

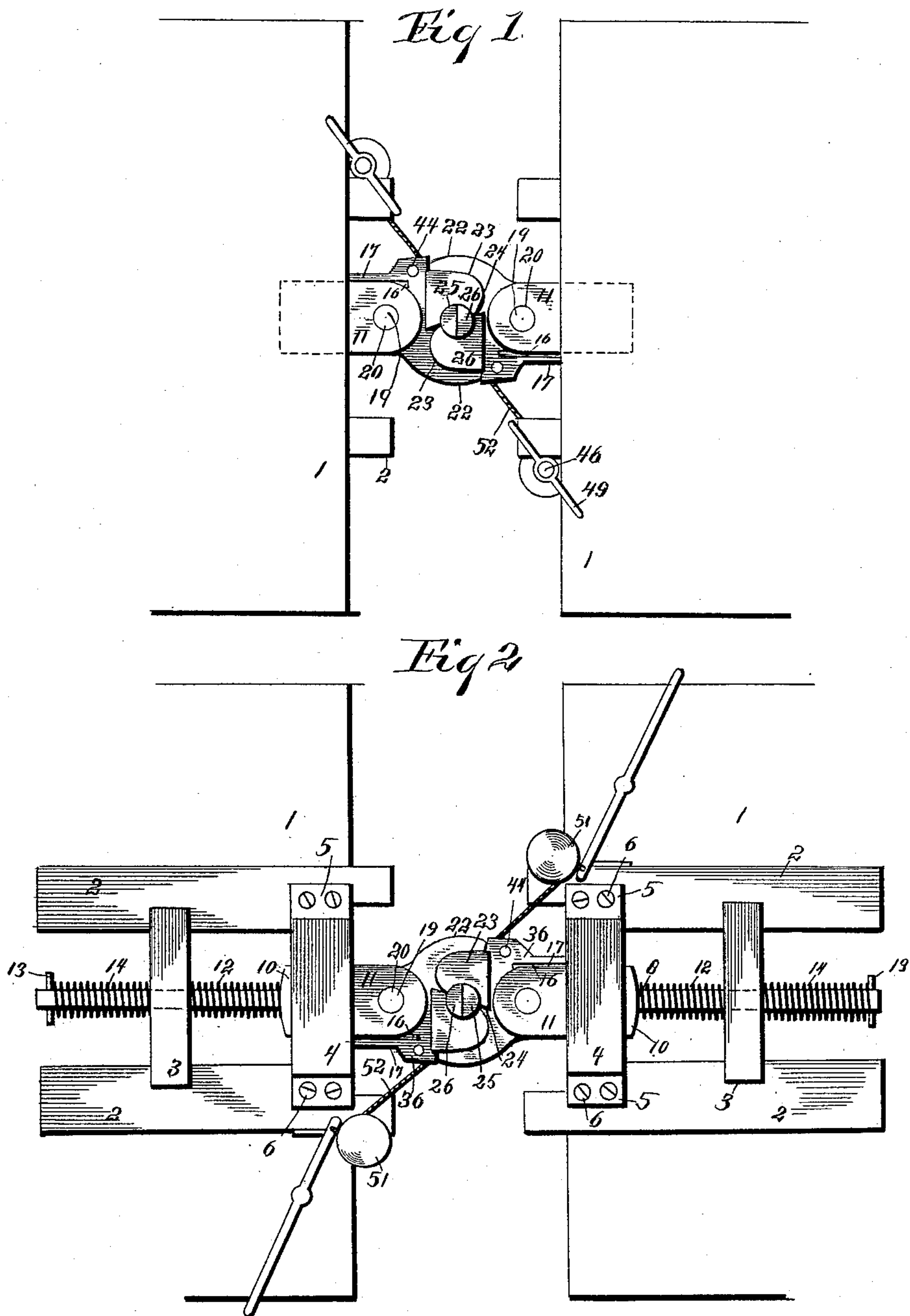
(No Model.)

2 Sheets—Sheet 1.

G. B. BALLOU.  
CAR COUPLING.

No. 452,356.

Patented May 19, 1891.



