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P. SETTINO & P. HOOVER.
AUTOMATIC AIR PIPE COUPLING.

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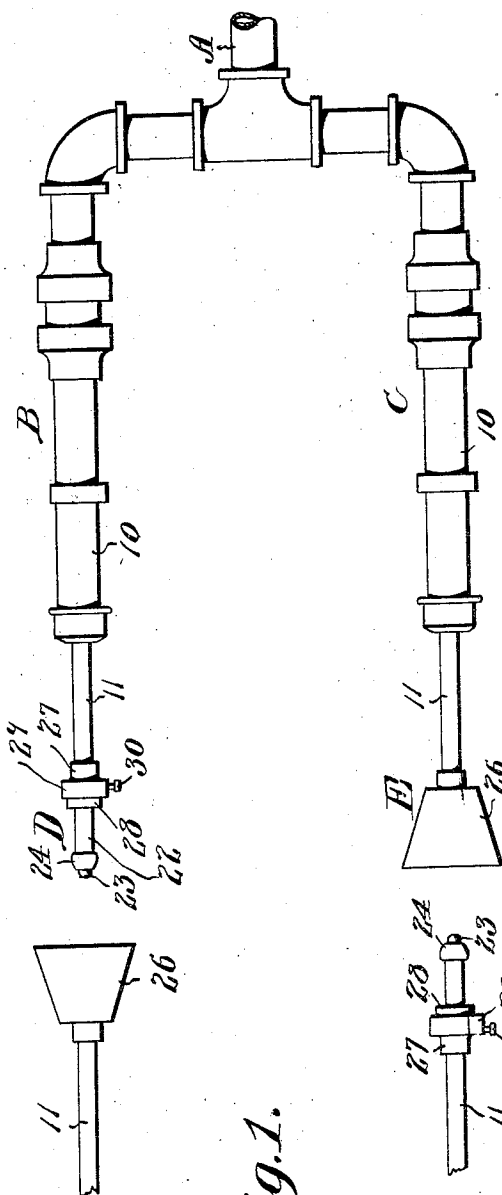


Fig. 1.

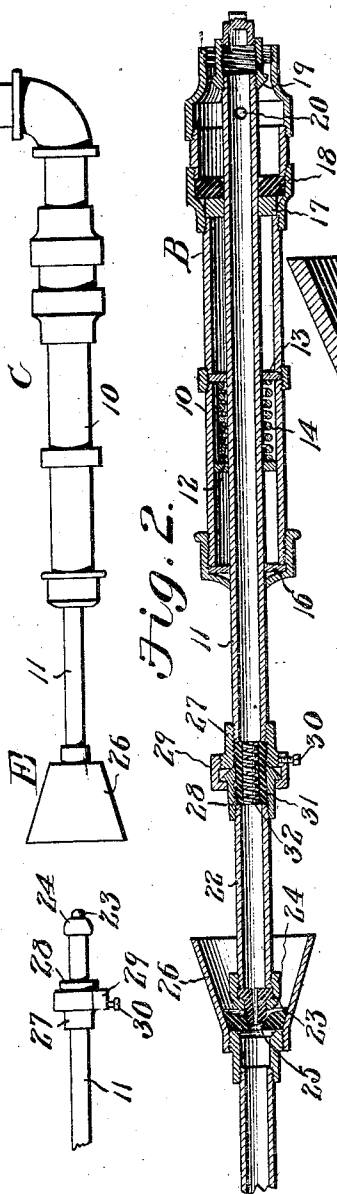


Fig. 2.

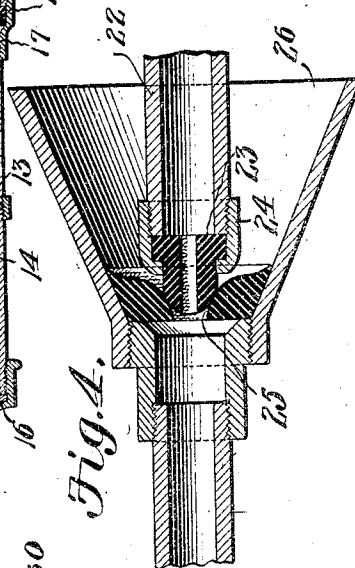


Fig. 3.

