

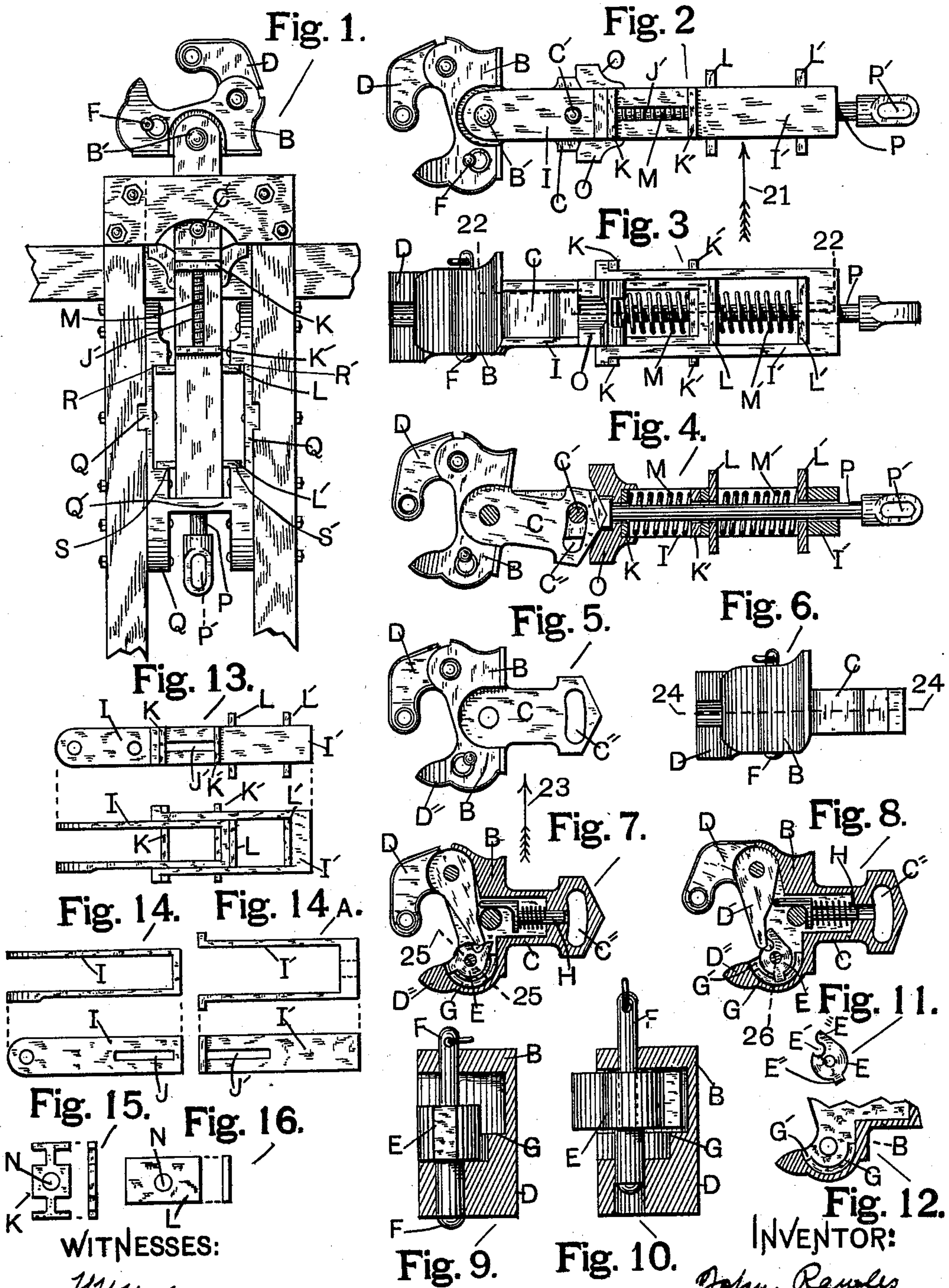
(No Model.)

2 Sheets—Sheet 1.

J. RAWLES.
CAR COUPLING.

No. 583,770.

Patented June 1, 1897.



