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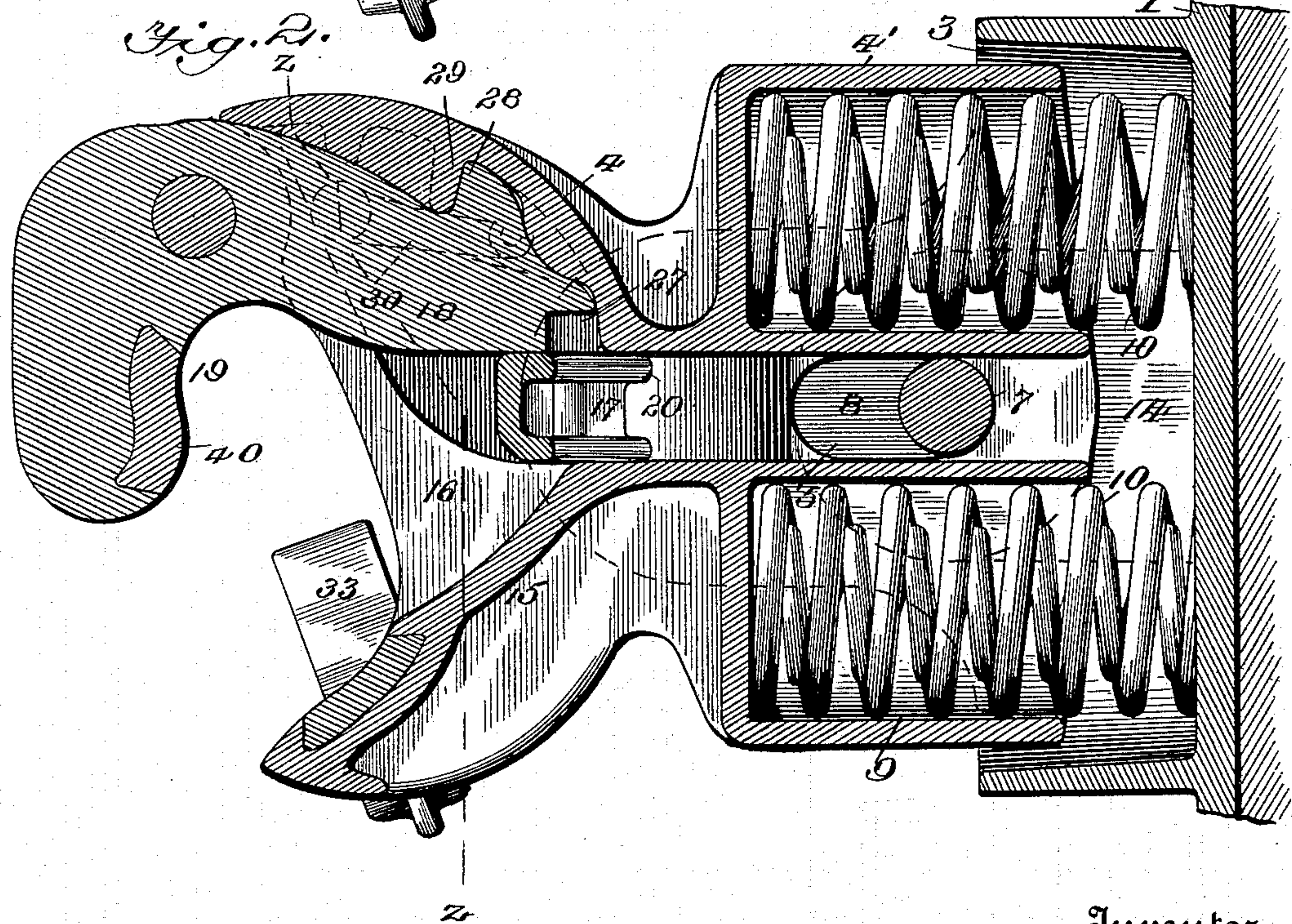
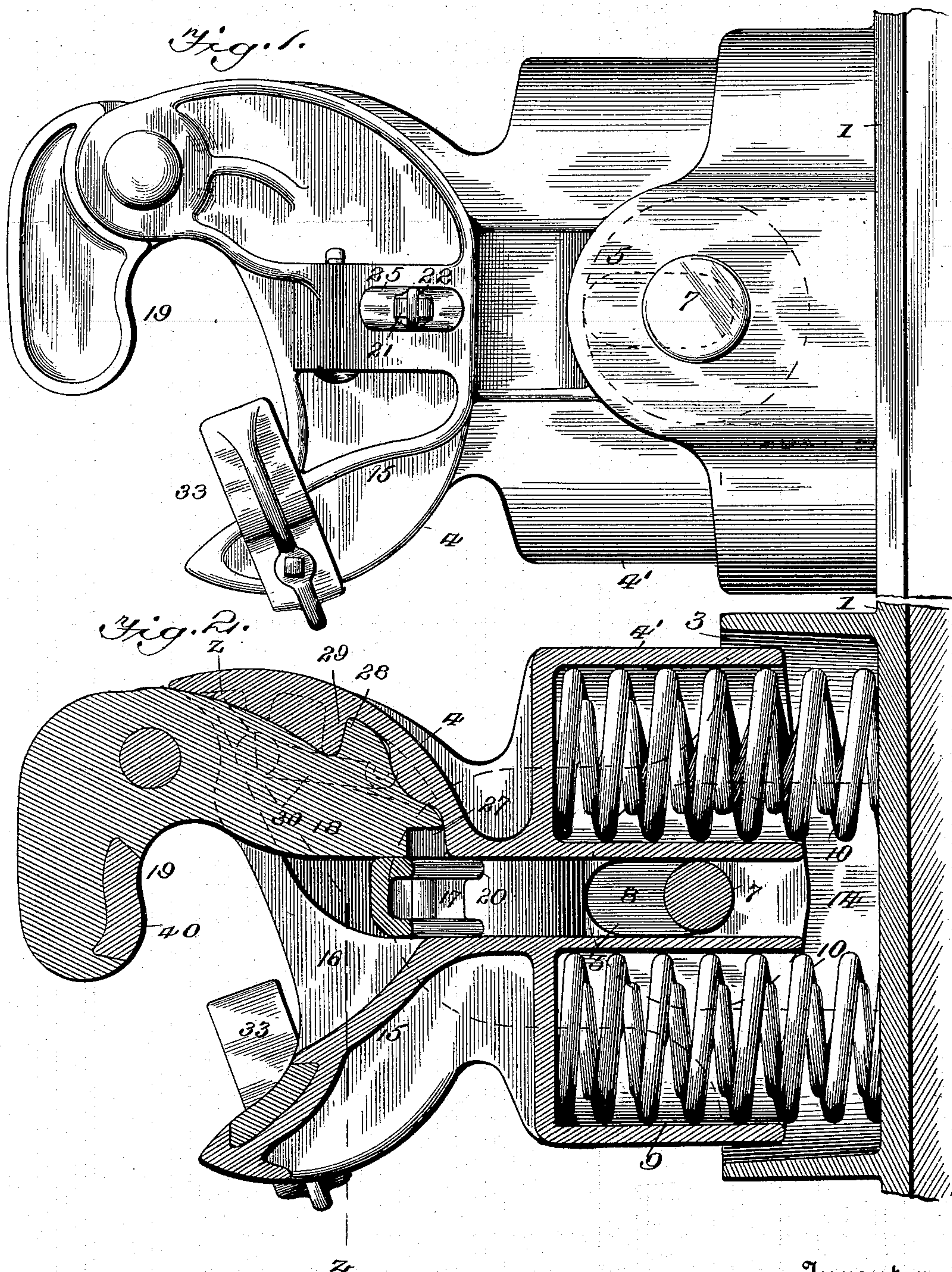
Patented Oct. 18, 1898.

