

(No Model.)

2 Sheets—Sheet 1.

P. McENTEE.
CAR COUPLING.

No. 539,143.

Patented May 14, 1895.

Fig. 1.

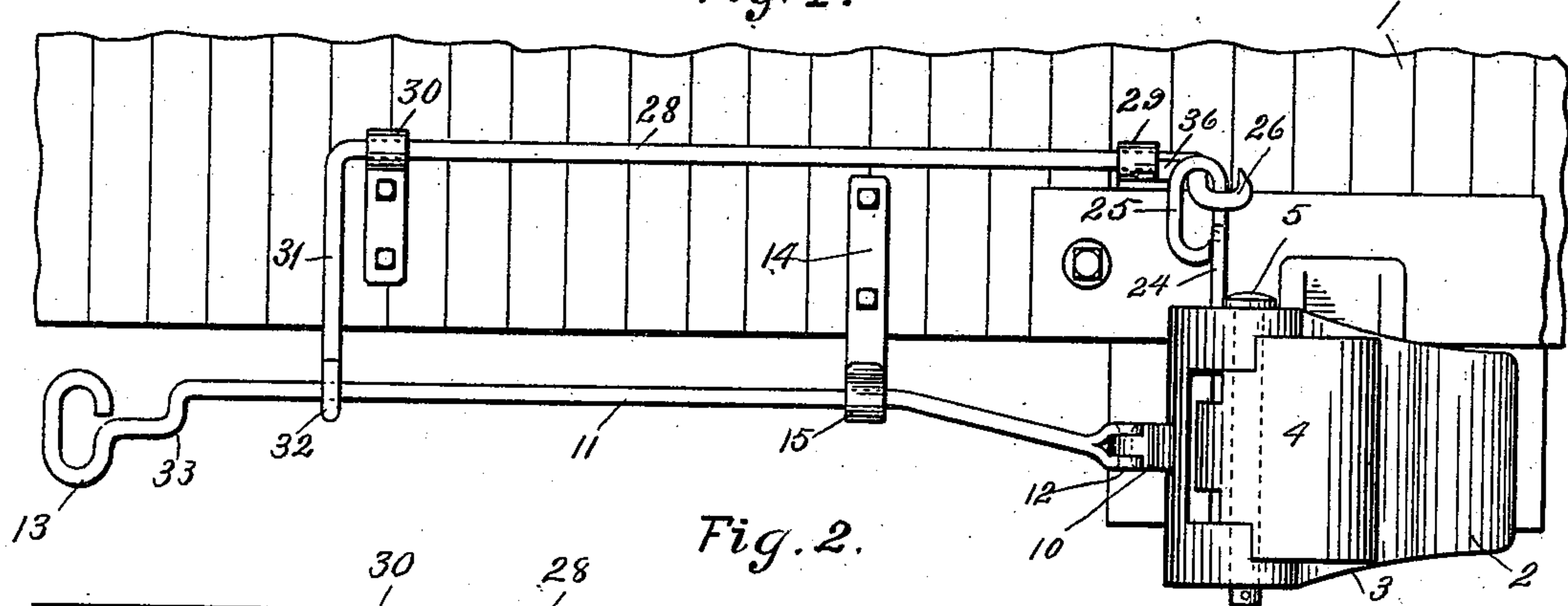


Fig. 2.

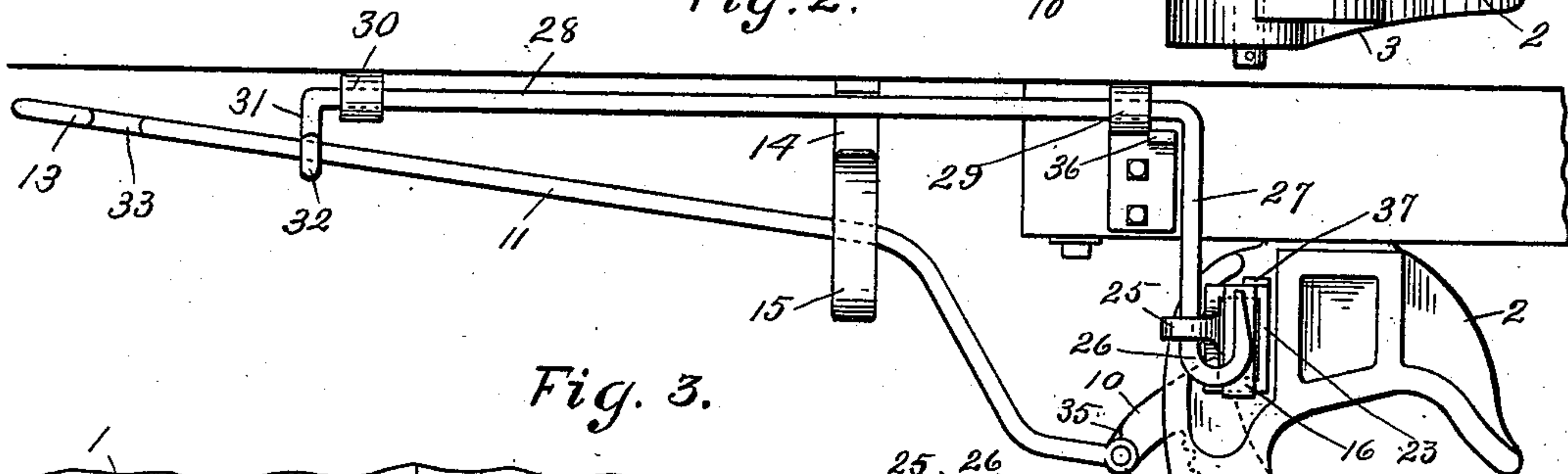


Fig. 3.