WITNESSES:

H. H. Hall
F. A. Scott

INVENTOR:

John Rawles
By his atty
Oliver Owell

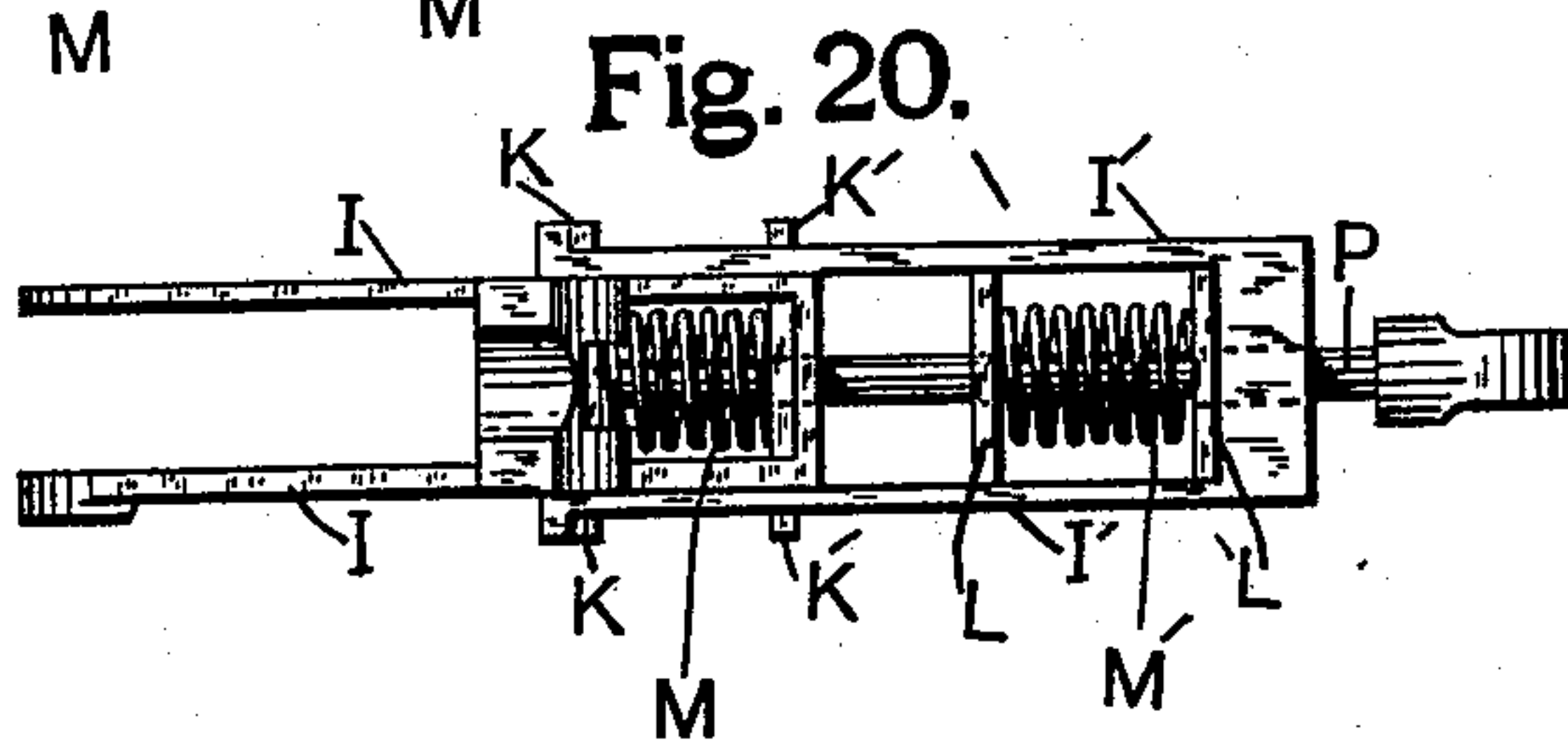
