Oct. 26, 1926. 1,604,166

W. S. JACKSON

JOINTED METALLIC TERMINAL FOR CONNECTER HEAD SLEEVES

Filed Dec. 17, 1921 2 Sheets-Sheet 1

Fig. 1.

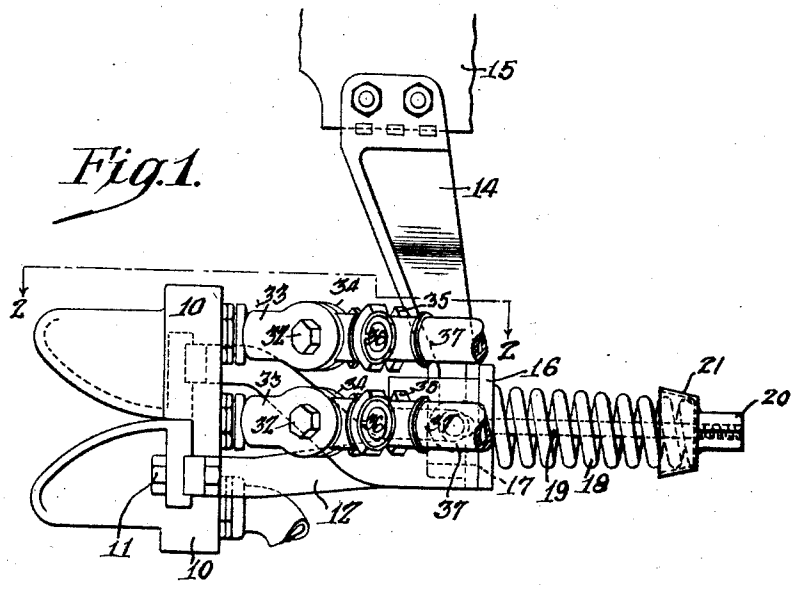


Fig. 2.

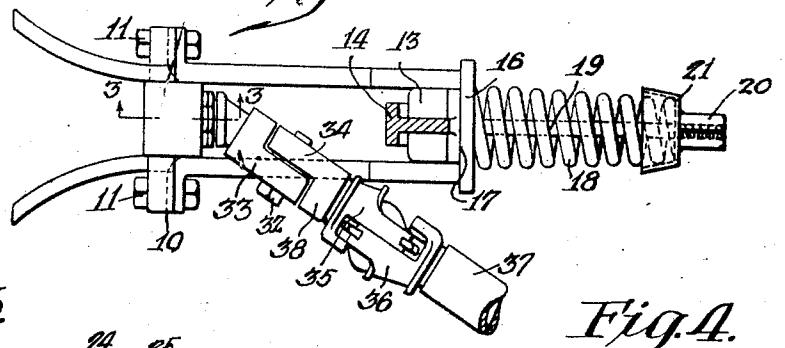


Fig. 3.

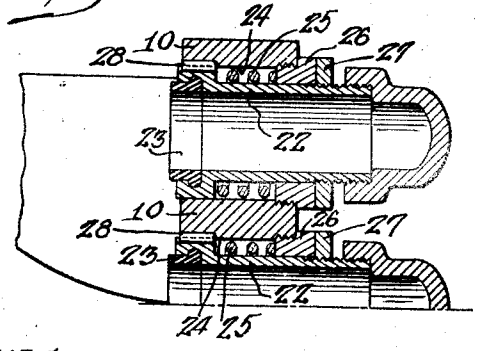
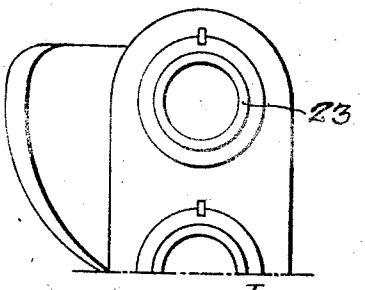


Fig. 4.



Witness:
Walter Thorn.

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Fig. 5.

