No. 672,968. Patented Apr. 30, 1901.

C. E. TENCH.

CAR COUPLING.

(Application filed Aug. 31, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

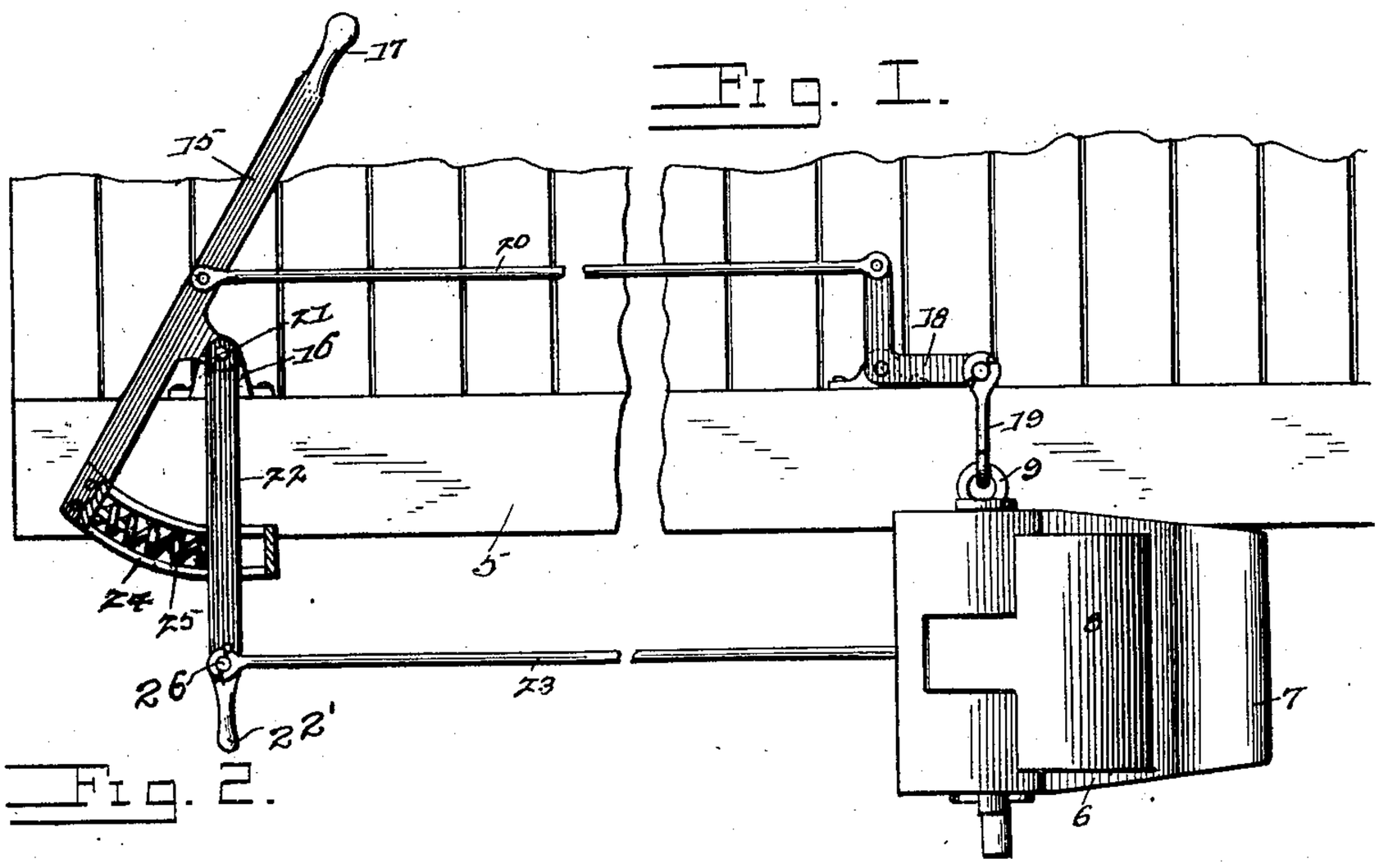

Fig. 2.