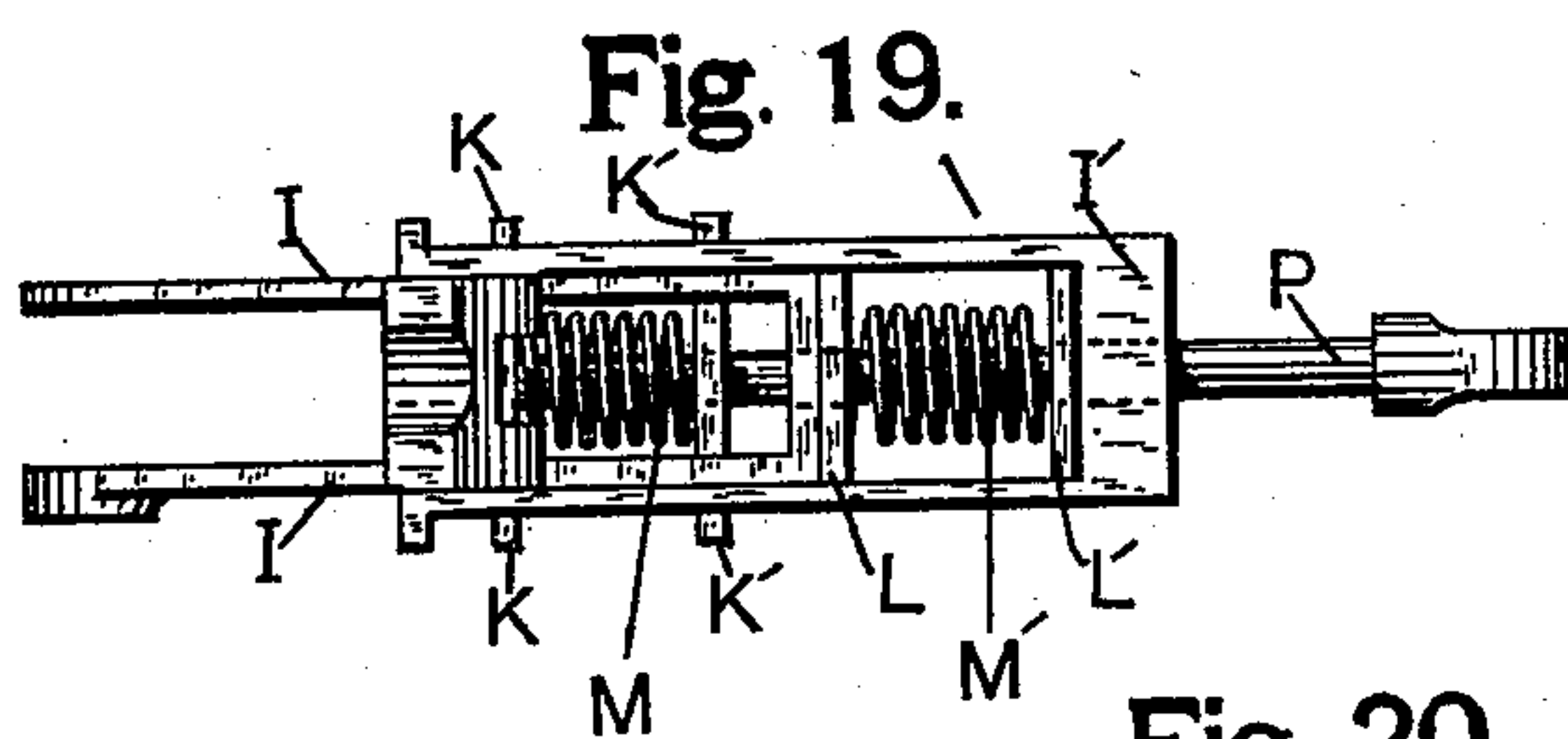
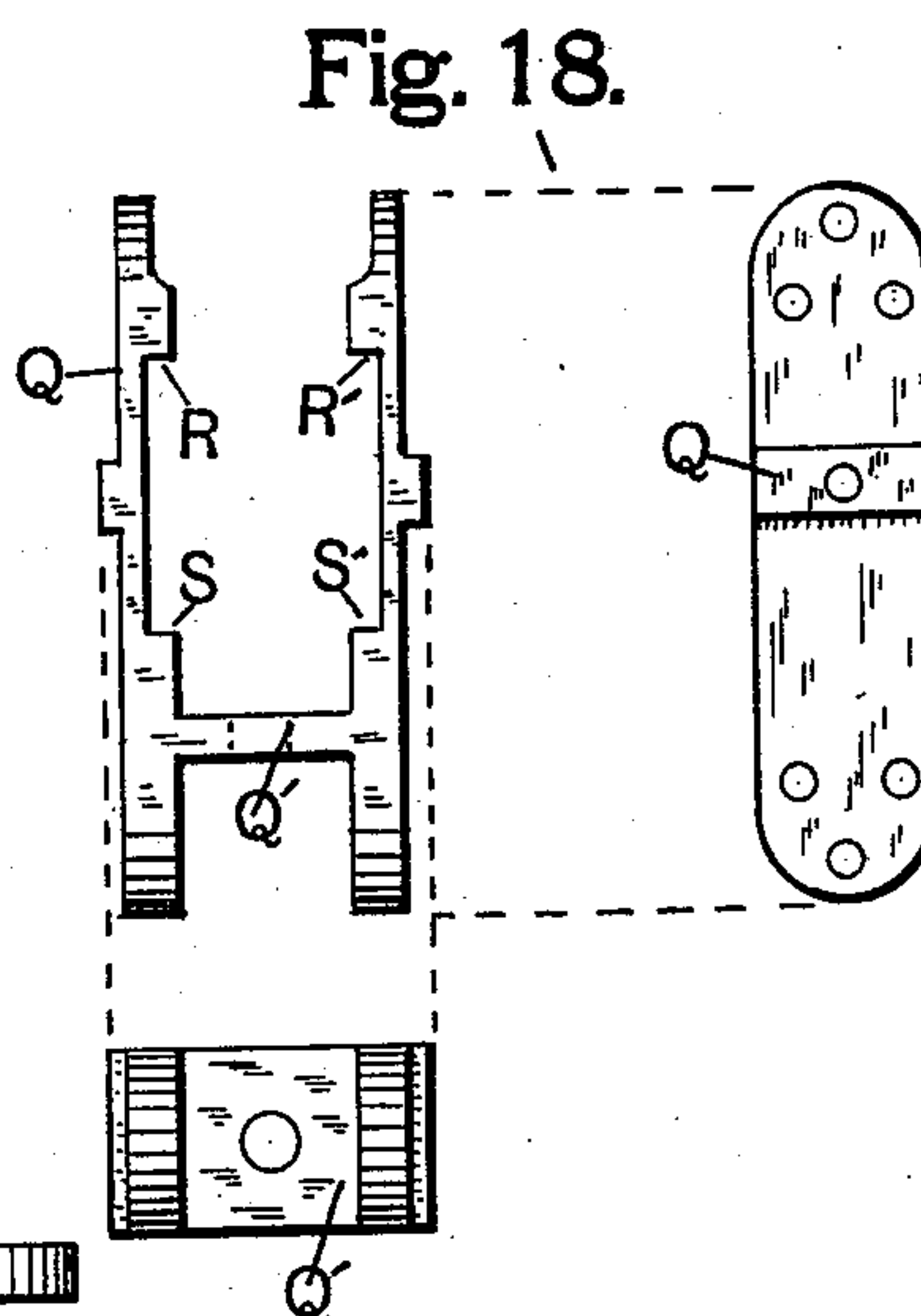