P. BROWN.
CAR COUPLING.

(Application filed June 6, 1896.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
 J. H. Amiri
 H. E. Robertson

Inventor
Perry Brown,
By T. J. W. Robertson
Attorney

No. 612,396.

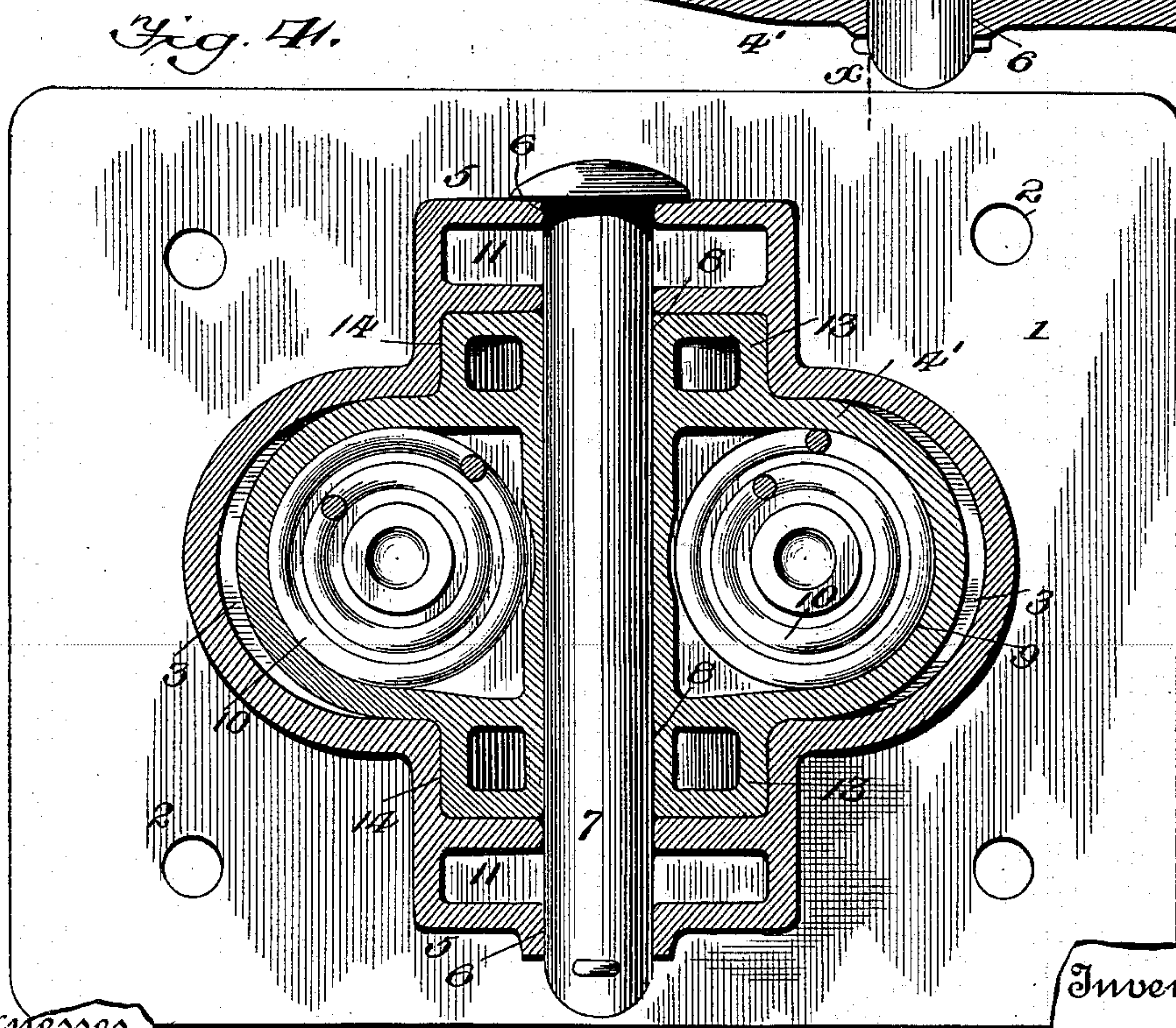
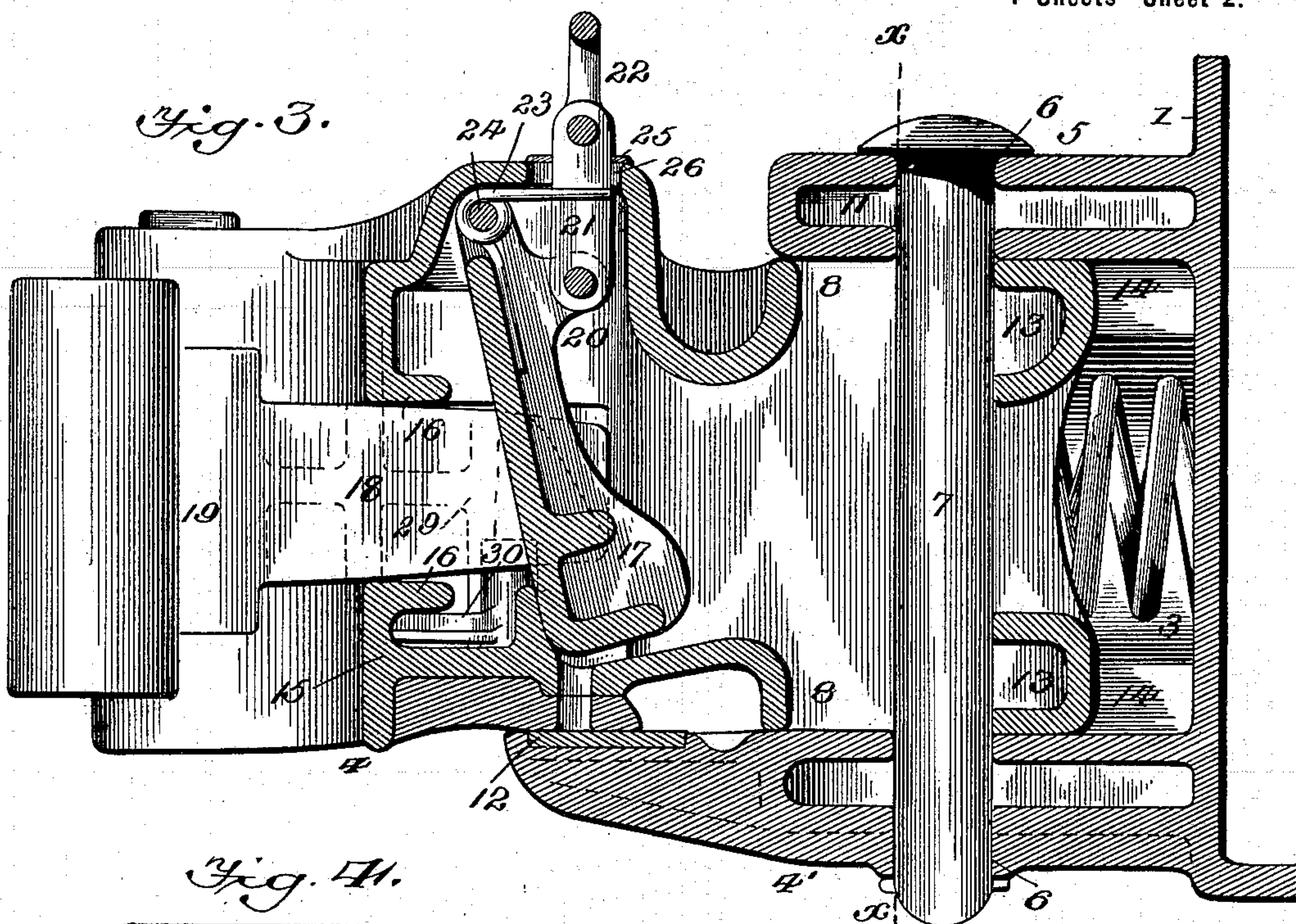
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Witnesses

John D. Davis
Thos. F. Robertson

Inventor

Perry Brown
By *T. W. Robertson*
Attorney

No. 612,396.

