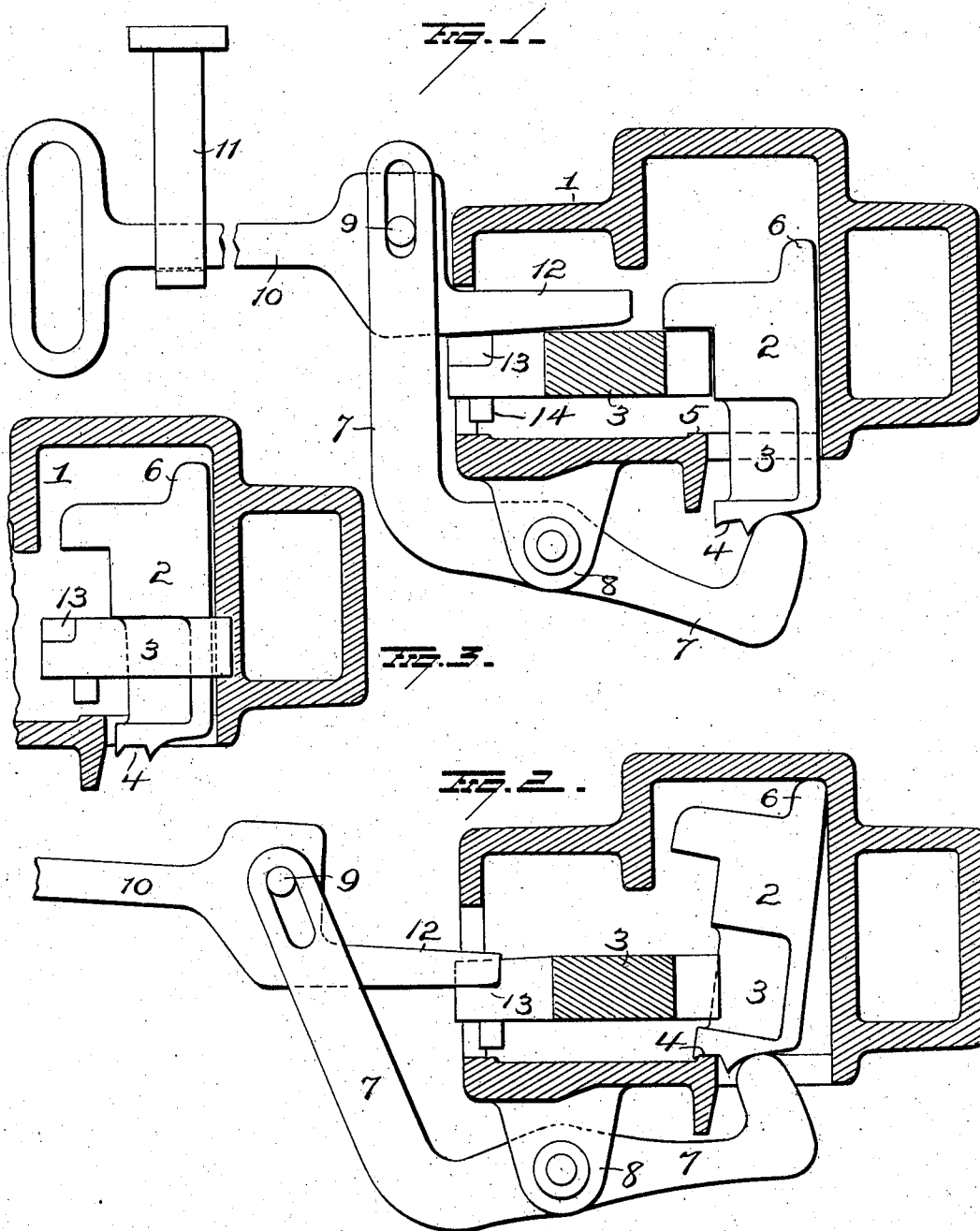


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PATENTED JUNE 19, 1906.

S. P. BUSH.  
AUTOMATIC CAR COUPLING.  
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WITNESSES  
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# UNITED STATES PATENT OFFICE.

SAMUEL P. BUSH, OF COLUMBUS, OHIO.

## AUTOMATIC CAR-COUPLING.

No. 823,990.

Specification of Letters Patent.

Patented June 19, 1906.

