

No. 644,384.

Patented Feb. 27, 1900.

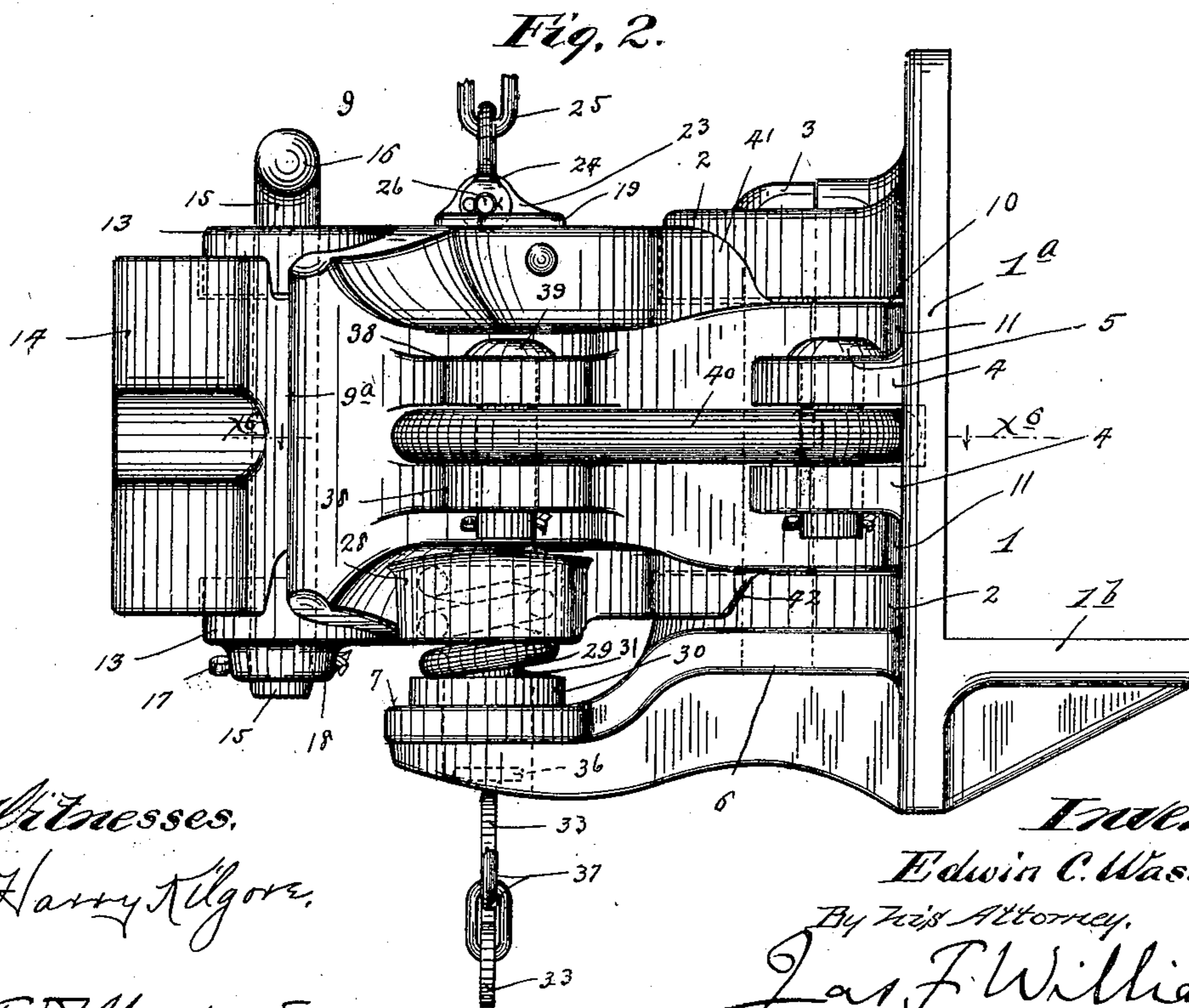
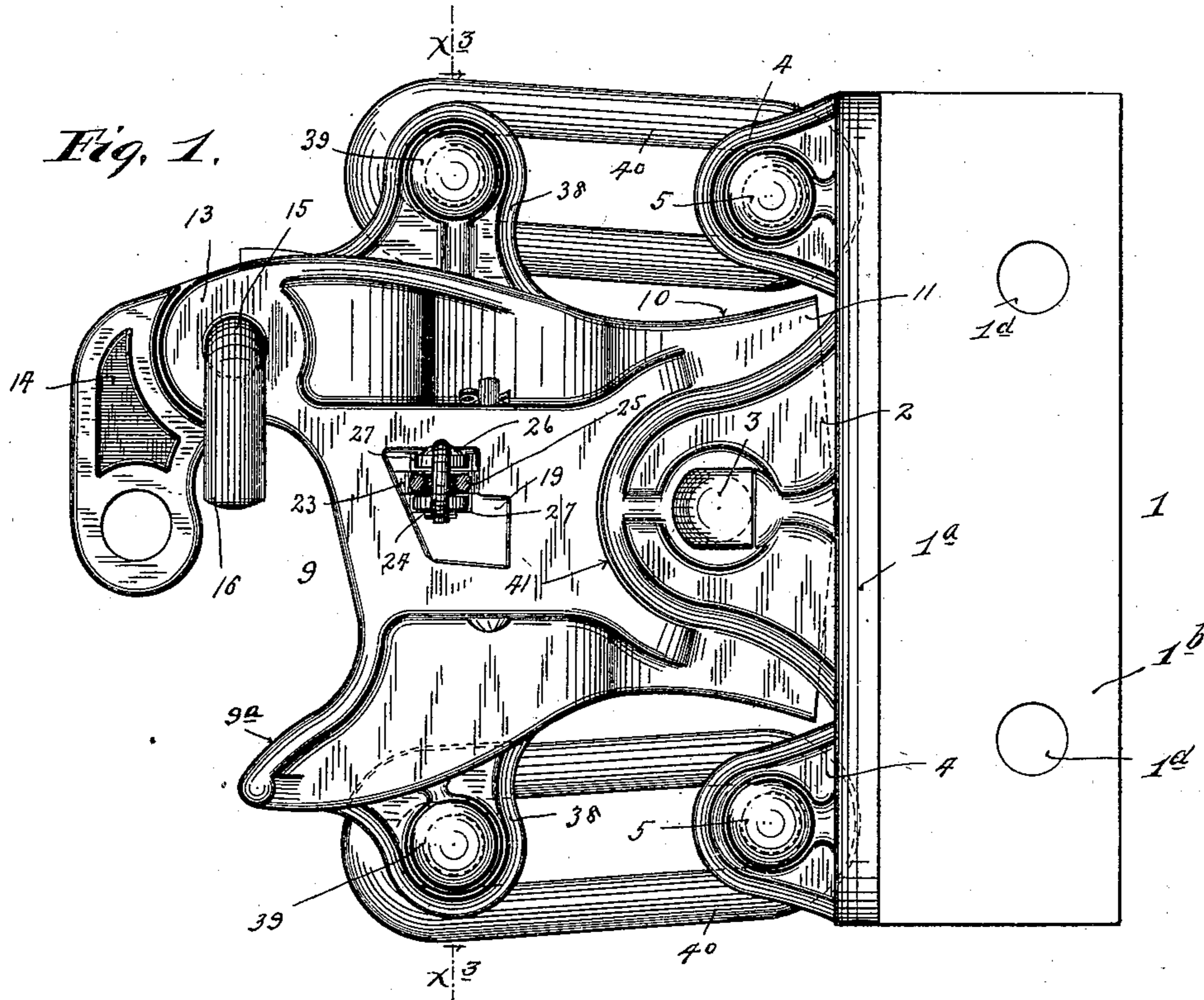
E. C. WASHBURN.