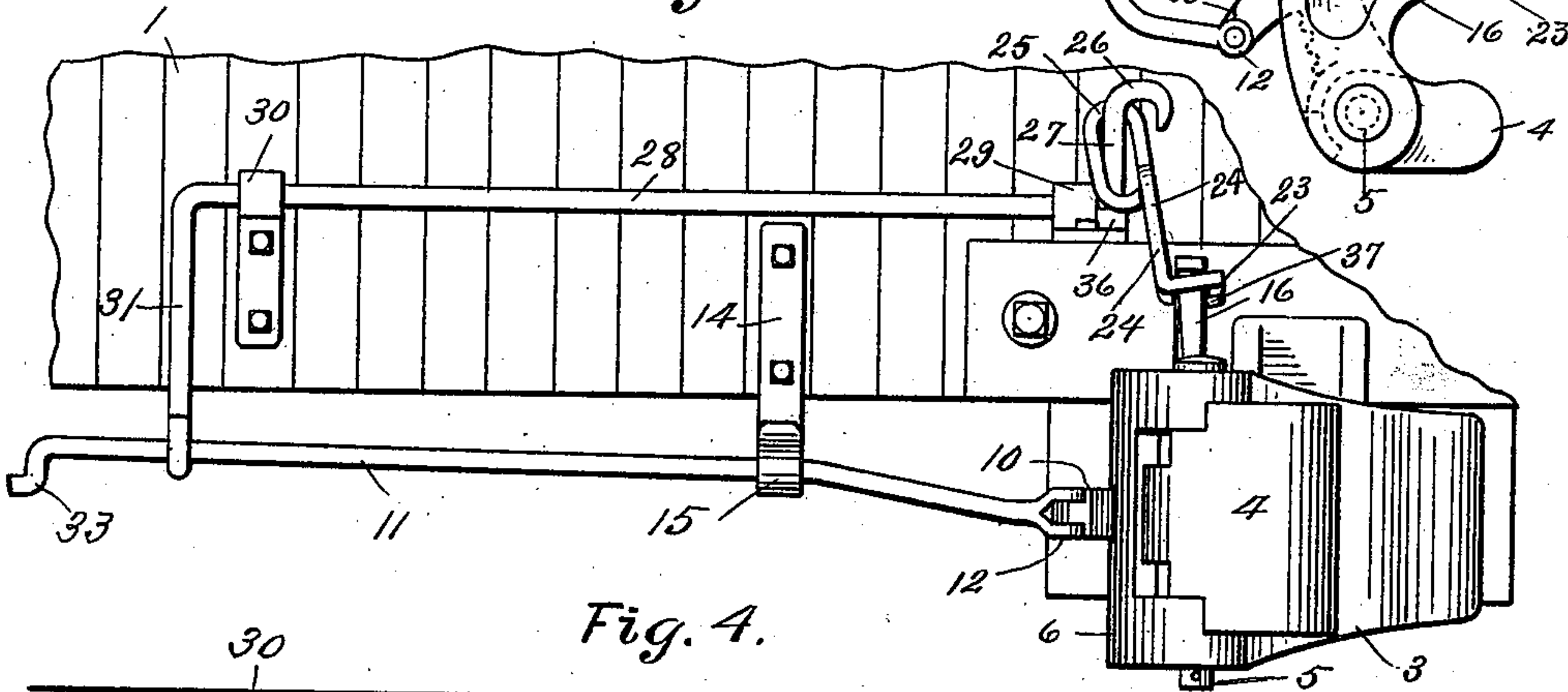
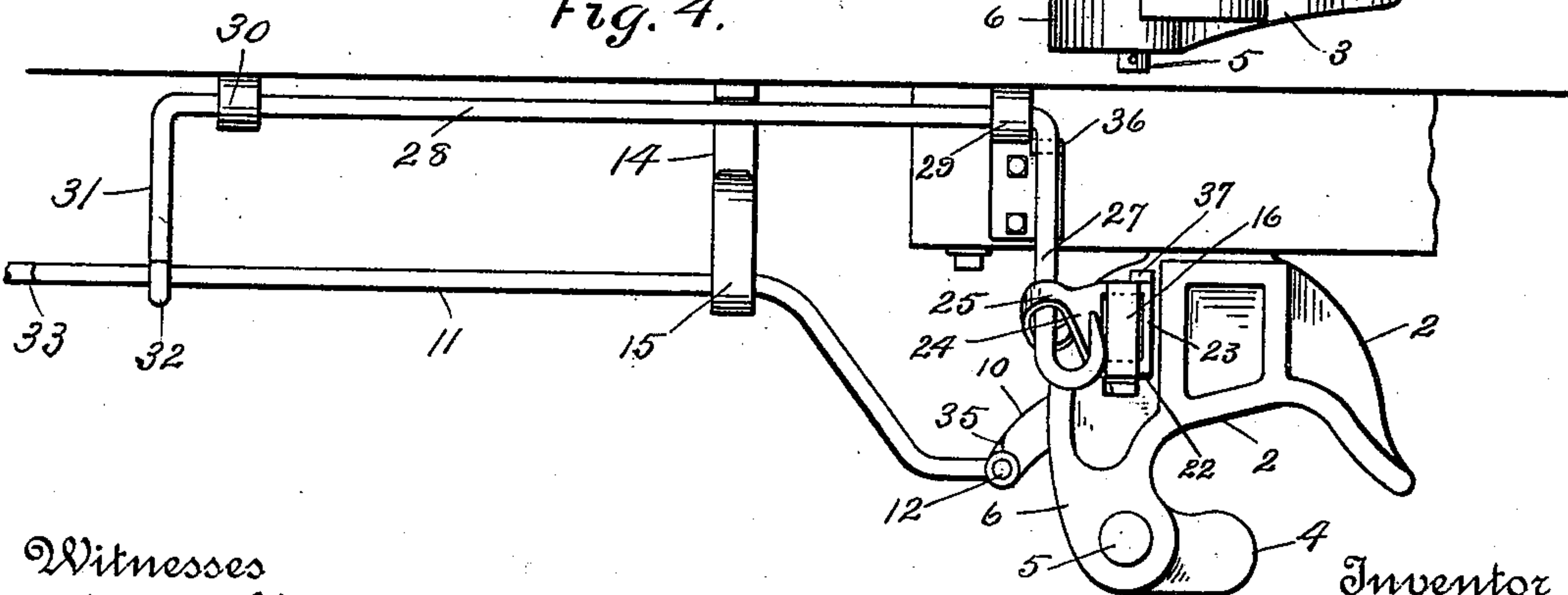


