J. B. GENIN.

TRAIN PIPE COUPLING.

APPLICATION FILED JUNE 29, 1918.

1,327,031.

Patented Jan. 6, 1920.

2 SHEETS—SHEET 1.

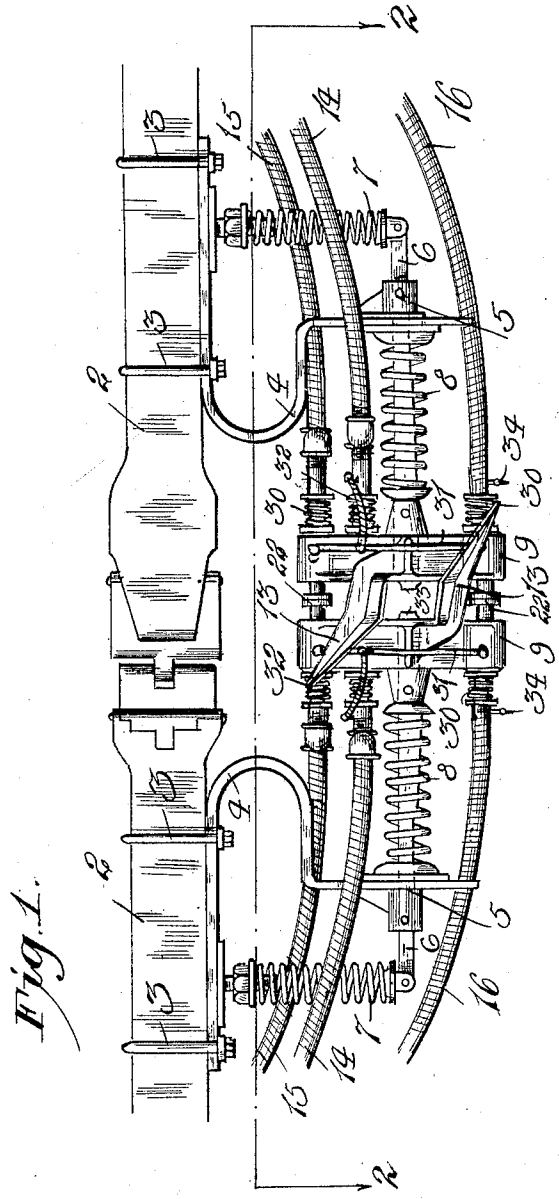


Fig. 1.

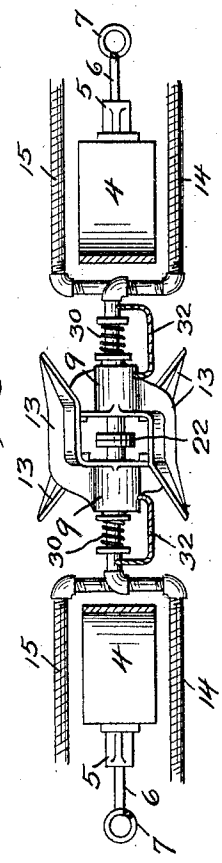


Fig. 2.

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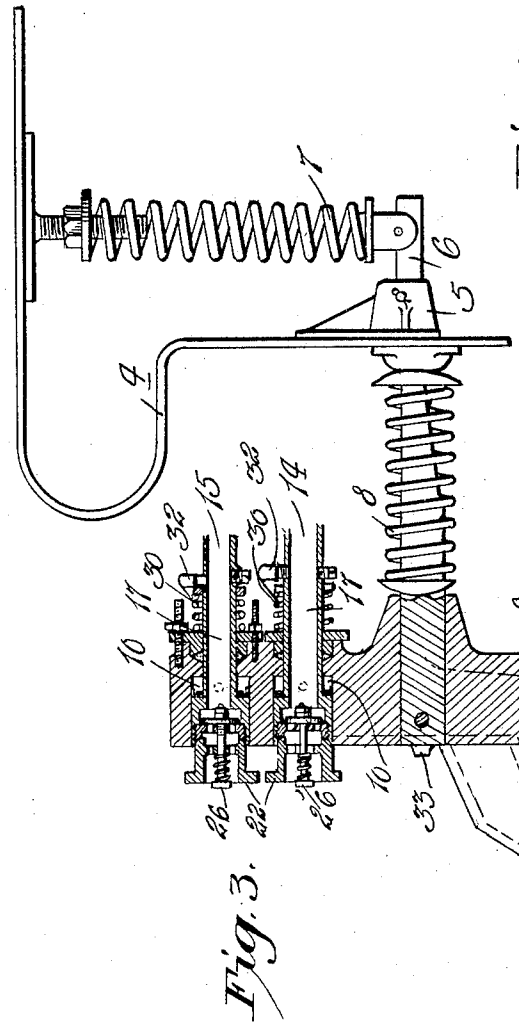


Fig. 3.

