

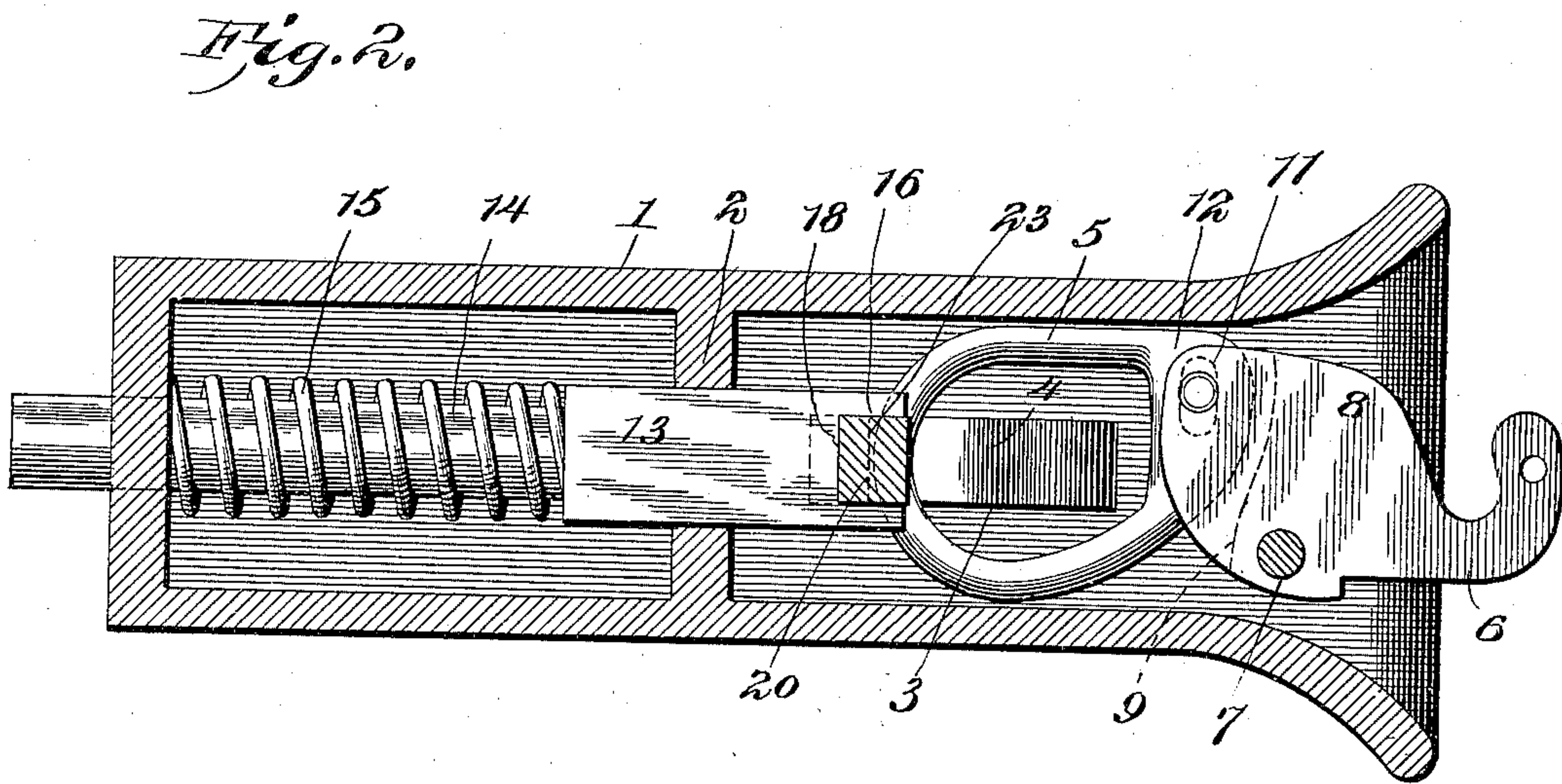
