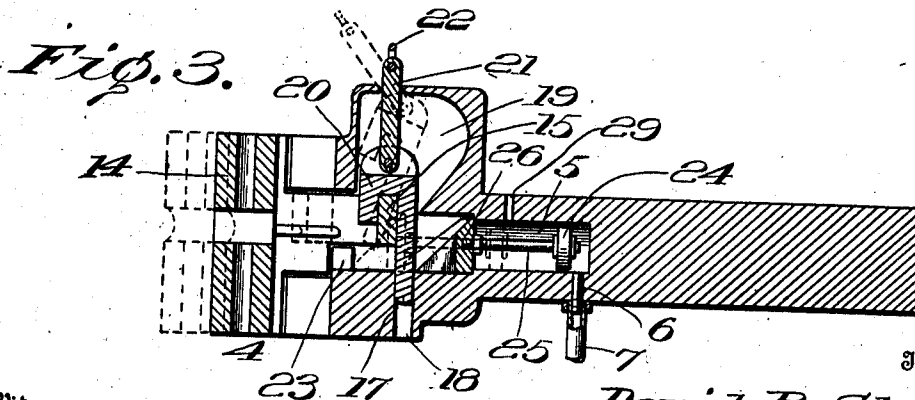
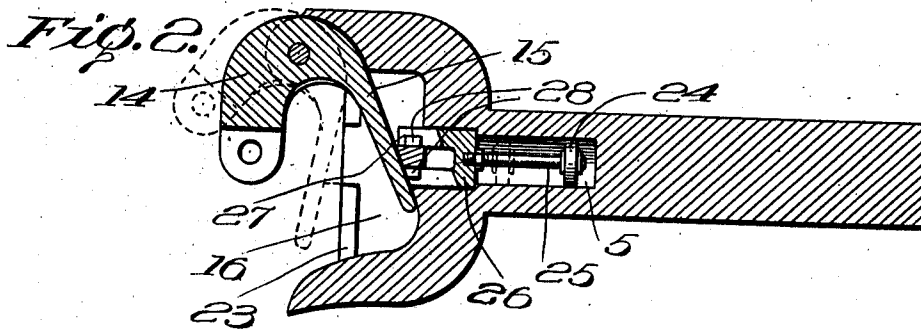
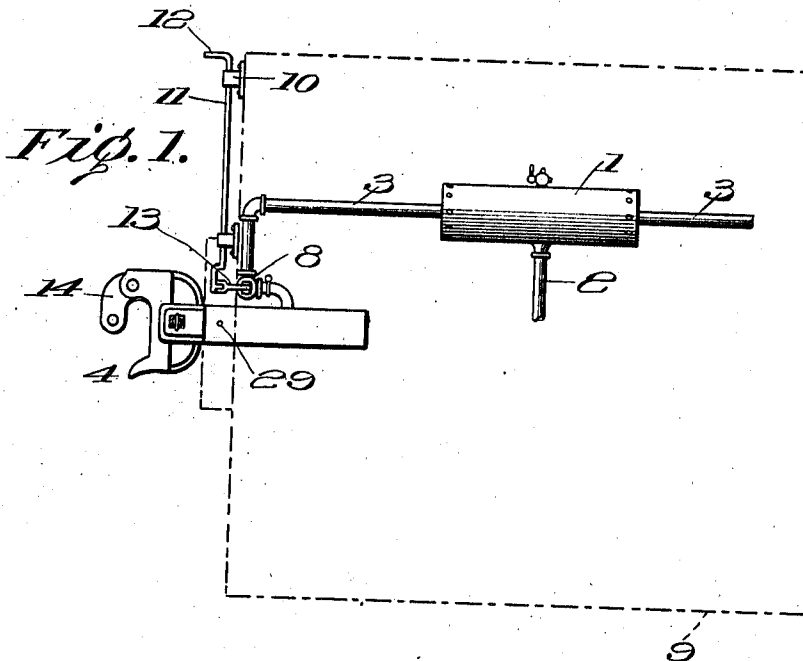


D. B. STANLEY.
PNEUMATIC COUPLING.
APPLICATION FILED OCT. 28, 1908.

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Patented Dec. 6, 1910.



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UNITED STATES PATENT OFFICE.

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PNEUMATIC COUPLING.

978,071.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID B. STANLEY, a citizen of the United States, residing at Maine Prairie, in the county of Stearns and State of Minnesota, have invented new and useful Improvements in Pneumatic Couplers, of which the following is a specification.

