

(No Model.)

2 Sheets—Sheet 1.

W. V. S. THORNE.
CAR COUPLING.

No. 512,765.

Patented Jan. 16, 1894.

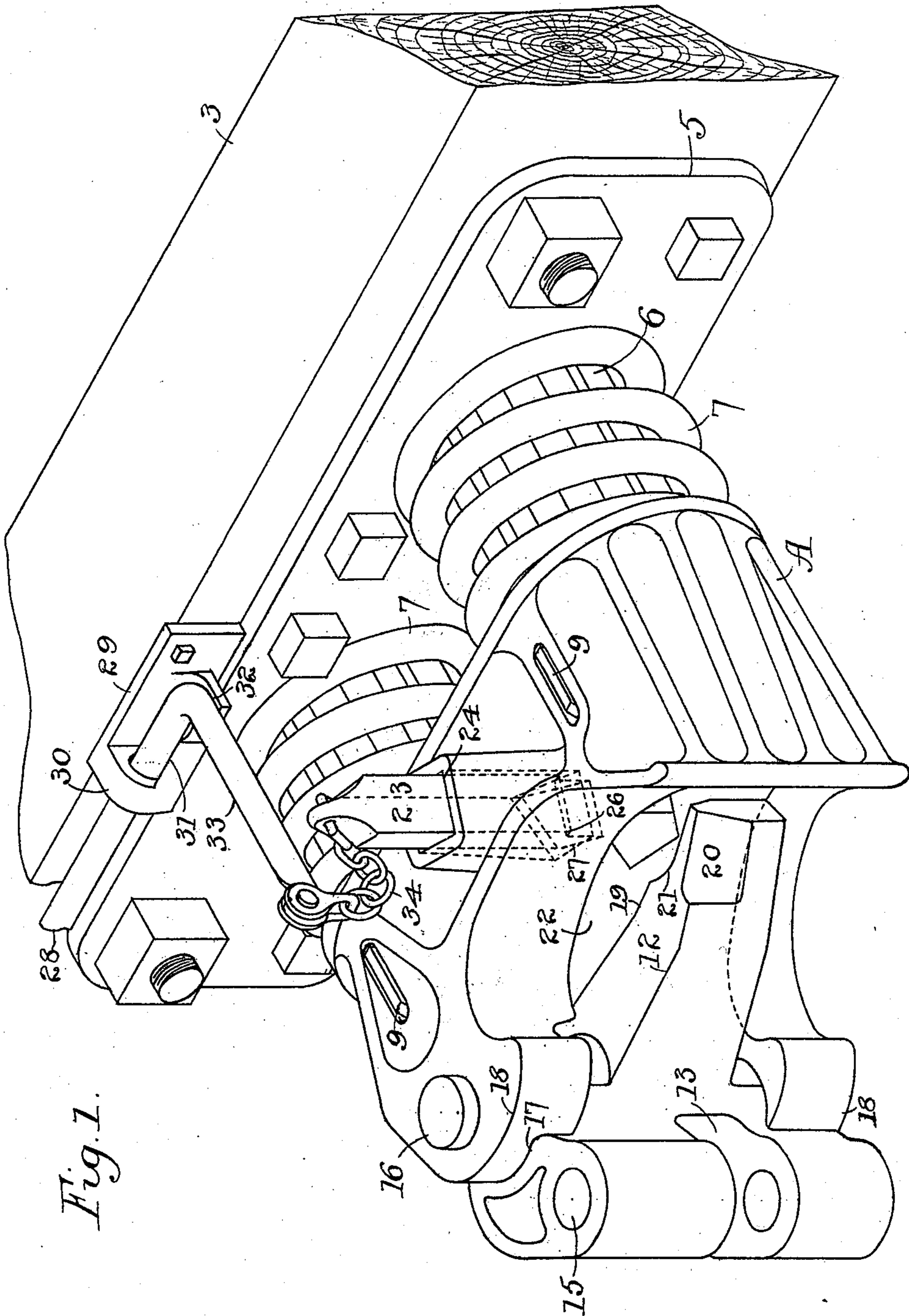


Fig. 1.

Witnesses:-
C. R. Caldwell.
H. S. Johnson.

Inventor:-
W^m V. S. Thorne
per Paul Thorne

Attorneys.

(No Model.)

