W. H. WEAVER.

AUTOMATIC AIR BRAKE TRAIN LINE COUPLING.

APPLICATION FILED DEC. 28, 1910.

997,028. Patented July 4, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

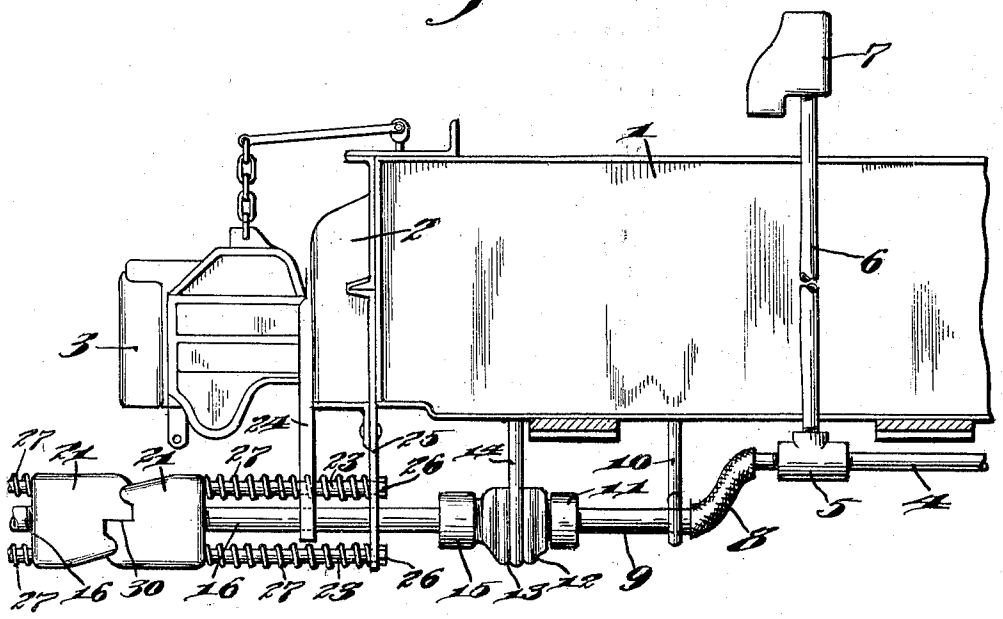
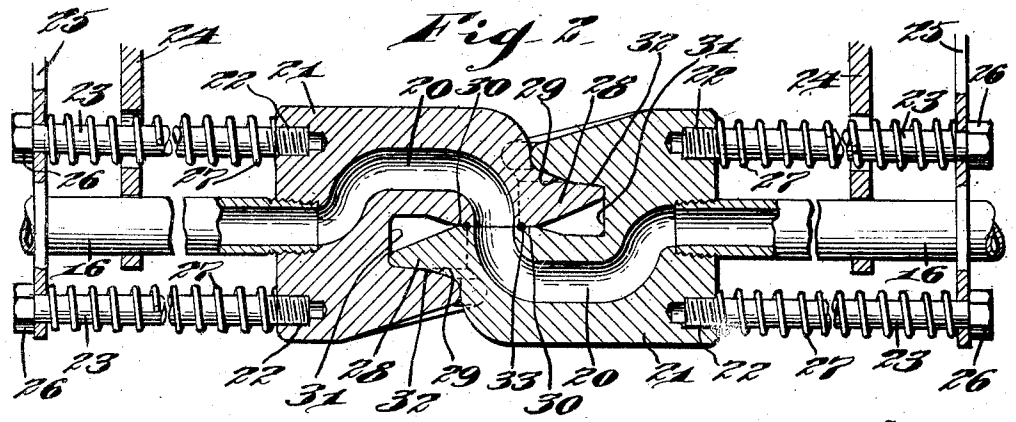


Fig. 2.



Inventor

Witnesses

Thos. Rosemund.

R. A. Krenkel.

William H. Weaver,

By Joshua R. H. Potts.

Attorney

W. H. WEAVER.

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2 SHEETS—SHEET 2.

Fig. 3.