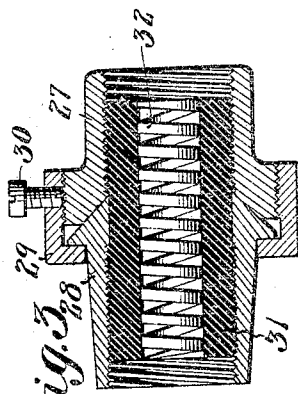


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

PIETRO SETTINO AND PETER HOOVER, OF STEELTON, PENNSYLVANIA.

AUTOMATIC AIR-PIPE COUPLING.

No. 812,532.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, PIETRO SETTINO and PETER HOOVER, citizens of the United States, residing at Steelton, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Automatic Air-Pipe Coupling, of which the following is a specification.

This invention relates to couplers for connecting train and signal pipes of railway-trains, and has for its principal object to provide an improved coupling means that is automatic in its operation and is connected as the cars are coupled together without the necessity of any manual adjustment or manipulation.

A further object of the invention is to provide an automatic coupling apparatus in which the outflow of air from the train or signal pipe is prevented when the cars are uncoupled, so that in the event of the parting of a train the brakes will still remain under the control of the train crew.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts herein-after fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view of an air-pipe coupling constructed in accordance with the invention and showing a portion of a second coupling in position to be engaged by the first. Fig. 2 is a longitudinal sectional elevation through a pair of coupling members in engaged position. Fig. 3 is a detail sectional view, on an enlarged scale, of the yieldable joint or connection of the male member. Fig. 4 is a view, on an enlarged scale, of the end portions of two coupling members in engagement with each other.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In carrying out the invention the train-pipe, signal-pipe, or other pipe A to be coupled between the cars is provided with two

branches B and C, each of which is of the same general construction, the section B carrying a male member D and the section C a female member E and these being arranged to engage the corresponding members carried by the cars when the latter are brought together, and the couplings always remain in proper position without regard to the direction in which the car is turned. The section B of the coupling comprises a tubular casing 10, that is arranged to receive a slidable pipe 11, from which projects a disk or pin 12, that is rigidly secured to said pipe, and the latter slides through an opening formed in a transversely-disposed partition 13, carried by said casing 10. Between the two members 12 and 13 is arranged a helical compression-spring 14, that tends to separate said members and force the forward end of the tube 11 out through the end of the casing, a packing-disk 16 being placed at this point to lessen the danger of leakage. The end of the pipe extends through an opening formed in a disk 17 and through a packing-ring 18, having a beveled seat for the reception of a valve 19, that is screwed or otherwise secured to the inner end of the pipe and is forced into engagement with the seat 18, when the spring 14 is allowed to expand, as when the car is detached, and at this time the valve in closing against the seat will prevent the leakage of any air from the pipe A. When the pipe 11 is forced inward by engagement with a mating coupler of another car, the valve will be moved away from the seat, and an opening 20, formed in the wall of said pipe, will place the latter in communication with the interior of the casing 10, so that air from the pipe A may flow from the pipe 11 and pass thence to and through the mating coupler on an adjacent car. The construction thus far described is common to the members B and C, and these parts differ from each other only in the end sections, one of the tubes 11 carrying a male member D and the other a female member E.

The male member D is in the form of a tube 22, having at its end a nipple 23, formed of rubber or other yieldable material, and held in place by a suitable sleeve 24, and this nipple is arranged to engage against a seat 25, formed in the female member E, the seat being also of rubber or similar yieldable material, so that when the two parts are engaged a perfect joint will be formed and the

escape of air prevented. In order to guide the male member to position, the female member has a funnel-shaped hood 26 projecting from its forward end.

