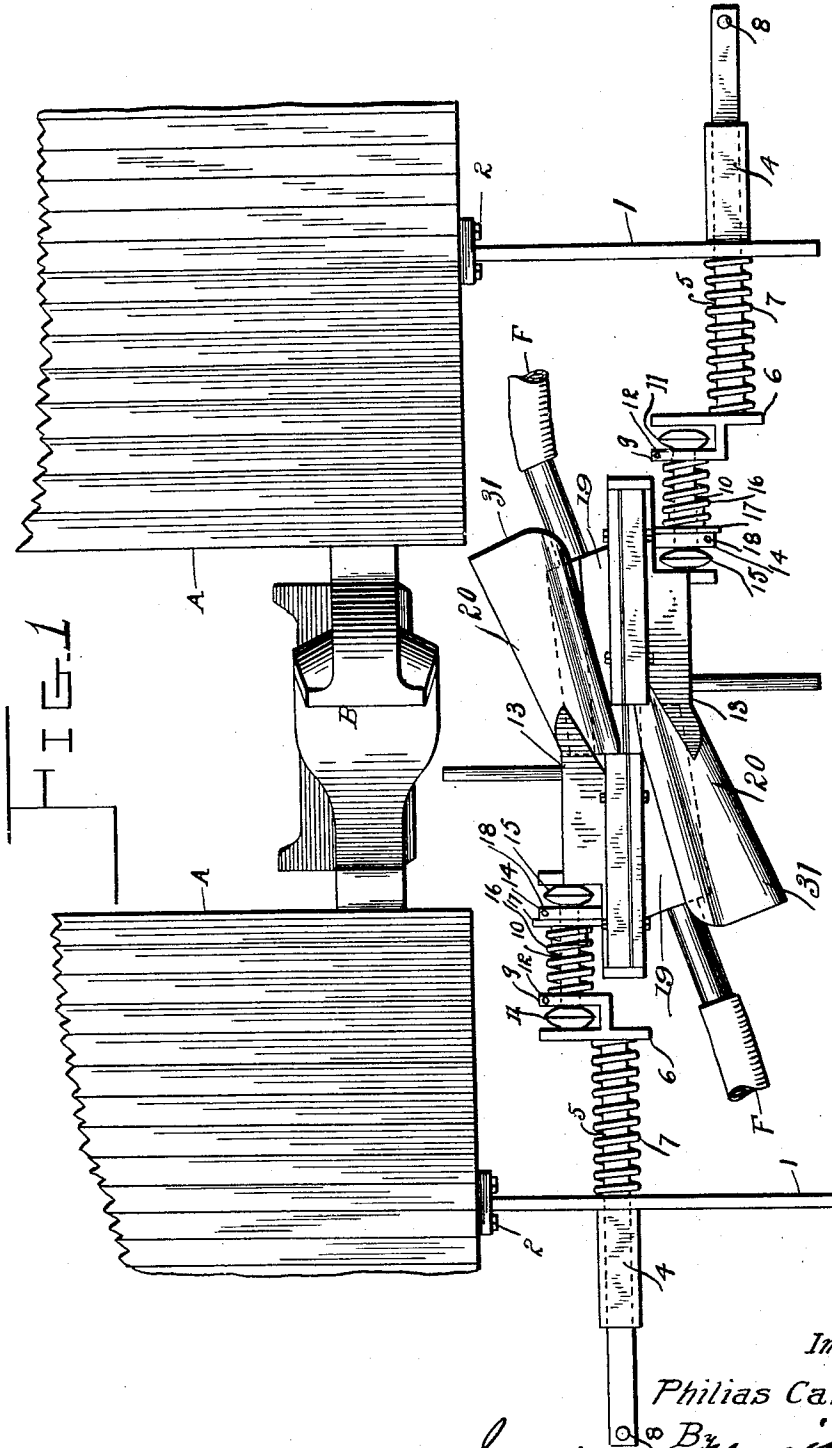


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 AUTOMATIC TRAIN PIPE COUPLING.
 APPLICATION FILED MAY 13, 1916.

Patented Feb. 13, 1917.
 3 SHEETS—SHEET 1.

1,215,481.