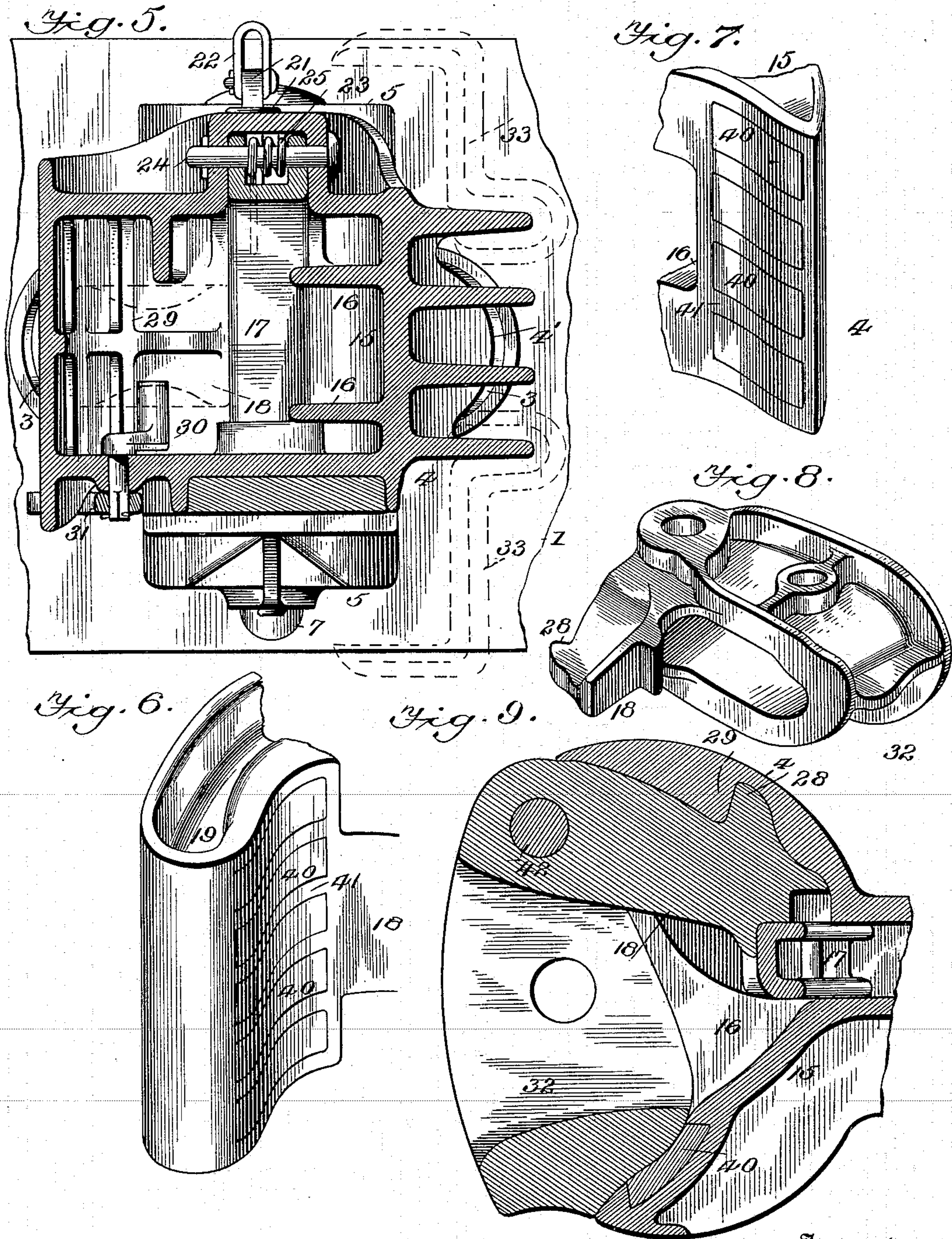
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4 Sheets—Sheet 3.



Witnesses
John E. Brown
Thos. E. Robertson

Inventor
Perry Brown
By *J. W. Robertson*
Attorney

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4 Sheets—Sheet 4.