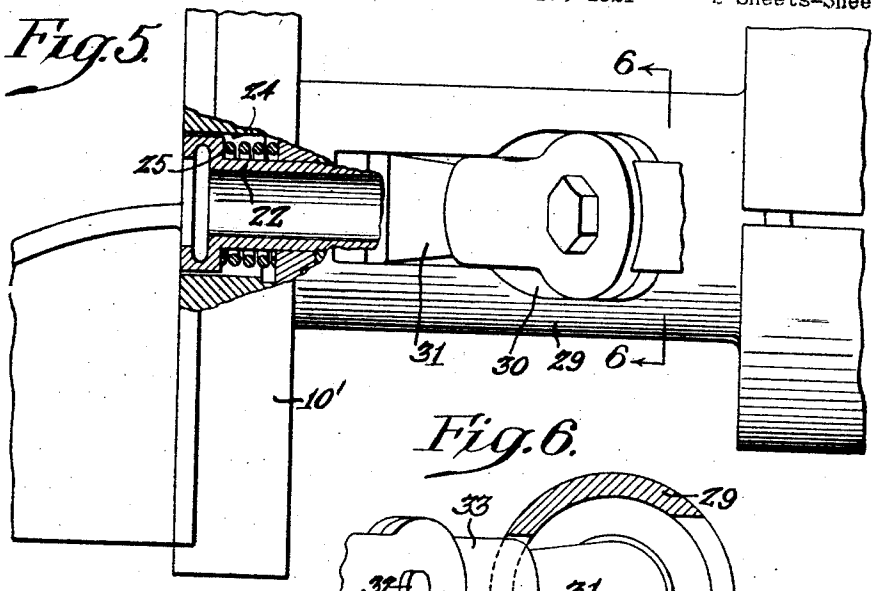


Fig. 6.

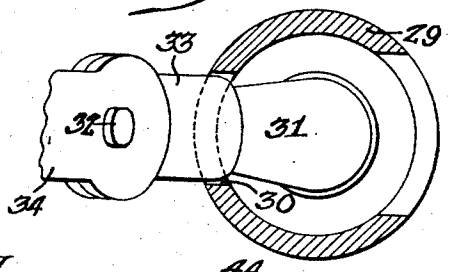


Fig. 7.

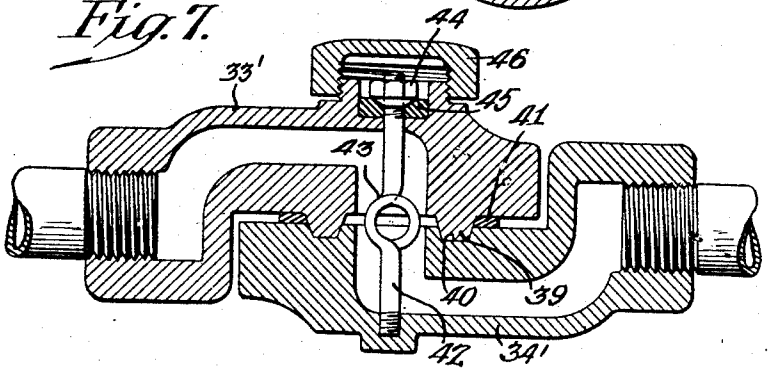
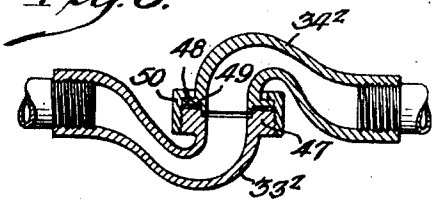


Fig. 8.



Witness:
Walter Chum.

Inventor:
W. Stull Jackson

Patented Oct. 26, 1926. 1,604,166

UNITED STATES PATENT OFFICE.

WILLIAM STEELL JACKSON, OF BALA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ELLISON EDWARD WORKMAN AND ONE-HALF TO EDWARD ARTHUR ROBINSON, BOTH OF MONTREAL, CANADA.

JOINTED METALLIC TERMINAL FOR CONNECTER HEAD SLEEVES.

Application filed December 17, 1921. Serial No. 523,070.

My invention relates to connecters for automatically joining the various fluid-carrying pipes of railway cars, when the cars are coupled.

The main purpose of my invention is to provide to the best advantage for swinging engagement between the normal train pipe coupler and the coupler carried by the automatic connecter head without requiring torsion of the train pipe.

A further purpose is to supply a permanent joint movable preferably in a vertical plane, in an otherwise rigid connection between the rear end of the automatic connecter and the coupler by which this end is connected to the normal train piping.

A further purpose is to maintain the fluid-carrying connecter parts against rotation in the head and provide them with jointed but otherwise rigid connections movable within a plane to engage with the couplers by which they are united to the normal train pipes.

Further purposes will appear in the specification and in the claims.

I prefer to illustrate my invention by but one general form with slight modifications thereof, selecting a form which is practical, efficient and reliable and which at the same time well illustrates the principles of my invention.

Figure 1 is a side elevation showing a train pipe connecter to which my invention is applied.

Figure 2 is a section of Figure 1 upon line 2—2.