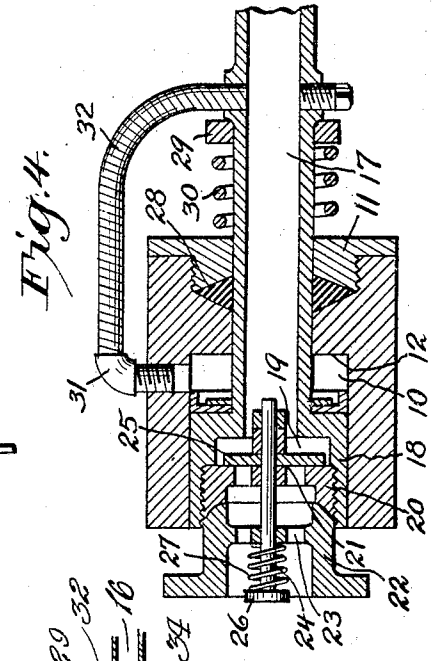


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN B. GENIN, OF ST. ALBANS, VERMONT, ASSIGNOR OF ONE-EIGHTH TO ALBERT D. DENIS, OF MONTREAL, CANADA, AND ONE-EIGHTH TO J. O. GOYETTE, OF ROUSES POINT, NEW YORK.

TRAIN-PIPE COUPLING.

1,327,031. Specification of Letters Patent. **Patented Jan. 6, 1920.**

Application filed June 29, 1918. Serial No. 242,672.

To all whom it may concern:

Be it known that I, JOHN B. GENIN, a citizen of the United States, residing at St. Albans, in the State of Vermont, have invented certain new and useful Improvements in 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 to automatic couplings for connecting the adjacent ends of the pipe lines for air and steam on railway cars.

An object of the present invention is to provide connections for such couplers whereby when the cars pass around curves or should the coupling members be slightly displaced an absolutely tight joint will at all times be maintained.

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, combination and formation of parts as will be hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings has been shown a 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, alterations or modifications to which recourse may be had that come within the scope of the claims without departing from the spirit of the invention or sacrificing the efficiency of the same.

In the accompanying drawings:

Figure 1 is a side elevation of the coupling device as applied;

Fig. 2 is a plan view of the couplers taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section through one of the couplers; and,

Fig. 4 is a horizontal detail section through one of the couplers and its connection to the air pipe.

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

The numeral 1 indicates ordinary railroad cars having the draw-bars 2 applied thereto for connecting the cars together. Connected to each of the draw-bars 2 by means of the U-bolts 3 is a bracket 4 comprising a depending spring plate. Carried by each of these plates 4 is a bearing 5 and extending through and pivotally connected to each of these bearings is a bar 6. One end of this bar 6 is connected by means of the equalizing springs 7 to the portions of the brackets 4 which are connected to the couplers 2, and encircling each of these bars 6 is a shock absorbing spring 8. Connected to the outer or free ends of each of these bars 6 is a block or structure 9 (usually a casing) having formed in its front face a series of recesses 10, each of which terminate in a perforation 11 and form a shoulder 12 between the recess and the perforation as better illustrated in Fig. 5 and there being one recess and perforation for each line of coupling. Formed with the opposite sides of the castings 9 are the wings 13 which act as guiding and engaging devices so as to bring the couplings together or allow the couplings to have sufficient play to compensate for any qualities and curvatures of the track over which the car travels.

For the usual rubber hose I employ flexible metal hose one of which indicated by the numeral 14 being for air brakes, one indicated by the numeral 15 being for the signal and one indicated by the numeral 16 being for the heating pipes and carries steam. Connected to each of these pipes 14 15 and 16 is a short pipe 17 and this short pipe extends through the perforations 11 formed within the coupling heads and terminate in enlarged heads or pistons 18 which are slidably mounted within the recesses 11. These piston heads 18 are provided with internally threaded recesses 19 which communicate with the pipes 17 and seated within each of these recesses is an externally threaded ring 20 carrying a spider 21. The inner faces of these rings 20 are formed with a concavely rounded seat and adapted to rest within this seat is one end of a sleeve 22 which end is rounded so as to fit within