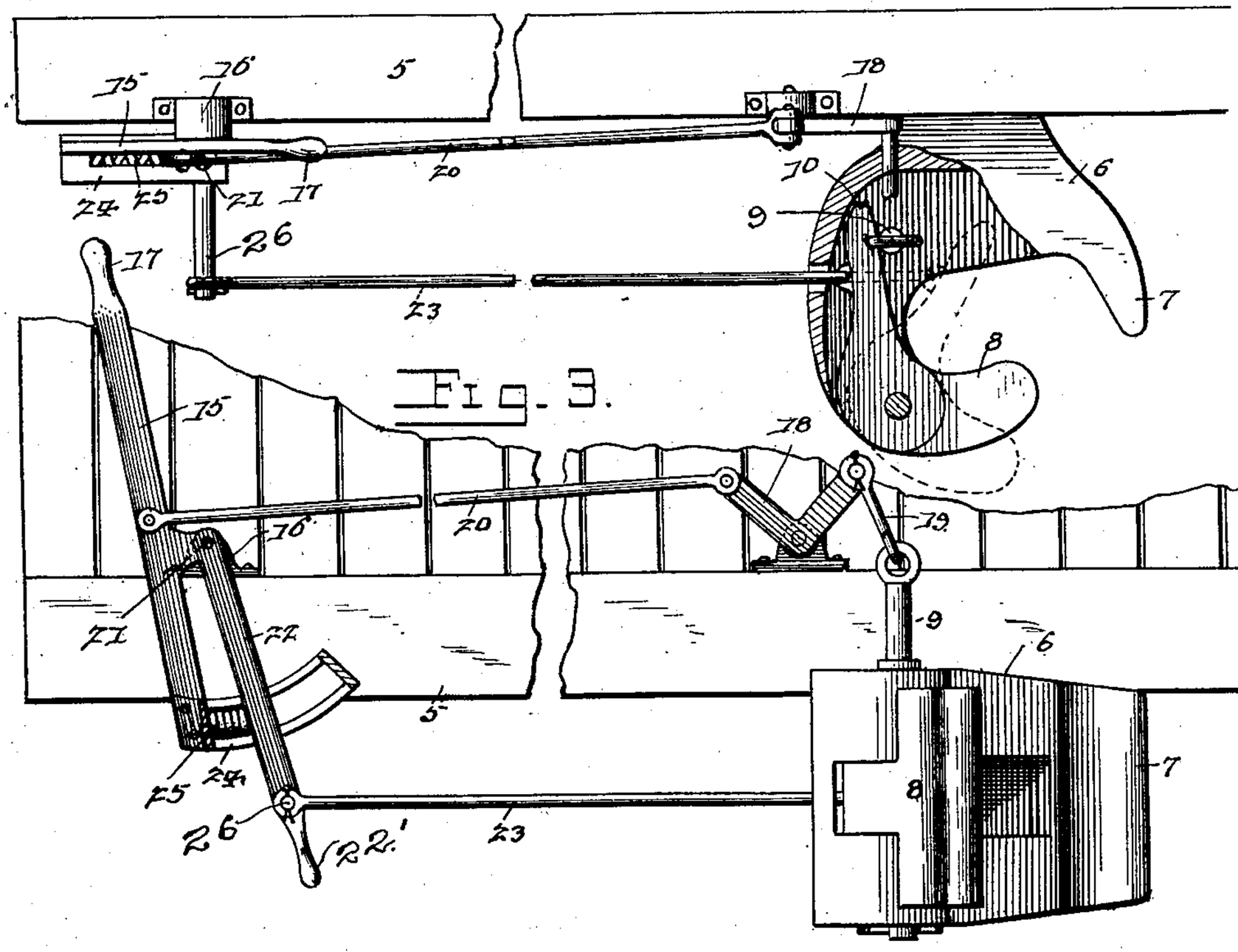

Fig. 3.