WITNESSES;

C. C. Burdine.  
Geo. L. Wheelock.

INVENTOR,

George B. Ballou  
BY  
R. B. D. D. D.  
his ATTORNEY.

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Fig 3

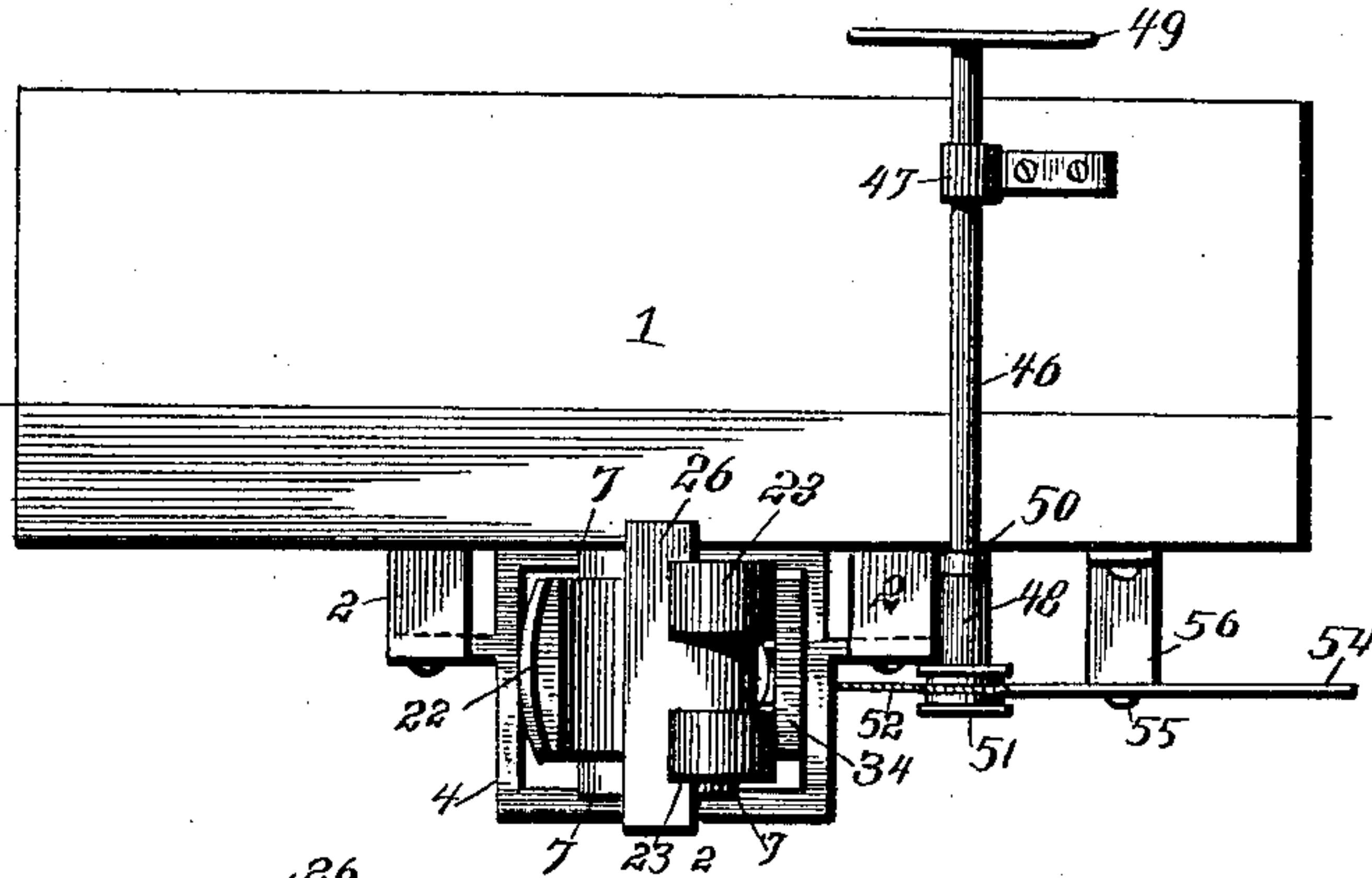