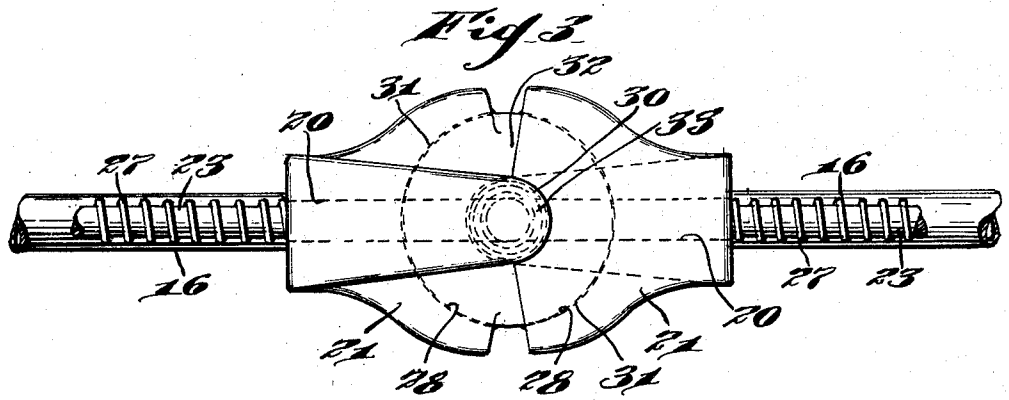


Fig. 4.

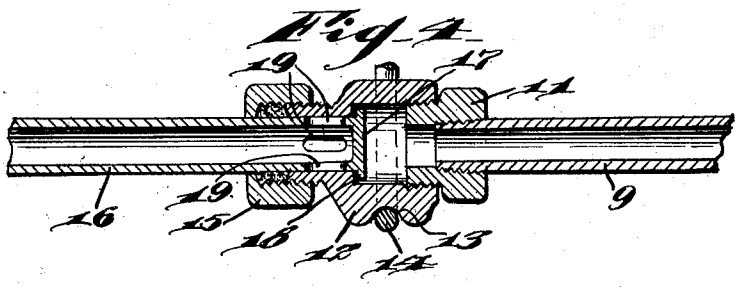


Fig. 5.

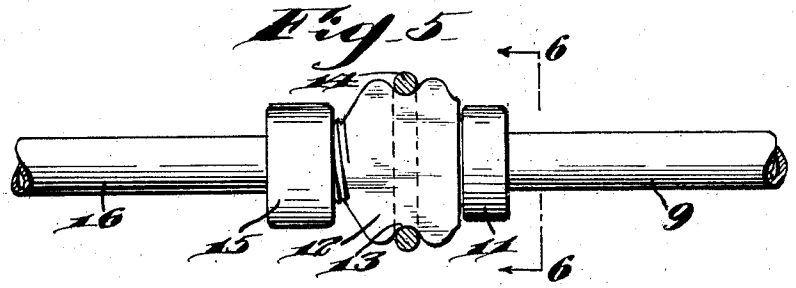
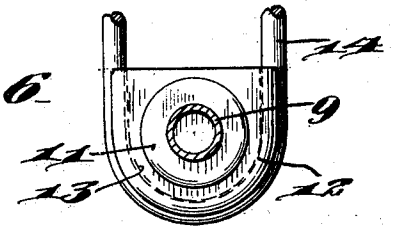


Fig. 6.



Inventor

William H. Weaver,

By Joshua R. H. Potts.

Attorney

Witnesses

Thos. Brennand.

R. H. Krenkel.

UNITED STATES PATENT OFFICE.

WILLIAM H. WEAVER, OF JEDDO, PENNSYLVANIA.

AUTOMATIC AIR-BRAKE-TRAIN-LINE COUPLING.

997,028. Specification of Letters Patent. Patented July 4, 1911.

Application filed December 28, 1910. Serial No. 599,761.

To all whom it may concern:

Be it known that I, WILLIAM H. WEAVER, a citizen of the United States, residing at Jeddo, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Air-Brake-Train-Line Couplings, of which the following is a specification.

My invention relates to improvements in automatic air-brake train line couplings, more particularly to an improved construction and arrangement of coupling, in combination with a particular construction of valve compelling the closure of the air-line when uncoupled, and opening the air-line when coupled.