this concave seat, and said sleeve and ring forming practically a universal joint of limited range. This sleeve 22 is provided with a spider 23 and extending through the spiders 23 and 21 is a valve stem 24. This valve stem carries a valve 25 which is adapted to move within the recesses 19, the opposite end of the valve stem is provided with a head 26 and arranged between this head 26 and the spider 23 is a coil spring 27 which normally holds the valve 25 closed. Seated within the castings 9 and encircling the pipe 17 are suitable couplings 28 so as to prevent leakage and permit this pipe 17 to move longitudinally. Each pipe 17 carries a flange 29 and arranged between the flange 29 and the couplings 28 is a coil spring 30 which normally exerts a pressure upon the pipe 17 for retaining the pistons 18 within the recesses 10. Communicating with each of the recesses 10 is a pipe 31 and this pipe is connected to a flexible hose or piping 32 which piping 32 is connected to the air pipe 14, so as to supply air to the various recesses 10 and force the pistons 18 outwardly so that they will assume the position as better shown in Fig. 5 of the drawings, but their outward movement is limited by means of the coil springs 30.

From the foregoing it is obvious that as the two coupling heads are brought together the wings or guiding members 13 will direct the couplings to their proper positions and any shocks exerted upon the couplings when coming together will be taken up by means of the springs 8. After the couplings have been connected together and when any forces are exerted upon the couplings so as to cause them to move in a vertical direction, the connection between the rods 6 and the couplings 5 will permit such a movement, but these movements will be limited by means of the equalizing springs 7. The air from the pipe 14 at all times exerts a pressure upon each of the pistons 18, thereby forcing the same outwardly and when two couplings come together the sleeve 22 of the adjacent couplings will contact, and by having a continual pressure upon these sleeves they will at all times maintain an absolutely tight connection irrespective of any movements they are compelled to undergo when the car is traveling over rough roads or curvatures of the track. When the sleeves 22 come together the adjacent ends 26 of the valve stems will contact, thereby forcing the valves 25 inwardly where they will open the connections so that the fluids may readily pass therethrough and establish a communication between the pipes of the adjacent cars. However, when the cars are uncoupled the coupling heads will readily separate and when separated the valves 25 will immediately return to their closed positions, thereby cutting off the supply of air or steam and preventing leakage. The outer faces of each of the castings 9 are provided with the bumpers 33 and the steam pipe 16 may be provided with the suitable condensation valves 34.

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

1. In a train pipe coupling device the combination with a casting having a series of recesses formed therein, connecting pipes extending within said recesses, pistons carried by the outer ends of said connecting pipes, valves arranged within said pistons, and means for supplying pneumatic pressure to said pistons substantially as and for the purpose specified.

2. In a train line coupling the combination with a casting, one face of said casting having a plurality of recesses formed therein and perforations communicating with said recesses, pipes extending through said perforations and communicating with the air and steam pipes of the train, a piston carried by one end of each of said pipes extending through said perforations, means for supplying air from the air pipe of the train to each of said recesses so as to force said pistons outwardly, and spring actuated valves arranged within said pistons substantially as and for the purpose specified.

3. In a train pipe coupling the combination with a casting having a plurality of recesses formed therein and a perforation communicating with each recess, a piston slidably mounted within each recess, a sleeve arranged within each piston, a flexible connection between said sleeve and said piston, a valve arranged within each piston, pipes communicating with each piston and extending through said perforations, coil springs encircling said pipes for normally holding the pistons within said recesses, and means for supplying air to said recesses whereby said pistons will be forced outwardly substantially as and for the purpose specified.

4. In a train pipe coupling the combination with a casting having a plurality of recesses therein, pistons slidably mounted within said recesses, pipes communicating with said recesses, air and steam pipes connected with said pistons, means for normally holding said pistons within said recesses, means of communication between said air pipe and the pipes leading to said recesses, whereby air may force said pistons outwardly substantially as and for the purpose specified.

5. In a train pipe coupling device the combination with a casting, air and steam pipes communicating with said casting, a bar having one end connected to said casting, a supporting bracket, said bar being connected to said supporting bracket, a

shock absorbing spring encircling said bar and arranged between said casting and said bracket, and an equalizing spring connecting the outer end of said bar with said bracket substantially as and for the purpose specified.

6. In a train pipe coupling device the combination with a casting having a recess therein and a perforation communicating with said recess, a pipe extending through said perforation, a coupling encircling said pipe and connected to said casting, a flange carried by said pipe, a spring arranged between said flange and said coupling, a piston slidably mounted within said recess, an auxiliary pipe establishing a communication between said pipe and said recess, a ring seated within said piston, a sleeve movably mounted within said ring, a valve seated within said piston, a valve stem carried by said valve and extending through said ring and said sleeve, and a coil spring encircling said valve stem for normally closing said valve substantially as and for the purpose specified.

In witness whereof I have hereunto set my hand.

JOHN B. GENIN.