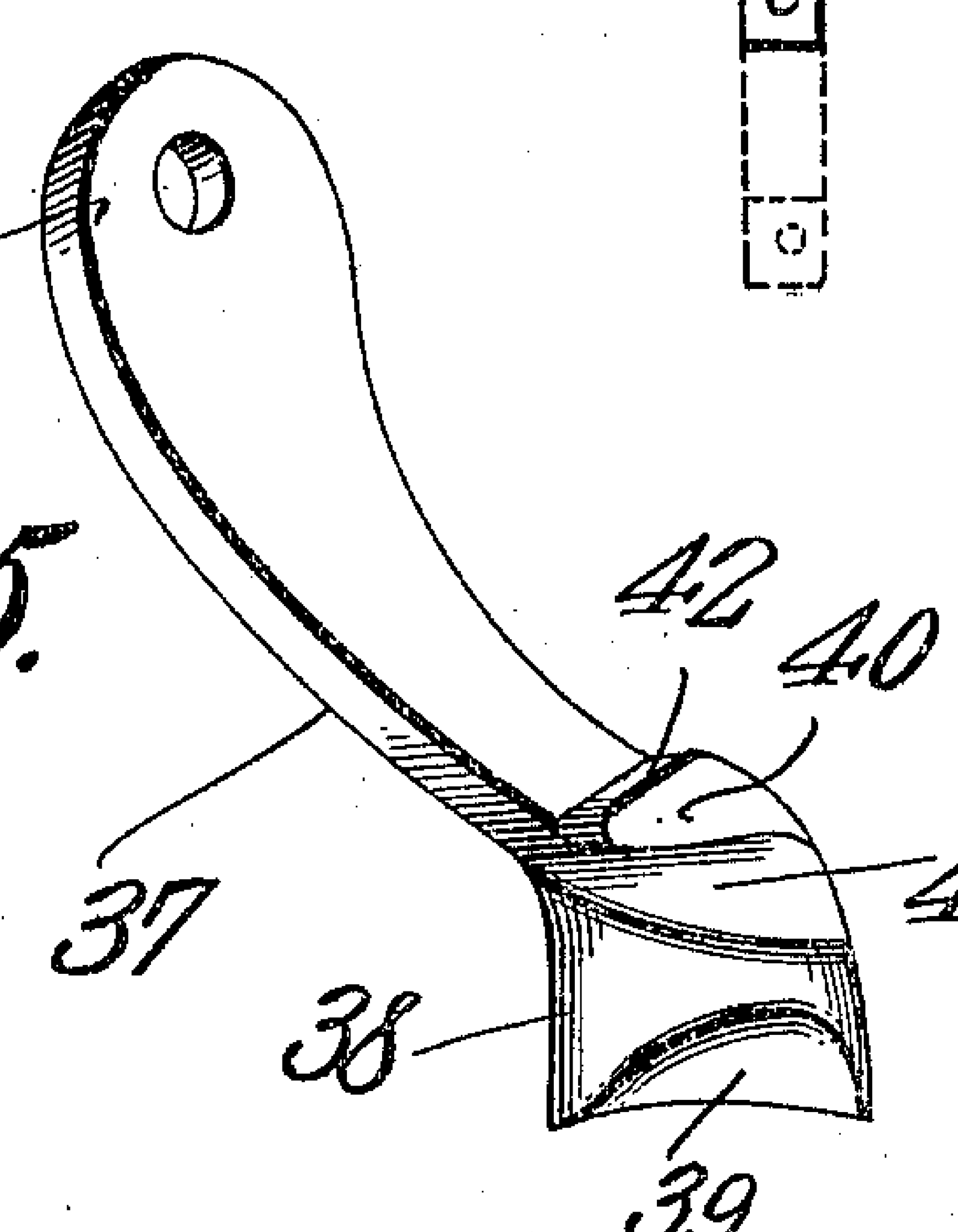


Fig. 6.