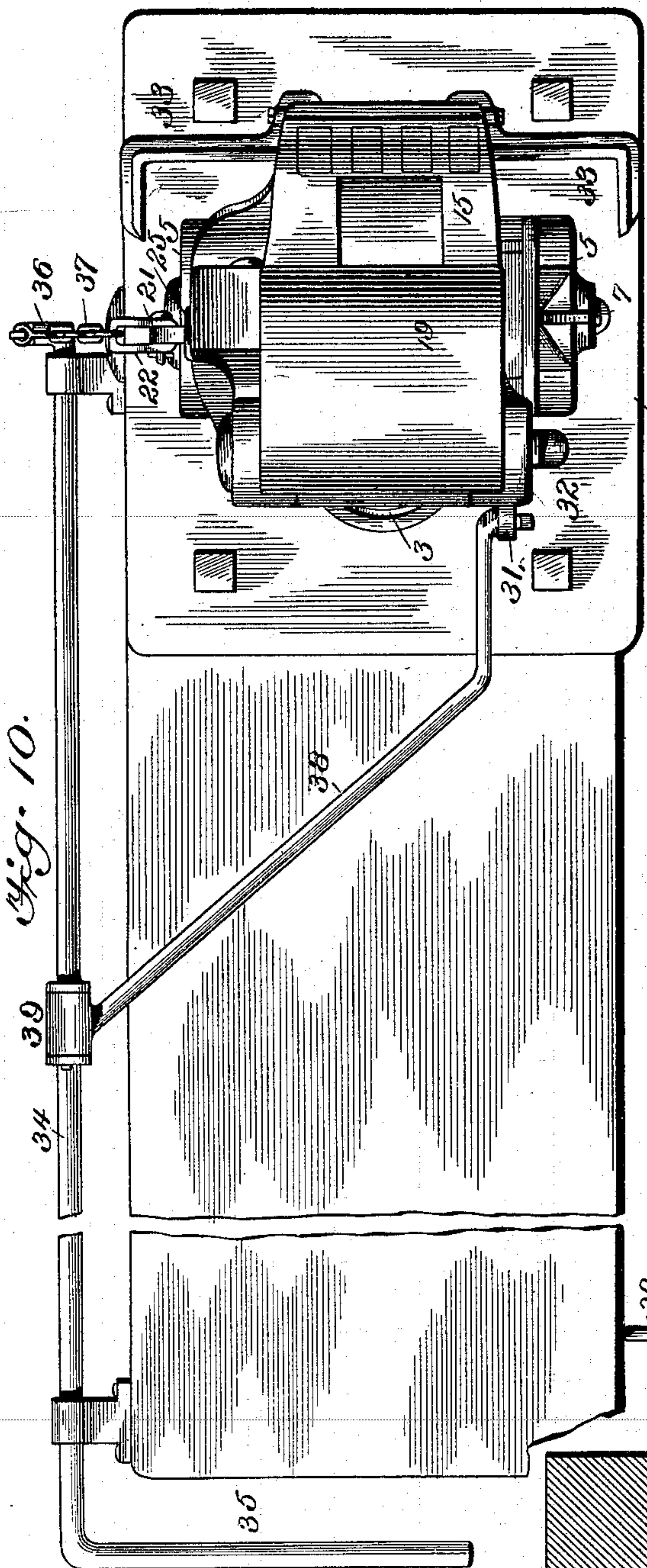


Fig. 10.