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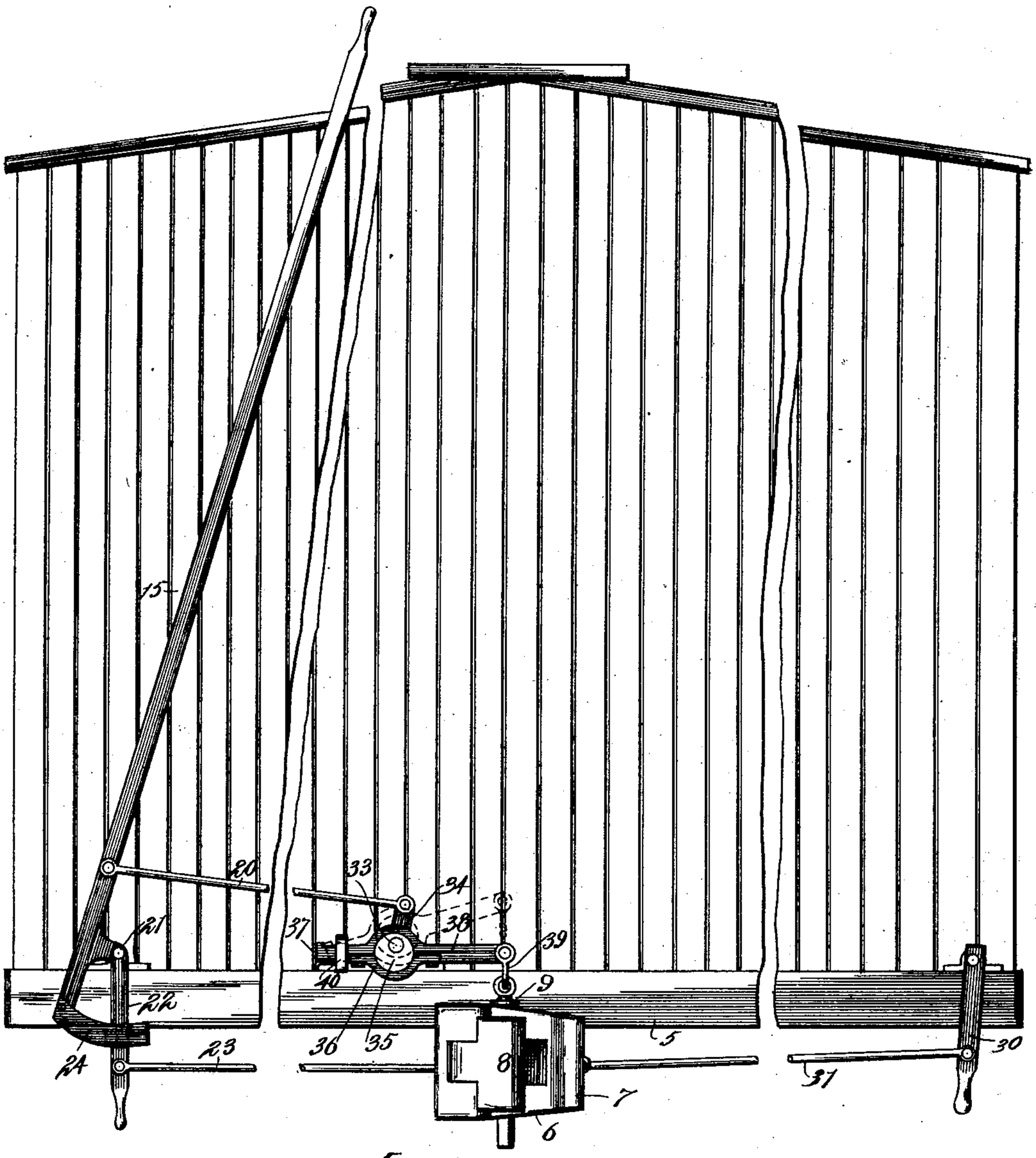

Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES E. TENCH, OF PETERSBURG, VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 672,968, dated April 30, 1901.

Application filed August 31, 1900. Serial No. 28,667. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. TENCH, a citizen of the United States, residing at Petersburg, in the county of Dinwiddie and State of Virginia, have invented a new and useful Car-Coupler, of which the following is a specification.

This invention relates to car-couplers in general, and more particularly to the Janney type of coupler; and it has specific reference to means for operating the knuckle and locking-pin from a distance, one object of the invention being to provide a construction wherein the pin will be first disengaged, this action having the effect of accumulating energy for the operation of the knuckle as soon as released by the pin, further objects and advantages of the device being evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is an elevation showing the positions of the parts with the coupler in the closed position. Fig. 2 is a plan view of the mechanism with the parts in closed position, a portion of the coupler being broken away to show the interior mechanism thereof. Fig. 3 is an elevation similar to Fig. 1 and showing the positions of the parts when the pin is withdrawn and the spring is compressed ready to move the knuckle. Fig. 4 is a front elevation of a car partly broken away and showing a modification of the invention as applied thereto.

Referring now to the drawings, 5 represents the front sill of a car, below which the coupler is disposed, and which coupler is carried by the usual draw-bar extending beneath the car. The coupler proper comprises the usual head 6, having the fixed finger 7 and the pivoted finger or knuckle 8, and which latter is adapted to be held in its locked position by means of a locking-pin 9, of usual construction, which is passed downwardly into the coupling-head and into the path of movement of the rear end 10 of the knuckle. When this pin is raised to a suitable extent, the knuckle may be swung to uncouple. In order to raise the pin and subsequently swing the knuckle with a single movement by the operator, a lever 15 is provided, and this lever is fulcrumed upon an ear 16, carried by the sill 5, as shown, said lever extending above and below the sill and having a handle 17 at its upper end. A bell-crank lever 18 is pivoted upon the sill 5 above the coupler-head and has a link 19, connecting it with the locking-pin 9. A connecting-rod 20 connects the opposite end of the bell-crank lever with the lever 15 at a point above its fulcrum, so that when said lever 15 is rocked with its handle away from the coupler the bell-crank lever will be rocked to raise the locking-pin and permit the knuckle to be swung outwardly.