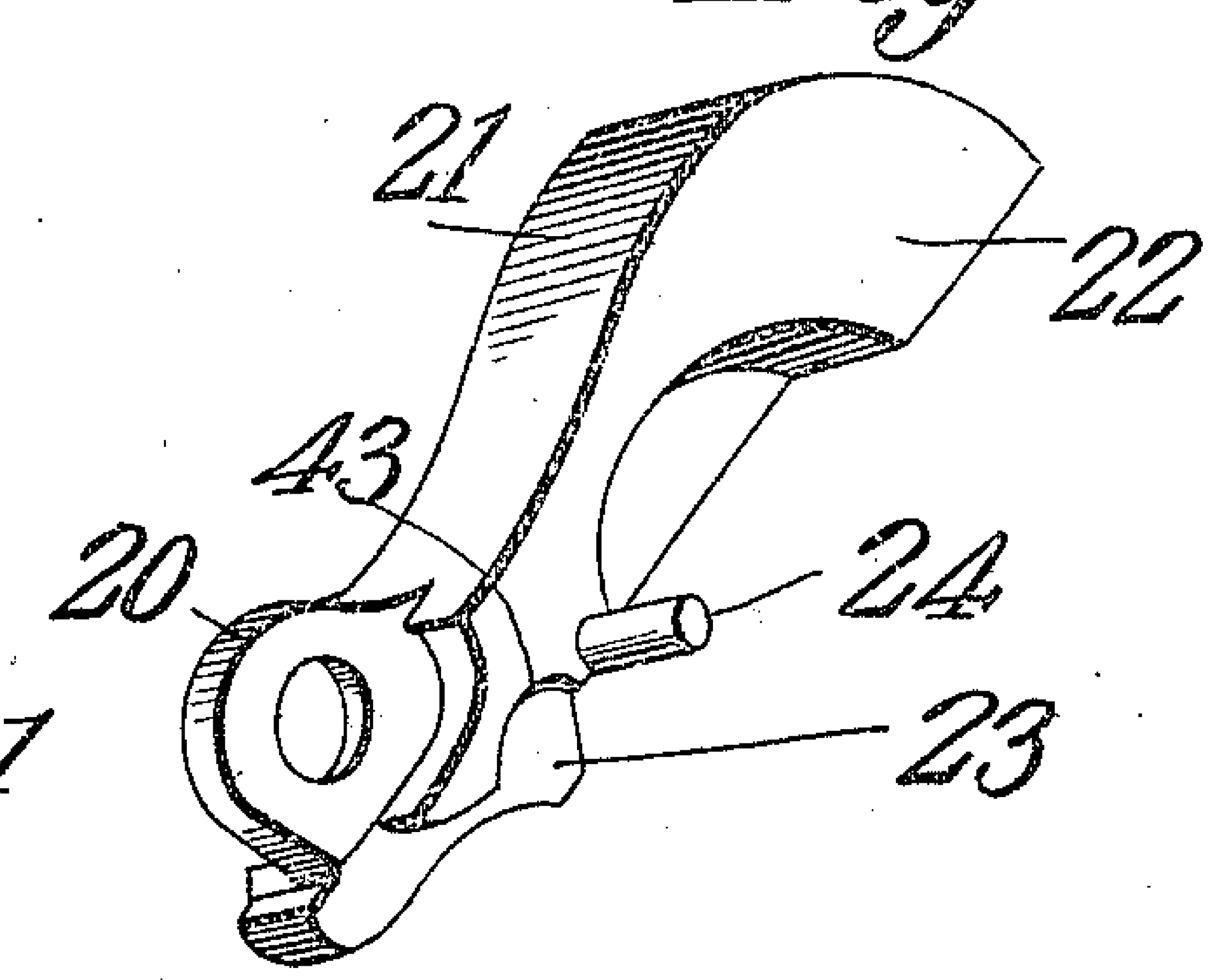