Fig. 4.



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Fig. 5.

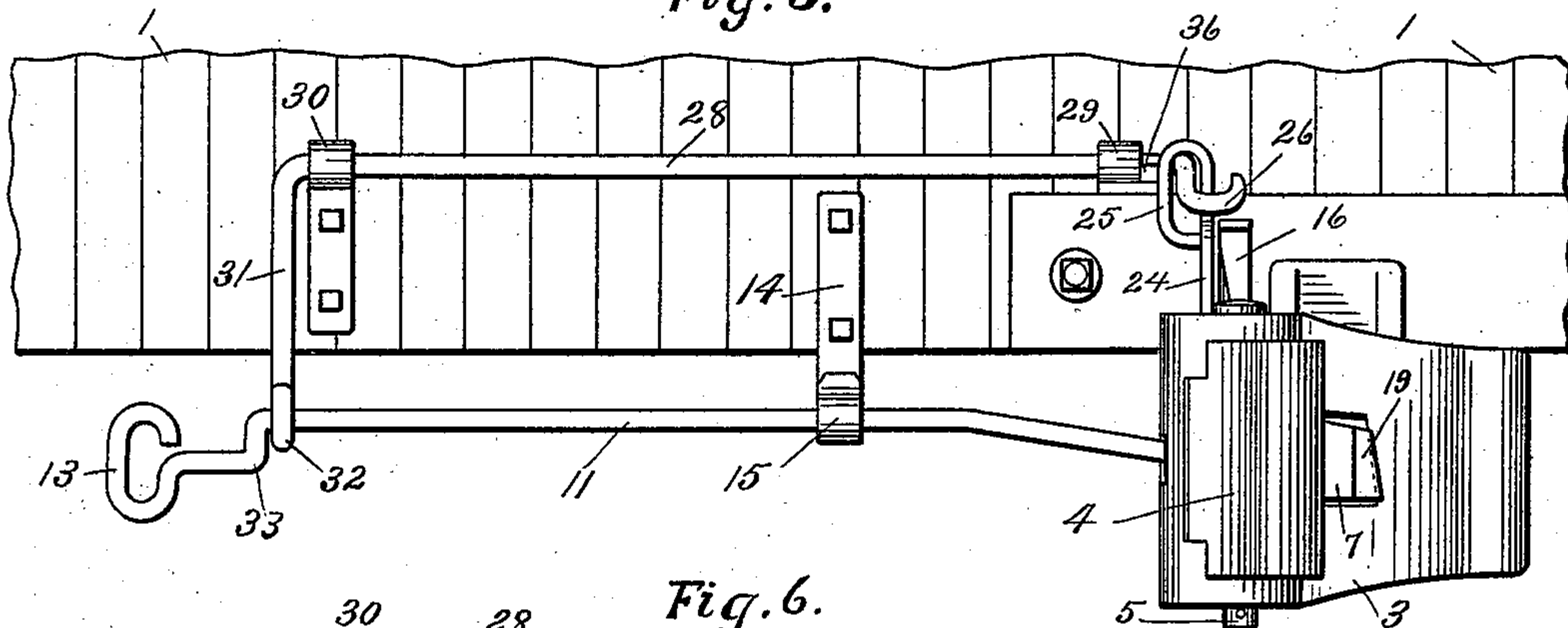


Fig. 6.

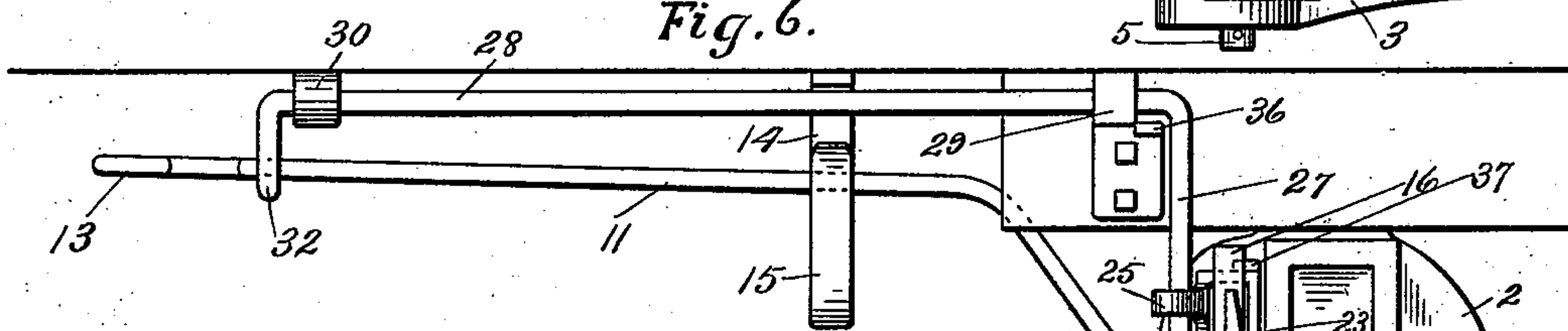


Fig. 7.