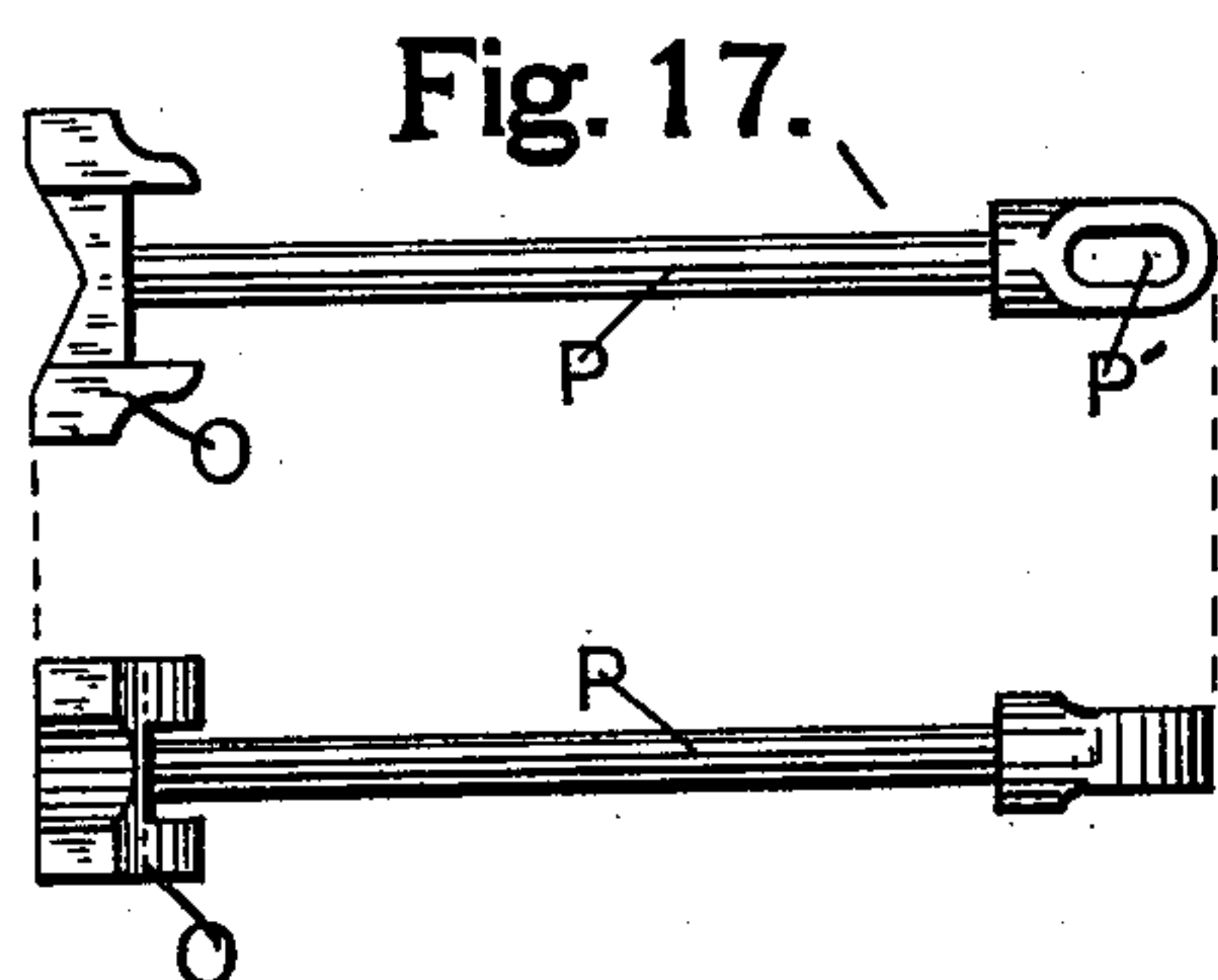
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UNITED STATES PATENT OFFICE.