2 Sheets—Sheet 2

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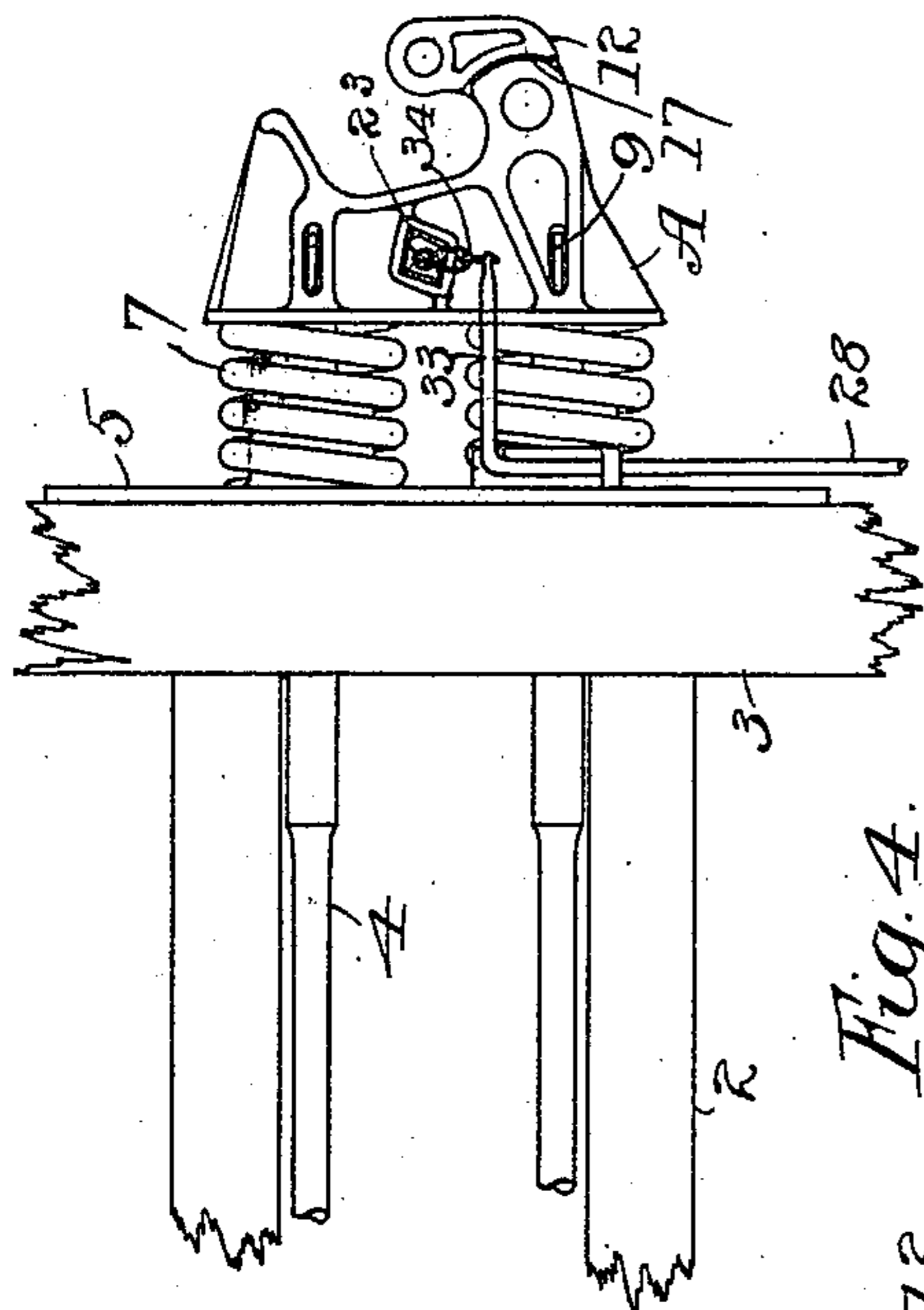


Fig. 1.