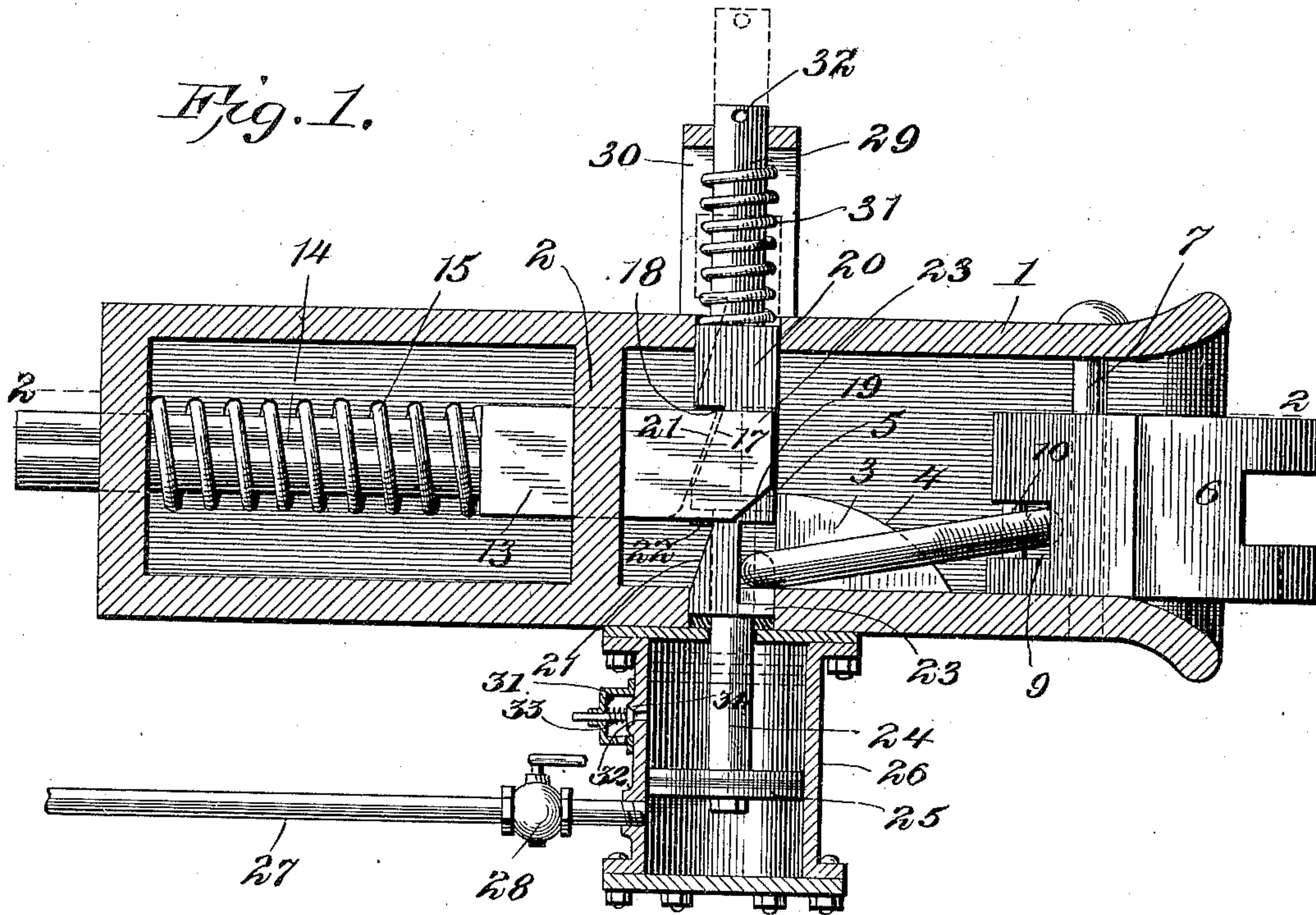
No. 656,736.