- 5 In order to compensate for differences in the heights of cars and to permit proper coupling when the cars are on curved tracks, the male member 22 is yieldably mounted so that it may swing freely in all directions.
- 10 The end of the tube 10 is provided with a sleeve 27, having a tapered socket for the reception of a tapered flange at the end of the sleeve 28, that is secured to the tube 22, and said sleeve 28 is engaged by a flanged collar 29, that is
- 15 screwed on the periphery of the sleeve 27 in order to couple the two sleeves, a set-screw 30 being employed to hold the sleeves permanently in place. To prevent the escape of air at the coupling, a sleeve 31, of rubber
- 20 or similar material, is placed within the coupling, and within this sleeve is a coiled spring 32, that tends to force the rubber sleeve outward into firm engagement with the inner
- 25 face of the coupling members and at the same time permits free flexing of the tube as the coupling members move with relation to each other, the construction being such that the male member may move freely in any direction in order to properly engage a mating
- 30 member on a car that is higher or lower and at the same time insure the retention of the parts in proper position in case of swaying of the cars or while the train is traveling around curves.
- 35 When the couplings are in operative position, the springs 14 of both coupling members are placed under stress and the valves 19 are forced away from the seats 18, so that the air may freely pass from the train-pipe of one
- 40 car to the train-pipe of the next car; but in case the train parts, or the coupling is at the rear end of a train, the springs 14 will move the tubes 11 outward and the valves will be closed against their seats, preventing the
- 45 leakage of air from the train-pipe, and this is of practical value, especially in the event of the parting of the train, for the reason that as the cars separate the springs 14 will tend to maintain the couplings in engage-
- 50 ment with each other during the separating movement, and the valves 19 will be seated before the cars are wholly detached, and no air can escape from the train-pipe, so that there is no emergency application of the brake
- 55 with the resultant danger of rear-end collision, such as commonly occurs in the parting of a train having air-couplings of the ordinary construction.

Having thus described the invention, what is claimed is—

- 60 1. In an automatic air-pipe coupling, casings arranged to be supported by the cars, each casing being provided with a valve-seat, a helical compression-spring within each casing, tubes arranged to slide within the cas-
- 65 ings, a valve carried by each tube and arranged to close against the valve-seat under the action of the spring, each tube having a lateral port through which fluid may be passed to or from the casing when the valve
- 70 is unseated; a packing-ring arranged at the outer end of each casing and through which the tube slides, and mating members arranged at the outer ends of the tubes.
2. In an automatic train-pipe coupler, a
- 75 coupling member including a pair of tubes having coupling-sleeves arranged to permit free play of one section of the tube, and a flexible lining within the coupling member to prevent the escape of air.
- 80 3. In an automatic train-pipe coupler, a coupling member including a pair of tubular sections having coupling-sleeves arranged to permit free movement of one section with respect to the other, an elastic sleeve ar-
- 85 ranged within the said coupling-sleeves, and a spring disposed within the elastic sleeve and tending to force the latter outward into engagement with the walls of the sleeves to prevent the escape of air.
- 90 4. In an automatic air-pipe coupler, a coupling member including a pair of alined tubes provided with interfitting sleeves, a clamping-ring for holding said sleeves together, and a lining member of flexible elastic
- 95 material arranged within said sleeves.
5. In an automatic air-pipe coupler, inter-engaging coupling members, one having a yieldable nipple, and the other a yieldable
- 100 socket member for engagement with the nipple.
6. In an automatic train-pipe coupler, a male member having a nipple of yieldable material, and a female member having a ring or socket, also formed of yieldable material,
- 105 and a guiding-funnel arranged in advance of said ring or socket.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses,

PIETRO SETTINO.
PETER HOOVER.

Witnesses:

A. B. SMITH,
ANNIE M. ELY.