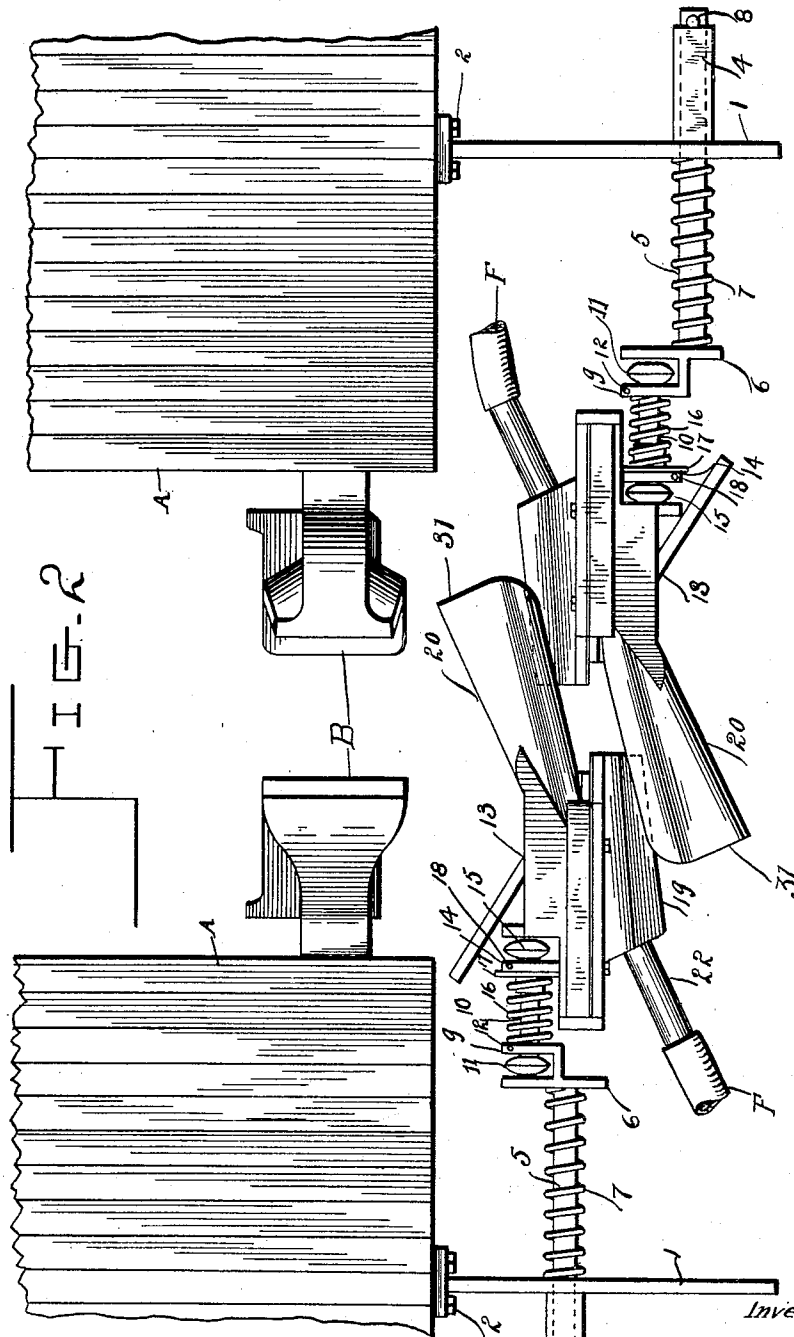
Inventor
 Philias Cantin
 Marion & Marion
 Attorneys