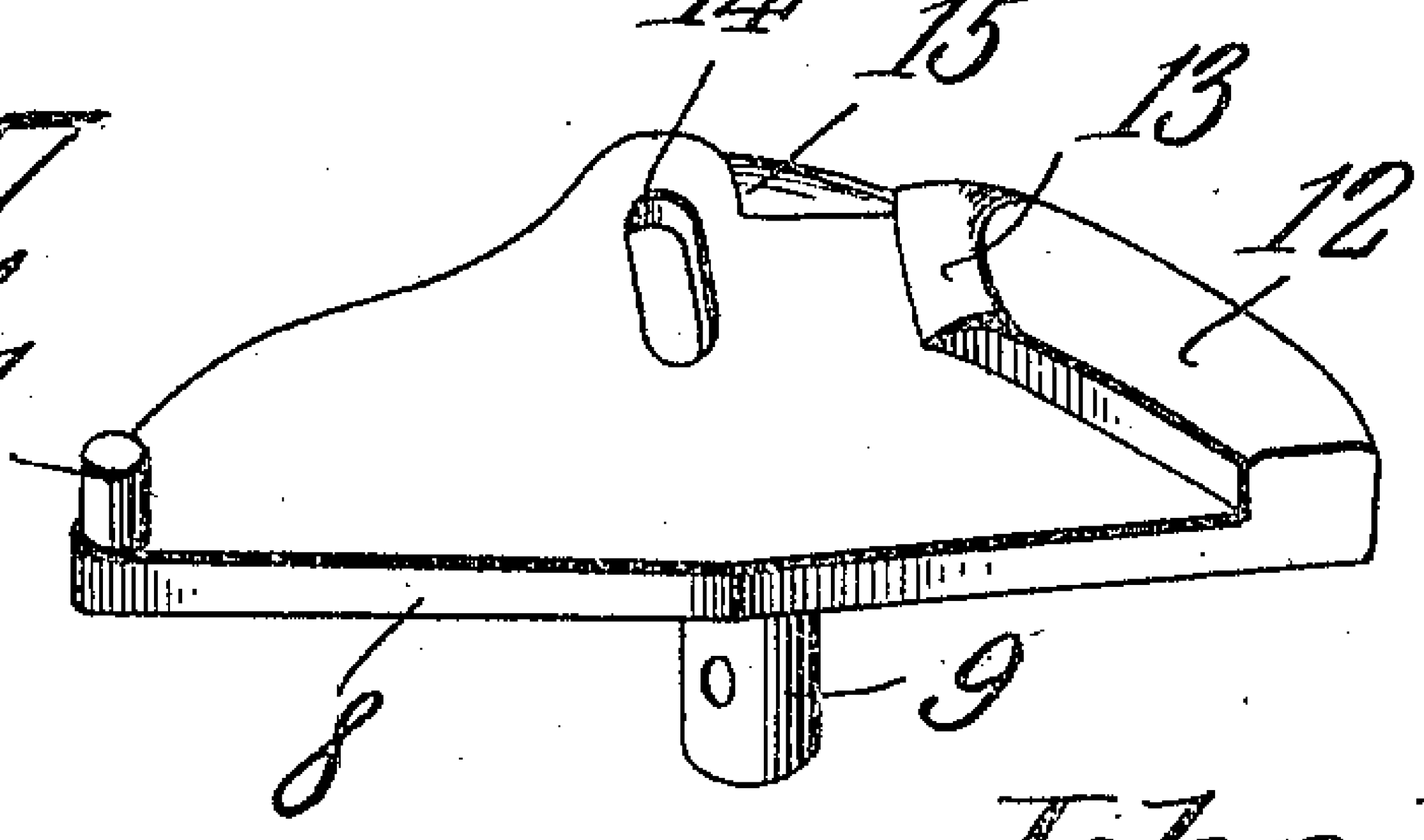