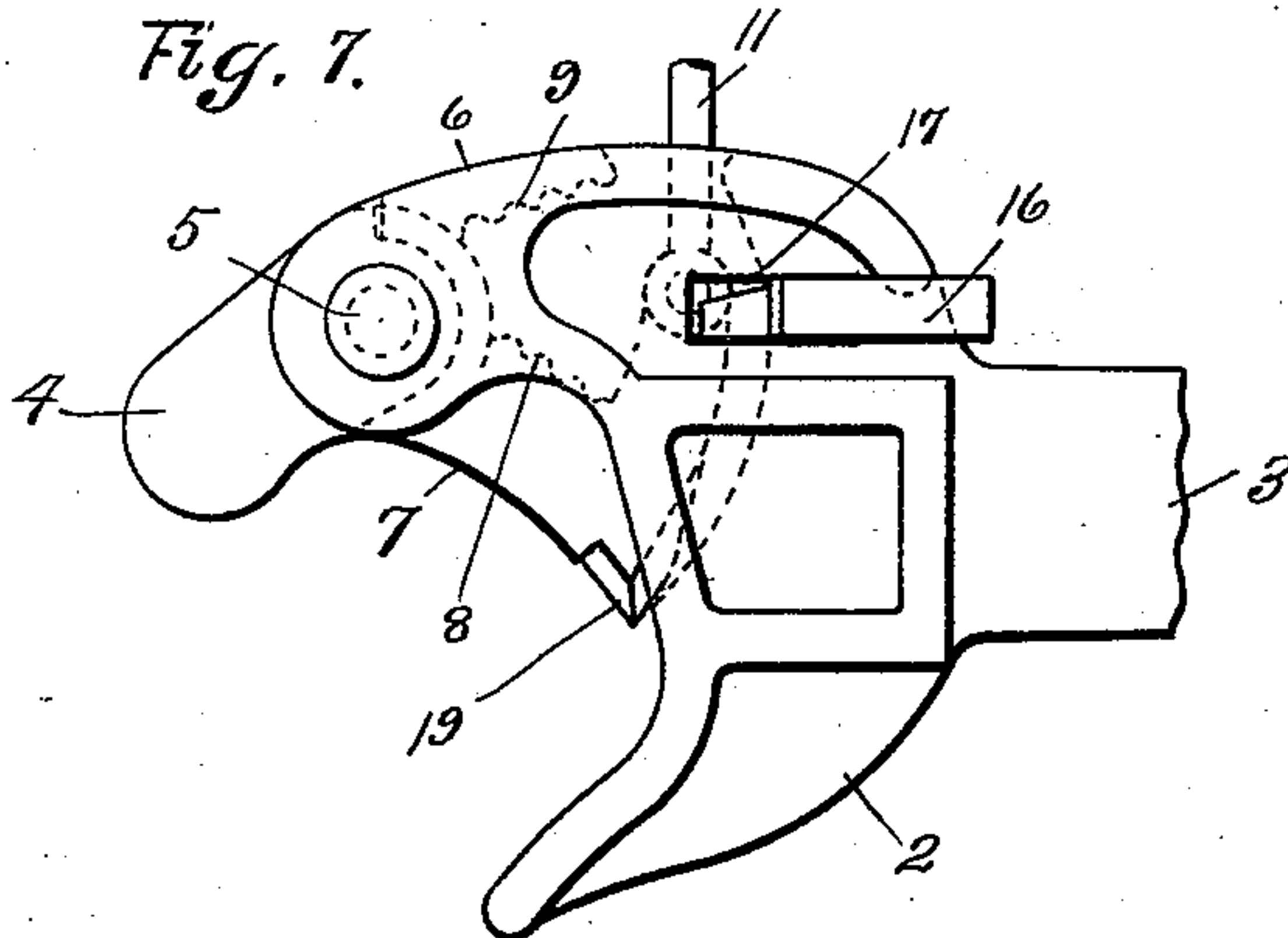


Fig. 9.