Fig 4

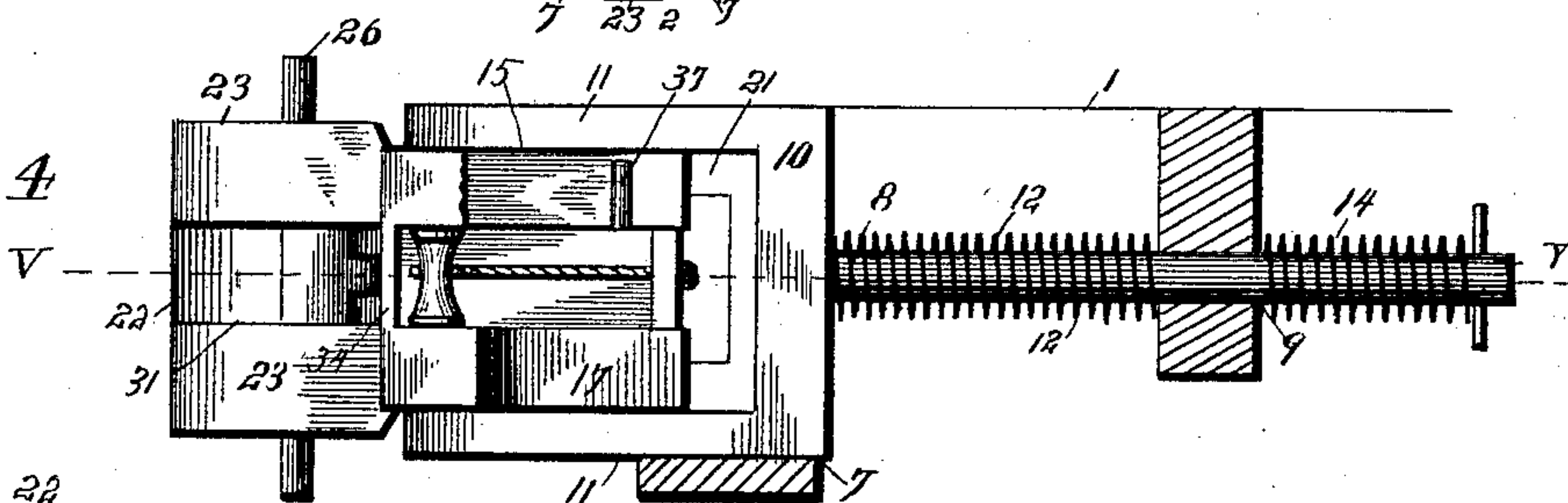


Fig 5

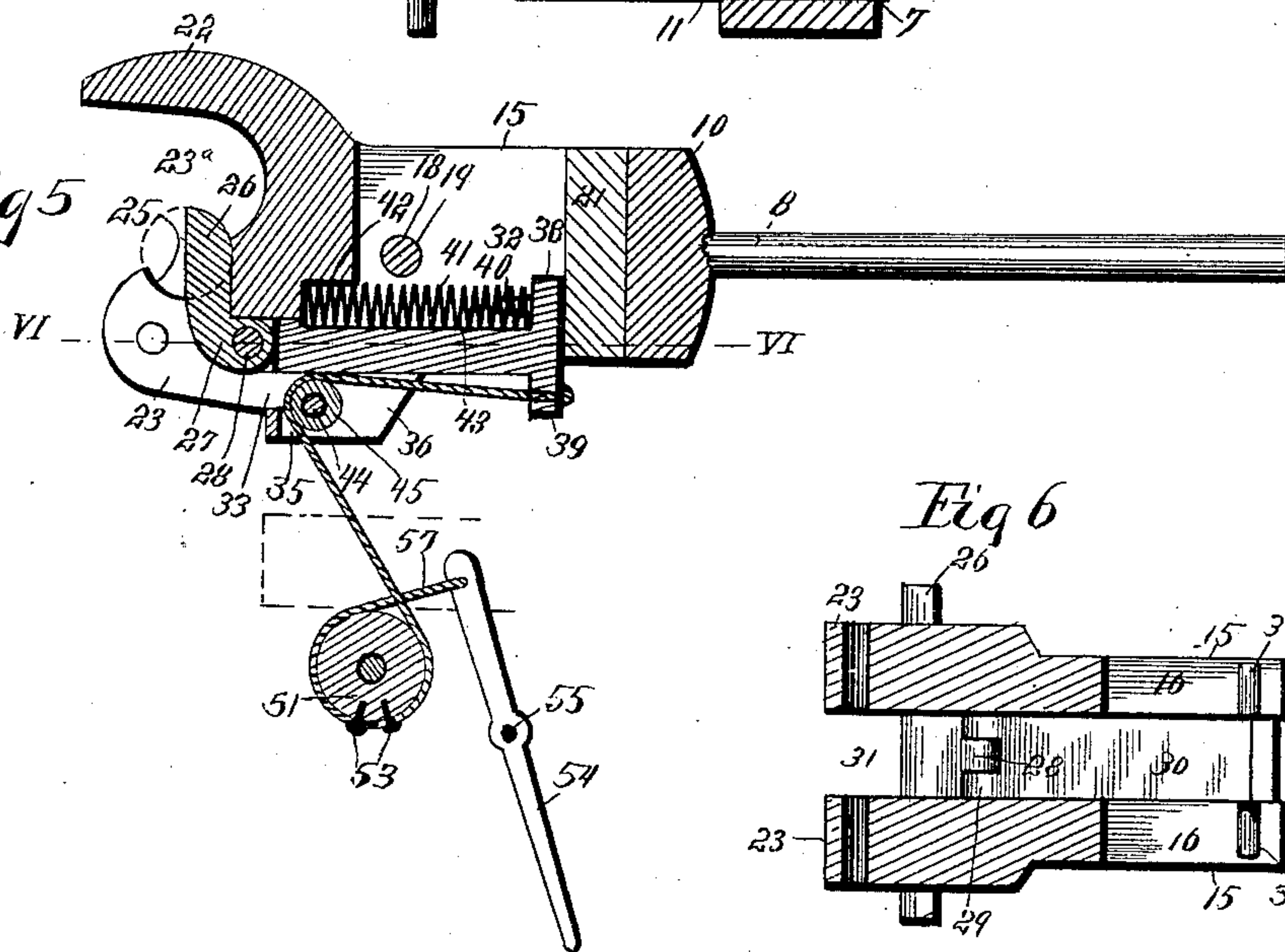