This invention relates to improvements in car couplings of the Janney type, and the main object of the invention is to provide a coupler of this character adapted to be operated by air pressure, the said air pressure being derived from the pneumatic system applied to the cars for operating the brakes.

With the above and other objects in view which will appear as the invention progresses, the invention resides in providing the draw bar of the coupling with a suitable bore having a communication with an air inlet pipe and being provided with a piston to which is secured a wedge shaped member, the piston being adapted to force the wedge shaped member into engagement with suitable ears provided upon a locking pin to disengage the same from the tail of the knuckle and also swing the knuckle open, the air exhausting through a suitable port, and the knuckle being in a position to receive the knuckle of the coacting coupling whereby the jaw of the knuckle will be forced rearwardly upon its pivot and the locking pin automatically swung into engagement with the tail to securely lock the same.

In the accompanying drawing there has been shown a simple and preferred embodiment of the invention, but it is to be understood that alterations within the scope of the appended claims may be resorted to if desired.

In the drawing, Figure 1 is a top plan view of a coupler constructed in accordance with the present invention, illustrating its connection with the air cylinder and the method of controlling the entrance of air to the coupler, the body of the car being indicated by the dotted lines, Fig. 2 is a central horizontal sectional view of the coupling, Fig. 3 is a vertical longitudinal sectional view of the coupler.

In the accompanying drawing the numeral 1 designates an auxiliary air receptacle connected through the medium of a pipe 2 with the main brake operating air system of the train, not shown. The auxiliary tank or reservoir 1 is provided with oppositely ex-

tending pipes 3, adapted to communicate with the couplers 4 at each end of the car. The draw bar of the coupler 4 is provided with a suitable bore 5 communicating with the central open portion of the head of the coupler and being provided adjacent its rear transverse wall with a suitable nipple 6 connecting a flexible pipe 7 with a suitable valve 8 secured to the pipe 3 and communicating with the reservoir 1. The car body 9, indicated by the dotted lines illustrated in Fig. 1 of the drawing is provided with suitable eyes or brackets 10 adapted for the reception of a valve operating rod 11 which has its outer end provided with a suitable offset or handle as indicated by the numeral 12 and having its inner end connected with a link 13 which is secured to the valve 8.

The coupler 4 is provided with the usual knuckle 14 pivoted in the usual manner between the bifurcated extending portions of the body of the coupler. The reduced tail portion 15 of the knuckle 14 is adapted to extend within the open mouth 16 of the body of the coupler when in locked position as illustrated in the full lines of the drawing, and is adapted to be retained in such locked position through the medium of a locking pin 17 working within a suitable slot 18 within the lower portion of the head and having its upper portion provided with an L-shaped extension or offset which is adapted to engage and retain the tail of the knuckle in locked position. The body portion of the coupling is also provided with a suitable chamber 19 which, when the locking pin is forced upwardly and its L-shaped offset portion 20 away from the tail 15 of the knuckle 14, in a manner hereinafter to be described, will provide a suitable receptacle for the upper portion of the said locking pin. The upper portion of the locking pin 17 is provided with a suitable ear to which is pivotally connected a link 21, and the upper wall of the receptacle 19 is also provided with a suitable opening through which the upper portion of said link extends. The link 21 is provided with a suitable eye 22 to which may be attached a suitable flexible element by which the locking pin may be operated manually when desired.

By reference to Fig. 3 of the drawing, it will be noted from the dotted lines illustrating the position of the locking pin 17 when released from the tail 15 of the knuckle that the space between the top wall of the cham-

ber 19 and the lower wall or floor of the knuckle is less than the length of the locking pin 17, so that when this pin is positioned as represented by the dotted lines it will be inclined at a slight angle, the lower portion of the pin resting against a projection 23 formed across the open mouth of the coupler. It will be also noted, by reference to the said Fig. 3 that the rear lower wall of the recess or pocket 19 is in an approximately straight line with regard to the rear wall of the opening 18. By this arrangement, when the locking jaw of the knuckle is opened as indicated by the dotted lines of Figs. 2 and 3 of the drawing, it will be seen that the locking jaw of the coacting coupler will contact with the tail 15 of the knuckle and force the same rearwardly. When the tail 15 is swung a sufficient distance it will carry with it the locking pin 17 and position the same directly above the opening 18, thus allowing the L-shaped upper portion of the pin to slide by gravity into engagement with the tail of the knuckle.