DRAFT RIGGING FOR ENGINES AND TENDERS.

(Application filed Apr. 10, 1899.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses,
Harry Kilgore,
F. D. Merchant.

Inventor,
Edwin C. Washburn,
By his Attorney,
Jas. F. Williamson.

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Fig. 3.

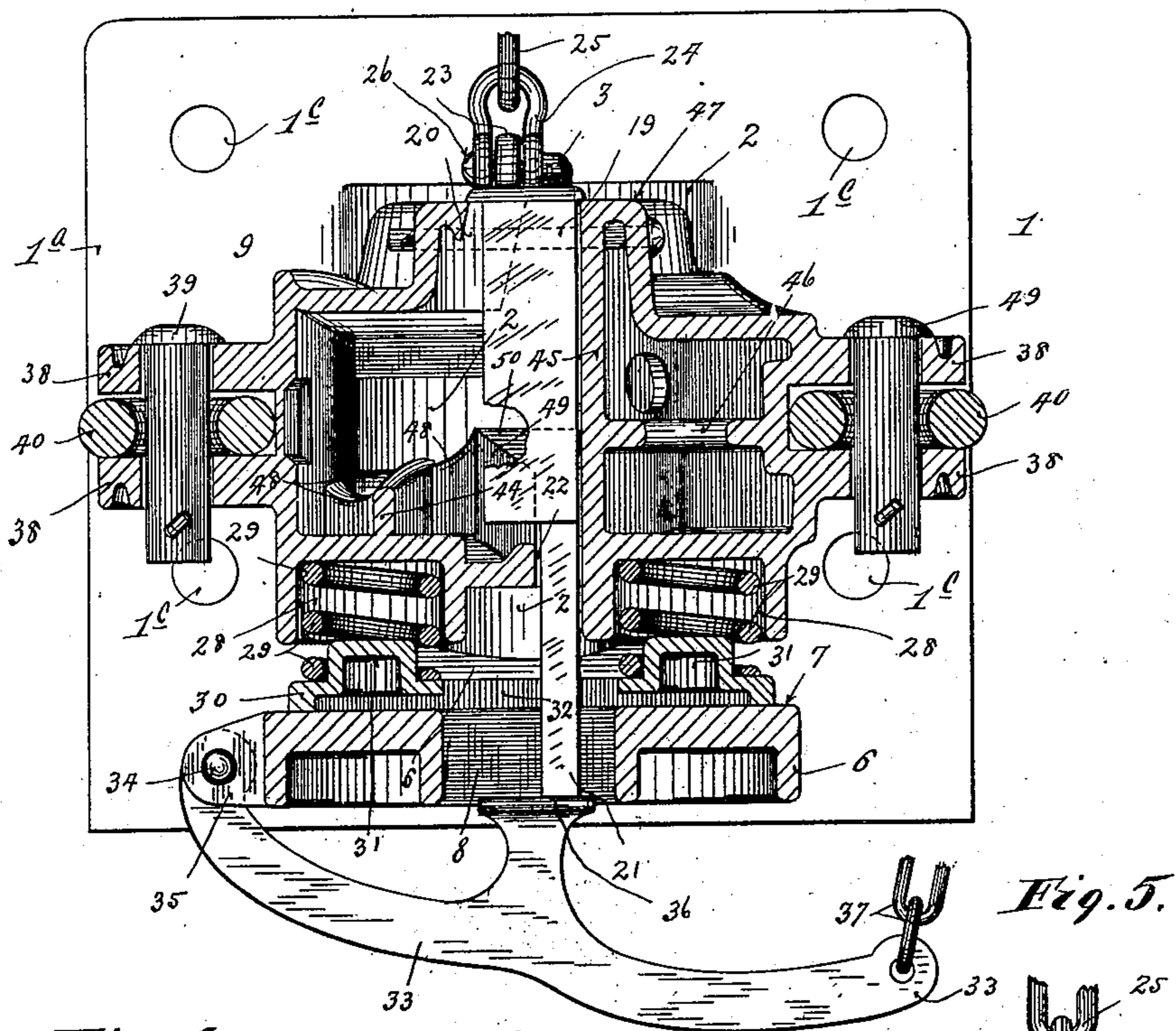
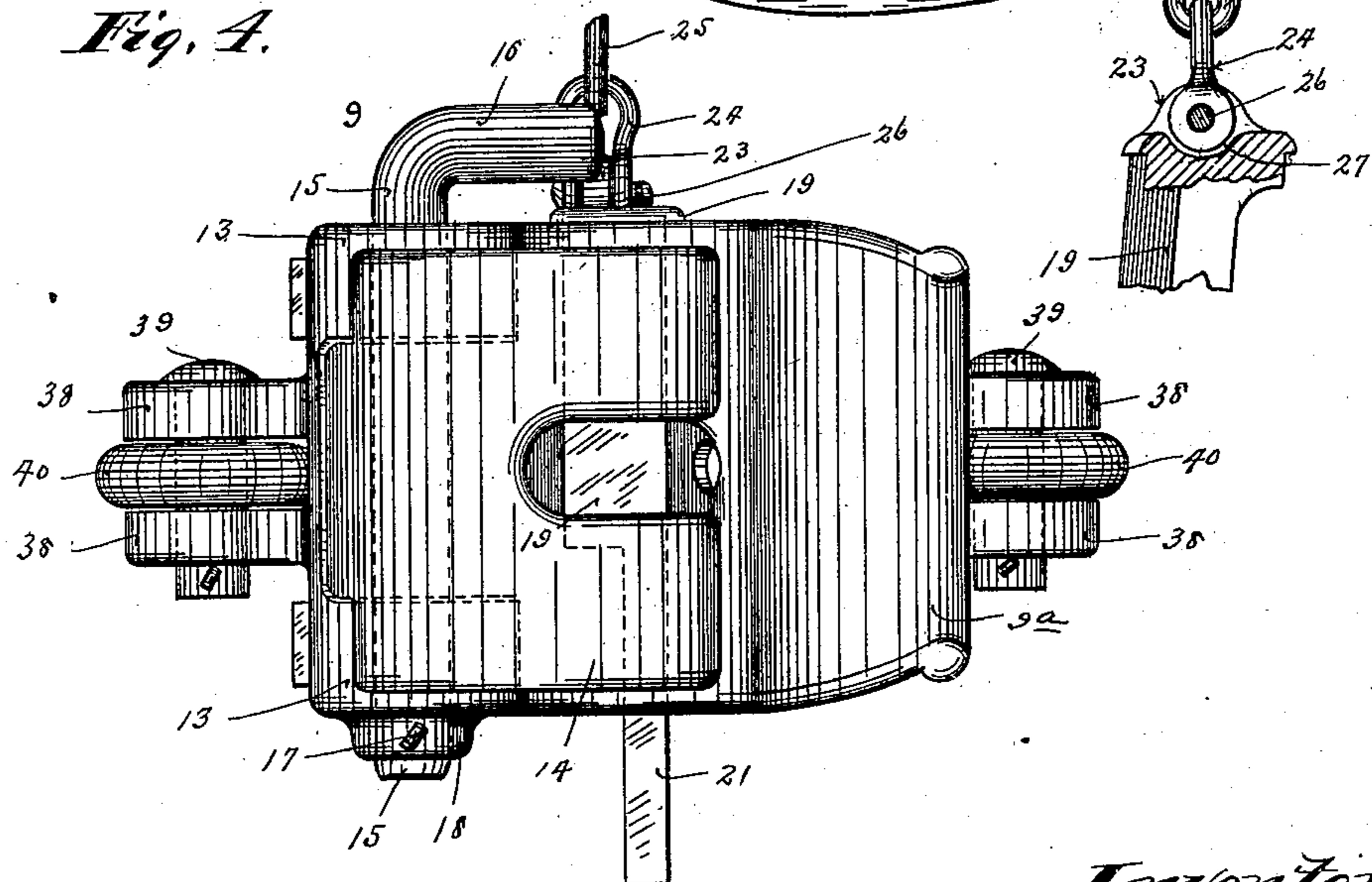