Fig 6

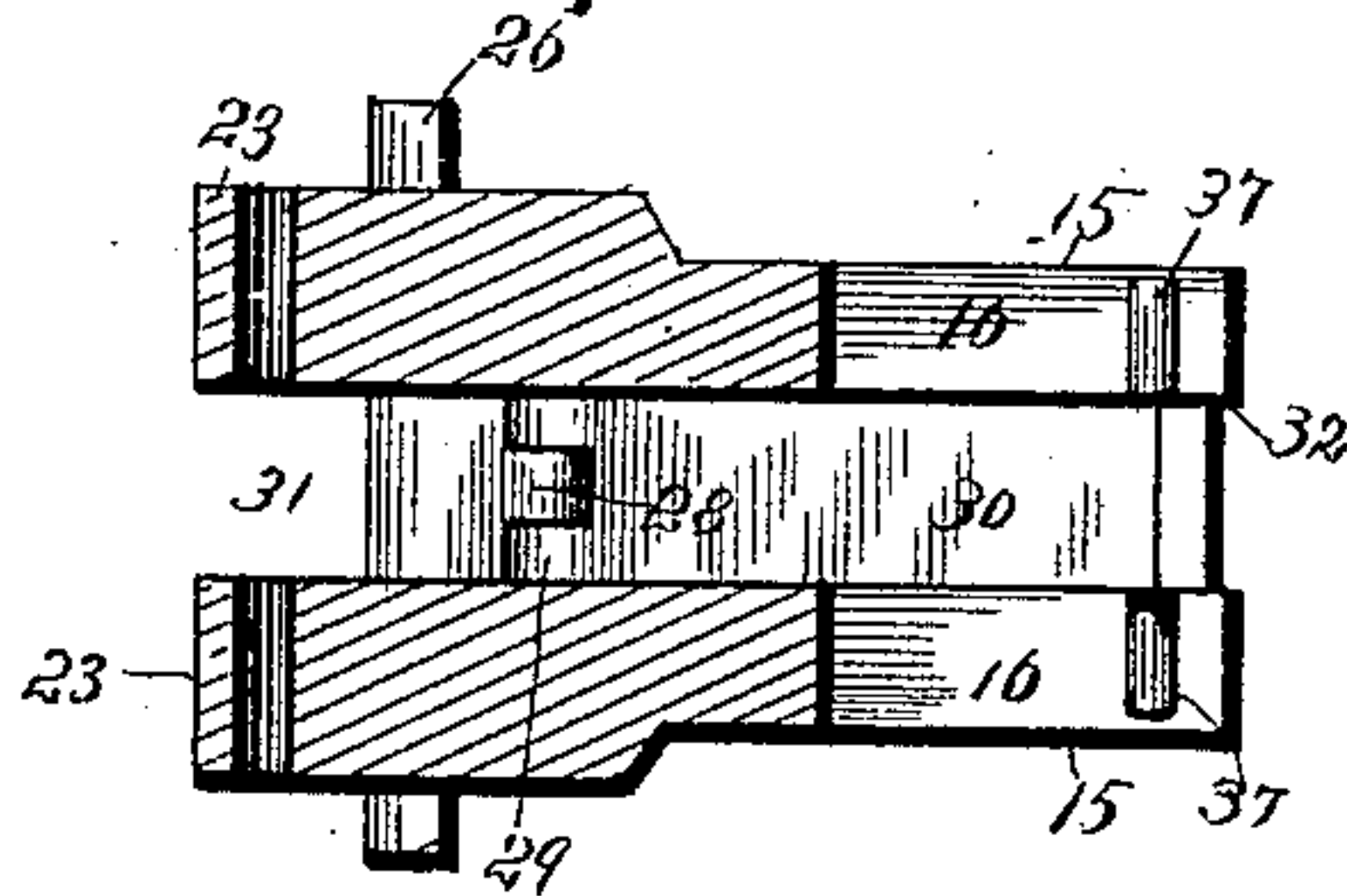
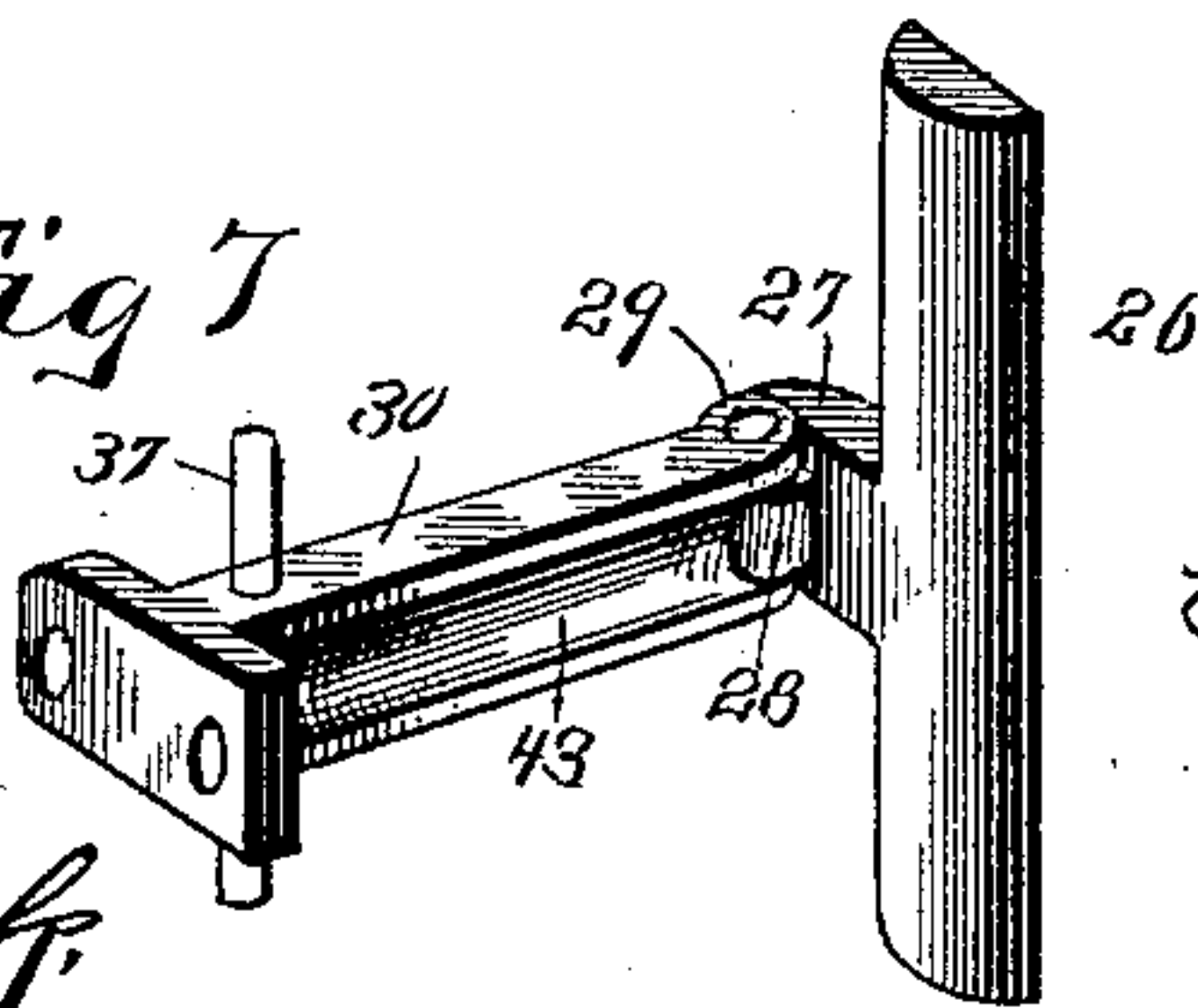


