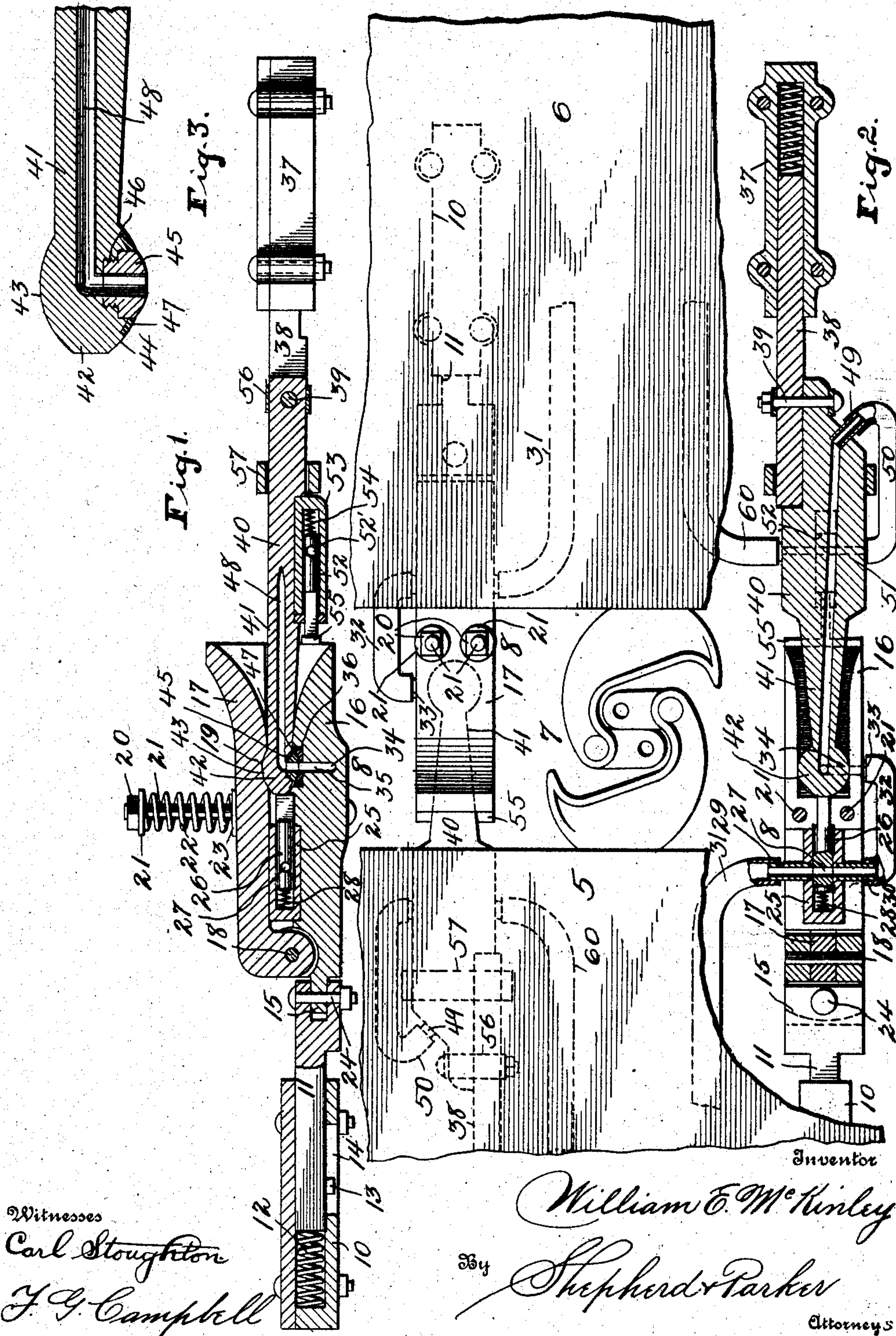


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W. E. McKINLEY.
AIR HOSE COUPLING FOR TRAIN LINES.

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Witnesses

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AIR-HOSE COUPLING FOR TRAIN-LINES.

No. 844,035.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM E. McKINLEY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Air-Hose Couplings for Train-Lines, of which the following is a specification.

My invention relates to an air-hose coupling for train-lines, and has for its object the provision of a device of this character constructed in such manner that an air-tight connection may be automatically made when two cars come together and also the provision of a coupling which will be disconnected when the cars are separated without the necessity of a brakeman entering between the cars.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings, Figure 1 is a longitudinal vertical section through the two members of a coupling constructed in accordance with the invention. Fig. 2 is a view illustrating portions of the ends of adjacent cars in plan view with the coupling members upon one side of the draw-bar of a car in horizontal section and with the coupling members upon the opposite side of said draw-bar in plan view, and Fig. 3 is a detail sectional view of a coupling-head hereinafter described.