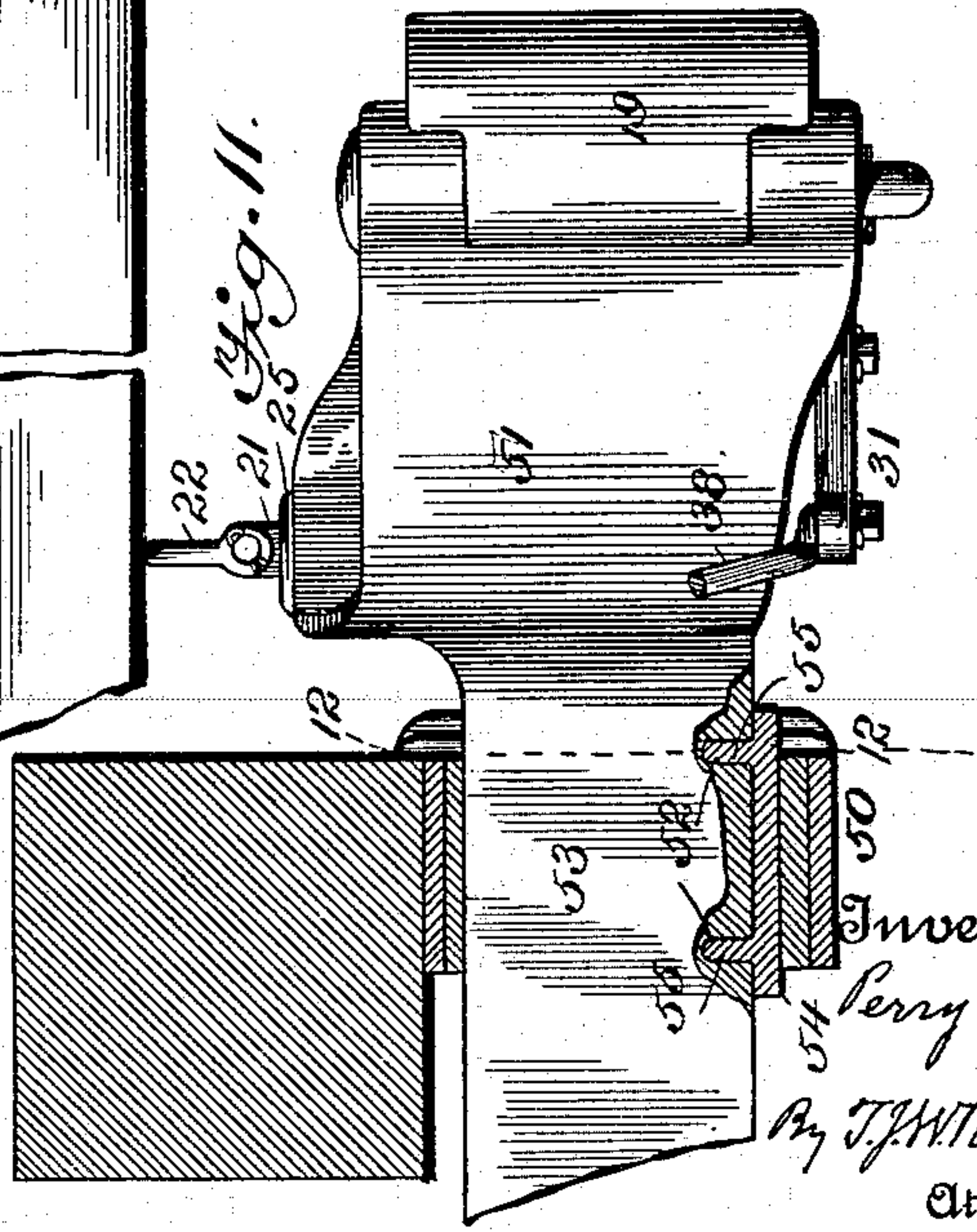


Fig. 11.

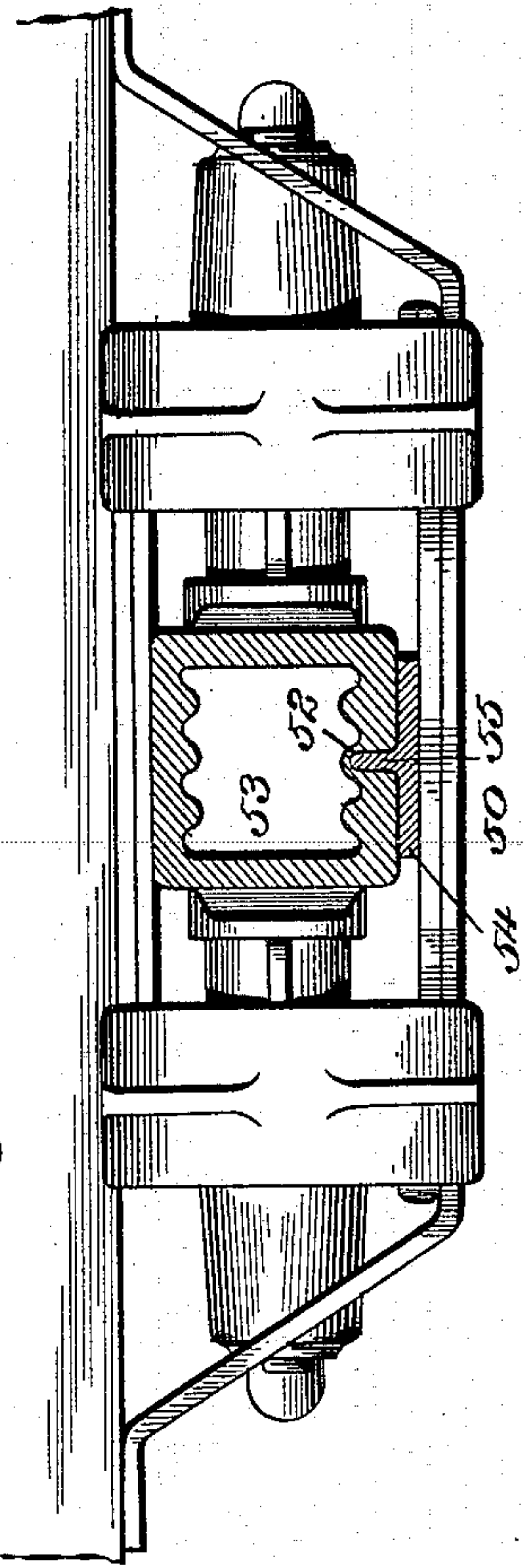


Fig. 12.

Witnesses
Johnnie
Thos. S. Robertson

Inventor
Perry Brown
By *J. W. Robertson*
Attorney

UNITED STATES PATENT OFFICE.

PERRY BROWN, OF WILMINGTON, DELAWARE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 612,396, dated October 18, 1898.

Application filed June 6, 1896. Serial No. 594,574. (No model.)

To all whom it may concern:

Be it known that I, PERRY BROWN, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented a certain new and useful Improvement in Couplers, of which the following is a specification, reference being had to the accompanying drawings.

This improvement relates to a coupler especially designed for locomotives; but parts thereof may be used for ordinary car-couplers as well; and the invention consists in the peculiar construction, arrangement, and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings, Figure 1 is a plan of a coupler constructed according to my improvement. Fig. 2 is a horizontal section of the same. Fig. 3 is a vertical longitudinal section of the same. Fig. 4 is a vertical cross-section of the same on the line xx . Fig. 5 is a vertical cross-section on the line zz on Fig. 2. Figs. 6 and 7 are perspective details which will be more fully hereinafter referred to. Fig. 8 is a perspective view of a link-and-pin coupling device to be used with my draw-head. Fig. 9 is a horizontal section showing the same in position. Fig. 10 is a front view of my coupling on a smaller scale, showing operating devices. Fig. 11 is a side view of part of the same as applied to a car-coupling. Fig. 12 is a cross-section of line 12 12 on Fig. 11.