Fig 7



WITNESSES;

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# UNITED STATES PATENT OFFICE.

GEORGE BROWN BALLOU, OF HOPEDALE, MASSACHUSETTS.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 452,356, dated May 19, 1891.

Application filed November 8, 1890. Serial No. 370,751. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE BROWN BALLOU, a citizen of the United States, residing at Hopedale, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Car-Couplers; and I do hereby 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.

My invention relates to improvements in car-couplings, and particularly to that class which are automatic in their action.

Heretofore in the car-couplers ordinarily in use it has been necessary for a man to go between the cars to attach the coupling to the draw-bars, which is a very dangerous service and is the cause of great loss of life among railway employes.

Attempts have been made to produce a car-coupling which will obviate the danger of men being crushed between the cars by working the couplers automatic in their action; but of all the devices of this kind in use of which I am aware this has been done at the sacrifice of the simplicity of the coupler and at the expense of the safe coupling of the cars.

It is the object of my improved car-coupling to overcome these difficulties; and to that end my invention consists in certain features of construction to be hereinafter fully described, and the novel features then particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view showing parts of two cars united by my improved coupling. Fig. 2 is an under side view thereof. Fig. 3 is an end view of a car provided with one member of the coupling. Fig. 4 is an enlarged side view of a draw-bar and its draw-head. Fig. 5 is a longitudinal section on line V V, Fig. 4. Fig. 6 is a longitudinal section on line V' V', Fig. 5, of the draw-head alone. Fig. 7 is a detail perspective view.

The draw-bar and draw-head of each car is identical, and a description of one member of the coupling will therefore suffice for both.

On the under side of each car-body 1 are parallel cleats 2, extending longitudinally. The ends of a block 3 are recessed into the inner sides of the cleats. In front of the block

3 is a rectangular frame 4, having ears 5, whereby it is secured to the cleats 2 by screws 6, and providing opposite guideways 7. The draw-bar 8 slides in a transverse perforation 9 in the block 3, and has at its front end a yoke 10, the sides 11 of which slide in the guideways 7. Surrounding the draw-bar 8, between the yoke and the block 3, is a compression-spring 12, and surrounding the draw-bar between the block and the pin 13, at the inner end of the draw-bar, is another compression-spring 14, the former spring being adapted to take up inward strain and the latter outward strain.