Fig. 4.



Witnesses,

Harry Kilgore.

F. D. Merchant.

Inventor:

Edwin C. Washburn.

By his Attorney,

By his Mother,
Las. F. Williamson

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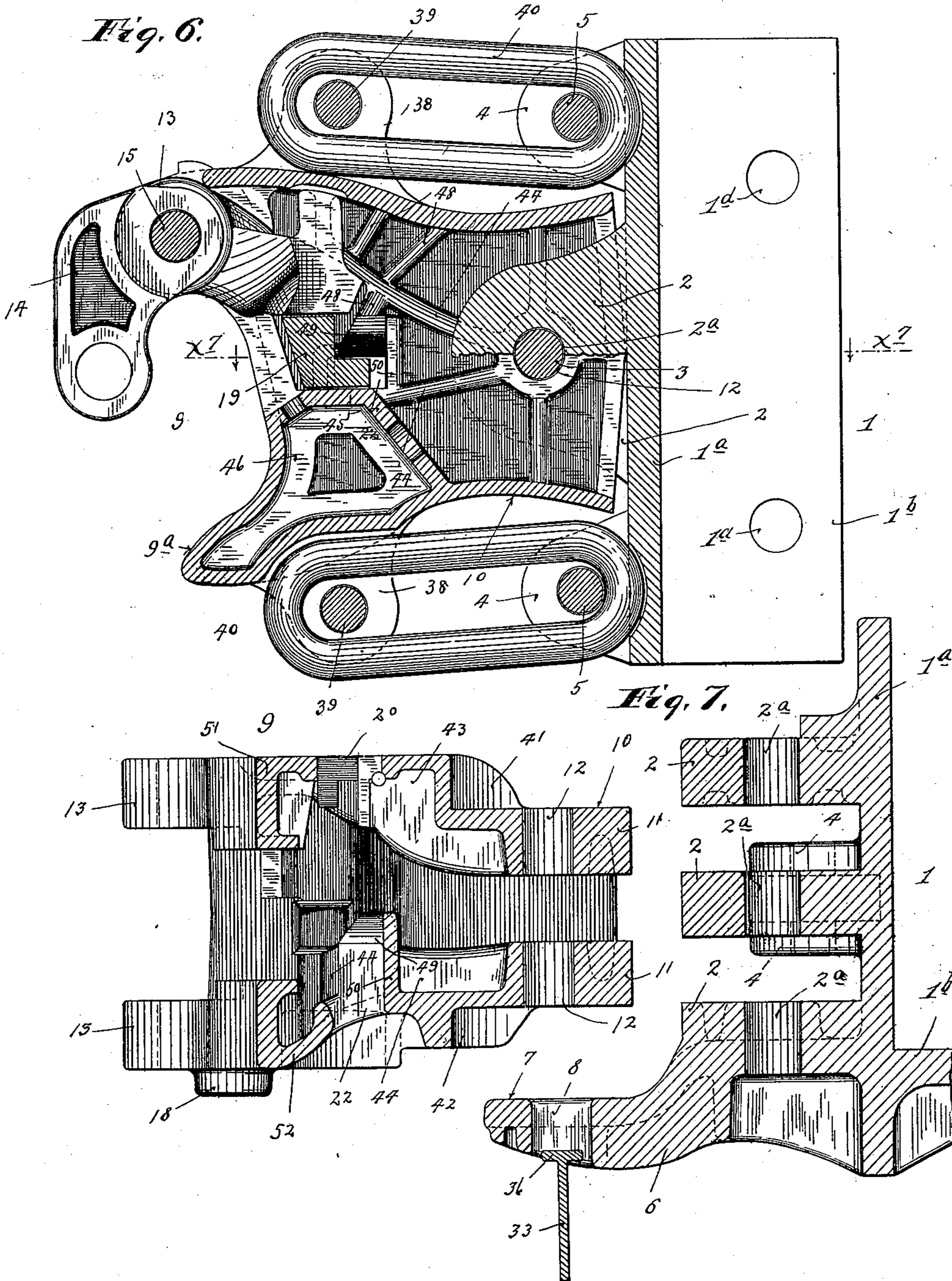
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4 Sheets—Sheet 3.