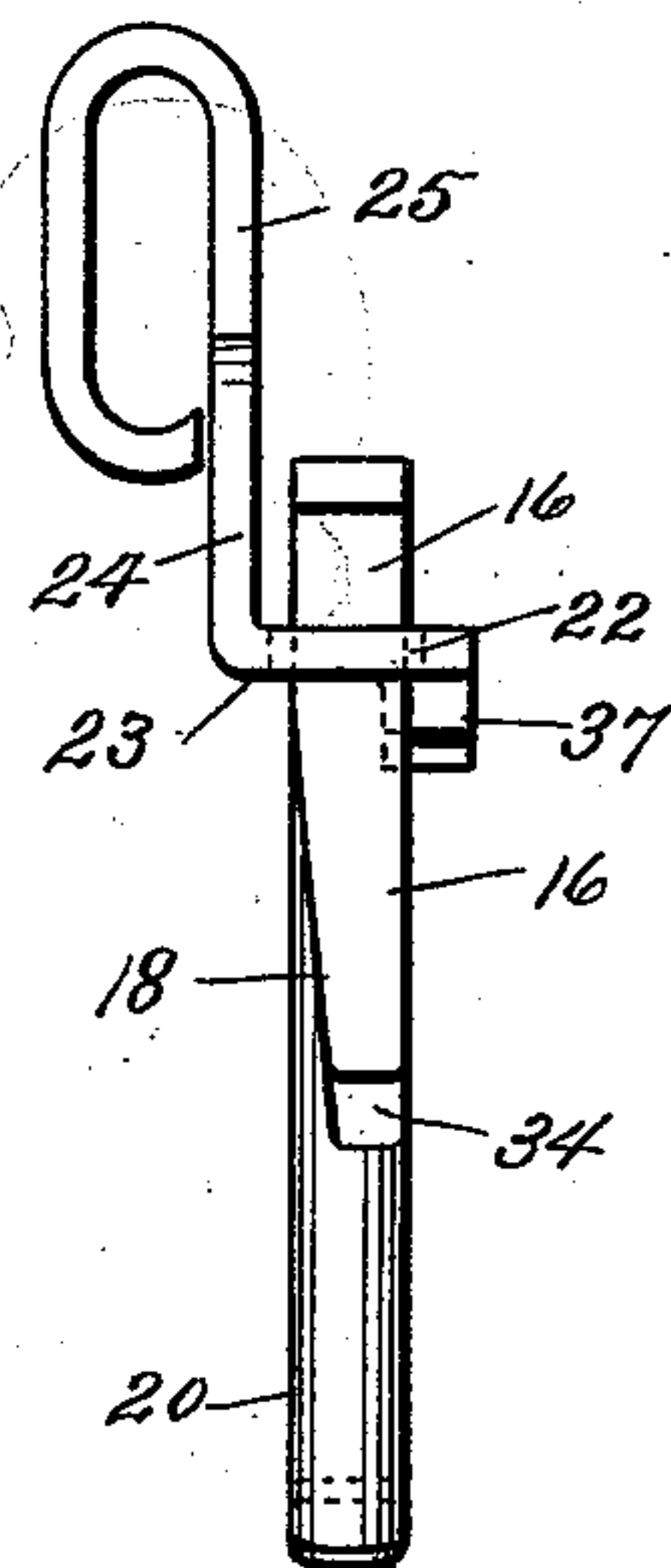


Fig. 10.