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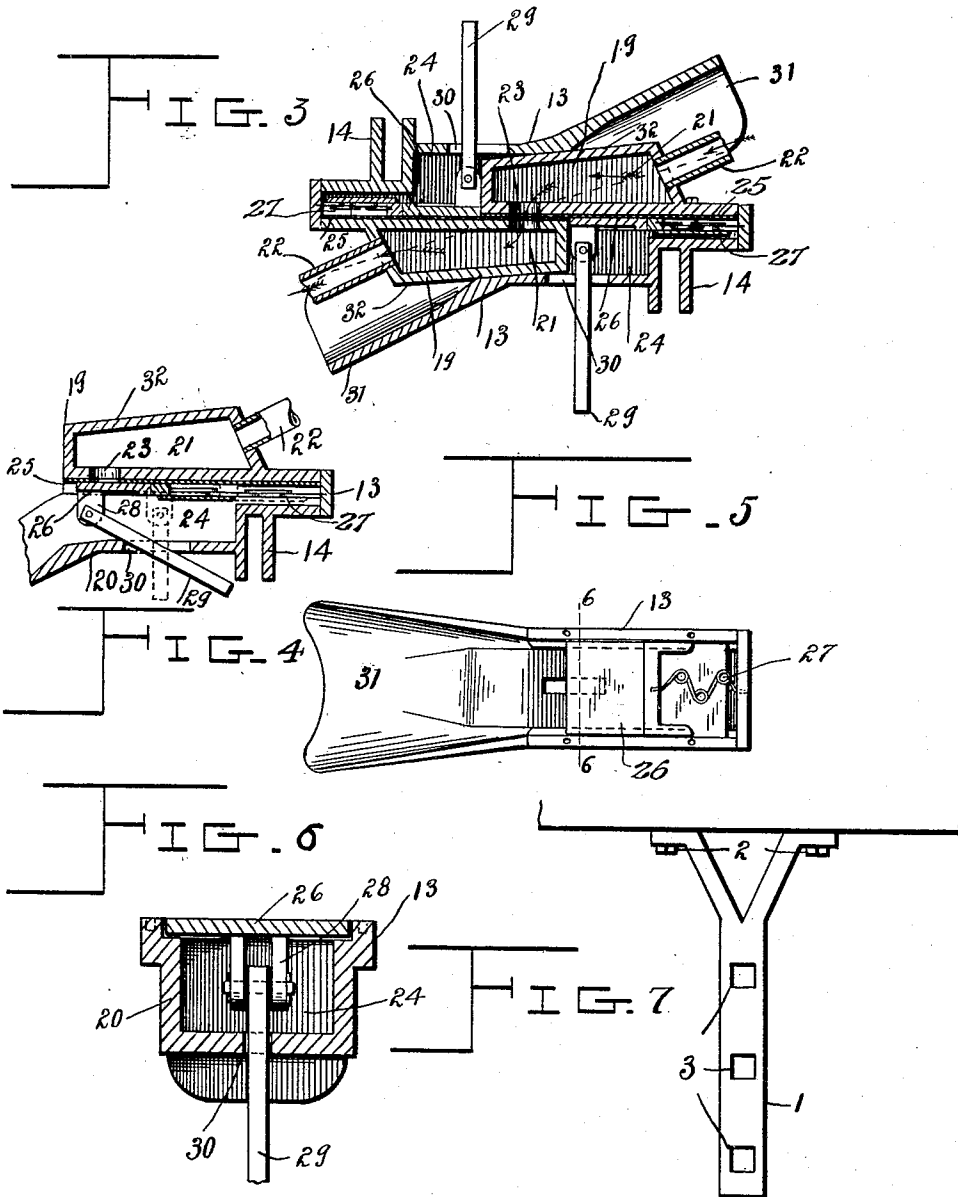


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Inventor
Philias Cantin
By *Marion A. Marin*
Attorneys

UNITED STATES PATENT OFFICE.

PHILIAS CANTIN, OF SOMERSWORTH, NEW HAMPSHIRE.

AUTOMATIC TRAIN-PIPE COUPLING.

1,215,481.

Specification of Letters Patent.

Patented Feb. 13, 1917.

Application filed May 13, 1916. Serial No. 97,247.

To all whom it may concern:

Be it known that I, PHILIAS CANTIN, a subject of the King of Great Britain, residing at Somersworth, State of New Hampshire, United States of America, have invented certain new and useful Improvements in Automatic Train-Pipe Couplings; and I do hereby declare that the following is 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.

The present invention relates in general to train pipe couplings and more particularly to couplings for automatically uniting the corresponding train pipes on adjoining cars when the drawbars of the cars are coupled and automatically disconnecting the train pipes on the respective cars when the uncoupling of the drawbars permits the cars to separate.

A further object of the invention is to improve generally automatic train pipe couplings of this character by means of which the train pipes of adjoining cars will be automatically united coincidentally with the drawbars of the cars and in which the movement between the coupled cars will produce no movement between the coupled surfaces in which the train pipes terminate.