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F. D. Merchant.

Inventor.

Edwin C. Washburn.

By his Attorney.

Jas. F. Williamson

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4 Sheets—Sheet 4.

Fig. 8.

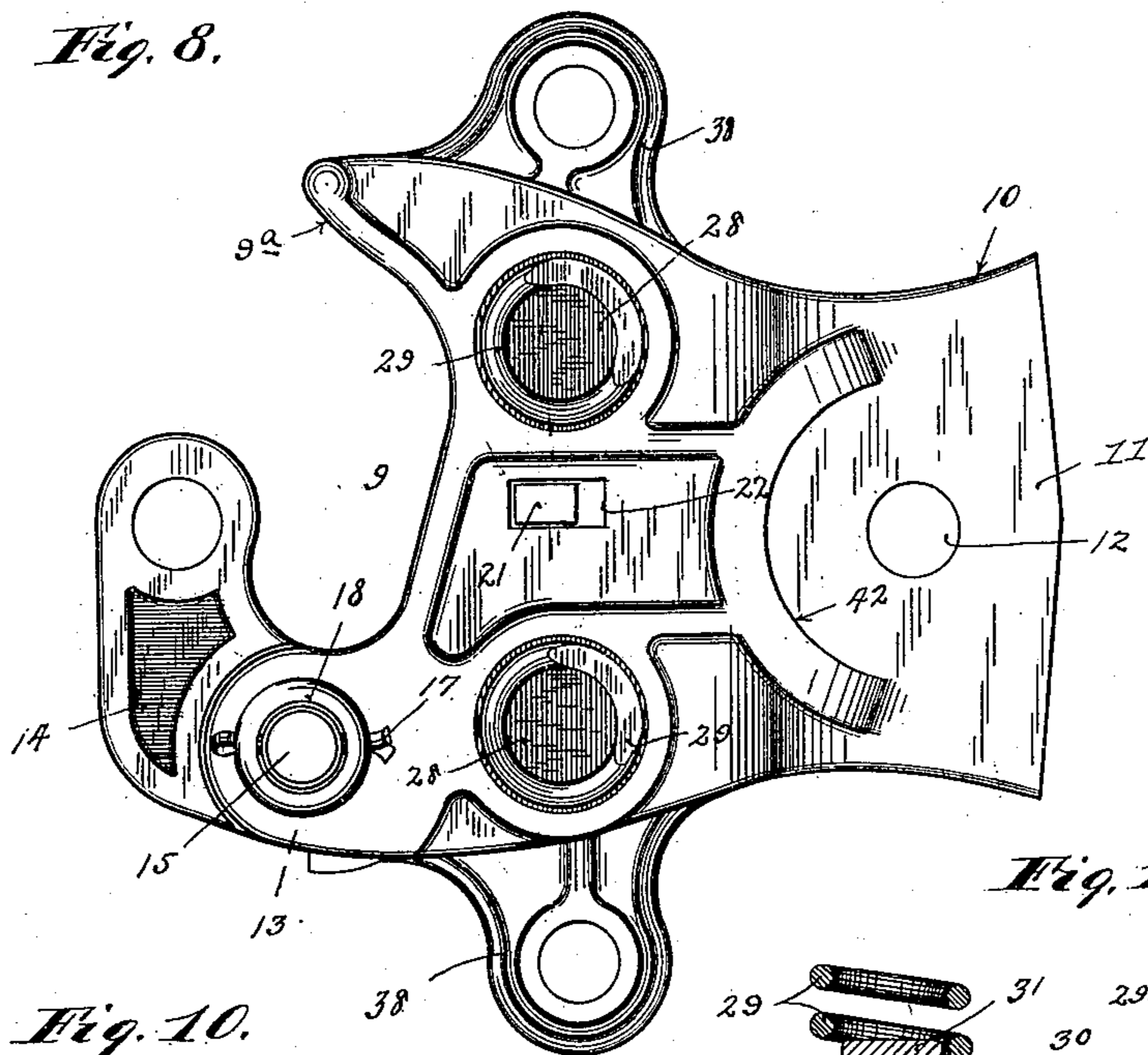


Fig. 11.