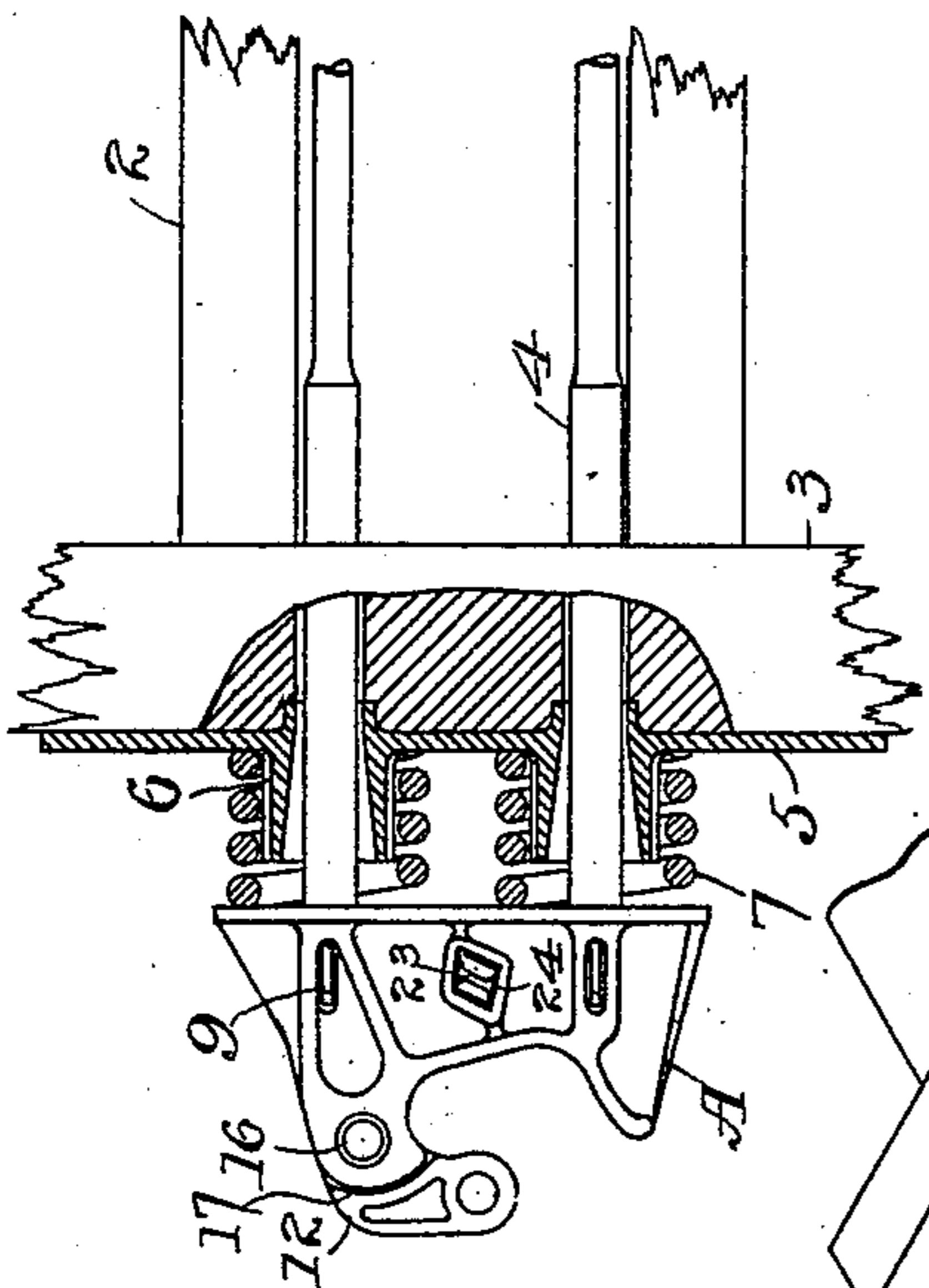


Fig. 4.