A still further object of the invention is to provide an improved automatic train pipe coupling of the character aforesaid which will be comparatively simple and durable in construction, inexpensive in the cost of manufacture and efficient in operation.

With the above and other objects in view which will hereinafter appear as the description continues, the invention consists of the novel features of construction and the formation of parts as will be hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings is shown the simple and preferred form of the invention it being, however, understood that no limitation is necessarily made to the precise structural details herein exhibited but the right is hereby reserved to any changes or alterations that may be had and come within the scope of the invention without departing from the spirit thereof or sacrificing the efficiency of the same.

Referring to the accompanying drawings: Figure 1 is a fragmental side elevation of

two adjoining cars when coupled together showing the invention as applied thereto;

Fig. 2 is a similar view showing the position of the couplings when disconnected;

Fig. 3 is a detail, vertical, longitudinal section through the couplings when connected together;

Fig. 4 is a detail longitudinal section through one of the couplings;

Fig. 5 is a detail plan view of one of the couplings having its cover removed;

Fig. 6 is a detail, transverse section taken on the line 6—6 of Fig. 5; and,

Fig. 7 is a front elevation of one of the supporting brackets.

Referring now more particularly to the drawings wherein like and corresponding parts are designated by similar reference characters throughout the several views:

The letter A indicates the ends of the frame of the cars to be coupled together, and B designates the drawbar couplers which are to be united for coupling the two adjoining cars together as is common and of well known construction to those familiar in the art.

The train pipe coupling mechanism forming the subject matter of the present invention is the same on each car and are for connecting the train pipes F which supply the air to the air-brake mechanisms of the cars but it is of course to be understood that the train pipe couplings may be each made with more than one opening so that they may also automatically connect the air pipes which are connected to the braking mechanism, and other pipes which are connected to the signal operating mechanism and a third pipe which connects the steam pipes of the cars together and as the couplings are the same on each car it will be only necessary to describe in detail the mechanism as applied to one car.

The numeral 1 indicates a bracket which is to be connected to the under side of the car frame as at 2 having a depending arm provided with a plurality of squared apertures 3. Slidably mounted within one of these apertures is a main supporting rod 5 being squared in cross section so that when the same passes through the squared apertures 3 it will be prevented against rotation.

Formed integral with one end of the supporting rod 5 is a flange 6 and arranged

between the bracket 1 and the flange 6 and encircling the supporting rod 5 is a coiled spring 7 which normally tends to force the main supporting rod outwardly but this outward movement is limited by means of the pin 8 carried by the opposite end of the supporting rod which engages the inner end of the sleeve 4 loosely mounted upon the rod. Formed integral with the outer face of the bracket 6 is an L shaped arm 9 having a recess therein in which is adapted to rest one end of the auxiliary rod 10. The inner end of the auxiliary rod 10 carries a head 11 which rests between the bracket 6 and the arm 9 so as to prevent the removal of the rod 10 from its bracket connection. The opposite walls of the head 11 are beveled whereby the rod 10 may swing in any direction within the arm 9. A cross pin 12 arranged within the arm 9 prevents the displacement of the rod 10. The coupling head 13 is also provided with a recessed arm 14 in which the opposite end of the rod 10 rests and this opposite end of the rod 10 is also provided with an enlarged head 15 similar to the head 11. Interposed between the arms 9 and 14 and encircling the rod 10 is a coiled spring 16 carrying at one end thereof a plate 17 adapted to rest against the arm 14. This coiled spring permits the flexible movement of the rod 10 but normally tends to hold the same in a horizontal position or in a vertical plane contiguous with the main supporting rod 5. The connections of the bar 10 between the arms 9 and 14 act as a sort of a flexible joint to permit the coupling head 13 to give slightly in any direction so that a positive engagement will be made when two coupling heads are being united. The arm 14 is also provided with a cross pin 18 for retaining the rod 10 within the recess formed within that arm. The angular portions of the arms 9 and 14 are bifurcated to provide substantially angular recesses so that the auxiliary rod 10 may rest therein and the pins 12 and 18 of the arms connect the bifurcated ends of the angular portions so as to prevent the displacement of the auxiliary rod 10. In placing the rod 10 within the arms 9 and 14 the pins 12 and 18 are removed and the shank portion of this rod which is angular in cross section is seated within the corresponding recess formed by the bifurcated angular portions of the arms 9 and 14 and then the pins are replaced so as to extend across the top of the shank portion of the rod 10 so as to retain the same in place. The coupling head 13 comprises two sections indicated by the numerals 19 and 20 respectively. The section 19 is provided with a chamber 21 therein being in communication with a pipe 22 leading to the train pipe F and also leading from the chamber 21 is a passageway 23. The other section 20 of the coupling head is