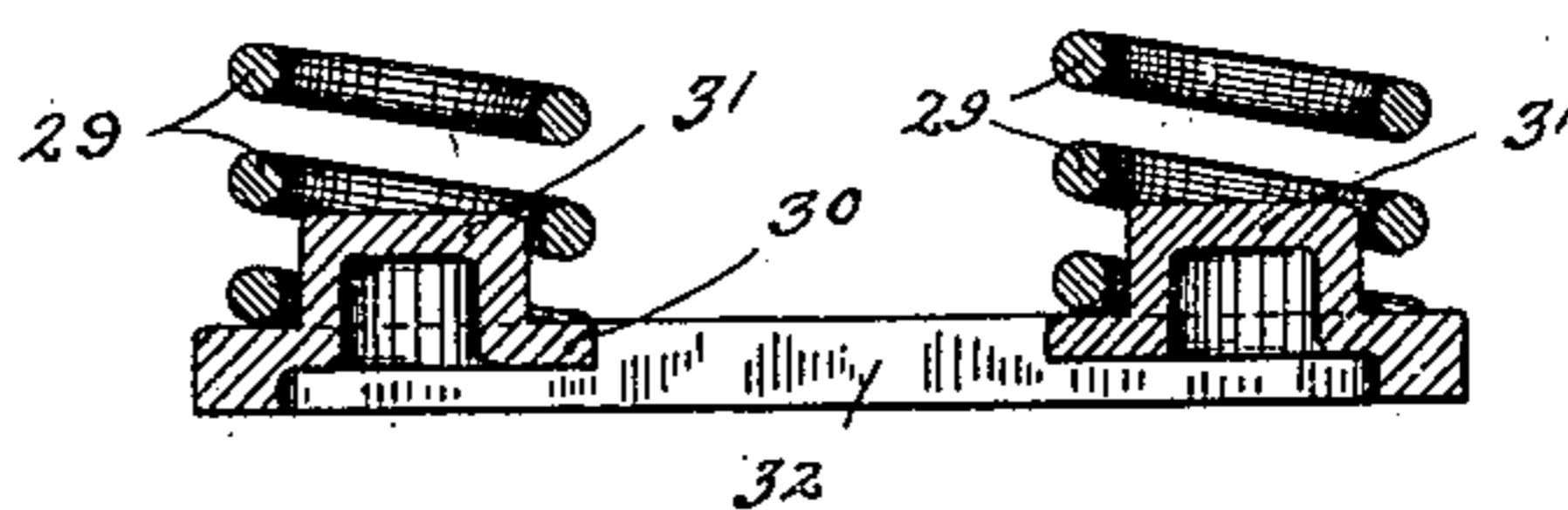


Fig. 10.

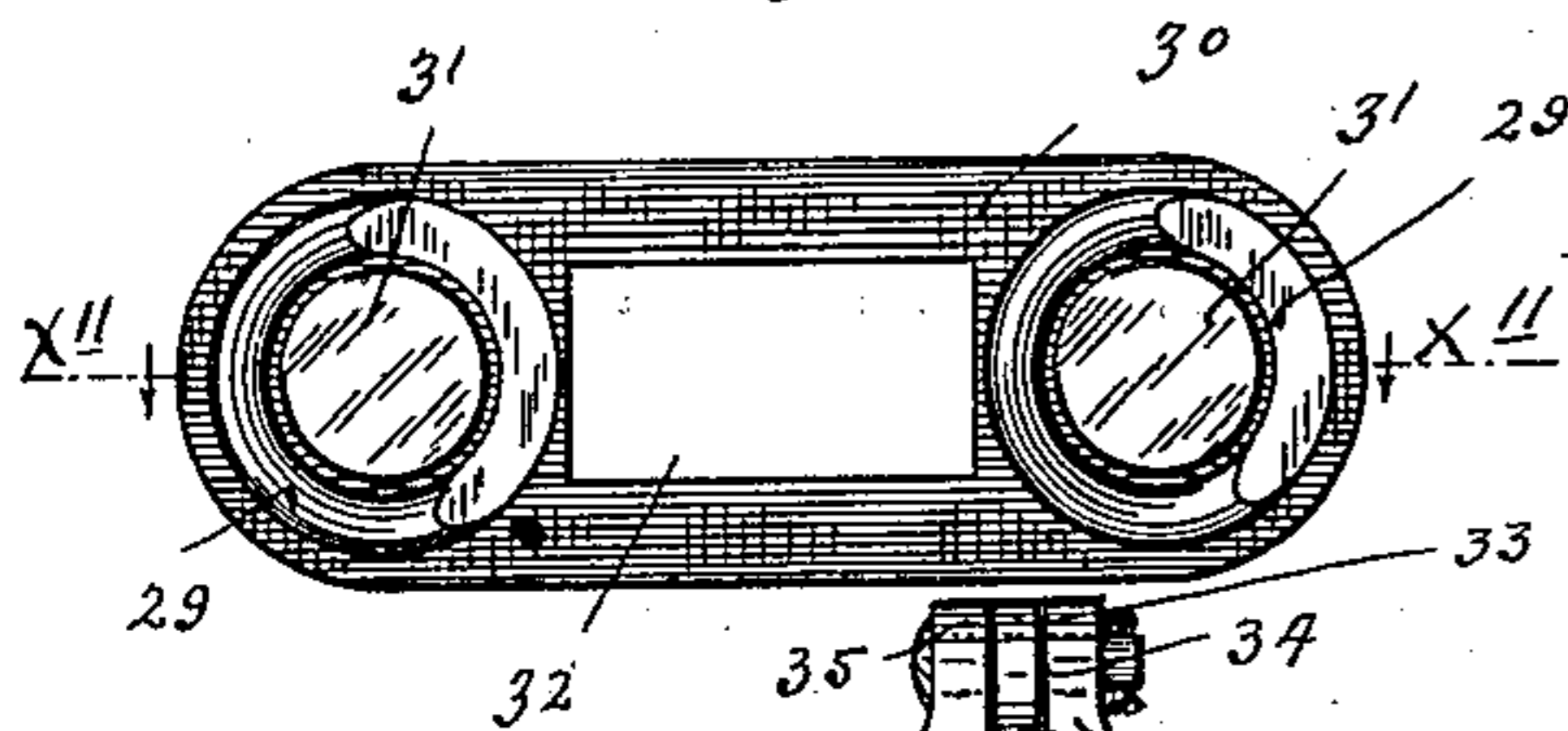
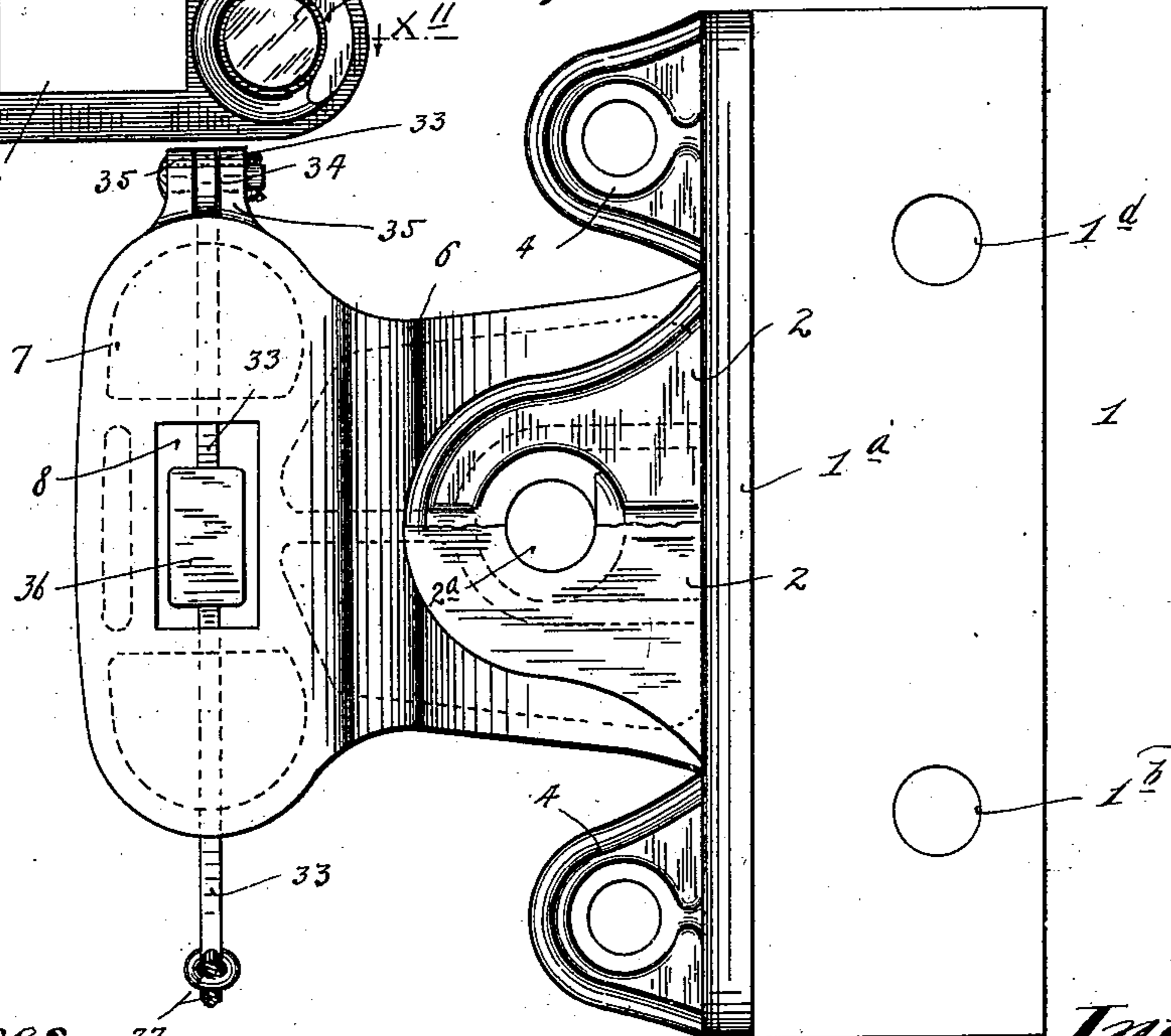