JOHN RAWLES, OF RANDALL, ILLINOIS, ASSIGNOR OF THREE-FOURTHS TO
JOHN L. GRIFFITH AND GEORGE H. McELVAIN, OF BUSHNELL, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 583,770, dated June 1, 1897.

Application filed February 26, 1896. Serial No. 580,867. (No model.)

To all whom it may concern:

Be it known that I, JOHN RAWLES, a citizen of the United States, residing at Randall, in the county of Knox and State of Illinois, have
5 invented a new and useful Car-Coupler, of which the following is a specification.

My invention relates more especially to the twin-jaw or vertical type of couplers; and one of my objects is to provide a means for attaching a laterally-movable jaw-head to the forward end of the draw-bar in combination with a novel means for holding the jaw-head normally in a center line with the draw-bar, and which means is adapted to permit the
10 jaw-head to yield laterally either way, so as to adjust itself to all lateral strains, especially those arising from the changes in the position of the couplers of opposite cars when a train is rounding a reversed curve.

Another object is to provide a special form of locking device to hold the movable jaw in the closed position, which device is of such construction that less movement than ordinarily is required to release the movable jaw
15 in uncoupling; and still another object is to provide a special form of draw-bar which is particularly adapted to receive the laterally-movable jaw-head, the several parts of the draw-bar being of such form that it may be
20 easily made of wrought metal and is adapted to receive the buffer-springs and follower-plates therefor within the body thereof, as is hereinafter described, and is illustrated in the accompanying drawings, in which—

35 Figure 1 is a plan of the front end portions of the frame-timbers of a railway-car, together with the parts comprising a car-coupling, in which latter is embodied my improvements. Fig. 2 is a plan of the car-coupler as it appears
40 when removed from the car. Fig. 3 is a side elevation looking in the direction indicated by arrow 21, Fig. 2. Fig. 4 is a plan of the head with twin jaws and a section of the draw-bar and springs and several other parts hereinafter more fully explained on broken line
45 22, Fig. 3. Fig. 5 is a plan of the head with twin jaws and a rearwardly-projecting portion. Fig. 6 is a side elevation of the jaw-head, looking in the direction indicated by
50 arrow 23, Fig. 5. Fig. 7 is a plan of the movable jaw and locking-block, together with