Like numerals designate corresponding parts in all of the figures of the drawings.

Referring to the drawings, the numerals 5 and 6 designate the ends of adjacent cars, and 7 indicates the usual coupling members of the draw-bars of said cars. The air-hose coupling members hereinafter described are mounted upon each side of the draw-bar of the car. Since the coupling members in each case are exactly alike, the same reference-numerals will be applied to them. The coupling members upon each side of the draw-bars of the cars comprise a socket member 8, which is carried by one of the cars, and a member which is carried by the other of said cars, which is adapted to enter said socket member, as will be hereinafter set forth.

Secured beneath the car 5 upon one side of the draw-bar is a buffer-casing 10. The inner end of a bar 11 is slidably disposed in this buffer-casing, and a buffer-spring 12 bears

between the end of this bar and the end of the buffer-casing. A lug 13, which is carried by the bar 11, travels in a slot 14, formed in the bottom of the buffer-casing, and limits the movement of the bar 11 in both directions. The bar 11 is bifurcated at its outer end for the reception of an ear 15, which is carried by the socket member 8. This socket member comprises a bottom portion 16 and a cap portion 17, said cap portion being hinged to the bottom portion, as at 18. The ends of the portions 16 and 17 flare outwardly to form a bell-mouth for the socket member. The cap-piece 17 is recessed, as at 19, for a purpose which will be hereinafter set forth. Bolts 21 extend through the bottom portion 16 and the cap portion 17 of the socket member and have nuts 20 threaded upon their upper ends. These nuts bear upon washers 21', and coiled springs 22 bear between these washers and washers 23, which in turn bear upon the cap portion 17. It will therefore be seen that the cap portion 17 is held down under the tension of the springs 22. A bolt 24 pivots the ear 15 in the bifurcated end of the bar 11, by virtue of which construction the socket member is capable of a limited horizontal swing with relation to said bar. A valve-casing 25 is carried by the bottom portion 16 of the socket member, and a valve 26, having an opening 27 formed therethrough, is arranged in this valve-casing. A spring 28 tends to force this valve outwardly. Nipples 29 and 30 conduct air to or from the valve, pipes 31 and 32 communicating with said nipples. The pipe 32 leads from the nipple 30 to a nipple 33, said nipple 33 in turn communicating with a port 34, which extends transversely of the bottom portion 16 of the socket member and then extends vertically through said socket member, as at 35, to a seat formed by a gasket 36.

A buffer substantially like that already described and indicated at 37 is secured beneath the car 6. A bar 38, which corresponds with the bar 11, is slidably disposed in said buffer. Pivoted for a limited vertical movement to this bar upon a bolt 39 is a member 40, having an elongated tapering neck 41, which terminates in a head 42. This head has a rounded upper face 43 and a rounded lower face 44. A hardened block 45 is threaded into this head, as at 46, and is surrounded by a rubber gasket 47. A port

48 is formed through the neck and through the block 45 and leads to a nipple 49. This nipple communicates, through a pipe 50, with a port 51, which extends transversely of the member 40 and the flow of air through which is controlled by a valve 52. This valve is mounted in a valve-casing 53, which is carried by the member 40, and a spring 54 normally forces said valve outwardly. A T-head 55 is carried by the valve 52. The two coupling members upon the opposite sides of the draw-bars of the cars are exactly like those already shown and described. By referring to Fig. 2 it will be seen that the car 6 carries a socket member upon one side of the draw-bar and a headed member adapted to enter said socket member upon the other side of said draw-bar. The car 5 is equipped in a like manner, the socket member of the car 5, however, being opposed to the headed member of the car 6, and vice versa. A bond or guard 56 extends about the joint formed by the bolt 39 to brace and strengthen said joint, and a guard 57 extends about the forward end of the bar 38 and the coupling member 40 to limit the vertical movement of said member with relation to said bar.

The operation of the device is as follows: When the cars come together, the head 42 of the member 40 enters the flaring mouth formed by the socket member until it reaches the position illustrated in Fig. 1. At this time the rounded face 43 of the head 42 lies in the recess 19 of the cap portion 17, while the block 45 lies in the concaved face of the washer 36, and the gasket 47, in conjunction with the gasket 36, forms an air-tight connection between the ports 48 and 35. As the head 42 comes into this position its inner end strikes against the valve 26 and brings the port 27 into alinement with the ports of the nipples 29 and 30. At the same time the T-head 55 of the valve 52 strikes against the end of the socket member and is forced inwardly to bring its port 52' into alinement with the port 51. Communication will now be established through the pipe 60, which we will assume leads from the air-reservoir through the port 51, pipe 50, ports 48, 35, and 34 to pipe 32, thence through the nipple 30, valve 26, and nipple 29 to the pipe 31, which may lead to the brake-cylinders. This relation of the parts is maintained by virtue of the fact that a limited horizontal movement of the parts is provided by the joint formed by the bolt 24, while a limited vertical movement is provided by the joint formed by the bolt 39. The sliding bars 11 and 38 permit the main coupling members to move in and out of the buffer-casings 10 and 37 to accommodate the lost motion between the cars. When the cars are separated and the heads 42 are withdrawn from the socket members, the springs 28 and 54 act to force the valves 26 and 52 into such positions that