Fig. 9.



Witnesses,

Harry Kilgore,

F. D. Merchant.

Inventor,

Edwin C. Washburn.

By His Attorney,

Geo. F. Williamson

UNITED STATES PATENT OFFICE.

EDWIN C. WASHBURN, OF MINNEAPOLIS, MINNESOTA.

DRAFT-RIGGING FOR ENGINES AND TENDERS.

SPECIFICATION forming part of Letters Patent No. 644,384, dated February 27, 1900.

Application filed April 10, 1899. Serial No. 712,355. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. WASHBURN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Draft-Rigging for Engines and Tenders; 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 present invention relates to railway draft-riggings, and is primarily directed to the improvement to such draft-riggings as are especially applicable to engine-tenders.

My said invention has for its object to improve the construction of these draft-riggings in the several particulars hereinafter noted; and to this end the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views—

Figure 1 is a plan view showing the draft bracket or casting, the coupler, and connections between the coupler and bracket, which parts are constructed in accordance with my invention and collectively constitute the draft device or draft-rigging. Fig. 2 is a side elevation of the parts shown in Fig. 1. Fig. 3 is a transverse vertical section taken approximately on the line x^3x^3 of Fig. 1. Fig. 4 is a front elevation of the parts shown in Fig. 1. Fig. 5 is a detail view, in side elevation, some parts being broken away and others sectioned, showing a portion of the locking pin or dog and its lifting connection. Fig. 6 is a horizontal section taken approximately on the line x^6x^6 of Fig. 2, some parts being broken away, but with the knuckle shown in full. Fig. 7 is a vertical longitudinal section taken approximately on the line x^7x^7 of Fig. 6, showing the coupler and the draft-bracket as separated or drawn apart and with other parts removed to better illustrate the construction of the parts shown. Fig. 8 is a bottom plan view of the coupler removed from the draft-bracket. Fig. 9 is a plan view of the draft bracket or casting with the coupler removed therefrom,

some parts of the same being broken away.

Fig. 10 is a detail view in plan, showing a sliding spring base or plate and cooperating springs; and Fig. 11 is a transverse vertical section taken on the line $x^{11}x^{11}$ of Fig. 10.

The so-called "draft-bracket" in the construction illustrated is intended to be in the form of a malleable casting and is indicated as an entirety by the numeral 1. This draft-casting 1 is provided with flanges 1^a and 1^b , adapted to engage, respectively, with the front or outer and the bottom surfaces of the transversely-extended draft-beam of the tender, and these flanges are provided, respectively, with bolt-holes 1^c and 1^d , through which bolts may be passed to secure the said casting to the said draft-beam in the ordinary way.

In the construction illustrated the vertical flange 1^a of the draft-bracket is provided in the vicinity of its transverse center with three heavy draft lugs or ears 2, that are located one over the other and provided with perforations or pin-seats 2^a , through which a vertical pintle or pivot-bolt 3 is adapted to be passed. Projecting outward from the said vertical flange 1^a on each side of the draft-lugs 2 is a pair of somewhat smaller yet very strong ears or lugs 4, through which short vertical pins 5 are adapted to be passed for a purpose which will hereinafter appear.