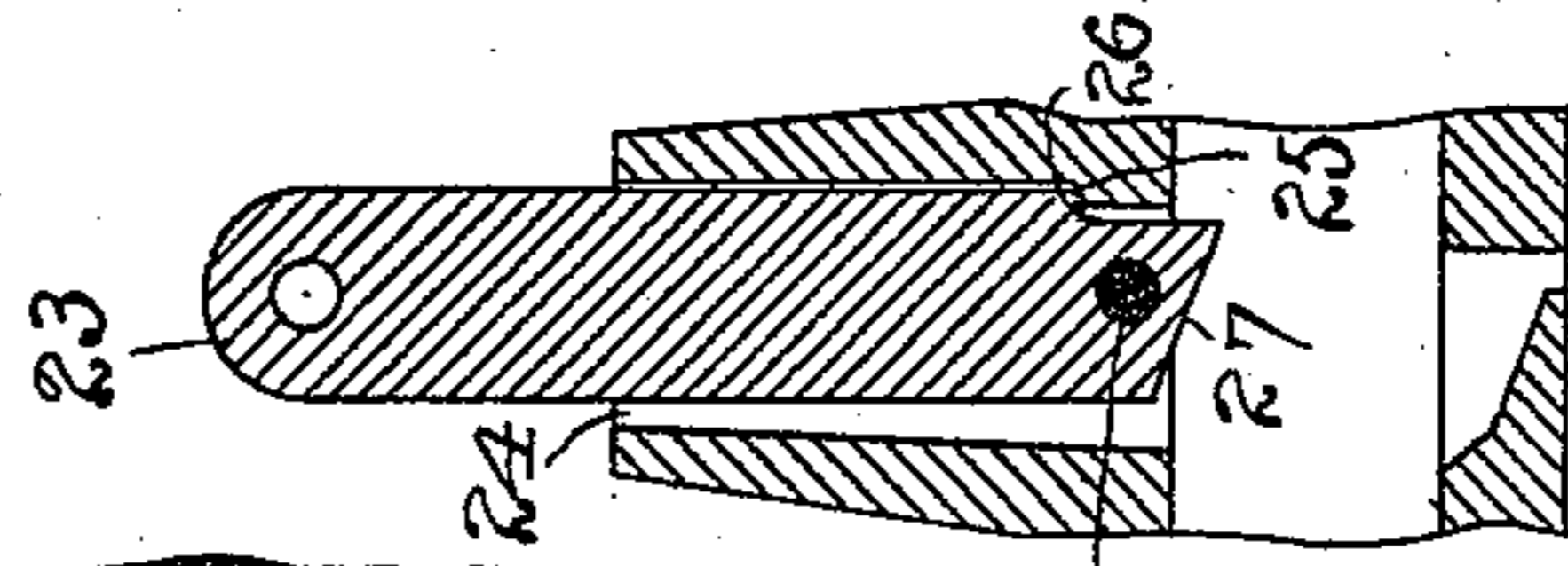
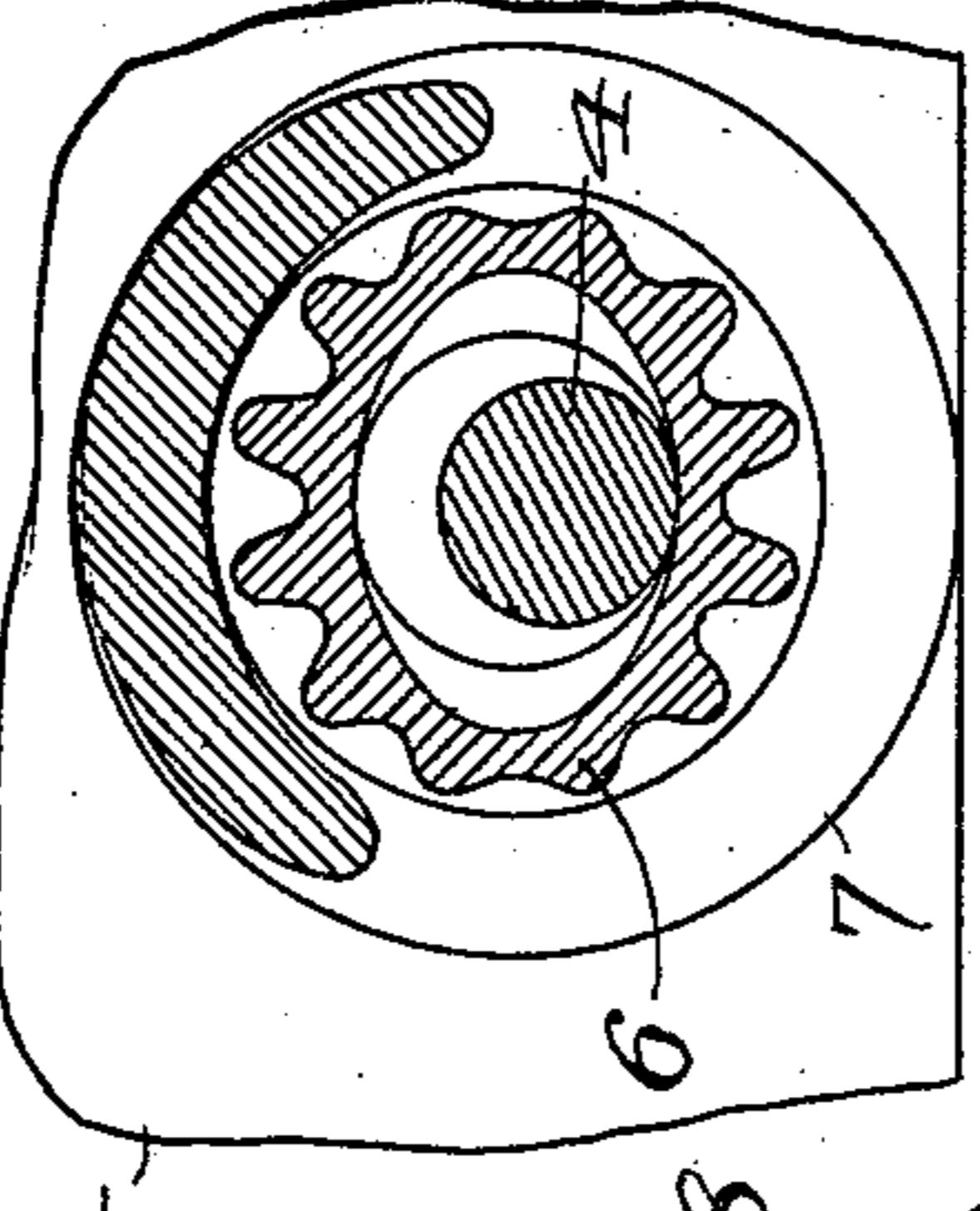


Fig. 5.