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*To all whom it may concern:*

Be it known that I, SAMUEL P. BUSH, a resident of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Automatic Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic car-couplers, and more particularly to that type of coupler known as the "Janney" vertical plane type, the object of the invention being to provide an improved construction of coupler and operating mechanism for locking, unlocking, lock-setting, and throwing the knuckle to an open position.

The usual means employed for operating a coupler of this type consists of a rod applied to one end of a car and extending from one or both corners to the central portion, with an arm located above the coupler. A chain or other connection is made from the end of this arm to the lock. It has been found from experience covering a great many years that the operating mechanism in this position is exposed in such a way that it is frequently damaged so as to make the coupler inoperative, which results in great inconvenience, loss of time, and more or less danger to railroad employees. It has also been found that if the operating mechanism is applied to the side or bottom portion of the coupler the liability to damage is very much less, for the reason that when cars come violently together and are broken and the lading shifts, that portion of the car above the floor and lading which naturally is on top of the floor slides and breaks through, coming in contact with this coupler-operating mechanism. It is obvious, therefore, that if the operating mechanism is placed at the side or underneath the liability to damage would at least be greatly reduced.

The invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in vertical cross-section through the draw-head of a coupler illustrating my improvements, showing the parts in locked position.

Fig. 2 is a similar view showing parts in lock-set position, and Fig. 3 is a similar view showing the parts in open position with locking-block supported on the knuckle-tail ready to fall to locked position when the knuckle is closed.

1 represents the draw-head of a coupler which constitutes the housing for the locking-block 2 and the rear portion or tail of the knuckle 3. The locking-block comprises a body portion 2 with a recess 3 below the same, cut out of the locking-block sufficiently to permit the knuckle-tail 3 to swing without engaging the lock when the latter is elevated, as shown in Fig. 2. The lower end of the locking-block has a lateral extension or foot 4, adapted when raised to a position for unlocking the knuckle to rest on a shelf 5 of the draw-head, as clearly shown in Fig. 2. On the upper end of the locking-block 2, at one edge, a projection 6 is located, and this projection 6 when the locking-block is elevated engages the top of the draw-head cavity and tilts the block so as to swing the lower end or foot 4 over the shelf 5 and rest thereon when released.

The locking-block 2 when in normal locked position, as shown in Fig. 1, rests with its body portion between the knuckle-tail 3 and the wall of the draw-head, securely holding the knuckle against pivotal movement. The lower end of the locking-block 2 when in this locked position extends through or rests in an opening in the bottom wall of the draw-head and in the path of the weighted end of a lever 7, fulcrumed between its ends in a bifurcate lug or bracket 8 on the draw-head. This lever 7 extends up at one side of the draw-head and has a pin-and-slot connection, as illustrated at 9, with a knuckle-opening bar 10, the latter mounted to slide in a suitable support 11 and provided with a tongue 12, projecting through an opening in the side of the draw-head and normally supported above the tail of the knuckle, as shown in Fig. 1, when the knuckle is closed, and the knuckle-tail is provided with a notch or recess 13 to receive the end of this tongue 12 when the latter is drawn outward, as will more fully hereinafter appear.

The operation of my improvements is as follows: The parts are shown in Fig. 1 in normal locked position. When the bar 10 is pulled toward the left, it draws with it the upper end of lever 7 and moves the lower