The lowest member of the draft-lugs 2 is provided with a forward or outward extension 6, which terminates in a transversely-extended support or bearing-surface 7, through which a transversely-extended slot or passage 8 opens. The said lowest draft-lug 2 and also the parts 6 and 7 are shown as flanged and ribbed, so as to give them great strength, with a minimum of weight, and to permit of the better malleableizing of the casting.

The coupler-head is indicated as an entirety by the numeral 9, and in a general way it may be stated that it is cored out or formed hollow and ribbed or flanged to give it strength and is provided with a stub end or stub draft-bar portion 10, the horizontally-extended flanges 11 of which are spaced apart vertically and are of such thickness that they are adapted to embrace the central draft-lug 2 and to be embraced by the upper and lower draft-lugs 2 when placed in working position. The flanges or plates 11 are perforated at 12 to

permit the pintle or pivot-bolt 3 to be passed
 therethrough, so as to pivotally connect the
 coupler to the draft-bracket, as best shown
 in Figs. 1 and 6. The inner end of the stub-
 5 bar 10 is cut away or beveled toward its side,
 so as to permit of a considerable lateral move-
 ment of the coupler with respect to the draft-
 bracket. The coupler-head 9 is of the Mas-
 ter Car-Builders' type and is provided with
 10 the ordinary ears 13, to which an ordinary
 knuckle 14 is shown as pivoted by means of
 a pivot-bolt 15. The upper end of this pivot-
 bolt 15 is extended above the upper ear 13
 and is then bent horizontally and extended
 15 over the space intervening between the coup-
 ling end of the knuckle and the adjacent wall
 of the coupler-head, thus forming a guard-
 finger or projection 16, which will overlie the
 coupling end of the knuckle of the inter-
 20 locked coupler. This guard-finger 16 will
 serve to prevent the coupler-head from fall-
 ing or lowering, except very slightly, in case
 the said coupler-head is pulled loose from its
 normal or primary connection to the draft-
 25 bracket. The pivot-pin 15 16 is secured
 against rotation, as well as against vertical
 movement, by means of a cotter or pin 17,
 passed through the lower end thereof and
 through a depending boss or collar on the
 30 lower ear or lug 13.

The tail of the knuckle 14 is locked and
 released by a vertically-movable locking pin
 or dog 19, the body of which works through
 a seat or passage 20 in the upper portion of
 35 the coupler-head and is provided with a de-
 pending stem or contracted portion 21, that
 works through a seat or passage 22. The up-
 per end of the pin 19 is provided with an ear
 or lug 23, to which the clevis 24 of the pin-
 40 lifting connection 25 is secured by means of
 a pin 26. It is important to here note that
 the head of the pin is recessed on each side
 of the ear 23, so as to permit the rounded
 sides of the clevis 24 to work with clearance,
 45 with the seat for the pin 26 located very close to
 the base of the lug 23, or, in other words, very
 close to the top of the locking pin or dog 19.
 This arrangement leaves the lug 23 very
 much stronger than would be the case if the
 50 said pin-seat were located farther above the
 top of the locking pin or dog.

The coupler-head is provided at its under
 side with a pair of spring seats or sockets 28,
 located one on either side of the locking pin
 55 or dog. The upper ends of coiled supporting-
 springs 29 work within these seats or sockets
 28. The lower ends of said springs 29 bear
 upon the ends of a spring-base or chafing-
 plate 30, which in turn rests upon and is
 60 adapted to slide transversely of the coupler
 over the supporting-surface 7 of the bracket
 extension 6. The said spring base or plate
 30 is provided with bosses or hubs 31, around
 which the lower ends of the springs 29 en-
 65 gage to hold the lower ends of the said
 springs properly spaced. The said base or
 plate 30 is also provided at its central portion

with a perforation or cut-away portion 32,
 through which the depending stem or finger
 21 of the locking-dog 19 is always free to pass 70
 without engagement.

As the springs 29 are very short, and as the
 lower portions of the seats or sockets 28 ex-
 tend very close to the spring base or plate 30,
 it follows that the said springs can tilt side- 75
 wise but very slightly, and hence that the
 said spring base or plate will be caused to
 slide endwise over the supporting-surface 7
 under the oscillating movements of the coup- 80
 ler-head. In fact, with the construction illus-
 trated, the springs telescope with their seats
 or sockets 28, and the bosses 31 telescope
 with the said springs in such manner that
 the said springs are always held vertically,
 and the said spring base or plate 30 will be 85
 given movements corresponding precisely to
 the movements of the coupler-head. This
 construction is important, in that it always
 keeps the springs in proper position to prop-
 erly support the coupler-head and prevents 90
 distortion of the springs.

The lower end of the stem 21 of the lock-
 ing-dog works through or within the trans-
 versely-elongated passage 8 of the support 6
 7. A pin-lifting lever 33, which, as shown, is 95
 pivoted at 34 to ears 35 formed on one side of
 the support 7, is provided at its intermediate
 portion with a horizontal and transversely-
 extended portion or shelf 36, which is adapted
 to engage with the lower end of the depend- 100
 ing finger 21. This shelf or surface 36 is suf-
 ficiently extended transversely of the coupler
 so that the said finger 21 will always stand
 over the same regardless of the positions of
 the coupler. The pin-lifting lever 33 has a 105
 lifting connection 37 attached to its free end,
 by means of which it may be raised, and by
 the action of the shelf portion 36 on the fin-
 ger 21 raise the locking-dog 19 into its releas-
 ing or unlocking position. The pin-lifting 110
 lever 33 might be pivoted to the coupler-head
 itself and mounted to move laterally there-
 with, in which case the shelf portion 36 would
 not need to be much extended.

On each side the coupler-head is provided 115
 with a pair of strong ears or lugs 38, through
 which short but strong pins or bolts 39 are
 passed. Secured between each pair of ears
 38 and the pair of ears 4 of the draft-bracket
 by means of the pins 39 and 5 is a strong 120
 link 40. These links 40 are of such length
 that they permit the normal lateral oscilla-
 tions of the coupler, and hence do not inter-
 fere with the actions of the coupler, while the
 coupler is secured to the primary draft-lugs 2 125
 by means of the pin 3. However, in case of
 an accident, such as the breaking of the pri-
 mary draft-lugs 2 or other accident resulting
 in the disconnection of the coupler from said
 draft-lugs, the links 40 will then serve to keep 130
 the coupler-head securely connected to the
 draft-bracket, so that the coupler will not be
 disabled and the train will not be broken in
 two.