spring-bolt for opening the movable jaw, all in the closed position, the jaw-head and pivotal pins being shown on broken line 24, Fig. 6. Fig. 8 is the same as Fig. 7, except that
55 the operative parts are in the open position. Figs. 9 and 10 show, respectively, the locking-block dropped and lifted. Fig. 11 is a plan of the locking-block. Fig. 12 is a section, same as part of Figs. 7 and 8, showing a portion of the head at the stationary jaw, in which
60 in a recess operates the locking-block. Fig. 13 shows, respectively, a plan and a side elevation of the draw-bar. Fig. 14 shows, respectively, a side elevation and a plan of the
65 front portion of the draw-bar. Fig. 14^a shows, respectively, a side elevation and a plan of the rear portion of the draw-bar. Fig. 15 shows, respectively, a side and an edge elevation of one of the front follower-plates.
70 Fig. 16 shows, respectively, a side and an edge elevation of one of the rear follower-plates. Fig. 17 shows, respectively, a plan and a side elevation of the tail-bolt, to which a continuous draw-bar rod may be attached.
75 Fig. 18 shows, respectively, a plan, a side view, and an end elevation of the buffer-spring pocket, which is secured to and between the draft-timbers of the car. Fig. 19 is a side elevation of the draw-bar as it appears
80 with the jaw-head removed, the front and rear portion of the draw-bar being shown in the position they assume when forced inwardly against the tension of the buffer-springs: Fig.
85 20 is the same elevation as Fig. 19, except that the portions of the draw-bar are shown in the relative positions they assume drawn out against the tension of the buffer-springs.

Similar letters indicate like parts throughout the several views.
90

The head B is pivotally attached at the front ends of the draw-bar by means of a vertical pin B', so that the head may vibrate laterally either way to an amount limited by a vertical pin C', which passes down through
95 the draw-bar and through slot C'' near the rear end of a rearwardly-projecting portion C of the head.

The means for locking the movable jaw D in the closed position consists of a block E,
100 which is disposed in a recess within the base of the stationary jaw D''. The general contour

of block E, Fig. 11, is circular, with a notch E' to receive the end of the shank D' of the movable jaw. Projecting from block E is a lug E'', and at one side of notch E' is a lug E'''.

5 Block E is pivotally mounted on pin F, which latter is shouldered at the lower part to contact the lower face of the block, so that when the pin is lifted block E is also lifted. Block E may be thus lifted up out of its seat
10 and into the upper portion of the recess above ledge G, which latter extends from the rear of the recess around to nearly the front, where it ends in a square abutment or shoulder at G, Figs. 8 and 12, against which lug E'' of
15 block E bears when the block is turned around to the locked position shown in Fig. 7.

The rearwardly-projecting portion C of head B is hollow and contains a spring-bolt H, Figs. 7 and 8, which bolt has a projection
20 in contact with the rear side of the shank of the movable jaw and serves for the purpose of opening the jaw when released by the movement of the locking-block E.

The main body of the draw-bar comprises
25 two portions I and I', Figs. 14 and 14^a, which in this instance are of a substantially U shape, and one is adapted to slide over the other, as is shown in Fig. 13. The front portion I is slotted, as at J, both above and below
30 near the rear end, and the rear portion I' is slotted at J' near the front end, above and below, so that when the two portions are in position, Fig. 13, these slots register, and the notched front follower-plates K and K', Fig.
35 15, may be placed in proper position by first inserting them down through the slots and afterward turning them one-fourth of a revolution, when they may be slid to the position shown in Fig. 13. The rear follower-plates
40 L and L', Fig. 16, may be slid into position in the rear portion I' of the draw-bar from either side thereof, and then the springs M and M' may be inserted.

The follower-plates K and K' have notches
45 in both edges near the ends, and the neck formed slidably fits the slots in the draw-bar, and these necks with the heads formed thereby at each end, together with the body of the plates, serve not only as followers for
50 the ends of the spring M, but also for the purpose of holding the two portions of the draw-bar in longitudinal alinement and in close sliding contact. All the follower-plates in this instance have a hole N therethrough,
55 and there is a similar hole through the rear ends of the portions of the draw-bar.

At O, Figs. 4 and 17, is a flanged head fitted to slide in the front portion of the draw-bar, and the front face of this head is beveled inwardly from both sides to form a depression
60 which conforms to the rear end of the projection C of head B, against which head O is held in yielding contact by pressure from the rear from front follower-plate K, which is actuated
65 by buffer-spring M, this arrangement of parts being for the primary purpose of holding head B yieldingly in center alinement with the

draw-bar by the action of the buffer-spring, for it is obvious that whenever head B is forced to vibrate out of center alinement
70 either way the contacting beveled faces at the rear of the projection C and the front of the head O will cause an inward movement of this projection from either lateral direction as soon as it is released from lateral pressure
75 applied at the jaws of head B.