Positioned within the bore 5 of the draw bar of the coupling, and normally adjacent the inlet nipple 6 is a suitable plunger 24 provided with a plunger rod 25 upon which is secured a head 26 having a bifurcated wedge shaped extending portion 27. The arms provided by the wedge shaped extension of the member 26 are adapted to have engaged between them the locking pin 17. The pin 17 is provided upon two of its opposite faces with extending portions 28, which are adapted to lie upon the inclined faces 27 of the member 26. The outer edge of the mouth of the coupling is also provided with suitable cut away portions provided in the lip 23 and adapted to serve as a guide for the inclined portions of the member 26.

The operation of the device is as follows: When it is desired to release the locking jaw or knuckle of the coupler, the valve 8 is operated through the medium of the rod 11 so as to allow compressed air to enter the bore 5 behind the piston 24, which is forced toward the open mouth of the coupler causing the locking pin 17, through the medium of the oppositely disposed extensions 28 normally resting upon the inclined faces of the member 26, to ride upwardly until the L-shaped extension of the locking member is disengaged from the tail 15 of the knuckle. As the wedge shaped member is forced still farther forward it will contact with the tail 15 causing the knuckle to be revolved upon this pivot and the locking jaw opened as clearly illustrated by the dotted lines in Fig. 3 of the drawing. When the piston 24 travels the limit of its scope the air contained within the bore 5 is exhausted through a suitable opening 29 provided by the draw head of the coupler. When the tail 15 is

contacted by the knuckle of the coacting coupler, the wedge shaped member carried by the piston 24 is forced rearwardly into its initial position and the locking pin will have its lower extremity positioned above and dropped within the opening 18 as previously described.

It is to be understood that immediately after the plunger 24 has passed the port 29, the operator will close the valve 8, he having, of course, observed the opening knuckle, and thus becoming aware that the operating device has performed its function. The air within the pipe 7 and bore 5 will have ample time to escape before the tail 15 of the knuckle 14 is contacted by the coacting knuckle, should a small amount of air remain within the bore 5 it will act as a cushion for the plunger 24.

Having thus fully described the invention what is claimed as new is:

1. In a device of the character described, a car coupler having a movable knuckle, a locking pin for the knuckle, an air reservoir, a connection between the reservoir and the coupler, and means actuated by the entrance of air to the coupler for raising the locking pin out of contact with the knuckle and to force the knuckle to swing outwardly from the mouth of the coupler.

2. In a device for the purpose set forth, the combination with a car coupler having a pivoted knuckle comprising a locking jaw and a tail portion, a locking pin having an L-shaped upper portion adapted to engage the tail of the knuckle to lock the same, a movable piston within the coupler, and means for admitting fluid within the coupler to operate the piston to raise the coupling pin out of engagement with the tail of the knuckle and to force the knuckle outwardly upon its pivot.

3. In a device of the character set forth, a car coupler provided with a pivoted knuckle having a locking jaw and a tail portion, said coupler being provided with a chamber at its upper portion, the top wall of the chamber being provided with an opening, a locking pin comprising a member having an L-shaped offset adapted to engage the tail of the knuckle, a link connected with the locking pin and extending through the opening provided by the chamber, offsets upon the locking pin, the draw bar of the coupler being provided with a bore communicating with the head of the coupler, a slidable piston within the bore, a wedge shaped member connected with the piston and adapted to lie beneath the offsets of the locking pin, and means for admitting fluid to slide the piston and to raise the locking pin out of engagement with the tail of the knuckle and to force the locking jaw of the knuckle outwardly away from the coupler.

4. The combination with coacting car cou-

plers, each provided with pivoted knuckles, an upwardly extending chamber upon one of the couplers having an inner inclined wall, the lower portion of the coupling being provided with an opening alining with the edge of the said inclined wall, a locking pin having an L-shaped offset portion adapted to engage with the tail of the knuckle and to be positioned within the opening, a link pivotally connected with the locking pin and projecting through the top of said coupler, the draw bar of the said coupling being provided with a bore having an outlet port, a piston provided with a piston rod within the bore, a wedge shaped bifurcated member connected with the piston, offsets provided upon the locking pin adapted to rest upon the inclined walls of the bifurcated member, means for admitting fluid within the bore to operate the piston to cause the wedge shaped member to raise the locking pin out

of contact with the tail of the knuckle and arrange said pin in the upwardly extending chamber along the inclined wall, and to force the knuckle outwardly upon its pivot, means for guiding the wedge shaped member in its movement, said means comprising in part a transverse rib positioned upon the lip of the lower portion of the mouth of the coupler, and means provided by the locking jaw of the coacting coupler for revolving the knuckle upon its pivot and causing the locking pin to drop by gravity to secure the knuckle of the first coupler in locked position.

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

DAVID B. STANLEY.

Witnesses:

E. PECK,

CLYDE R. STANDLEY.