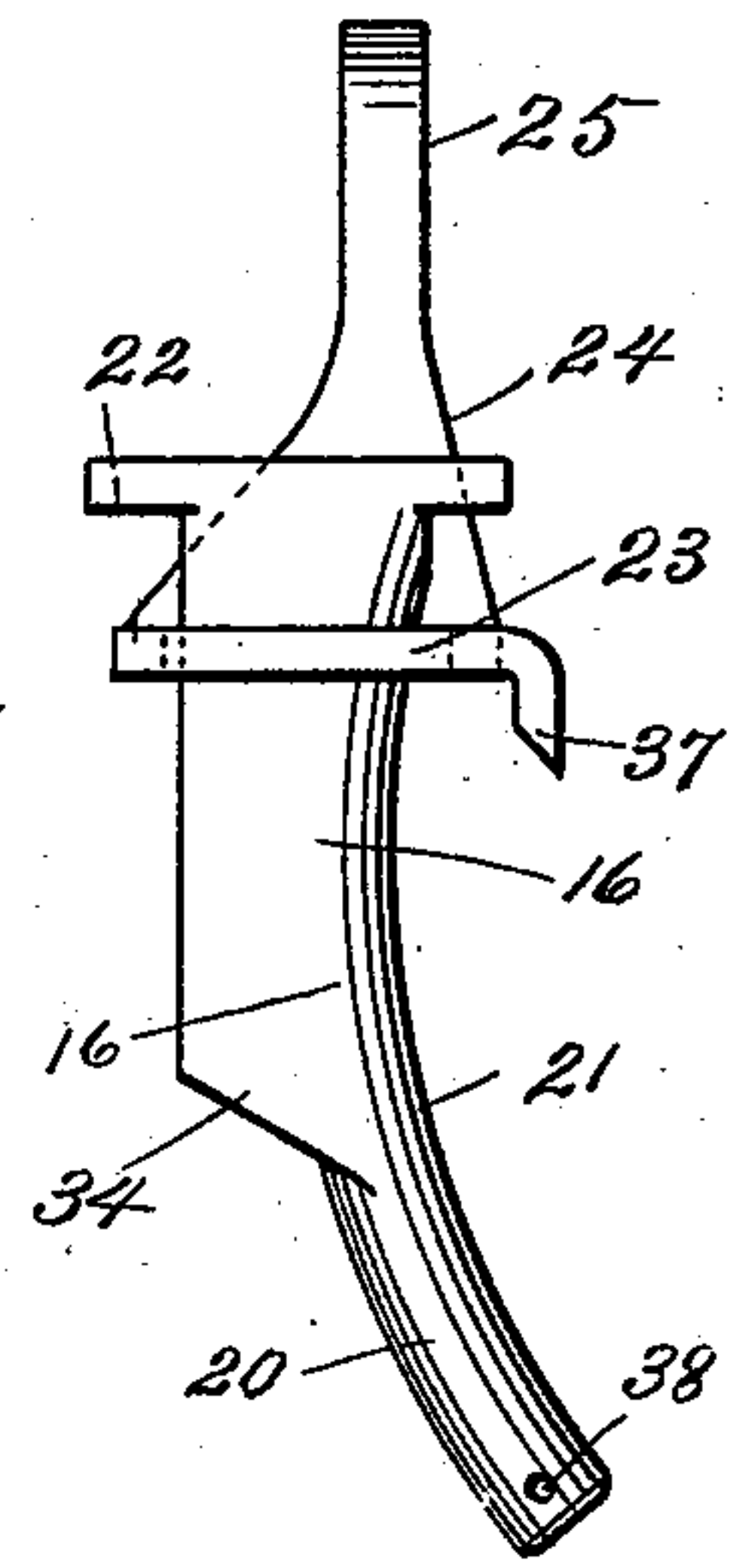
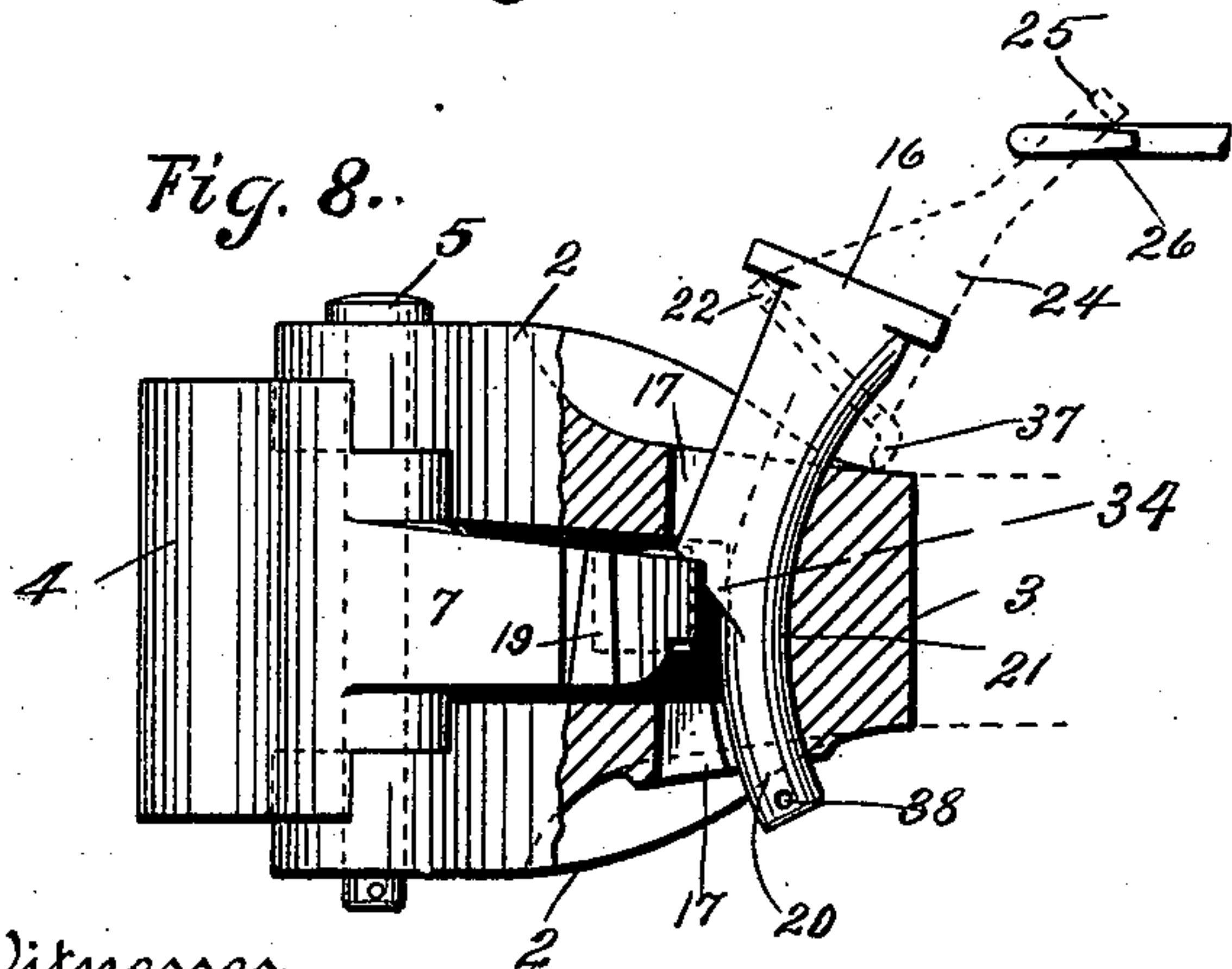


Fig. 8..



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UNITED STATES PATENT OFFICE.

PATRICK MCENTEE, OF MONTGOMERY, MINNESOTA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 539,143, dated May 14, 1895.

Application filed January 25, 1894. Renewed April 1, 1895. Serial No. 544,102. (No model.)

To all whom it may concern:

Be it known that I, PATRICK MCENTEE, a citizen of the United States, residing at Montgomery, in the county of Le Sueur and State of Minnesota, have invented a certain new and useful Improvement in Car-Couplings, of which the following is a specification.

My present invention relates to the class of car-couplings in which interlocking jaws are employed, and of the general character of the coupling illustrated by my Patent No. 505,803, dated September 26, 1893.

The main object of the invention is to make the operation of the devices as nearly automatic as the service required will permit; and that is that all there is required of an operator is the retraction of a key by the manipulation of a lever at the side of a car to permit an uncoupling by the pull of one jaw upon another, and that the movement of parts in uncoupling shall automatically set them in position for re-coupling and enable a re-interlocking to be made automatically.

Other objects are, improvement of the means for operating—(both locking and unlocking)—the devices; and providing means for automatically uncoupling and supporting a draw-head when a draw-bar of a car in motion is broken.