The draw-head is pivoted between the sides of the yoke 10. The draw-head has at its rear end a pair of opposite parallel lugs 15, having opposite slots 16, forming opposite projections 17. Through opposite perforations or openings 18 in the lugs 15 the pivot bolt or pin 19 passes, said bolt or pin also passing through perforations or openings 20 in the sides of the yoke 10, whereby the draw-head is pivoted to the draw-bar between the sides of the yoke. In pivoting in the yoke 10 the draw-head is cushioned against the rubber spring 21 in the base of the yoke, projections forming the draw-heads. At one side of the bases of the lugs 15 is an outwardly and forwardly projecting curved horn 22, and opposite the latter is a pair of opposite jaws 23, one at the top and bottom of the head, a mouth 23<sup>a</sup> being left between the horn and jaws. The inner sides of the jaws 23 are inclined at 24 away from their bottoms and are provided with opposite semi-cylindrical recesses 25. These recesses 25 are adapted to receive and provide a bearing for a semi-cylindrical or half lock-pin 26 to turn in the round part, being received by the recesses, and the flat face being adapted to come flush with the inclined inner sides 24 of the jaws. Midway of one side of the half lock-pin projects a stem 27, having at its end an eye 28, which eye is fitted between the pair of eyes 29 at the outer end of a slide 30, a pivot-pin 30<sup>a</sup> passing through eyes 28 and 29 and pivotally connecting the parts. The slide 30 moves in the space 31, between the paired jaws 23, and in space 32 being the paired lugs, passing through an opening 33 to one side of a cross-strip 34, secured to the shoulders 35 of the offsets 36 at the bases of



projections 17. Projecting laterally from the slide 30 are guide-pins 37, that are received by the slots 16, whereby the slide is guided in its sliding movement. From opposite sides of the rear end of the slide 30 lugs 38 and 39 project. From the inner face of lug 38 a stud 40 projects, over which is seated the rear end of a spiral spring 41, whose outer end is seated in a recess 42 in the back of the draw-head between the paired lugs 15. The side of the spring 41 contiguous to the slide is received by a longitudinal groove 43. A shaft 44 is fixed at its ends in the opposite offsets 36 and provides a bearing for the roller 45 therein.

The mechanism for opening the coupler consists of an upright revoluble shaft 46, that is journaled in bearings 47 and 48, secured, respectively, to one end of the car-body and to the projecting end of one of the cleats 2. At the upper end of the shaft 46 is a cross-bar or handle 49, and near the lower end of the shaft is a collar 50, that turns on the bearing 48 and supports the shaft. On the lower end of this shaft is a drum 51, upon which is adapted to be wound a chain or cable 52, one end of which is secured at 53 thereto, and the other end of which is secured to the lug 39 of slide 30 and passes over the roller 45. This shaft may be used for uncoupling when the cars are in motion or at a standstill. When at a standstill they may also be uncoupled by means of a horizontal hand-lever 54, pivoted intermediately of its ends at 55 on a bracket 56 on the under side of the car-body. The inner end of the lever is connected with one end of a chain or cable 57, the other end of which is secured to the drum 51, around which the cable is wound.

The operation of my improved car-coupling is as follows: When a car having a draw-head, as above described, is brought up to and coupled with another car having a similar draw-head, the two cars will be coupled as shown in Figs. 1 and 2. In the operation of coupling the respective mouths 23<sup>a</sup> between the jaws 23 and the lugs 15 will receive the respective jaws of the opposing draw-heads, the horns 22 being on the outside of the two pairs, of jaws, the inclined parts of the opposing jaws of each pair being brought in contact. The tendency of the spiral springs 41 is to throw the slides 30 as far back as possible, thus causing the half lock-pins to stand at right angles to the paired jaws. Now the bringing of the two sets of paired jaws together will overcome this tendency of the springs and cause the inclines 24 of the jaws of each draw-head to bear against and turn the semi-cylindrical or half lock-pin 26 of the other draw-head in its bearings 25, thus moving the slides outward and depressing the springs and bringing the half lock-pin face to face at this moment and just before the draw-heads are brought completely together, the half lock-pins will, by reason of the action of the springs 41, turn back to their former position at right angles to the jaws, forming a complete longi-