Fig. 7.



Witnesses

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3 SHEETS—SHEET 3.

Fig. 8.

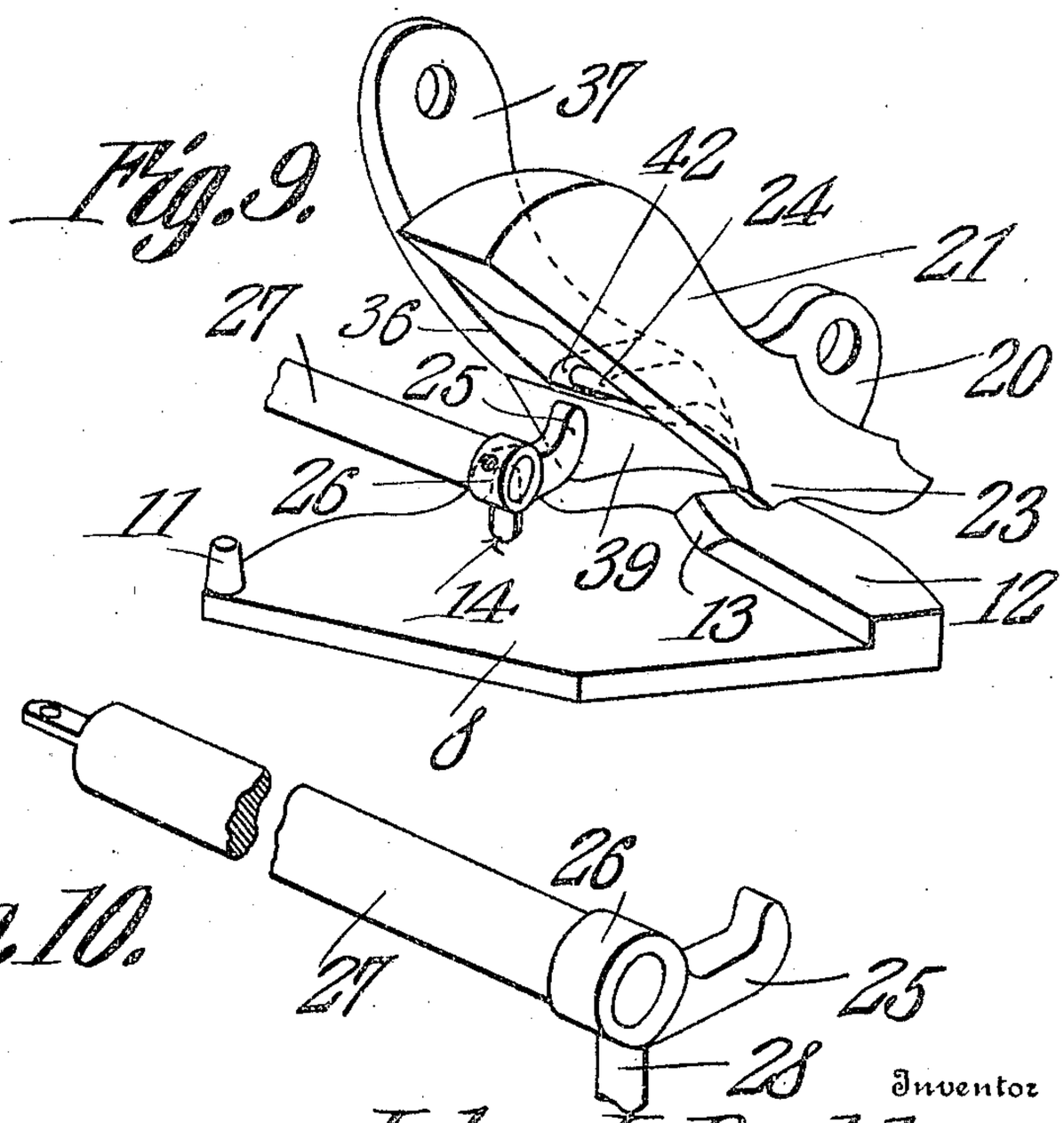

Fig. 9.

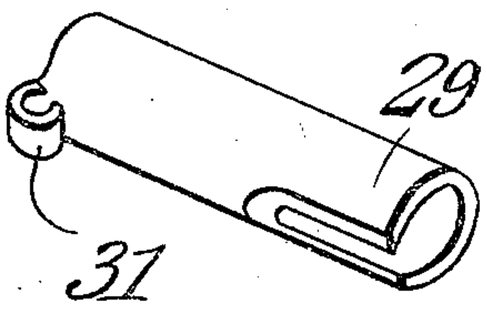

Fig. 10.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN LEONARD DADDOW, OF PORTSMOUTH, VIRGINIA.

CAR-COUPLING.

948,606. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed July 9, 1908. Serial No. 442,657.

To all whom it may concern:

Be it known that I, JOHN LEONARD DADDOW, a citizen of the United States, residing at Portsmouth, in the county of Norfolk and State of Virginia, have invented a new and useful Car-Coupler, of which the following is a specification.

This invention relates to car couplings of the Janney type and its object is to provide simple and efficient means whereby the knuckle of the coupler may be automatically and securely fastened when swung into closed position.

A further object is to provide novel means for unlocking the knuckle and for shifting it into open position.

Another object is to provide a car coupling having mechanism which can be readily removed from or placed within the head of the coupler, which head may be cast in a single piece.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a plan view of a coupler constructed in accordance with the present invention, the knuckle thereof being shown open. Fig. 2 is a section on a line A—B, Fig. 1. Fig. 3 is a section on line C—D, Fig. 1. Fig. 4 is a section on line E—F, Fig. 2. Fig. 5 is a detail view of a latch of the coupler. Fig. 6 is a perspective view of the locking tumbler thereof. Fig. 7 is a perspective view of the tumbler supporting plate. Fig. 8 is a perspective view of the latch tumbler, shouldered plate and the lifting finger, the parts being shown in the positions assumed by them immediately subsequent to the elevation of the tumbler and the lowering of the shouldered latch into the path of the pin upon the tumbler. Fig. 9 is a similar view showing the positions of the parts during the completion of the lifting of the latch by the lifting finger, and as the tumbler is dropping into position upon the shoulder on the plate. Fig. 10 is a perspective view of the lifting finger and its stem and sleeve, said sleeve being shown removed from the stem.