their ports 27 and 52' no longer register with the nipples 29 and 30 and the port 51, respectively. The escape of air through these nipples is therefore automatically cut off. By locating the coupling members upon each side of the draw-bar it will not make any difference which way the car happens to be turned, for if a socket member always lies to the left of the draw-bar when looking toward the end of the car and the other member of the coupling always lies to the right of the draw-bar when looking toward the end of the car it will be impossible to turn the car in such way as to oppose a socket member to a socket member. If desired, the air-line through one pair of these socket members may be utilized to conduct air to the air-reservoirs of the car, while the other set may be utilized as the train-line proper.

From the foregoing description it will be seen that simple and efficient means are herein provided for accomplishing the objects sought to be attained without the necessity of the trainmen entering between the cars to either couple or uncouple the air connections. It is a well-known fact that many trainmen are injured each year in performing this work.

While the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim is—

1. In a device of the character described, a socket member comprising a body portion having a port formed therethrough, a cap portion hinged to said body portion, yielding devices for holding said cap portion down upon said body portion, said cap portion and said body portion having flaring mouths, a member adapted to enter said socket portion, and a valve controlling the flow of air through said port and adapted to be actuated by said member.

2. In a device of the character described, the combination with a slidably-disposed yielding bar, of a socket member pivoted to the outer end of said bar, said socket member comprising a body portion having a port formed therethrough, and a cap portion which is yieldingly mounted upon said body portion, a valve which controls flow formed through the body portion, and a member adapted to enter said socket portion and to actuate said valve.

3. In a device of the character described, the combination with a slidably-disposed yielding bar, of a socket member pivoted to the outer end of said bar, said socket member comprising a body portion having a port formed therethrough, and a cap portion

which is yieldingly mounted upon said body portion, a valve which controls ports formed through the body portion, and a member adapted to enter said socket portion and to
5 actuate said valve, said member having a port formed therethrough, a valve controlling the passage of air through said port, and means for automatically opening said valve when said member enters said socket mem-
10 ber.

4. In a device of the character described, the combination with a slidably-disposed yielding bar, of a socket member pivoted to the outer end of said bar, said socket member
15 comprising a body portion having a port formed therethrough, and a cap portion which is yieldingly mounted upon said body portion, a valve which controls ports formed through the body portion, a member adapted
20 to enter said socket portion and to actuate said valve, said member having a port formed therethrough, a valve controlling the passage of air through said port, means for automatically opening said valve when said
25 member enters said socket member, and a slidably-mounted yielding bar to which said member is pivoted for limited movement.

5. In a device of the character described, the combination with a socket member comprising a body portion and a yielding cap
30 portion, of a valve adapted to control a port formed through said body portion, a coupling member having a head which is adapted to enter the socket member, said head having a port formed therethrough which is
35 adapted to be brought into communication with the port of the socket member, means for forming an air-tight connection between said ports, and means for opening said valve.

40 6. In a device of the character described,

the combination with a socket member comprising a body portion and a yielding cap portion, of a valve adapted to control a port formed through said body portion, a coupling member having a head which is adapted
45 to enter the socket member, said head having a port formed therethrough which is adapted to be brought into communication with the port of the socket member, means for forming an air-tight connection between said
50 ports, and means for opening said valve, the head of the coupling member having a removable plug screwed therein, and a gasket surrounding said plug.

7. A socket member for a device of the
55 character described, comprising a bottom portion having a port formed therethrough, a yielding seat at which said port terminates, a cap portion hinged at one end to the socket member, and springs for holding said cap
60 portion down upon the base portion.

8. A socket member for a coupling of the character described, comprising a bottom
55 portion having a port formed therethrough, and a yielding seat carried by said body portion at which said port terminates, a cap portion hingedly connected to said body portion, bolts passing through the bottom portion
65 and the cap portion, and springs surrounding said bolts and arranged to bear
70 upon the cap portion and to hold said cap portion in yielding engagement with the bottom portion, said bottom portion and said cap portion having flaring mouths.

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

WILLIAM E. MCKINLEY.

Witnesses:

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A. L. PHELPS.