end of the lever 7 upward and lifts the lock 2 until the lug or projection 6 engages the top of the draw-head cavity, which causes the locking-block to tilt and move the lower end thereof or foot 4 over the shelf 5 and when released will rest on the shelf and support the lock in this or lock-set position. When in this position, the recess in the lock will be opposite the knuckle-tail, and the latter will be free to open. The tilting of the locking-block is also aided by the end of lever 7, which end, in engagement with the lock, moves up and also to the left in the arc of a circle and tends to carry the lower end of the lock over the shelf 5, and the bottom of the lock is somewhat inclined with relation to the contact between the same and lever 7, which further tends to swing this lower end of the lock over its supporting-shelf. The lock having been raised and the knuckle unlocked, the rear portion or tail of the knuckle is free to swing out through the undercut portion of the lock 2 without resistance; but of course it requires some power and means to move it out, and this is accomplished as follows: First, the bar 10 is pulled out, and with it the upper portion of the lever 7, and the tongue 12 of bar 10 within the head is also moved out, and as said bar approaches its furthest outward movement the bottom portion of the tongue 12 rides on the top surface of the knuckle-tail, both by reason of the gradually lowering of the pivot 9 swinging about the fulcrum of lever 7 and because the handle of the bar 10 is adapted when operating to be raised. When the bar has been pulled out to its furthestmost position, the end of the tongue falls down into the notch or depression 13 in the knuckle-tail. This is all accomplished by taking hold of the handle of the bar and giving it a straight pull, which is a very convenient and efficient means of operating, much more so than the arrangement now in general use. Now the end of the tongue 12 having fallen into this depression 13 in the knuckle-tail it is evident that if the motion of the bar is reversed and pushed back again the knuckle can readily be caused to swing into its open position. In doing so a projection 14 on the bottom of the knuckle-tail comes into contact with the foot 4, which has been raised on the shelf 5, and moves it off this shelf, and the top surface of the recessed portion of the lock rests then on the upper surface of the knuckle-tail, so that when the knuckle is moved toward its closed position in the act of coupling cars the lock will be retained in its upper position until the knuckle is fully closed, when it will drop off the end of the knuckle-tail and fall down to its normal position, as shown in Fig. 1. It is obvious that the throwing of the knuckle open by means of the tongue of the bar might be accomplished by suitable modifications. For in-

stance, the bar when pulled to its uppermost position instead of being immediately pushed back again to open the knuckle, as above described, might have a projection on the end of the tongue, so that when the bar is pulled to its outermost position it would then be turned or twisted so as to bring this projection in contact with some portion of the knuckle which would act as an abutment, and then the bar returning in the opposite direction would accomplish the same result. It will be observed that having once thrown the knuckle into its open position by returning the bar in the opposite direction from that required to unlock the coupler if the handle of the bar be dropped so that the outer end will fall or rest on the bottom of the support 11 the end of the tongue 12 will be raised out of the depression 13, so that in the operation of closing the knuckle the tail will not come violently in contact with the tongue 12 of the bar 10.

A great many changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a coupler, the combination with a draw-head, a swinging knuckle therein, and a lock, of a lever to move the lock to unlocked position, and a device constructed to move the lever to unlock the knuckle when the device is moved in one direction and to force the knuckle open when moved in the other direction.

2. In a coupler, the combination with a draw-head, a swinging knuckle therein, and a lock, of a lever outside the draw-head and constructed to move the lock to unlocking or lock-set position, and a bar constructed to operate the lever and also throw the knuckle open.

3. In a coupler, the combination with a draw-head, a swinging knuckle therein, and a lock, of a lever fulcrumed between its ends outside the draw-head and constructed to engage the lock to throw it to open or lock-set position, and a bar connected with the lever to operate the same, and projecting into the draw-head and constructed to engage the knuckle to throw it open.

4. In a coupler, the combination with a coupler draw-head, a swinging knuckle therein, and a locking-block in the head, of a lever fulcrumed between its ends to the outside of the draw-head and constructed to be moved through an opening in the bottom of the draw-head to lift the lock to its open or lock-set position, a bar having slot-and-pin con-

nection with the lever, and a tongue on the lever projecting into the draw-head and adapted to engage the knuckle to throw it open when the bar is moved longitudinally.

5 5. In a coupler, the combination with a draw-head, a swinging knuckle therein, and a locking-block in the draw-head, of means for moving the block to its open or lock-set position, and other means for operating the first-  
10 mentioned means and then directly engaging the knuckle to throw it open.

6. In a coupler, the combination with a draw-head, a swinging knuckle, and a locking-block in the draw-head, of a lever ful-  
15 crumed to the outside of the draw-head and adapted to engage the locking-block through an opening in the bottom of the draw-head to move the lock to its open or lock-set position, a bar having slot-and-pin connection with  
20 the lever, a tongue on the bar projecting into the draw-head and adapted when drawn outward to fall into a notch or recess in the knuc-

kle so that when the bar is forced inward it will throw the knuckle open.

7. In a coupler, the combination with a 25 draw-head, and a swinging knuckle, of a lock constructed to be set or retained in an unlocked position by means within the draw-head when raised to a given point, a lever pivotally secured to the draw-head and 30 adapted to lift the lock to an unlocked position, and an operating-bar attached to the lever and projecting into the draw-head, adapted to operate the lever to raise the lock when moved in one direction and to 35 move the knuckle to open position when moved in the reverse direction.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SAMUEL P. BUSH.

Witnesses:

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F. G. BENNETT.