Referring to the figures by characters of reference, 1 designates a draw head having a recess 2 arranged horizontally therein and extending into the draw head from the front or concave face 3 thereof. One side of the draw head is forked at its forward end as indicated at 4 and pivotally mounted within this forked portion is a knuckle 5 having an arm 6 extending therefrom and designed to swing backward into the recess 2 when the knuckle is swung into closed position. This arm 6 is spaced from the bottom of the recess 2 and is provided in its lower face with an arcuate groove 7. Arranged below this arm and upon the bottom of the recess 2 is a plate 8 having a trunnion 9 extending downward therefrom and extending through the bottom of the draw head, said trunnion being held against displacement in any preferred manner as by means of a cotter pin 10. The plate 8 is substantially semi-circular in form and upstanding from this plate adjacent one end thereof is a lug 11 designed to work within the arcuate slot 7. Arranged upon the other end portion of the plate is a ledge 12, the inner end of which is beveled as shown at 13. A radial slot 14 is formed in the middle portion of the plate adjacent the curved edge thereof and a shoulder 15 is provided within this curved edge and between the slot 14 and the ledge 12, said shoulder being produced preferably by cutting away the plate 8. A recess, which has been indicated by dotted lines at 16 in Fig. 4, is formed in one wall of the recess 2 and that end of the plate 8 on which the ledge 12 is formed is designed to swing into this recess and against a stop shoulder 17.

Arranged upon one wall of the recess 2 is a boss 18 having a stud 19 outstanding therefrom and pivotally mounted on this stud is an ear 20 extending from a tumbler 21 the free end or head 22 of which is designed, when the arm 6 is pushed back into recess 2, to assume a position between the end of said arm and the adjoining wall of the recess 2 and thus prevent the arm from swinging out of the recess. This tumbler has a projection 23 extending therefrom and normally disposed between the ledge 12 and the slot 14, said projection, however, being designed, when the plate 8 is swung out of recess 16, to ride onto the beveled end 13 of the ledge 12 and then upward onto the ledge, which thus operates to support the head 22 out of the path of the arm 6.

A pin 24 extends laterally from the tumbler close to the projection 23 and this pin

is disposed normally above a lifting finger 25 extending from a collar 26 which is suitably secured to a rod 27 slidably and revolubly mounted within one side of the draw head. This collar 26 also has a lug 28 extending downward therefrom and projecting into the slot 14 heretofore referred to. The stem 27 is slidably mounted within a sleeve 29 arranged within a tapered opening 30 in one wall of recess 2 and an ear 31 is arranged upon the outer end of the sleeve 29 and is detachably mounted upon an ear 32 extending from the draw head 1.

Spaced openings 33 and 34 are formed within the top of the draw head 1 and opening 33 is designed to receive the head 22 of the tumbler when the same is elevated. A pivot pin 35 is detachably mounted within opposite walls of the other opening 34 and constitutes the pivot of a latch 36 which extends downward from the opening 34 and into the recess 2. This latch has been shown in detail in Fig. 5 and consists of a flat arm 37 and having a head 38 at its free end. That face of the head adjoining the tumbler 21 has its free end beveled as indicated at 39 and disposed upon the same face of the head at a point slightly removed from the beveled portion 39 is a lateral extension 40, the lower face of which is also beveled as shown at 41. The beveled shoulder 41 thus produced normally overhangs the pin 24 while the upper or square shoulder 42 formed by the projection 40 constitutes a ledge on which the pin 24 is designed to rest as hereinafter set forth.