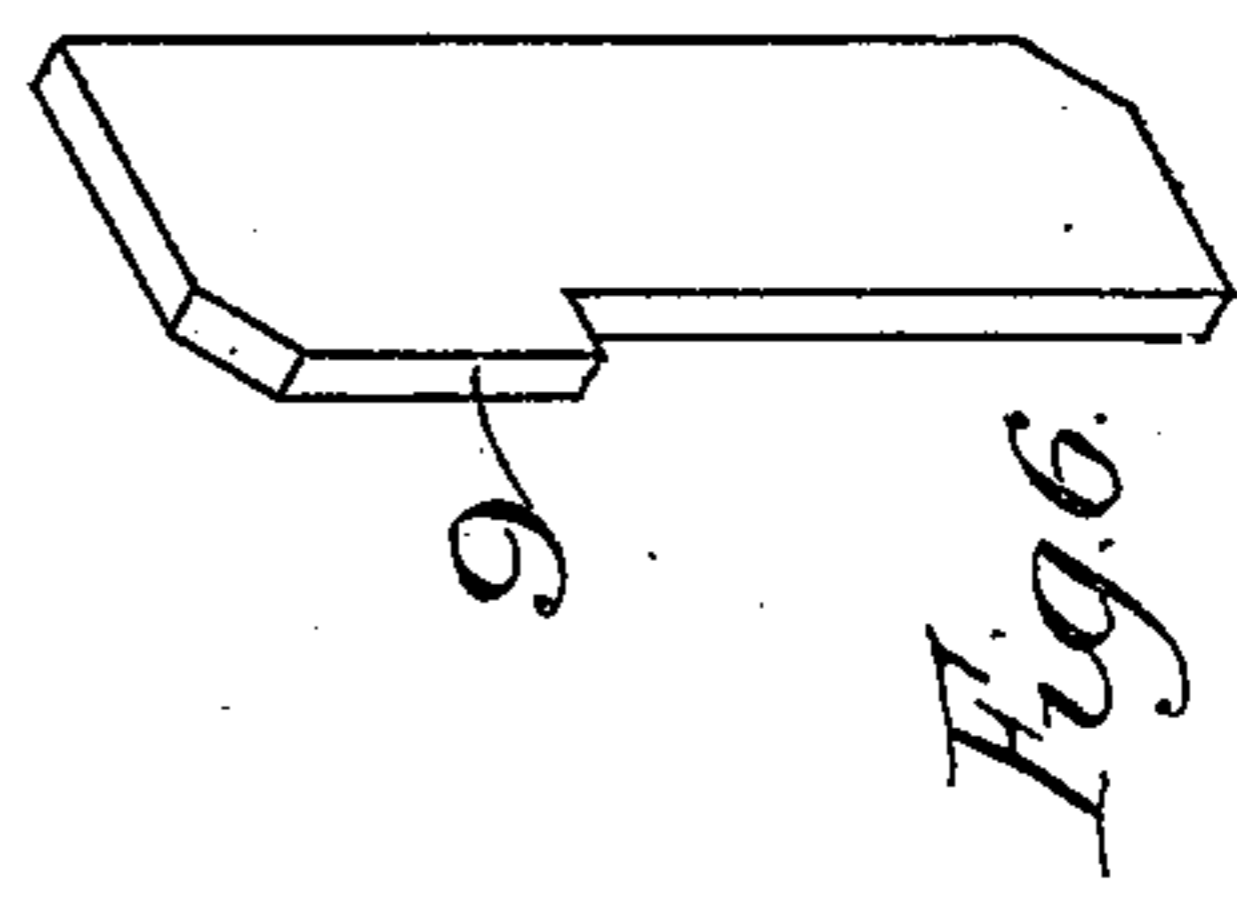


Fig. 6.

