Nov. 25, 1924. 1,516,851

W. R. GREGG

TRAIN PIPE COUPLING

Filed Oct. 9, 1923

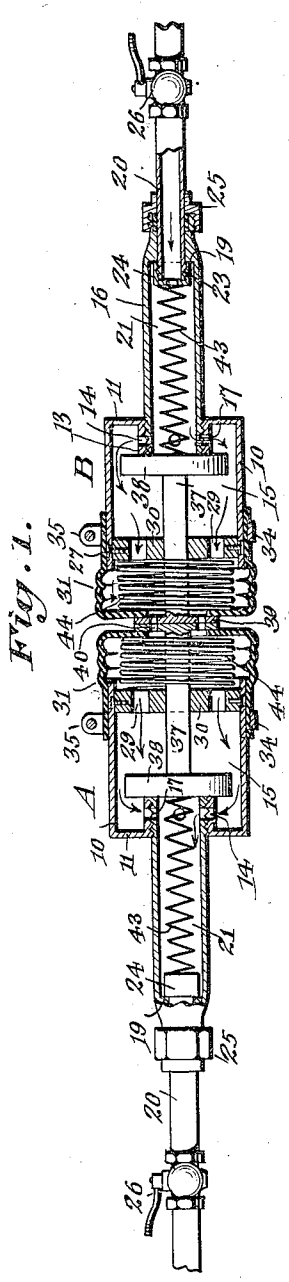


Fig. 1.

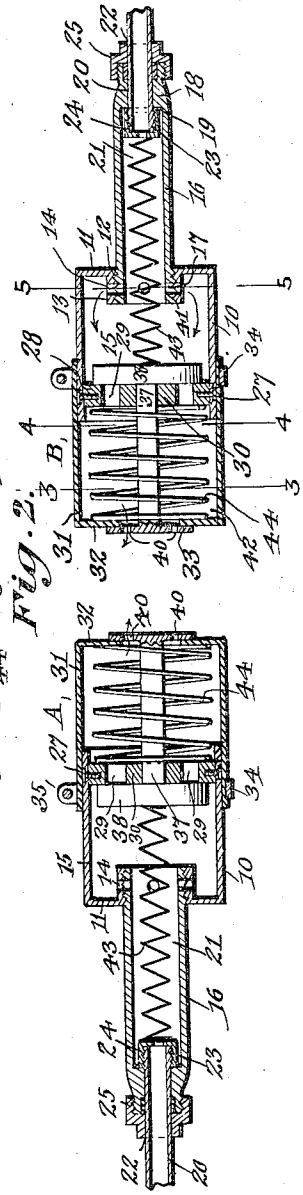


Fig. 2.

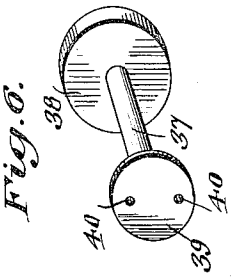


Fig. 6.

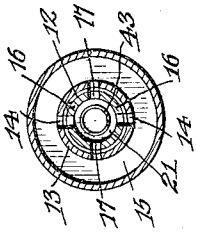


Fig. 5.

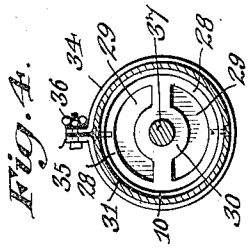


Fig. 4.

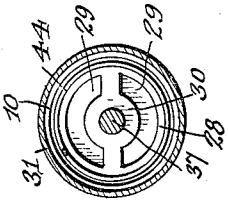


Fig. 3.

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BY

Geo. P. Kimmel. ATTORNEY.

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UNITED STATES PATENT OFFICE.

WALTER REICE GREGG, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-EIGHTH TO THOMAS H. JULYE, OF ST. LOUIS, MISSOURI.

TRAIN-PIPE COUPLING.

Application filed October 9, 1923. Serial No. 667,554.

To all whom it may concern:

Be it known that I, WALTER REICE GREGG, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Train-Pipe Couplings, of which the following is a specification.