When the knuckle 5 is in closed position and the arm 6 is seated within recess 2, the head 22 of the tumbler 21 rests between the arm 6 and the adjoining wall of recess 2 thus serving to prevent said arm and the knuckle from swinging relative to the draw head. The plate 8 at the same time rests with the ledge 12 thereon arranged within recess 16 and the lifting finger 25 lies in a substantially horizontal position upon the plate and between the tumbler and the head of latch 36, the concave face 43 of the tumbler, which is disposed back of and close to the pin 24, being positioned directly above said lifting finger. Latch 36 rests with its head bearing on the rear edge of the plate 8 and the slot 14 extends longitudinally of the draw-head. When it is desired to unlock the knuckle and at the same time swing it into open position the stem 27 is first partly rotated so as to cause the lifting finger 25 to push upwardly on the concave face 43, the lugs 28 at the same time working freely in the direction of the length of the slot 14. The finger will therefore act as a cam and swing the tumbler 21 upwardly so as to remove head 22 from between arm 6 and the wall of the recess 2. During the upward movement of the tumbler pin 24 pushes upwardly against the beveled shoulder 41 and causes latch 36 to swing upwardly a short distance until the projection 40 escapes past pin 24, whereupon it will drop downward by gravity and the shoulder or ledge 42 will become positioned below pin 24 and thus prevent the tumbler 21 from falling downward into the path of arm 6. Upon the completion of this operation the stem 27 is pulled longitudinally and lug 28 causes the plate 8 to swing upon its trunnion 9 and lug 11 is therefore caused to travel within groove 7 and to push arm 6 outwardly so as to open the knuckle 5. As soon as this swinging movement of plate 8 commences ledge 12 wedges under the projection 23 on tumbler 21 and maintains said tumbler in raised position. During the completion of the sliding movement of stem 27 the finger 25 presses against the beveled end 39 of the latch head 36 and elevates the latch so as to disengage pin 24 from ledge 42. The tumbler will thus drop a short distance until projection 23 bears on ledge 12 which will thus support it without the assistance of the latch 36. When the coupler has been opened in this manner the parts are all set and ready to be automatically closed when two couplers of the same construction are brought together.

The coupling operation will result in the knuckle of one coupler passing back of the knuckle of the other coupler and pushing the arm 6 inwardly. Said arm will therefore actuate the plate 8 through lug 11 and return said plate to its initial position. The ledge 12 will therefore be withdrawn from beneath the tumbler 21 immediately subsequent to the positioning of arm 6 within recess 2 and said tumbler will therefore drop between arm 6 and the wall of the recess and the knuckle will therefore be automatically locked in closed position. The return movement of plate 8 above described will of course return the stem 27 to its initial position. After the parts have been locked in this manner the unlocking operation heretofore described can be repeated. Knuckle 5 is preferably mounted upon a removable pivot pin 44 held in place in any preferred manner as by means of a cotter pin 45 and obviously by removing this pin 44 the knuckle and its arm can be readily removed from the draw head.

Should any of the parts within the draw head become broken they can be readily removed simply by first detaching the knuckle and then uncoupling the sleeve 29 from ear 32. Said sleeve can then be withdrawn from the opening 30 and the lug 28 lifted out of engagement with the plate 8. Said stem 27 can then be withdrawn through the recess 2 after which the latch 36 can be detached simply by removing the pivot pin 35 and withdrawing the latch through the recess 2. After the latch has been taken out

the tumbler 21 can be slid laterally off of the stud 19 and taken from the draw head and plate 8 can then be unfastened from the draw head and also lifted therefrom through the recess 2. The parts can all be replaced as readily as they can be removed.

One of the important results obtained by the use of a device such as herein described is the ability to close the knuckle by means of the stem 27 and the parts actuated thereby. Trainmen in shifting cars and making up trains are often compelled to pass between the cars and close the knuckles as, for example, when it is not desired to couple together two cars which come together. This often results in injury and inasmuch as in the present invention the knuckle can be closed simply by shifting the stem 27 it will be obvious that the same will be greatly desirable because of this feature alone.

What is claimed is:

1. The combination with a draw head, a knuckle pivotally connected thereto, and an arm extending from the knuckle and mounted to swing into the draw head; of a tumbler movably mounted within the draw head and positioned to lock the arm against movement within the recess, means for shifting the tumbler to release the arm, and horizontally movable means disposed entirely within the drawhead and movable about a fixed pivot for supporting the tumbler in elevated position when the knuckle is open, said means being movable with the arm but separate therefrom, and the pivot of said means being parallel with the plane of movement of the tumbler.