On the pivot 21, which forms the fulcrum of lever 15, there is pivoted a link 22, and the lower end of this link is connected with the knuckle 8 by means of a rod 23. An arc-shaped frame 24 is carried by the lower end of the lever 15 and extends in the direction of the coupler-head, and through this frame, which is longitudinally slotted, is passed the link 22, said link being limited in pivotal movement in one direction by the end of the frame in the direction of the coupler, while between the opposite end of the frame and the side of the link there is disposed a helical spring 25, which tends to hold the link at said limit of movement.

The operation of this mechanism is as follows: The parts being in the positions shown in Fig. 1 of the drawings, the coupler is closed. If the lever be then swung to the left, the pin 9 is raised and the movement of the lower end of the lever compresses the helical spring 25 until the pin is raised from engagement with the knuckle, at which time the knuckle is released and moves under the influence of the spring and through the medium of the connecting-rod 23 to open the coupler. The lower end of the link 22 has an outwardly-extending arm 26, with which the rod 23 is directly connected.

To provide for shifting the draw-bar with the coupler-head when the latter is displaced laterally to such an extent as to prevent coupling, the lower end of the link 22 has a handle 22′ formed thereon. The link may be thus shifted independently of the lever 15 for the purpose described, motion being conveyed from the link to the coupler-head through the medium of the rod 23.

In Fig. 4 of the drawings there is shown a

modification of the invention wherein the lever 15 is extended above the top of a freight-car to permit operation thereof from the top of the car, and in this construction also a second hand-lever 30 is fulcrumed upon the beam 5 at the opposite side of the coupler from lever 15, this lever having a rod 31 connected therewith and which is also connected with the coupler-head, so that said head may be shifted laterally from that side of the car.

In the construction shown in Fig. 4 the bell-crank lever is omitted, and in substitution thereof a crank-shaft 33 is mounted upon the beam 5, the crank 34 thereof being connected with the lever 15 by means of the rod 20. Upon the crank-shaft 33 is mounted fixedly an eccentric 35, on which is disposed a strap 36. At opposite sides of the strap project arms 37 and 38, the arm 38 having a link connection 39 with the latch-pin 9, while the arm 37 is slidably mounted in a guide-strap 40, fixed to the beam 5, on the upper face thereof. Thus when the crank-shaft is rotated the eccentric is moved and tends to raise the arms and move them forwardly. The arm 37, however, has only sliding movement, and hence arm 38 is tilted upwardly and arm 37 slides sufficiently to permit the outer end of arm 38 to move in a vertical direction and lift the latch-pin with a vertical pull. Cramping of the latch-pin is thus prevented.

What is claimed is—

1. The combination with a coupler comprising a pivoted knuckle and a locking-pin for movement into and out of engagement therewith, of a pivoted lever having connection at one side of its fulcrum with the pin for moving it to release the knuckle, a pivoted link connected with the knuckle, and a spring disposed between the link and the lever and adapted for compression as the lever is operated to lift the pin, whereby said spring may operate the knuckle when released by the pin.

2. The combination with a coupler comprising a pivoted member and a locking-pin therefor, of a pivoted lever connected at one side of its fulcrum with the pin for operating it, a frame carried by the lever at the opposite side of its fulcrum and inclosing a spring bearing at one end against the lever, and a pivoted link passed through the frame and in contact with the opposite end of the spring, said link having connection with the knuckle to operate it under the influence of the spring, when released by the pin.

3. The combination with a coupler comprising a pivoted member and a locking-pin therefor, of a pivoted lever, a second lever operatively connected with the first lever at one side of its fulcrum, connections with the second lever and the pin for operating the latter to release the pivoted member, a frame carried by the first lever and inclosing a helical spring bearing at one end against the lever, a link pivotally mounted and passed through the frame in contact with the opposite end of the spring, and connections between the link and pivoted member for operating the latter.

4. The combination with a coupler comprising a pivoted member and a locking-pin therefor adapted for longitudinal movement into and out of operative position, of an oscillatory eccentric, a strap upon the eccentric and having radiating arms, one of which extends over the pin, connections between said arm and the pin, a guide in which the opposite arm is slidably received and in which it is confined against vertical movement, and means for oscillating the eccentric.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. TENCH.

Witnesses:
P. M. STEWARD,
J. V. B. ASHTON.