Referring now to the details of the drawings by figures, 1 indicates a casting forming a box or carrier and having holes 2, by which it is to be bolted to the "dead-wood" of the locomotive, and provided with a recess 3, of the shape shown in Figs. 2 and 4, to receive the follower 4' of the draw-bar or coupling 4, which recess is formed by a flange on the casting 1. The upper and lower parts of the flange extend outward, forming ears 5, through holes 6, in which passes a pin 7, by which the follower is pivotally and slidingly held in the socket. This follower is provided with a slot 8 to allow of its sliding in the box and is cored out, forming recesses 9 to receive the spiral springs 10, which tend to force the follower out of the carrier or box, and would do so if it were not retained by the pin 7, which thus forms a means for holding the carrier and follower together, and has two functions, one

of which is to keep the draw-bar in its normal position and yet allow of its yielding laterally in either direction, while the other function is to act as buffing-springs, as owing to the slot 8 the entire coupling may move endwise, the follower 4' passing farther into the recess 3 in the box. From the above it is plain to see that the coupling is free to move on the pin as a pivot, so as to yield to the left or right or to move endwise when acting as a buffer. The ears 3 project above and below the body of the box, as shown in Fig. 4, and are cored to form recesses 11, whereby additional "skin" is formed, so as to strengthen these ears, as it is in the skin of castings that most of the strength resides, the solid interior metal having but comparatively little tensile strength. The lower ear projects as shown in Fig. 3 to form a support for the draw-bar, which is shown as resting upon a wearing-plate 12, set in the top of the lower ear. This wearing-surface may be of hardened steel or case-hardened or chilled iron, as desired, and may be a plate dropped into an open recess or it may be cast in the recess, (after the box proper is cast and annealed,) by which process the plate becomes chilled, and is thus made extremely hard. I may sometimes use a similar wearing plate or surface on the under side of the coupling.

At the top and bottom of the follower are hollow bosses 13, which slide in ways 14, (see Fig. 4,) formed in the top and bottom of the box, so that besides the pin 7 the follower has the ways 14 for guides in its longitudinal motion. The bosses are made round, as shown in dotted lines in Fig. 1, to allow of their turning in the ways, whereby the coupling may turn laterally in either direction, as heretofore mentioned.

The coupling proper is of what is known as the "twin-jaw" variety, somewhat similar to that shown in several of my previous patents, but with improvements intended to make the same more convenient in operation and durable in use, which improvements I will now proceed to describe.

It has been found that under the great strain and excessive or sudden jars to which couplers are constantly subjected parts of the coupling give way and wear out, and it is to avoid this that part of the modifica-

tions of my coupler are made. To strengthen the guard-arm 15, which has been found liable to break, I have added ribs 16 at top and bottom, connecting the back of the guard-arm with the inner face of the draw-head, which ribs not only strengthen the guard-arm, but they also form a support for the lock 17, which swings against them, and is thus supported against the pressure of the arm 18 of the knuckle 19. The wearing-faces of both the guard-arm and the knuckle are provided with wearing-plates 40, (see Figs. 6 and 7,) which are cast in place after the knuckle and draw-head have been cast and annealed, as before described with reference to the wearing-plate 12. I prefer to make these parts with recesses for the wearing-plates with ribs 41 between them, as shown in Figs. 6 and 7, as these ribs give additional strength, as they provide more skin on the casting.

The lock 17 is made hollow at the back and has ears 20, between which is pivoted the link 21, having on its top a clevis 22, by which the lock can be swung backward out of the way of the arm 18 of the knuckle 19 when it is desired to uncouple. The lock ordinarily closes down by its own gravity; but as a greater security and to prevent its swinging I set a spring 23 around the pivot-pin 24, on which the lock swings, one end of said spring bearing against the under side of the top part of the draw-head and the other end against the inside of the lock, whereby the force of the spring tends to keep the lock always at its lowest position. On the top of the draw-head where the link 21 passes through there is set a plate 25, which serves as a loose cover for the opening 26 in the draw-head, through which the link 21 passes, and prevents the passage therethrough of snow, ice, dust, &c.

The arm 18 has a portion cut away, forming a shoulder 27, so that the lock will act with the knuckle in either of two positions. This will be found very convenient when coupling cars on curves, as it will allow of the cars being coupled when the two cars are set at an angle to each other, where they could not be coupled with the ordinary couplers of this class. The rear of the arm 18 is provided with a projection 28, forming a hook which catches behind the ribs 29 on the inside of the draw-head. These ribs form the walls of recesses cast in the inside of the draw-head, so as to produce extra skin to strengthen said draw-head.

At 30 a lever is shown which is pivoted in the bottom of the draw-head and carries an arm 31, which may be used to operate said lever 30 and cause it to act on the arm 18 of the knuckle 19, so as to push the same out when required. This lever has its extreme end turned up to bear against a rib (shown in Fig. 5) on the bottom of the arm 18.

For convenience in coupling with an ordinary link-coupling, which is sometimes required, I provide a link-and-pin knuckle 32,

as shown in Figs. 8 and 9. This is used in place of the ordinary knuckle and is held and locked in place by the pin 42 and lock 17 in precisely the same manner as the knuckle 19. This knuckle is so shaped as to form a complete link-and-pin draw-head, and as it fills in the space usually occupied by the knuckle of the opposite coupling it becomes in effect a solid link-and-pin draw-head with a complete face to receive the impact of the opposite draw-head. With this knuckle held in reserve an engineer can use the knuckle 19 with similar couplings and can, by changing the knuckles, couple with a link-coupling, if desired.