2. The combination with a draw head, a knuckle pivotally connected thereto, and an arm movable with the knuckle and into the draw head; of a tumbler pivotally mounted within the draw head and disposed to be seated by gravity in the path of the arm to lock the arm within the draw head, actuating means slidably and revolubly mounted within the draw head, said means being revoluble to shift the tumbler and release the arm, and horizontally movable means pivotally mounted within the draw-head and separate from but operated by the sliding movement of said actuating means for swinging the arm from the draw head.

3. The combination with a draw head, a knuckle pivotally connected thereto, and an arm extending from the knuckle and disposed to swing into the draw head; of a tumbler pivotally supported within the draw head and shiftable by gravity into position to lock the arm within the draw head, slidable and revoluble actuating means within the draw head, said means being revoluble to shift the tumbler and unlock the arm, and horizontally movable means pivotally mounted within the drawhead and actuated by the sliding movement of said revoluble means to swing the arm from the draw head.

4. The combination with a draw head, a knuckle pivotally mounted thereon, and an arm extending from the knuckle and movable into the draw head; of a tumbler shiftable by gravity in position to lock the arm within the draw head, revoluble slidable actuating means within the draw head, said means being revoluble to shift the tumbler and unlock the arm, movable means within the draw head and actuated by the sliding movement of said revoluble means for swinging the arm out of the draw head, said movable means when shifted constituting a support for the tumbler.

5. The combination with a draw head, a knuckle pivotally connected thereto, and an arm movable with the knuckle and into the draw head; of a vertically swinging gravity operated tumbler for locking the arm against movement within the draw head, horizontally extending revoluble and slidable means for elevating the tumbler to release the arm, a latch for automatically engaging said tumbler to support it in elevated position and a horizontally swinging device pivoted in the draw-head and actuated by said means for supporting the tumbler when released from the catch, and for actuating the knuckle-arm.

6. The combination with a draw head, a knuckle pivotally connected thereto, and an arm extending from the knuckle and movable into the draw head; of a vertically swinging tumbler mounted within the draw head for locking the arm against movement therein, horizontally extending revoluble and slidable means for actuating the tumbler to release the arm, a gravity operated latch for automatically engaging the tumbler to hold it in shifted position and a horizontally swinging device pivoted in the draw-head and actuated by said means for supporting the tumbler when released from the catch and for actuating the knuckle-arm.

7. The combination with a draw head, a knuckle pivotally connected thereto, and an arm extending from the knuckle and movable into the draw head; of a vertically swinging tumbler within the draw head and disposed to lock the arm against movement therein, a vertically swinging latch supported within the draw head and having a lateral supporting ledge, a laterally projecting pin upon the tumbler, revoluble and slidable horizontal means for lifting the tumbler to release the arm and position the pin upon the ledge, and a horizontally swinging device pivoted in the draw-head and actuated by said means for supporting the tumbler when released from the catch and for actuating the knuckle-arm.

8. The combination with a draw head, a

knuckle pivotally connected thereto, and an arm upon the knuckle and movable into the draw head; of a tumbler within the draw head and disposed to lock the arm against movement within said draw head, a latch pivotally supported adjacent the tumbler and having a supporting ledge, a laterally projecting pin upon the tumbler, means for shifting the tumbler to release the arm and position the pin upon the ledge, and a pivoted arm actuating device within the draw head and shiftable by said tumbler actuating means.

9. The combination with a draw head, a knuckle pivotally connected thereto, and an arm extending from the knuckle and movable into the draw head; of a tumbler within the draw head for locking the arm against movement in said draw head, a latch within the draw head, and means for elevating the tumbler into engagement with the latch to release the arm, a pivoted device within the draw head and slidably engaging the arm to shift said arm, said tumbler shifting means being slidable to actuate said pivoted device, and means upon said pivoted device for supporting the tumbler in shifted position.

10. The combination with a draw head, a knuckle pivotally connected thereto, and an arm extending from the knuckle and movable into the draw head; of a plate pivotally mounted within the draw head and slidably engaging the arm, said plate having a supporting ledge, a slidable and revoluble actuating device engaging said plate and extending beyond the draw head, a tumbler pivotally mounted within the draw head and disposed to lock the arm against movement within the draw head, said actuating device being revoluble to disengage the tumbler from the arm, a latch pivotally mounted within the draw head, and a pin extending from the tumbler, said pin being shiftable with the tumbler into engagement with the latch, said latch being released from the pin by the sliding movement of the actuating device.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN LEONARD DADDOW.

Witnesses:

KATIE ELLER,

F. E. GERKE.