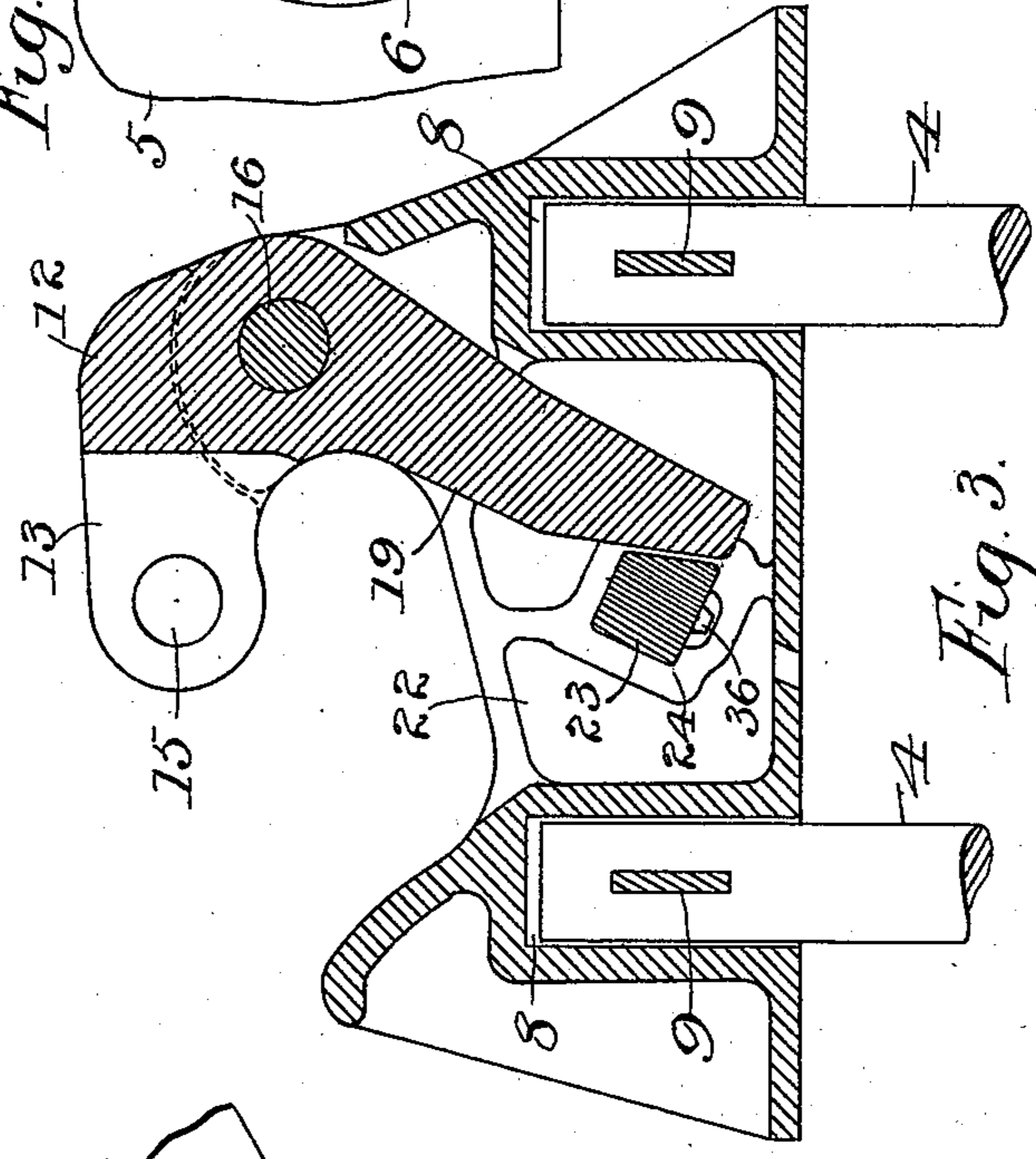


Fig. 3.