The specific construction of the coupler-head will now be more particularly noted. By reference particularly to Figs. 1, 7, and 8 it would seem that the coupler is provided on its upper and lower faces, respectively, with segmentally-extended bearing-shoulders 41 and 42, which are adapted to bear, respectively, against the upper and lower draft-lugs 2 of the draft-bracket 1. To strengthen the coupler at the points or angles where the shoulders 41 and 42 join the plates or portions 11, the coupler is provided, respectively, with longitudinally-extended reinforcing-ribs 43 and 44, as best shown in Figs. 6 and 7.

The guard-arm portion 9^a of the coupler-head is cast hollow and within the coupler-head it is bounded by vertical flanges or webs 45, and within the inclosure thus formed an endless strengthening-rib 46 projects inward from the vertical walls, as best shown in Figs. 3 and 6. This reinforcing-rib 46 gives great strength to the guard-arm without requiring the same to have any great weight.

By reference to Figs. 1 and 3 it will be noted that that portion of the upper face of the coupler which surrounds the locking dog or pin 19 is raised considerably above the adjacent face-surface of the coupler. As shown in Fig. 3, this is accomplished by bulging upward the shell of the casting adjacent to the locking-dog, so as to form a section which is U-shaped in cross-section, as indicated by the numeral 47 in Fig. 3.

By reference to Fig. 6 it will be noted that the flanges or reinforcing-ribs 48, 49, and 50, together with a portion of the flange or web 45, serve to completely tie together the sides of the coupler-head rearward of the pin-seat 20 22. This also greatly increases the strength of the coupler-head without materially increasing its weight.

By reference to Fig. 7 it will be noted that both the upper and the lower front walls of the coupler-head are formed channel-shaped in cross-section, as indicated by the numerals 51 and 52, respectively. This also gives great strength at a point where it is much needed without giving much weight, and it also permits the parts to be properly malleable.

The flanged section 50 (best shown in Figs. 3 and 6) serves as a guard-flange which will prevent the locking-dog 19 from being forced inward out of an operative position in case its depending finger 21 should be broken off or omitted in its construction.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a coupler pivoted for lateral movements, of means for primarily securing the same to a car or tender, and a secondary or emergency connection for rendering the said coupler operative when the primary connection is disabled, substantially as described.

2. The combination with a coupler pivoted

for lateral movements, and means for primarily securing the same to a car or tender, of a pair of link connections connecting the sides of said coupler to the said car or tender, said links normally permitting the free lateral oscillations of said coupler, but adapted to serve as an emergency connection, substantially as described.

3. The combination with a draft-bracket, of a coupler pivotally secured thereto, and secondary or emergency connections between the said coupler and bracket, said secondary connections being arranged to normally permit the lateral oscillation of said coupler, substantially as described.

4. The combination with a draft-bracket and coupler pivoted thereto, of link connections between the sides of said coupler and said draft-bracket, said links serving as secondary or emergency connections, substantially as described.

5. The combination with a draft-bracket having the draft-lugs 2 and the pairs of draft-lugs 4, of the coupler pivotally connected to said draft-lugs 2 by the pin or bolt 3, and provided with the laterally-projected pairs of lugs or ears 38, and the links 40 connected to the corresponding pairs of ears or lugs 4 and 38, by means of the pins or bolts 5 and 39 respectively, substantially as described.

6. The combination with a draft-bracket and the coupler pivoted thereto, of a pair of springs applied between said bracket and said coupler on the opposite sides of its center, for yieldingly holding said coupler upward, substantially as described.

7. The combination with a draft-bracket having the projected supporting-arms 6, of the spring-base or chafing-plate movable over said supporting-arms 6, a coupler pivotally connected to said draft-bracket, and one or more springs applied between said spring-base and said coupler, substantially as described.

8. The combination with a draft-bracket provided with supporting-arms 6 with bearing-surface 7, of the spring-base or chafing-plate 30 with boxes 31 working on said surface 7, the coupler pivoted to said draft-bracket and provided with the spring seats or sockets 28, and the pair of springs 29 engaging the said seats 28 and working over said bosses 31, substantially as described.

9. The combination with a draft-bracket, of a coupler pivoted thereto and provided with a locking dog or pin with depending lower end, and the pin-lifting lever 33 pivoted to said bracket and provided with the extended shelf or pin-lifting section 36, substantially as and for the purposes set forth.

10. The combination with a draft-bracket provided with the supporting-arm 6 with elongated perforation 8, of the coupler pivoted to said draft-bracket and provided with a locking dog or pin having a depending end that works through said perforation 8, and a lifting-lever working below said supporting-arm

6 and operating on said dog or pin to lift the same, substantially as described.

11. The combination with a draft-bracket having the supporting-arms 6 with bearing-
5 surface 7 and perforation 8, of the spring-base or chafing-plate 30 with bosses 31 and elongated perforation 2, the coupler pivoted to said draft-bracket and provided with a locking dog or pin with depending lower end work-
10 ing through said perforations 8 and 32, the pin-lifting lever pivoted to said supporting-arm 6 and having the extended shelf or section 36 for engagement with said locking pin or dog, and the springs 29 applied between
15 said coupler and said spring-base 30, substantially as described.

12. The combination with the draft-bracket having the draft-lugs 2 and supporting-arms 6 with surface 7 and perforation 8, of the

coupler having the lugs or flanges 11 and 20 spring seats or sockets 28, the pin or bolt 3 pivotally connecting said parts 2 and 11, the spring-base or chafing-plate 30 working on said surface 7 and provided with bosses 31 and perforation 32, the springs 29 in said 25 sockets 28 engaging around said bosses 31, the locking-dog 19, the depending stem 21, and the lifting-lever 33 pivoted to said arms 6 and provided with the shelf or extended surface 36 engaging said stem 21 to lift the dog, 30 substantially as described.

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

EDWIN C. WASHBURN.

Witnesses:

M. M. McGRORY,
F. D. MERCHANT.