My improvements are illustrated in the accompanying drawings, in which—

Figure 1 is an end view of a portion of a freight-car equipped with my improvements, showing the devices in the positions they occupy when co-operating couplings are interlocked. Fig. 2 is a plan view of the devices of Fig. 1 shown in the same positions. Fig. 3 is an elevation similar to Fig. 1, but shows the operative devices moved sufficiently to permit uncoupling by a pull upon the jaw of the coupling device illustrated. Fig. 4 is a plan view of the devices in the positions shown in Fig. 3. Fig. 5 is an elevation similar to Figs. 1 and 3, showing the locking-jaw swung out to position for recoupling. Fig. 6 is a plan view showing the same. Fig. 7 is an enlarged plan view of the draw-head with the jaw and connections in the positions shown in Fig. 6. Fig. 8 illustrates the relative positions of the draw-head, wedge-pin, and its operating devices when the draw-bar is broken and the draw-head pulled away from the

frame of the car, but before it has dropped to position to be supported by the wedge-pin and its connections; and Figs. 9 and 10 are elevations of the wedge-pin and yoke detached from the other parts.

In the drawings referred to, 1 designates the end of a freight car; 2, a draw-head on a draw-bar 3; and 4, the knuckle or jaw connected by a pin 5 to the forward portion 6 of the draw-head. Such knuckle or jaw, as is apparent, is designed to co-operate with a corresponding knuckle or jaw provided on a similar draw-head to constitute an interlocking coupling of the form in common use. The shank or interior portion 7 of the knuckle is corrugated, as indicated at 8, and the side wall of the draw-head is similarly corrugated, as at 9, to adapt it to be engaged by the corrugations on the shank of the knuckle, whereby the friction of the coincident corrugated surfaces may serve to reduce the strain upon the pivot-pin 6 of the knuckle, as set forth in my prior patent referred to.

The inner end of the shank 7 has a laterally extended portion 10 operating through a slot in the side of the draw-head. To this extended portion the end of a suitably bent rod 11 is connected by a pivot-pin 12, and the rod extends across the end of the car to or near its side and has a loop or hand-hold 13 formed on the end. One of the supports and bearings for the rod 11 is a bracket 14 attached to the end of the car at about the middle of the length of the rod and providing a lateral loop 15 within which the rod may move both lengthwise and laterally. Movement of the rod lengthwise, as is apparent, would serve to swing the knuckle 4 inward and outward to operate it for coupling and uncoupling; and its capability of lateral movement is designed to adapt it to co-operate with another rod connected to it as will be hereinafter more fully explained.

To lock the jaw in the position indicated in Figs. 1 and 2, a key 16 is provided and arranged to be operated in a slot 17 which extends through the draw-head in vertical direction. This key has its outer side (the side which engages the jaw-shank) inclined so as to make its upper portion of substantially wedge-shape, as shown at 18 in Fig. 9, so that in descending it will engage a correspondingly

inclined face 19 formed on the inner edge of the shank 7 of the jaw, and serve to hold the corrugated portions of the shank and draw-head in engagement in the manner referred to in my prior patent; thus relieving the pivot-pin 6 of most of the strain upon it. As this key is comparatively loose in its socket it is adapted to adjust itself to the inclined surface of the shank of the knuckle against which it bears and to descend as compensation for wear of the corrugated contact surfaces of the shank and draw-head may require.

The key has its rear portion, and its round shank 20, below its wedge portion, suitably curved as indicated at 21, and the rear wall of the slot 17 in the draw-head in which it operates is correspondingly curved, as indicated in Fig. 8. The forward wall of this slot is made straight to correspond with the front surface of the wedge portion of the key, so that normally the key would be permitted to descend by gravity until its head 22 rests on the top of the draw-head.

For manually operating the key means are provided as follows: A yoke 23 loosely embraces the key and permits its free vertical movement until its head 22 is engaged by the yoke. An upright portion 24, of any suitable form, is formed on one side of the yoke and provides at its upper end a loop 25, through which passes the hooked end 26 of a lateral arm 27 formed on a rod 28 that is supported in horizontal position on the end of the car by brackets 29 and 30, or similar means adapted to permit its longitudinal movement and partial rotation. Outside the bracket, or bearing, 30 the rod 28 is bent at a right angle to form an arm 31 on the end of which is formed an eye or loop 32, loosely encircling the rod 11; and the latter rod has a bend 33 outside the eye 32 at a proper point to engage the eye 32 when the rod 11 is moved inward. This movement of the rod 11 will result from a manual thrust at its outer end or from a pull upon the jaw 4. In either case the crook 33 will engage the eye 32 and move the rod 28 inward to the desired extent, which is to the positions shown in Figs. 1, 2, 5 and 6.

As has been suggested, and as is apparent from the drawings, both the rod 11 and the rod 28 are capable of compound movements—that is lengthwise and lateral—because of the character of their connections and their supports. It will be understood from the drawings that the wedge-pin 16 may be lifted from its locking position shown in Figs. 1 and 2, to its elevated position shown in Figs. 3 and 4 by a diagonal pull on the lateral arm 31—that is toward the side of the car and outward from its end.

The devices when locked are in the position shown in Figs. 1 and 2; and when brought to position preparatory to uncoupling they will be in position shown in Figs. 3 and 4, and when brought to the final open position—either by a push upon the bar 11 or by a pull upon the knuckle 4—they will be brought to

the position shown in Figs. 5 and 6. In the position shown in Figs. 1 and 2 the knuckle 4 and the wedge-pin 16 are in their locking positions; and the rods 11 and 28 are in what may for convenience be termed their initial positions. In Figs. 3 and 4 the devices are shown with the rod 11 swung outward and the rod 28 operated torsionally to lift the wedge 16 out of its seat, as indicated in Fig. 3, to permit an uncoupling. Then, after a co-operating knuckle has borne the knuckle 4 to the position shown in Figs. 5 and 6, the positions of the rods 11 and 28 will be as indicated in the last named figures.