Patented Aug. 28, 1900.

W. E. ALEXANDER.
CAR COUPLING.

(Application filed Nov. 29, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM E. ALEXANDER, OF LANGSTON, LOUISIANA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 656,736, dated August 28, 1900.

Application filed November 29, 1899. Serial No. 738,715. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. ALEXANDER, a citizen of the United States, residing at Langston, in the parish of Claiborne and State of Louisiana, have invented a new and useful Car-Coupler, of which the following is a specification.

This invention relates to car-couplers, and the object of the same is to produce a device of this character capable of an automatic coupling and uncoupling operation and overcome the necessity of the passage between approaching cars of trainmen or other operatives, and thereby avoid accidents, and wherein are combined the principle features of a knuckle-and-link coupler controlled as to the uncoupling operation by air-pressure acting on a locking device and controllable from an engine or locomotive similarly to the ordinary air-brakes.

Other objects and advantages will hereinafter appear, and with the same in view the invention consists in the construction and arrangement of the several parts, which will be more fully set forth in the subjoined description and the novelty pointed out in the claims.

In the drawings, Figure 1 is a longitudinal vertical section of a coupler embodying the features of the invention. Fig. 2 is a horizontal section of the same.

Similar numerals of reference are employed to indicate corresponding parts in the views.

The numeral 1 designates the draw-head, which is approximately of the ordinary form of such devices and has an intermediate vertical partition 2. Near the front open end of the said draw-head and projecting upwardly from the center of the base thereof is a guide 3, having a downwardly and forwardly curved inclined edge 4 and a rear straight end 5 to provide a locking-shoulder, as will presently appear. The width of the guide 3 is such that the link 5, cooperating therewith, will be permitted to drop thereover in the operation of coupling and be also easily disconnected in the uncoupling operation. Within the front portion of the draw-head and projecting beyond the same is a knuckle 6, constructed similarly to devices of this class and pivotally held in the draw-head by a knuckle-pin 7. The inner or rear end of the knuckle-arm 8 is transversely slotted, as at 9, and extend-

ing across the said slot in a vertical direction is a coupling-pin 10, which also passes through an elongated slot 11 in the forward reduced end 12 of the link 5, as clearly shown in dotted lines in Fig. 2. The front reduced end 12 of the link 5 is broadened to give it a positive bearing in the slot 9, and the latter is large enough in all directions to prevent binding or cramping of the front end of the link therein and also to permit said link to have gravitating movement. The coupling-pin 10 extends through the inner corner of the arm 8 of the knuckle at a distance from the location of the knuckle-pin 7 to give it such eccentricity as to produce a practical operation of the knuckle and link in the automatic operations of coupling and uncoupling.

Within the partition 2 a keeper 13 is slidably mounted and is of angular contour in cross-section to cause it to at all times retain a predetermined position, and extending rearwardly from and forming a part of the keeper is a cylindrical shank 14, which projects through the rear end of the draw-head and is of less diameter than the front angular end of said keeper. Between this front angular end of the keeper and the rear end of the draw-head a helical spring 15 is located and surrounds the shank 14, the said spring operating to normally project the front angular end of the keeper toward the front of the draw-head. The front end of the keeper is bifurcated, as at 16, the rear wall of the bifurcation being formed at a downward and rearward inclination, as at 17, to provide an upper engaging shoulder 18. The parts of the front of the keeper on opposite sides of the bifurcation therein are cut under at a bevel, as at 19, to more readily and quickly clear the space behind the guide 3.

Just in rear of the guide 4 and movable through the bifurcation 16 of the keeper 13 is a slidable latch-bar 20, having notches 21 in the rear edge formed with upper shoulders 22 in planes parallel with the upper and lower walls of the draw-head, and the front directly opposite the lower notches is also formed with a seat-recess 23. To the lower end of the latch-bar and movable through the lower or base wall of the draw-head a twisting-rod 24 is connected and has thereon a piston 25, working in a vertically-disposed

cylinder 26, fastened to the under side of the draw-head and having communicating therewith at a predetermined level an air-pipe 27, adapted to run from the air-brake system or
 5 other source of air-pressure supply, and having therein a controlling-valve 28 of any preferred form and intended to be operated to cut out the coupler from pneumatic control. The couplers when applied will all be independent in this particular, or through the
 10 medium of the valve 28 in each instance may have the air-pressure shut off to accommodate various contingencies. To the upper end of the latch-bar 20 a stem 29 is also secured and
 15 freely movable through and having bearing in a transversely-arranged bracket 30. Surrounding the stem 29 is a helical spring 31, which is adapted to be brought into contact at one end with the bracket 30 to counteract
 20 against the upward throw of the latch-bar by the air-pressure on the piston 25 in the uncoupling operation and prevent injury to said latch-bar, and also to afterward cause the same to be disposed in a regular open position or to bring the seat-recess 23 in clear
 25 receptive position behind the upper part of the guide 3. The upper terminal of the stem 29 also has an opening 32 therethrough to afford convenient means for attaching operating devices in the event that the air apparatus fails to work or from other causes offering an obstruction to the automatic operation of said latch-bar.