Attached to the flanged sliding head O is a tail-rod P, which passes out rearwardly through the holes N in the follower-plates
80 and through holes in the ends of the portions I and I' of the draw-bar. Rod P also passes out through a cross-abutment Q' of the pocket-frame Q, Figs. 1 and 18, the projecting portion of this rod terminating in an eye P', to which may be attached one end of the ordi-
85 nary continuous draw-bar rod, which, as is well known, connects the draw-bars of the couplers at opposite ends of a car.

The manner of attaching head B to the draw-bar by means of the pivotal pin B' and
90 the stop-pin C' is an advantage in that although the pivotal pin B' may break or be withdrawn still there may be ample strength in stop-pin C' to prevent the extraction of the head from the draw-bar. Pin C', however,
95 is primarily intended for a stop, since on account of friction preventing the easy movement of head B it should not contact the sides of slot C'', except in case of the breaking or loss of pivotal pin B'.
100

The buffer-spring-pocket frame Q (shown in Figs. 1 and 18) is disposed between the draft-timbers of a car and is in all essential
105 particulars the same as adopted by the Master Car-Builders' Association, with the exception of the cross-abutment or partition Q', which serves the purpose of an abutment for the rear end of the draw-bar in this instance and as a brace or tie between the draft-timbers, as is hereinafter again referred to.
110

It must be particularly understood that I do not confine myself to the particular form of the front and rear portions I and I' of the draw-bar, as hereinbefore shown and described, since it is obvious that the front portion
115 may be larger than the rear portion, and the portions instead of forming a rectangular section may be of an oval or circular section and telescope one into the other without any change in the spirit of the invention.
120

In operation we will assume that the initial position of the movable jaw and its locking-block E and spring-opening bolt H is as shown in Fig. 8, where jaw D is shown open with the locking-block E in the lifted position, with
125 lug E resting upon ledge G. Also we will assume that the draw-bar and buffer-springs and other parts, except those last mentioned, are in the position shown in Figs. 1, 2, and 3, when, if this and an opposing coupler of this
130 type are coupled by the usual collision method, movable jaw D will be closed in engagement with the jaw of the opposing coupler, causing shank D' to swing inwardly, and the ex-

treme end thereof being in engagement with notch E' and lug E''' of locking-block E causes this block to revolve until lug E'' is turned around to the shoulder G' of ledge G, when the block, being unsupported, drops with lug E'' in engagement with shoulder G', Figs. 7 and 9, in which positions the end of the shank D', being still in engagement with notch E' of the locking-block E, is held in that position until the locking-block is lifted, as shown in Fig. 10, when spring-bolt H is operated by its spring and forces shank D outwardly, the end of the shank turning the locking-block E to the position shown in Figs. 8 and 10, with lug E'' resting on ledge G. In the meantime, should the collision between the two couplers be somewhat severe the pressure upon head B causes the front portion I of the draw-bar to slide into or over the surface of the rear portion I' and compress the buffer-springs M and M', as shown in Fig. 19. It will be understood that in this instance the rear follower-plate L' is engaged with the rear shoulders S and S' of the pocket-frame Q, and that the front follower-plate K' is in contact with the end of slots J' in the rear portion I' of the draw-bar, so that since the rear ends of the springs bear against the follower-plates L' and K' follower-plate K is in contact with the front end of slot J in the front portion I of the draw-bar and follower-plate L is in contact with the rear end of the front portion of the draw-bar. Both springs M and M' must be compressed by follower-plates K and L being forced to slide inwardly, with the rear end of the draw-bar in this instance in contact with the cross-abutment Q' of the pocket-frame Q, Fig. 1. After the couplers are engaged, if an unusual parting strain is imparted to the draw-bar, as in suddenly starting a train of cars, the buffer-springs M and M' are again compressed, but the action is caused by the movement of the follower-plates K' and L' instead of K and L, as last described, the withdrawn relative position of the several parts being illustrated in Fig. 20, where front follower-plate K is at the front end of slot J' of the rear portion of the draw-bar and follower-plate L is in position to be in contact with the front shoulders R and R' of the pocket-frame Q, Figs. 1 and 18. As before stated, the rear follower-plate L' is in contact with the rear shoulders S and S' of pocket-frame Q. At the same time the rear end of the draw-bar is in contact with the cross-abutment Q, Fig. 1, but it is obvious that when the special pocket-frame Q is used with the cross-abutment Q' no rear follower-plate L' is necessary, since spring M may bear directly against the inside rear face of the end of the draw-bar and since the rear of the draw-bar in this instance is normally in contact with the cross-abutment Q'. This abutment serves the same purpose as the rear shoulders S and S'. Therefore a rear follower-plate, as L', is shown in position simply for the purpose of illustrating that this draw-bar with

the buffer-springs and follower-plates are standard as to their adaptation to cars already built on plans adopted by the Master Car Builders' Association and are therefore interchangeable with any other standard type having the standard buffer-spring pockets between the draft-timbers of an ordinary car.