This invention relates to train pipe couplings and has for its object to provide a coupling of such class, in a manner as hereinafter set forth, with means automatically operated when two opposed coupling elements, on the opposed ends of a pair of pipe line sections are brought into abutting engagement for opening the air supply from one pipe section to the other, and further with means for automatically shutting off the discharge of air from the train pipe sections when the coupling elements are shifted out of abutting engagement.

Further objects of the invention are to provide a train pipe coupling which is comparatively simple in its construction and arrangement, overcoming the necessity of manual connection of the coupling elements carried by the train pipe sections, strong, durable, automatic in action to open and close supply and discharge of air to and from the train pipe sections, readily set up, efficient and convenient in its use and comparatively inexpensive.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a longitudinal sectional view, of a train pipe coupling in accordance with this invention and with the coupling elements in operative position with respect to the train pipe sections to provide for the supply of air from one train pipe section to the other;

Figure 2 is a like view, with the elements of the coupling in inoperative position, whereby the discharge of air from a train pipe section is arrested,

Figure 3 is a section on line 3—3 of Figure 2,

Figure 4 is a section on line 4—4 of Figure 2,

Figure 5 is a section on line 5—5 of Figure 2, and

Figure 6 is a perspective view of the valvular member of the coupling element.

The train pipe coupling in accordance with this invention, includes a pair of coupling elements A, B, adapted to be brought into abutting engagement with each other to open the air supply to one train pipe section from the other, and each having means, when said elements are shifted out of abutting engagement to automatically shut off discharge of air from the train pipe section to which the element is connected, and as each of the coupling elements is of the same construction, but one will be described, as the description thereof will apply to the other.

Each of the coupling elements consists of an annular casing 10, open at its outer end, closed at its rear end 11, and said rear end 11, has a centrally disposed opening 12, with the wall thereof threaded. Formed integral with the inner face of the rear end 11, is a forwardly projecting interiorly threaded collar 13, which registers with the opening 12, and is formed with a series of lateral ports 14, which open into an air chamber 15, formed with the casing 10.

Connected with the rear end 11, as well as with the collar 13, is an elongated hollow stem 16, having its forward end peripherally threaded and which engages with the threads of the opening 12, and the threads of the collar 13. The forward end of the stem 16, is flush with the forward edge of the collar 13, and said stem 16, in proximity to its forward terminus, is formed with a series of openings 17, which register with the openings 14. The rear end of the stem 16 is contracted as at 18, and formed with an inwardly extending shoulder 19, and a passage 20, which open into a chamber 21, of greater diameter than the passage 20, and extending through the passage 20 and into the chamber 21, is the end portion of a train pipe section 22. The end of the train pipe section 22, which is arranged in the chamber 21, has mounted thereon, a cap member 23, which has threaded engagement with the pipe section 22, and is formed with a port

24, for establishing communication between the pipe section 22 and the chamber 21. A flanged nut 25, has threaded engagement with the periphery of the stem 16, at the inner end thereof, and furthermore surrounds the pipe section 22. A cut-off 26, is interposed in the pipe section 22.

Secured within the casing 10, at a point inwardly with respect to the outer end thereof, by the hold-fast devices 27, is a disk 28, which constitutes a valve seat and is formed with a pair of oppositely disposed arcuate openings 29, between the center thereof and its edge, and is furthermore provided with a centrally disposed opening 30. Mounted on the casing 10, as well as projecting forwardly thereof, is a contractible and expansible casing 31, having its outer end provided with an inwardly extending annular flange 32, which projects from a centrally arranged opening 33. The casing 31, is fixedly secured to the casing 10, by a split flanged band 34, and extending through the flanges 35, of the band 34, is a hold-fast device 36.

Extending through the casing 31, as well as through the disk 28, is a valve stem 37, provided on its inner end with a circular valve head 38, and at its outer end with a circular disk 39, formed with a plurality of openings 40. The head 38, is of materially greater diameter than the disk 39, as well as being of greater thickness. The valve head 38, associates with the valve seat formed by the disk 28, for the purpose of closing the openings 29, and furthermore associate with a valve seat 41, formed by the forward termini of the stem 16 and collar 13, and when engaged with the seat 41, closes the forward end of the stem 16, which opens into the chamber 15, whereby the passage of air from the stem 16, to the chamber 15, will be had through the openings 14 and 17. When the head 38, is engaged against the disk 28, the openings 29 will be closed, whereby passage of air to the chamber 42, formed by the casing 31, will be discontinued.