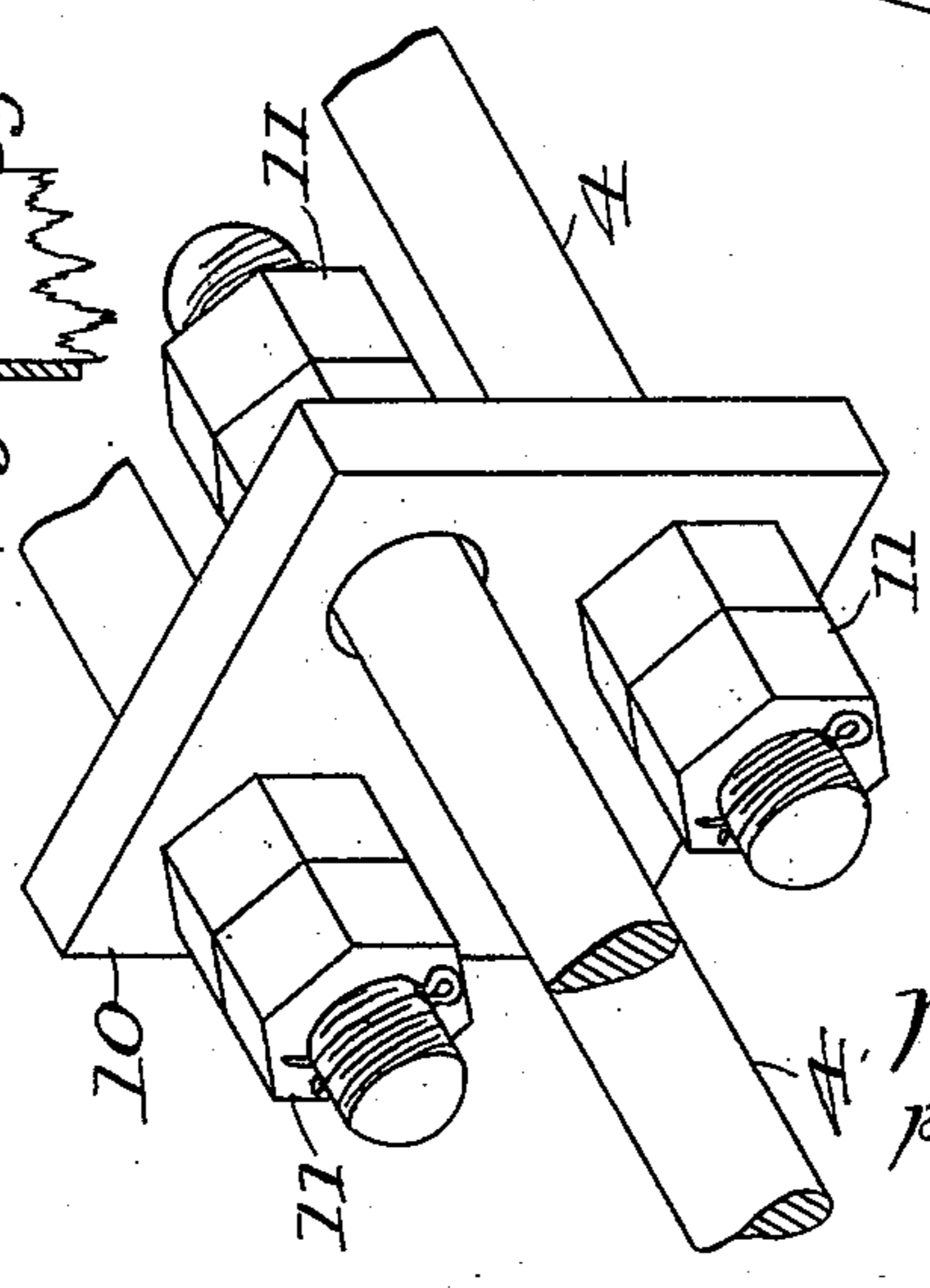


Fig. 7.

Witnesses:
C. H. Baldwin.
H. S. Johnson.

Inventor:
Wm V. S. Thorne,
per Paul & Wm
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM V. S. THORNE, OF ST. PAUL, MINNESOTA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 512,765, dated January 16, 1894.

Application filed December 5, 1892. Serial No. 454,077. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM V. S. THORNE, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

My invention relates to couplers and draft gearing, for railway cars, its object being to provide an improved form of automatic coupler and connected continuous draft gearing, of simple and inexpensive construction combined with great strength and durability, the parts of which may be easily applied or removed for the purpose of construction or repairs.

Another object is to provide a coupler of which the draw-head, instead of being attached underneath the car as in the ordinary construction, shall be located beyond the end of the car, to permit the building of the body of the car several inches lower than in the ordinary construction, and to enable the thrust and pulling strains to be received upon the end sills and against the ends of the longitudinal sills of the car, instead of upon draft timbers as in the ordinary arrangement.

To this end my invention consists in a novel construction of coupler, having its draw-head opposite the end sill of the car and supported upon draft rods connected with each other, which project through the end sills, and through thimbles or hollow projections formed on a buffer plate secured to the end sill. Around these thimbles are placed spiral springs interposed between the buffer plate and the draw-head, to lighten the impact or shock when the cars are brought together, and also to bear the strain when the cars are drawn by the engine.

Other features of my invention will appear in the following detailed description, taken in connection with the accompanying drawings forming part of this specification, in which—

Figure 1 is an isometrical projection of one of the draw-heads and the adjacent end sill of the car. Fig. 2 is a sectional detail of the continuous draft gearing connecting the draw heads, clearly showing the manner of attaching the draw heads to the car and of connecting the draft rods. Fig. 3 is a detail, horizontal section of the draw head, the knuckle being shown in closed position. Fig. 4 is a detail, vertical cross section of one of the

thimbles of the buffer plate, showing its ribbed or corrugated form by means of which the maximum of strength with the minimum of weight is secured. Fig. 5 is a detail of the locking pin and pin hole. Fig. 6 is a detail of the key for securing the draft rods, in the draw head, and Fig. 7 is a detail of the arrangement for connecting the draft rods underneath the car body.

In the drawings 2 represents the longitudinal timbers or sills of the car, broken away to shorten the figure, and 3 are the end sills. The draw head A is connected to and supported upon the draft rods 4, which extend through the sills 3 and the buffer plates 5, the latter being secured rigidly to the faces of the sills. These buffer plates have thimbles or hollow projections 6 to assist in supporting the draft rods, and through which the draft rods pass. These thimbles are preferably ribbed or corrugated as shown best in Fig. 4, to secure the greatest strength with the least weight. Surrounding the thimbles are arranged the spiral springs 7 interposed between the draw head and buffer plate. The ends of the rods enter the sockets 8 of the draw head, and are therein secured preferably by means of the keys 9 passing through corresponding openings in the draw heads and rods, by means of which they can be readily attached and detached. The other ends of each pair of draft rods are connected underneath the car body by being passed loosely through the diagonally opposite corners of a vertical plate 10, shown in Figs. 2 and 7, and secured therein by nuts 11, whereby the plate is prevented from tilting and the rods are firmly held against a pull but yield freely to a thrust on account of the telescoping connection.