I claim as my invention—

1. In a twin-jaw or vertical type of car-coupler, the jaw-head pivotally mounted and adapted to vibrate laterally, the jaw-head with a rearwardly-projecting portion laterally movable within the draw-bar, a transverse slot near the rear end of the projecting portion and a pin disposed vertically through the draw-bar and through the slot, which latter is longer than the diameter of the pin, as and for the purpose specified.

2. In a twin-jaw or vertical type of car-coupler, the jaw-head pivotally mounted at the outer end of the draw-bar and adapted to vibrate laterally, the jaw-head having a rearwardly-projecting portion which terminates in two faces which subtend an angle to the sides of the projection and meet at the center thereof and project at an obtuse angle, a block slidably mounted in the draw-bar and held in yielding contact with and operating on the said faces by the pressure of the front buffer-spring, whereby the jaw-head is yieldingly held in center line, and returned to center line on being released from lateral pressure, in the manner as and for the purpose specified.

3. In a twin-jaw or vertical type of car-coupler, the main body of the draw-bar comprising two U-shaped portions adapted to telescope one over the other, with the open end of each disposed in the same direction, and the jaw-head attached to the open end of one of the portions, substantially as described.

4. In a twin-jaw or vertical type of car-coupler, the main body of the draw-bar comprising two U-shaped portions adapted to telescope one over the other, with the open end of each disposed in the same direction, slots in two opposite sides near the closed end of one portion, which slots register with other slots in the overlapping open end of the opposite portion, and means within and between the slots for connecting the two overlapping portions of the body of the draw-bar, substantially as shown and described.

5. In a car-coupler having a draw-bar comprising sections adapted to telescope or slide longitudinally one section over another, longitudinal slots in the contacting lengths of the sections, which slots register, transverse follower-plates having the ends thereof slidably mounted in the slots, and springs mounted in the draw-bar between said follower-plates, for the purpose stated.

6. In a car-coupler, a draw-bar comprising sections adapted to telescope or slide longitudinally one over another, slots at the opposite sides of the draw-bar through the overlapping portions of each section which regis-

ter, follower-plates slidingly mounted in the slots in contact with the ends of the slots, and a buffer-spring mounted between the follower-plates and adapted to yieldingly hold the plates at the ends of the slots, and the sections of the draw-bar substantially midway between the contracted and extended positions of the sections, substantially as stated.

7. The combination in a car-coupler having a draw-bar comprising sections adapted to telescope or slide longitudinally one over another, longitudinal slots in the contacting or overlapping portions on opposite sides thereof and which register, follower-plates slidingly mounted in the slots transversely of the draw-bar and in contact with the ends of the slots, and a buffer-spring mounted between the follower-plates, of other follower-plates mounted across within the draw-bar between the inner ends of the sections thereof, a buffer-spring between the follower-plates, which latter project laterally from the draw-bar and engage shoulders on the draft-timbers of the car, and serve in the manner and for the purpose stated.

8. In a car-coupling, the combination with the draw-bar thereof, of the block O slidingly

fitted thereto, and yieldingly held in a forward position by the buffer-springs, and a rod P attached at one end to the block and disposed axially in the draw-bar to slide there-through and project at the rear end thereof, for the purpose stated.

9. The combination in a twin-jaw or vertical type of car-coupler having the main body of the draw-bar comprising two U-shaped portions adapted to telescope one over the other, with the open end of each disposed in the same direction, slots in two opposite sides near the closed end of one portion which register with slots in the overlapping open ends of the opposite portion, of follower-plates having the ends thereof engaged in the slots and adapted to hold the two portions in alinement, and to receive a buffer-spring between them, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand, this 14th day of January, 1896, in the presence of witnesses.

JOHN RAWLES.

Witnesses:

J. L. TURNER,
ALX. A. HENDERSON.