provided with a chamber 24 having one end thereof opened but the opposite end thereof closed. Arranged within the upper face of the section 20 is a gasket 25 having an opening therein adapted to register with the passageway 23 and this passageway 23 is adapted to form a means of communication with the chamber 24 when the valve 26 arranged within the section 20 is opened. This valve 26 comprises a slidable plate which is normally held closed by means of the spring 27. Depending from the outer end of this valve plate 26 is a lug 28 having pivotally connected thereto a lever 29 which lever extends down through an elongated slot 30 formed within the lower wall of the casing of the section 20. From Fig. 4 of the drawings it will be seen that by pulling upon the lever 29 its point of contact with the casing 20 as shown in full lines in said figure will be the fulcrum point of the lever thereby permitting the valve 26 to be manually opened and when the same is opened it is forced back and held within the position as shown in dotted lines in said figure. This permits the trainmen to readily open the valve when the coupling heads are disconnected so that they may test the air within the train pipes. Formed integral with the section 20 is a flared member 31 having an inclined flared wall upon which is adapted to ride the inclined outer wall 32 of the section 19 whereby when the coupling heads are connected together the section 19 will ride upon the inclined wall of the flared member 31 and fit within the chamber 24 as better illustrated in Fig. 3 whereby the passageways 23 contained within the sections 19 will be brought into communication as the end walls of the respective sections 19 will automatically force the valves 26 open thereby establishing a communication between the train pipes of the adjoining cars and the air permitted to pass through the couplings in the direction of the arrows, as shown in Fig. 3.

From the foregoing it is obvious that providing such a coupling head with the two coupling members may be used for automatically connecting the train pipes together and when so connected their connection will not be impaired in any way due to the flexible resilient connections between the train pipe heads and the respective cars. By also providing the flare inlet members 31 should the respective sections 19 of the couplings be slightly out of alinement they will be readily drawn into proper position and the flexible connection between the couplings and the cars will readily give to permit such displacement, but when the couplings are united the connection between the same will not be tampered with and as the draw-bar couplers securely hold the cars together the coupling heads will be held united until the

draw-bar couplers are released at which time the coupling heads will separate, the valves 26 automatically closing to prevent the escape of any air from the train pipes.

5 The open faces of the couplers are placed in opposite directions wherein the face of one coupler extends upwardly and the opposite coupler faces downwardly, but it is, of course, to be understood that the arms 14
10 may be moved at right angles upon the squared rods 10 so that the couplers may be placed in a position so that their open faces may extend to the sides. When it becomes necessary to place the couplers in a reverse
15 position from that shown in the drawings, the coupling heads may be reversed by turning the arms 14 at the desired position upon the auxiliary rods 10 or the supporting rods 5 may be placed in any one of the openings
20 3 provided within the bracket 1 so as to elevate or lower the coupling heads to the desired position and as the train pipe P is flexible this change of position of the couplers may be easily compensated for.

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

1. A drawhead for train pipe couplings comprising two sections, a valve interposed
30 between said sections, means of communica-

tion between the train pipe and one section, and means whereby said valve may be manually and automatically operated.

2. The combination with a car and a coupling head, of a bracket depending from 35 the car, a spring actuated main supporting rod arranged within said bracket whereby the same may move longitudinally, means for preventing said main supporting rod from axial rotation, an auxiliary rod flexi- 40 bly connected to said main rod, the coupling head being flexibly connected to said auxiliary rod, said auxiliary rod being held against rotation and means whereby said auxiliary rod will be held normally in a lon- 45 gitudinal position.

3. The combination with a car, of a coupling head comprising two sections, means of communication between said sections, a valve for controlling said means of commu- 50 nication, a lever for operating said valve, said lever adapted to be thrown out of operative engagement when two opposing coupling heads are coupled and a flexible connection between the coupling head and the 55 car for the purpose set forth.

In witness whereof I have hereunto set my hand.

PHILIAS CANTIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."