A further object is to provide an improved coupling comprising two members reversely positioned relative to each other, precisely alike in construction, having passages therethrough adapted to register when coupled, having cam faces to force said couplings together at the point of meeting of the passages and to so shape said coupling members as to permit the turning movement of one upon the other to compensate for the movement of cars in rounding a curve, and to enable the couplings to engage on a curve.

A further object is to provide an improved construction of air-brake train line coupling, which will be entirely automatic, compelling the air-line pipes to couple automatically with the coupling of the draft riggings, and uncouple automatically as the couplers of the draft riggings are uncoupled, preventing the necessity of train men moving between the cars to couple and uncouple the train line pipes.

With these and other objects in view, 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 taken longitudinally of the draft rigging, showing one end of the draft bar and coupling in side elevation with my improvements in operative relation thereto. Fig. 2, is a view on an enlarged scale partly in longitudinal section and partly in elevation of the air-line coupling and its mounting. Fig. 3, is a plan view of Fig. 2. Fig. 4, is a view in longitudinal section showing the air-line valve. Fig. 5, is a plan view of Fig. 4, and Fig. 6, is a view in cross section on the line 6—6 of Fig. 5.

1, represents a draft bar of an ordinary car to the buffer 2 on the end of which the ordinary automatic car coupler 3 is secured.

4, represents a train line air pipe having the ordinary strainer cup 5, which is connected by a pipe 6 with the ordinary triple valve 7. This main line pipe 4 is rigidly held and is connected by a flexible hose 8 with a pipe 9 supported in a hanger 10. This pipe 9 at its forward end is screw-threaded and connected by a union 11 with a valve casing 12, said valve casing having an external groove 13 in which a U-shaped hanger 14 is located to rigidly hold the valve casing. The forward end of the valve casing is externally screw-threaded to receive a packing nut 15, which latter operates to pack the pipe 16, which I term the coupling pipe. This coupling pipe 16 extends into the valve casing 12, and is closed at its inner end by means of a valve 17. This valve is adapted to engage an annular shoulder or seat 18 in the valve casing to close the passage through the air-line. Pipe 16, however, is provided with a plurality of openings 19, normally closed by means of their location within the valve casing, and by means of the valve 17, but which when the coupling pipe 16 is forced rearwardly, will move into the larger chamber of the valve casing 12 and allow a free passage of air through the line.

The forward ends of coupling pipes 16 are screw-threaded and screwed into the threaded ends of passages 20 in coupling members 21. The two coupling members which come together to couple the line, are precisely alike in construction, save that they are reversely positioned relative to each other, and the following description of one will therefore apply alike to both, Each coupling member 21 is provided in its inner end with screw-threaded sockets 22 for the reception of bolts 23. These bolts 23 project through hangers 24 and 25, depending from the draft rigging, and are provided with heads 26 limiting the forward movement of the coupling member. On these rods 23, coiled springs 27 are located exerting outward pressure on the member, and also holding the valve 18 in closed position. Each coupling member is a casting having an outwardly and for-

wardly projecting curved lip 28. That is to say, this lip is curved transversely, but vertically is beveled constituting a cam face 29, and the lip is located entirely below or above, as the case may be, the outlet end of passage 20, said casting being so shaped at this point that a somewhat raised face is formed having a circular gasket 33 therein, so that these two portions of the two members constitute in effect, valve seats or coupling seats. Each of the coupling members is provided with a recess 31 having a wall 32 constituting a cam conforming in shape to the cam face 29 of lip 28 of the opposed coupling member, so that when the coupling members come together, these cam faces 29 and 32 force the seats 30 tightly together and insure an air tight juncture between the coupling members and a perfect joining of the air passages 20, so that the pipe lines are connected. The recesses 31 are curved transversely concentric with the curvature of the lips 28 to allow the members transverse pivotal movement sufficient to compensate for the angular relation of cars in rounding curves, and also enabling the coupling to be made upon a curve.