Arranged within the chamber 21, and bearing against the rear face of the valve head 38, is a coiled spring 43, and arranged within the casing 42 and interposed between the disk 28, and the flange 32, as well as surrounding the stem 37, is a coiled spring 44, of materially greater diameter than the diameter of the spring 43. The spring 44, is employed for expanding the casing 31, when the coupling elements A and B are out of abutting engagement, whereby the valve head 38, will be shifted from the seat 41, and brought into abutting engagement with the disk 28, for the purpose of closing the openings 29. This movement of the valve head 38, is assisted by the spring 43.

The opening 33, formed by the flange 32, is what may be termed an air outlet opening, for the chamber 42, and registering with said opening 33, and the openings or ports 44, is the disk 39, so that discharge of air can be had from the chamber 42.

The head 39, is positioned exteriorly of the casing 31, and against the flange 32, and by this arrangement, when the coupling elements are brought into abutting engagement, the casing 31 is compressed, and the valve stem 37 shifted inwardly, so that the valve head 38, will engage the seat 41, as shown in Figure 1, of the drawings.

From the foregoing construction and arrangement of parts, a train pipe coupling is set up, having each of the coupling elements provided with means which when brought into abutting engagement will automatically cause a supply of air from one train pipe section to the other, and furthermore provide the coupling elements with means, which when the disks 39 are shifted out of abutting engagement, will automatically close the train pipe section and prevent the discharge of air therefrom, and although the preferred embodiment of the invention is as illustrated and described, yet it is to be understood that changes in the detail of construction, which fall within the scope of the invention, can be resorted to, and that the invention is not limited to the precise details of construction as herein set forth.

What I claim is:

1. A train pipe coupling comprising a pair of coupling elements, each provided with a compressible casing provided with an outlet at its free end, and further with a reciprocatory means for controlling travel of air through its respective element when said element is compressed and for abutting off the discharge of air through said outlet when said casing is extended, said means including an apertured disk positioned permanently against the outer face of the free end of said casing and having its apertures registering with said outlet.

2. A train pipe coupling comprising a pair of coupling elements, each provided with a pair of air chambers adapted to communicate with each other and one provided with an outlet at the free end of the element and each of said elements further provided with a spring controlled valvular device for establishing communication between said chambers when moved inwardly and for closing communication between said chambers when moved outwardly, said valvular device having a disk at its outer end permanently positioned exteriorly of that chamber having the outlet, and formed with ports registering with said outlet.

3. In a train pipe coupling, a casing provided therein with a valve seat and adapted

to be connected to and communicate with a train pipe section a compressible member secured at one end to the casing and projecting forwardly therefrom and provided with an outlet at its free end, and a valvular device including a valve head cooperating with said seat and an apertured disk permanently positioned exteriorily of the free end of said member and cooperating with said outlet.

4. In a train pipe coupling, a coupling element provided with a casing forming an air chamber and adapted to be connected to and communicate with a train pipe section, a pair of valve seats arranged in said chamber, a compressible member secured at one end to and projecting from said casing and provided with an outlet at its free end, and a spring controlled valvular device including a valve head cooperating with said valve seats and further including an apertured disk positioned exteriorly of said free end and cooperating with said outlet.

5. In a train pipe coupling, a rigid casing forming an air chamber and having arranged therein a pair of spaced valve seats, a hollow stem connected to said casing and adapted to be connected to and communicate with a train pipe coupling and further opening into said air chamber through one of said valve seats, means to provide a series of ports between the interior of the stem and said air chamber, a compressible and extensible member secured at one end to and projecting from said casing and providing a chamber having an outlet at the free end of said member, and a spring controlled valvular device provided with a head for closing communication between said chambers when said member is extended and for closing the inner end of said stem when said member is compressed, said valvular device further including an apertured disk permanently arranged exteriorly of said member and coacting with the said outlet.