While any type of draw head may be thus secured upon the draft rods of the car, I have herein shown and described an improved form of automatic vertical plane coupler having the pivoted knuckle 12, provided with the slot 13 and vertical hole 15 to receive the link and pin of the ordinary type. This knuckle has a tongue 19, which swings in the pocket 22 of the draw head, and the surfaces 20 and 21 (see Fig. 1) of the tongue are oppositely beveled as shown. The draw head is provided with an irregular shaped locking pin 23, fitting into a pin hole 24 which is laterally expanded toward the center of the head, as

shown in Fig. 5. Upon the side wall of the pin hole, opposite the tongue of the knuckle when closed, is arranged the shoulder 25, the locking pin being provided with a shoulder 26 adapted to engage and be supported, when in raised position, by the shoulder 25. The end of the pin has a beveled surface 27 inclined upwardly from the shouldered side and projects slightly into the pocket 22, when the shoulder 26 rests upon the shoulder 25, so that as the knuckle opens, the tongue strikes upon the beveled surface 27 of the pin and passes it without causing it to drop, and in closing, the beveled surface 21 of the tongue of the knuckle strikes the end of the pin, thereby raising and carrying it off the shoulder 25, so that when the tongue has passed, it is free to drop and lock the knuckle in closed position.

In order to lift the locking pin to uncouple the cars without going between them, I prefer to provide a rock shaft 28 mounted in suitable bearings 29, upon the end of the car, and having a lifting arm 33 connected by the chain 34 to the pin 23. Upon rocking the shaft by means of a handle the pin is raised to the position shown in Fig. 1, and is automatically engaged and supported by the shoulder 26. To prevent the locking pin from being lifted entirely out of the pin hole, a rivet 36 is placed in the lower end of the pin which engages a stop in the pin hole after the pin has been raised sufficiently to allow the knuckle to open. If desired the arm 33 may be locked on the shoulder 31 of the bracket 29 so as to hold the pin in raised position and allow the knuckle to turn freely on its pivot and prevent the coupling of cars when brought together.

I claim—

1. The combination with the railway car, of the continuous draft gearing therefor, comprising in combination the draw heads, the draft rods connecting said draw heads, and having an intermediate telescoping connection or coupling, and the elastic cushions arranged between said draw heads and the ends of the car, substantially as described.

2. The combination with the railway car, of draw heads connected with each other, springs interposed between said draw heads and the ends of the car and buffer plates upon the car to receive the pressure and impact of said springs and draw heads, substantially as described.

3. In a railway car, the combination of the draw heads arranged thereon, springs holding said draw heads normally out of contact therewith, the draft rods connected to each of said draw heads and running underneath said car, a plate loosely engaging all of said rods, and nuts or stops upon the ends of said rods abutting against the side of the plate farthest from the draw head, to which said rods are connected.

4. The combination with the railway car, of draw heads arranged opposite the end sills of the car, two draft rods extending from each

draw head back under the car, the ends of the rods from the opposite heads alternately overlapping beneath the car, a plate through which said ends pass freely, and nuts arranged on the extreme ends of the rods and abutting against said plate.

5. The combination with the car body, of the pairs of rods having their ends alternately overlapped, the common connection for all said rods firmly holding them against a pulling strain, but yielding freely to a thrust.

6. The combination with a railway car, of the continuous draft rods arranged underneath the car having a telescoping connection between them, and extending through the end sills of the car, the draw heads keyed thereon, and the buffer plates upon said sills, and the springs interposed between said draw heads and said plates.

7. In a vertical plane coupler, the combination with the drawhead having a pin hole laterally enlarged toward the center of the drawhead, the stop upon the side wall of said hole, the locking pin fitted to said hole and having a shoulder to engage said stop so as to be automatically supported thereon when raised, and provided with a beveled point, the knuckle, the tongue having its upper surface beveled in the direction opposite from the bevel on said pin, whereby said pin when raised allows the knuckle tongue to pass outward without disengaging it from the shoulder, while the closing of the knuckle tongue disengages said pin from said shoulder and allows it to drop into closed position.

8. The vertical plane coupler, comprising in combination the drawhead supported opposite the end sills of the car, the interposed springs holding it separated from the sill, the pin hole in said head enlarging laterally toward the center of the head, the shoulder upon the side wall thereof, the pin fitted to said hole having a similar shoulder adapted automatically to engage said first shoulder when the pin is raised to unlock the knuckle, the lower part of the pin being beveled upward from its shouldered side, said pin when raised projecting slightly below the upper wall of the knuckle pocket, and the knuckle having its face beveled oppositely from the bevel in said pin, and adapted to trip said pin in closing and permit it to lock the knuckle.

9. In a railway car, the combination of the buffer plates arranged upon its end sills, the continuous draft rods projecting through said plates, the drawheads supported upon the projecting ends of said rods, and the spiral springs arranged around said rods between the drawheads and buffer plates, substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of November, 1892.

WM. V. S. THORNE.

In presence of—

H. S. JOHNSON,

T. D. MERWIN.