In operation the latch-bar 20 normally
 35 stands open or so that the recess 23 will be clear just above and in rear of the guide 3, and the link 5 will be drawn down over the guide 3 to the front when the knuckle is thrown back by the operation, for instance,
 40 of a companion knuckle clearing itself therefrom. As the said knuckle is thrown out, the link 5 is drawn forwardly, owing to the eccentric position of the coupling-pin 10; but this forward movement of the link is gradual
 45 by reason of the movement of the pin 10 in the slot 11. When the coupler is in this open condition, the piston 25, together with the parts above connected thereto, will be held elevated by the charge of air beneath the
 50 same and the arm 8 of the knuckle 6 will stand exposed across the mouth of the draw-head. The keeper 13 will prevent the ratchet-bar 20 from dropping after the air beneath the piston is released, and the parts thereof
 55 on opposite sides of the bifurcation 16 will embrace and close the opposite-end terminals of the recess 23. The shoulder 22 of the upper notch 21 of the latch-bar will rest on the shoulder 18 of the keeper. The upper
 60 notch 21 will when the latch-bar 20 is raised be elevated above the plane of the keeper 13 and the lower notch will be disposed in opposite relation to said keeper. In the coupling operation the companion knuckle has its
 65 similar portion interlocked with that which it meets in the opposite coupler, and as the couplers come together the front projection

of the one knuckle strikes the arm 8 of the other and turns the knuckle inwardly on its pin 7, at the same time gradually forcing the
 70 link rearwardly and upwardly over the edge 4 of the guide 3 and forcing the rear end of said link against the front extremity of the keeper 13, moving the latter rearwardly and allowing the rear end of said link to enter the
 75 seat-recess 23 and simultaneously release the shoulder 22 from the shoulder 18 and permit the latch-bar 20 to move downward, carrying the rear end of the link therewith and disposing it over and behind the guide 3 and
 80 become locked and hold the knuckles in firm coupling relation. As soon as the link end comes opposite the under cut-away portions of the keeper the latter is shot forwardly again and soon enough to have the shoulder
 85 18 thereof take under the shoulder 22 of the upper notch 21. It will be observed in the uncoupling operation that as soon as the shoulder 22 of the notch 21 rests on the shoulder 18 of the keeper the charge of air beneath the piston 25 can be exhausted by any
 90 well-known means and be under the control of the engineer. The precise arrangement of this air-controlling apparatus is not at this time essential, and many forms could
 95 be adopted which are now well known in the art of air-pressure apparatus.

It will be observed in the foregoing description that a very positive coupler is provided having therein the essential features of both
 100 a link-and-knuckle coupler with the additional attachments for pneumatically uncoupling the said devices. Under proper control a car or a number of cars may be separated from a train when desired, and this
 105 capability of the coupler will make it especially useful in freight service. The coupler is adapted for general uses, however, and to accommodate various applications of the same changes in the form, proportions, and
 110 minor details can be resorted to without in the least departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. In a car-coupler, the combination of a draw-head, a knuckle pivotally mounted therein, a link movably connected to the knuckle, a shoulder for engagement with the link, a latch-bar adapted to be operated in one direction by air-pressure, and a keeper cooperating with the latch-bar.

2. In a car-coupler, the combination of a draw-head having a shoulder therein, a knuckle pivotally mounted in the draw-head, a link movably connected to the knuckle and adapted to engage the said shoulder and means for locking and releasing the link.

3. In a car-coupler, the combination of a draw-head having a projection therein, a knuckle pivotally mounted in the draw-head, a link loosely connected to the knuckle and adapted to engage the said projection, a vertically-movable latch-bar under pneumatic

control for locking and releasing the link, a keeper moving in a plane at right angles to the latch-bar and coöperating therewith to release the link and means for controlling the said latch-bar and keeper.

4. In a car-coupler, the combination of a draw-head having a projection therein, a knuckle pivotally mounted and freely movable in the draw-head, a horizontally-disposed link, having its front extremity loosely connected to and mounted in a portion of the rear end of the knuckle, and adapted to removably engage the projection in the draw-head, means for automatically moving the link downwardly over said projection, and power means for elevating the link above said projection.

5. In a car-coupler, the combination of a draw-head having a projection therein, a knuckle pivotally mounted in the draw-head, a link loosely connected to the rear of the knuckle and adapted to engage the said projection, a vertically-movable latch-bar for

controlling the release and securement of the link, said latch-bar having a piston connected to the lower end thereof, a spring bearing upon the upper part of the latch-bar and a cylinder in which the said piston operates.

6. In a car-coupler, the combination of a draw-head having a projection therein, a knuckle pivotally mounted in the draw-head, a link movably connected to the knuckle and adapted to engage the said projection, a vertically-movable latch-bar having a seat-recess in the front and notches in the rear, a keeper having a front bifurcated end adapted to coöperate with said latch-bar, and means for operating the said latch-bar.

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

WILLIAM E. ALEXANDER.

Witnesses:

J. D. SMITH,

D. D. NUCKOLLS.