6. In a train pipe coupling, a coupling element including a compressible and expansible member provided with an outlet, a casing projecting rearwardly from said member and adapted to be connected and communicate with a train pipe section and provided with means to establish communication with said member interposed between the forward end of the latter and said means, a resilient element mounted within said member and a spring controlled valvular device arranged in said member and casing and including a valve head for closing communication between the casing and member when the latter is extended and for controlling the supply of air to said casing and member when the latter is compressed, said valve device extending through said resilient element and provided with an apertured disk permanently arranged exteriorly of said member and cooperating with said outlet.

7. A train pipe coupling comprising a pair of coupling members each provided with a rigid casing having means to provide an air supply inlet, a compressible casing secured to the rigid casing and having an air outlet and an air inlet, and a spring controlled valvular device having means to reduce the supply to said rigid casing when the other casing is compressed and to increase the air supply to the rigid casing and close said air inlet of the compressible casing when the latter is distended, said device further provided with an apertured disk arranged exteriorly of the compressible casing and having its apertures registering permanently with said outlet.

8. A train pipe coupling comprising a pair of coupling members each provided with a rigid casing having means to provide an air supply inlet, a compressible casing having an air outlet and an air inlet, a spring controlled valvular device arranged in said casing and having means at one end to reduce the supply to said rigid casing when the other casing is compressed and to increase the air supply to the rigid casing and close said air inlet when the compressible casing is distended.

9. In a train pipe coupling, a rigid casing providing an air chamber, a hollow stem leading from a train pipe section and opening at its forward end into said chamber and provided with a series of ports permanently communicating with said chamber, a compressible member secured at one end to and projecting from said rigid casing and forming an air chamber having an outlet at the free end of the member, an apertured disk within said casing for establishing communication between said chambers, and a spring controlled valvular device arranged in both chambers and including a valve head abutting against said disk for closing communication between said chambers when said member is extended and for closing the inner end of the stem when said member is compressed to reduce the supply of air to the chamber formed by the rigid casing.

10. In a train pipe coupling, a rigid casing providing an air chamber, a hollow stem leading from a train pipe section and opening at its forward end into said chamber and provided with a series of ports permanently communicating with said chamber, a compressible member secured at one end to and projecting from said rigid casing and forming an air chamber having an outlet at the free end of said member, an apertured disk within said casing for establishing communication between said chambers, a spring controlled valvular device arranged in both chambers and including a valve head abutting against said disk for closing communi-

cation between said chambers when said member is extended and for closing the inner end of the stem when said member is compressed to reduce the supply of air to the chamber formed by the rigid casing, and said device further including an apertured disk extending over said outlet exteriorly of the free end of said member.

11. In a train pipe coupling a rigid casing providing an air chamber, a hollow stem leading from a train pipe section and opening at its forward end into said chamber and provided with a series of ports permanently communicating with said chamber, a compressible member secured at one end to and projecting from said rigid casing and forming an air chamber having an outlet at the free end of said member, an apertured disk within said casing for establishing communication between said chambers, and a spring controlled valvular device slidably mounted in said disk and arranged in both of said chambers and including a valve head abutting against said disk for closing communication between said chambers when said member is extended and for closing the inner end of the stem when said member is compressed to reduce the supply of air to the chamber formed by the rigid casing.

12. In a train pipe coupling a rigid casing providing an air chamber, a hollow stem leading from a train pipe section and opening at its forward end into said chamber and provided with a series of ports permanently communicating with said chamber, a compressible member secured at one end to and projecting from said rigid casing and forming an air chamber having an outlet at the free end of said member, an apertured disk within said casing for establishing communication between said chambers, a spring controlled valvular device slidably mounted in said disk and arranged in both of said chambers and including a valve head abutting against said disk for closing communication between said chambers when said member is extended and for closing the inner end of the stem when said member is compressed to reduce the supply of air to the chamber formed by the rigid casing, and said device further including an apertured disk permanently arranged exteriorly of the free end of said member and having its apertures registering with said outlet.

In testimony whereof, I affix my signature hereto.

WALTER REICE GREGG.