tudinally-divided cylindrical lock-pin that freely locks the two coupled draw-heads together. The pivot-bolts or pins 19, that connect the locked draw-heads to the draw-bars, permit of the necessary oscillation of the cars when running on straight tracks and of the turning of the cars around curves.

To uncouple the cars, either the hand-shaft 46 or the hand-lever 54 is turned in the right direction, which acting through the medium of cable 52 turns the lock-pin so that its sections may separate when one car is moved away from the other.

An automatic car-coupling constructed as described is simple in construction, inexpensive, strong, and safe, and will always do the work desired without the dangerous practice of going between the cars. The coupling is so made that it will readily work on high or low cars, whether loaded or otherwise, and with either a platform or box car. Should occasion require, the old-fashion link can be used.

The draw-bar being simple and plain, can with little expense be attached to any car.

The coupling is so made that if from any cause any part give out it can be easily duplicated with but small expense.

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

1. In a car-coupling, the combination of a draw-head provided with a mouth formed by a horn at one side and a recessed jaw at the other side, a flat-faced semi-cylindrical or half lock-pin adapted to turn in the recess and provided with a laterally-projecting stem, a longitudinally-guided slide pivotally connected with said stem, the draw-head having longitudinal recesses or spaces to guide the slide, and means for operating said slide, substantially as and for the purpose set forth.

2. In a car-coupling, the combination of the draw-heads provided with mouths, with a divided lock-pin adapted to turn in bearings at the sides of said mouths, slides to which the respective sections of the pin are pivoted, a roller carried by one of the draw-heads, and a cable or chain passing over said roller and connected with one of said slides, substantially as and for the purpose set forth.

3. In a car-coupling, the combination of the draw-heads provided with mouths, with a divided lock-pin adapted to turn in bearings at the sides of said mouths, longitudinal slides to which the respective sections of the pin are pivoted, springs alongside of and acting on said slides in one direction, and means for acting on the slides in the other direction, substantially as and for the purpose set forth.

4. In a car-coupling, the combination of the draw-heads provided with mouths, with a divided lock-pin adapted to turn in bearings at the sides of said mouths, longitudinal slides to which the respective sections of the pins are pivoted, spiral springs acting on said slides in one direction, and a chain or cable



for acting on them in the other direction, and a pulley journaled in bearings in the draw-head, over which the chain or cable passes to one side, substantially as and for the purpose set forth.

5 5. In a car-coupling, the herein-described draw-head, the same comprising a horn at one side, a jaw at the other side provided with a recessed inner incline, a flat-faced semi-cylindrical or half lock-pin adapted to turn in the recess and provided with a stem, and a slide with which the stem is pivotally connected, and provided with a lug, and a spiral spring at one side of the slide, one end of which 10 spring is received by a recess in the draw-head, and the other end has bearing against said lug, substantially as set forth.

15 6. In a car-coupling, the herein-described draw-head, the same comprising a horn at one side, a jaw at the other side provided with a recessed incline, a semi-cylindrical or half

lock-pin adapted to turn in the recess, a pair of slotted lugs at the rear of the draw-head, a slide between said lugs to which the half-pin is pivoted, and guide-pins projecting from 25 the slide and movable in the slots of the lugs, substantially as set forth.

7. In a car-coupling, the herein-described draw-head, the same comprising a horn at one side, a jaw at the other side provided with a recessed incline, a semi-cylindrical or half 30 lock-pin adapted to turn in the recess, a slide to which the half-pin is pivoted, guide-pins projecting from the slide, and guides for the pins, substantially as set forth.

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

GEORGE BROWN BALLOU.

Witnesses:

LEWIS HAYDEN,  
ABRAHAM L. BUCK.