The wedge-pin 16 will be held in suspension in the lifted positions shown in Fig. 5 by means of its inclined shoulder 34 which bears upon a similarly inclined portion 35 provided at the outer end of the lateral portion 10 of the knuckle-shank, in co-operation with the bearing of the curved-rear portion of the wedge against the rear wall of the draw-head slot. The friction of these parts may be made sufficient to support the wedge-pin in place during the ordinary jostling caused by the movement of the cars previous to their impact for coupling, and thus hold the jaw in its open position, as shown in Figs. 5 and 6; but the frictional contact should not be sufficient to hold the jaw open when a severe jar occurs, such as is produced when one car is moved against another in making couplings. The arrangement should be such that in the latter case the force of the impact would lift the wedge and permit the jaw to close; and the wedge would then be allowed to descend by gravity to locking position; and the wedge when in the latter position will serve, in conjunction with the corrugations of the jaw-shank and draw-head, in relieving the strain upon the pin 5, for its inclined portion fills the space between the incline 19 and the rear wall of the draw-head.

The outward and torsional movement of the rod 28 in lifting the wedge-pin (indicated in Figs. 3 and 4) moves it to position to rest upon a lug or stop 36 adjacent to the bracket 29, and by this means the arm is held in suspension as indicated in Fig. 3 so as to prevent the descent of the wedge-pin until the rod 28 has been again reciprocated by the movement of the jaw 4. Thus the wedge-pin is held in suspension when it is desired to disconnect couplings and until the coupling with which it co-operates is operated to swing its jaw to open position. Moving the jaw from its closed to its open position will change the position of the levers and their connections as clearly indicated by the differences of position shown in Figs. 3 and 6.

A downward lug or projection 37 at the rear of the yoke 23 is adapted to aid in the way of providing a leverage for the lifting of the wedge-pin 16 by reason of its bearing upon the surface of the draw-head. This renders the operation of the rods 11 and 28 easier than it would be if there were merely a straight

pull upon the wedge while under the pressure of the shank of the jaw.

In case of the breaking of a draw-bar when couplings of this character are interlocked, the draw-head on the broken part would necessarily be pulled away from the car. In being thus moved away the effect would be that the yoke 23 would pull upon the head of the wedge-pin and draw the pin from engagement and thereby permit outward swinging of the jaw and an uncoupling, as indicated in Fig. 8. The projection 37, as will be apparent, provides an added leverage in the operation of lifting the wedge. At or near the lower end of the shank of the wedge is provided a pin 38 or equivalent means for engaging the base of the draw-head when the latter falls or the key is raised. As a result, in use, in the event of the breaking of a draw-bar, or upon its being otherwise freed to permit it to be pulled out of its socket, the draw-head could fall only far enough to be caught and held by the key and its connections, thereby avoiding one of the causes of frequent disaster to freight trains.

To summarize what has been said of the operation of the devices referred to, an operator's duty relates solely to the act of lifting the key to permit an uncoupling to take place. All other operations are automatic. To illustrate: Assuming the positions of parts to be as in Figs. 1 and 2,—(that is the locking position)—and the jaw to be engaged by a twin-jaw on another car, to permit an uncoupling the operator grasps the arm 31 from outside the car and pulls toward him and away from the end of the car; thus sliding the rod 28 outward and turning it axially so as to lift the arm 27 and raise the key from engagement, and by the same operation moving the arm 27 to position to seat upon the stop 36 and hold the key in suspension (see Fig. 3) when the operator releases his hold. A subsequent pull on the jaw 4 (by the co-operating jaw of the other car) will swing it to the open position (Fig. 6) and the movement will draw the rod 11 inward and cause its portion 33 to engage the eye 32 and slide the rod 28 sufficiently to free its arm 27 from the stop 36, thus releasing the key from suspension by its

yoke 23 and allowing it to descend by gravity to engagement with the beveled surface 35 on the projection of the jaw-shank, and so to hold the jaw from being jostled from its full open position previous to the thrust of another jaw in re-coupling.

If from any cause the draw-head should be pulled away from the car while in motion the key would be lifted (as in Fig. 8) and an uncoupling effected, while the draw-head would be caught by the key and prevented from falling to the road bed.

Having described my invention, what I claim is—

1. In a car-coupling, a slotted draw-head, a pivoted jaw having a shank, a key for holding the jaw alternately in locking and unlocking positions; in combination with a lever connected to the jaw-shank and a second lever co-operating therewith and having connection with the key, for manually releasing the key and permitting its automatic re-engagement, substantially as set forth.

2. In a car-coupling, a draw-head, a pivoted jaw, and a gravitating key for locking the latter in either open or closed position; in combination with levers connected together and attached respectively to an extension of the jaw shank and to the head of the key, substantially as and for the purpose set forth.

3. In a car-coupling, the combination with a draw-head and a pivoted jaw therein, of a gravitating key for locking the jaw when in closed position and having a beveled front portion for engaging a beveled surface on the jaw shank to hold the jaw in open position until it is operated manually or by impact, substantially as set forth.

4. In a car-coupling, the combination with a suitably slotted draw-head and a jaw pivoted therein; of a gravitating key having its rear portion curved inward and a beveled portion at its front and arranged in a slot in the draw-head for engaging the shank of the jaw to hold it when in open position, substantially as set forth.

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