When the cars come together in coupling, the lips 28 of the air-line coupling members move into the recesses 31 of their opposed coupling members, and the cam faces 29 and 32 force the seats 30 tightly together, compressing the gasket 33 and forming a tight juncture of the coupling members. At the same time this coupling movement forces both coupling members inwardly against the action of springs 27, hence moving the pipes 16 inwardly, which causes the valves 17 to move away from their seats 18, and allows the openings 19 to be moved into the larger portions of valve casing 12, hence completely opening and connecting the pipe line. When the cars move apart in uncoupling, springs 27 force the coupling members outwardly, and at the same time move pipes 16 so as to close valves 17 against the seats 18, hence completely and automatically closing the air-line when the cars are uncoupled. It will therefore be noted that with my improvements in position on the cars, any necessity for train men moving between the cars to couple the air-line pipes is dispensed with as the air-line pipes will couple automatically with the draft couplings, and the passage through the air-line will be automatically opened as the cars are coupled and automatically closed as the cars are uncoupled. The coupling and uncoupling of the air-line will therefore be entirely automatic and will result in the saving of time and labor as well as preventing accidents which frequently occur from the necessity of train men moving between the cars.

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

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

1. In an automatic coupling for train line air-brake pipes, the combination of two members exactly alike but disposed reversely, a forwardly projecting horizontal lip on each member, and each member having a recess to receive the lip of the other member, each lip and the wall of each recess beveled or cam shaped forcing said lips together, and each member having an air passage extending through its lip, substantially as described.

2. In an automatic coupling for train line air-brake pipes, the combination of two members exactly alike, but disposed reversely, a forwardly projecting transversely curved horizontal lip on each member, each member having a transversely curved recess to receive the lip of the other member, each lip and the wall of each recess beveled or cam shaped forcing said lips together when the members move toward each other, and each member having an air passage extending through its lip, substantially as described.

3. In an automatic coupling for train line air-brake pipes, the combination of two members exactly alike, but disposed reversely, a forwardly projecting horizontal transversely curved lip on each member, each member having a transversely curved recess to receive the lip of the other member, each lip and the wall of each recess beveled or cam shaped forcing said lips together when the members move toward each other, each member having an air passage extending through its lip, a raised contacting horizontal seat on each lip around the passage, and a gasket between said seats, substantially as described.

4. In an automatic coupling for train line air-brake pipes, the combination of two members exactly alike but disposed reversely, each member comprising a single casting, a forwardly projecting horizontal lip on each casting, each casting having a recess to receive the lip of the other member, each lip and the wall of each recess beveled or cam shaped forcing said lips together when the members move together, said members each having an air passage extending through its lip, and springs pressing said members horizontally toward each other, substantially as described.

5. In an automatic coupling for train line

air-brake pipes, the combination of two members exactly alike but disposed reversely, each member comprising a single casting, a forwardly projecting horizontal lip on each casting, each casting having a recess to receive the lip of the other member, each lip and the wall of each recess beveled or cam shaped forcing said lips together when the members move together, said members each having an air passage extending through its lip, springs pressing said members toward each other, and valves controlling the flow of fluid through said passages automatically opened when said members are together, and closed when said members are separated, substantially as described.

6. In combination, a train line pipe, a valve casing, a coupling pipe projecting into the valve casing, a valve on said coupling pipe, seating in said casing, said pipe having openings therein which permit a passage through said pipe when the valve is moved from its seat, a coupling member on said pipe, a support, bolts mounted to move in said support and screwed into said member, and coiled springs on said bolts bearing against the member and normally holding said valve on its seat, substantially as described.

7. In combination, air-line pipes, valves in said pipes, longitudinally movable coupling members rigidly secured on the ends of said pipes, springs pressing against said coupling members holding the valves on their seats, said valves opened when said coupling members are together, said coupling members having pivotal coupling relation with each other, substantially as described.

8. In combination, air-line pipes, valves in said pipes, longitudinally movable coupling members rigidly secured on the ends of said pipes, springs pressing against said coupling members holding the valves on their seats, said valves opened when said coupling members are together, transversely curved lips on said coupling members, each coupling member having a recess to receive the lip of the other coupling member, said lips and the walls of said recesses beveled or cam shaped forcing said lips together when the coupling members are moved together, substantially as described.

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

WILLIAM H. WEAVER.

Witnesses:
DANIEL S. BUCKLEY,
THOMAS A. BUCKLEY.