In a previous patent I have shown a safety-bracket designed to catch the opposite coupling, should it break loose, and thus prevent its dropping on the track and wrecking the train. This accomplishes the desired object when both sections of the coupling are provided with such brackets; but where only one is provided there is the danger that if the one that carries the bracket should break loose it would drop, because the other one would have nothing to support it. To overcome this difficulty, I propose to use a safety-bracket 33 at top as well as at bottom, as shown in Fig. 10, so that no matter which section of the coupling breaks it will be supported, for if the one with the double safety-bracket breaks it will be carried by the other, as the upper bracket will rest on the sound coupling, while if the coupling that has no safety-bracket is broken it will be caught and held by the lower bracket.

I have provided a device for uncoupling and opening the link which, while not absolutely necessary, will be found to be very convenient in use. It consists of a rock-shaft 34, having a lever 35 for operating it at the side of the platform, and an arm 36 at the other end, carrying a short chain 37, connected to the clevis 21 above the lock, the parts being so arranged that by moving the lever 35 the shaft 34 is rocked, which lifts the outer end of the arm 36, thus causing the lock to swing backward and allowing the knuckle to open as the cars separate. Should it be desired to open the knuckle to couple a car, it can be done by means of the arm 38, whose upper end is loosely secured on the rock-shaft between collars 39 and whose lower end is connected to the arm 31. When the lock has been raised so as to liberate the arm 18, the rock-shaft can be pushed endwise, and as it carries the arm 38 with it it operates on the arm 31, and thus causes the lever 30 to push on the arm 18 and open the knuckle.

In Figs. 11 and 12 I show the wearing-plate between a carrier 50 and a coupling 51, such as are used on cars. In this case I make a couple of holes 52 in the bottom of the shank 53 of the coupling and provide a hardened wearing-plate 54, having lugs 55 fitting in said holes 52, so that when the parts are assembled the plate 54 is securely held between

the coupling and carrier. I sometimes use a similar plate in the carrier; but this is not so necessary, as that part of the carrier used on a car is easily replaced. While I have shown the wearing-plate between the coupling and carrier of a car, I do not limit myself to this, as it is obvious such a plate may be used on the other form of coupling-carrier shown in the other figures of the drawings.

Besides the safety-bracket 33 I provide another means of insuring safety in case of the breakage of the rear of the coupling. Should the coupling-shank break or any part in the rear draw out, so as to allow the coupling proper to separate or partly separate from the car, the chain 37, being connected through the arm 36 with the car, would pull on the lock and swing it backward and release the knuckle, thus allowing the cars to separate. The broken coupling would then be held by the chain 37, and thus the danger of its dropping on the track and the derailing of the train avoided, which is likely to occur if the lock is not pulled back, as under these circumstances the chain would break, and thus allow the coupling to fall.

I deem it important that the coupler-head and support be so arranged that one shall surround the other, or at least the upper portion thereof, so as to protect the springs from snow and ice which may collect on and between the coils of the spring, and thus prevent their action.

What I claim as new is—

1. The combination with a coupling having a follower arranged to swing laterally and provided with round bosses on its top and bottom, of a carrier provided with grooves to receive said bosses, and whose vertical sides act as guides for the same, and allow a forward-and-backward movement of the follower, springs to act between the follower and the carrier to hold the follower in its central position and means for holding the follower and carrier together, substantially as described.

2. The combination with a car-coupler, of safety-brackets extending above and below the face of the draw-head, substantially as and for the purpose set forth.

3. The combination with a coupling having a slotted follower provided with lugs on its top and bottom, of a box having ways to receive said lugs, springs to act between the follower and the box, and means, as the pin 7 to keep the follower within the box, substantially as described.

4. The combination with a coupling-head,

of a support for the same, having ears of different lengths to carry a pivotal connection between said head and support, one of said ears carrying a wearing-plate and being extended under the body to form an additional support for the coupling-head, while the other is made shorter to prevent interference with the operating devices of the coupling, substantially as described.

5. The combination with the knuckle and lock of a coupler, of a rock-shaft 34, arm 36 connected to the lock, lever 30 acting on the knuckle-arm, arm 38 having one end connected with the lever 30 and the other end connected to the shaft 34, and collars 39 on said shaft 34, whereby the endwise movement of said rock-shaft will operate the lever 30 in both directions, substantially as described.

6. In a coupling, a wearing-plate cast in position, whereby its surface becomes chilled, substantially as described.

7. A coupling provided with ribs to strengthen the parts thereof and wearing-plates cast in the recesses between said ribs, substantially as described.

8. The combination with a draw-head, of a knuckle filling the space between the guard and knuckle-ears and provided with openings for a link and pin, substantially as described.

9. The combination with a draw-head and the lock thereof, of a knuckle filling the space between the guard and knuckle-arms and provided with openings for the knuckle-pin, a coupling pin and link, and having an arm coacting with the lock, substantially as described.

10. A bracket for the attachment and support of a draw-head to a car, having a plate or floor for supporting the outer end of the draw-head, said plate or floor extending outwardly some distance beyond the outer vertical plane of the bracket, substantially as described.

11. A bracket for the attachment and support of a draw-head comprising a horizontal portion which extends outward beneath the draw-head at a point beyond the juncture of the draw-head and its shank and beyond the outer vertical plane of the bracket, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 2d day of June, 1896.

PERRY BROWN.

Witnesses:

THOS. E. ROBERTSON,
W. E. CLENDANIEL.