Figure 3 is a partial section of Figure 2 upon line 3—3.

Figure 4 is a front elevation of part of the structure seen in Figure 1.

Figure 5 is fragmentary side elevation, showing a slight modification.

Figure 6 is a fragmentary section upon line 6—6 in Figure 5.

Figures 7 and 8 are longitudinal sections of two forms of joint which may be used to give the desired movement.

Similar numerals indicate like parts.

In automatic train connecters it is customary to provide for connection of the ordinary train pipe with the piping of the connecter or with the corresponding train pipe of the meeting car according to the character of coupling which is required, depending primarily upon whether the car with which connection is made is provided with a suitable cooperating automatic connecter or not. In connecting up any train pipe hose of one car with a train pipe of another car having Westinghouse couplers, for example, the ends of the hose are lifted until the cooperating devices will interfit and then they are lowered, turning each coupling face with reference to the other so as to slide or "wipe" the parts into final contact position. In this operation no torsion of the hose is necessary.

In the attempts, however, which have been made to connect up the train hose with a permanent member of the connecter pipe, either no provision has been made for movement of the coupler tube of the connector or it has been made rotatable along with its coupler end about the axis of the tube.

In one form of this connection the tube has been placed under such necessary spring pressure by reason of the construction used that it has proved impracticable to turn it in the head because of the high friction upon the end of the tube; and the rotation of the tube with connected members at any other angle than a right angle to the tube axis results in swinging the connected members through the path of a cone surface instead of in a plane. This cone path of movement requires torsion of the train pipe hose so that its coupler may interfit with the corresponding coupler element carried by the tube during the progress of the latter about its conical path of movement.

By my invention I maintain the connecter tube substantially fixed against rotation and to it I join a rigid intermediate section movable at an angle in a plane to couple with the

Westinghouse or other coupler terminal of the proper train pipe. This provides for revolution of the section carrying the coupler as distinguished from rotation of the tube within the head and gives revolution about the joint and in a plane instead of the conical path of movement which is caused by swinging a diagonally placed coupler about the end of the pipe.

My illustration is intended to be conventional in that the head, tube, supporting mechanism, pipe joint and coupler parts shown are selected from among various such parts capable of use with my invention and that the individual types of this mechanism shown need not be used to practice my invention.

In Figure 1 the head 10 is secured by bolts 11 to a yoke 12 which straddles a block 13 at the lower end of the bracket 14 carried by any fixed car part 15. The rear 16 of the yoke is adapted to be pressed against the back face 17 of the block 13 by a spring 18 held to its duty against the rear face of the yoke by a bolt 19. This bolt is secured within the block 13 at one end and carries a nut 20 and washer 21. This general form as so far described is shown in a copending application filed by Edward A. Robinson for connecter for train pipes Serial Number 412,647, filed September 25, 1920, and is one only of many constructions with which my invention may be used.

As in the Robinson application, the head is shown as having forwardly spring-pressed connecter tubes 22 which carry gaskets at their forward ends at 23 and which are pressed forwardly within recesses 24 by springs 25 abutting against collars 26. The tension and extent of normal projection may be adjusted by nuts 27 with any desired locking mechanism for them.

In the Robinson construction each tube is free to turn about its axis and the pipe coupler parts connect with the head and swing with the tube about the axis of the tube. With the relatively low pressure of these springs 25 this is entirely feasible when the connecters are not united to the connecters on other cars, but with additional spring pressure the turning of such a tube becomes more and more difficult. This is so far true that in one construction where a tube through the head is subjected to the axial pressure of the main connecter spring, it was found impracticable to make it turn in the head.

However, the rotation of the tube for the purpose of swinging the couplers for the pipes about the tube axis presents the two difficulties that the tube cannot be turned while the pipe is under pressure from connection with another car and that the parts carried by it swing through the path corresponding to the surface of a cone twisting the coupler at the same time that it revolves about the tube.

With my construction I avoid rotation of the tube and even accidental swinging of the parts carried by it about any axis of the tube by preventing rotation of the tube.

One method of preventing the rotation of the tube is shown in Figures 3 and 4 where it will be seen that a key 28 is fitted into the head 10 and is splined into the tube so as to allow longitudinal play of the tube while preventing rotation.

In Figure 5 another means of preventing tube rotation is shown as applied to the middle tube. In it the head 10^1 is mounted upon a resiliently held tubular support 29 keyhole-slotted at 30 so that the angularly-extending fitting 31 and other parts can be inserted for assemblage but cannot swing with the tube. The tube is here screwed into the fitting by a spanner wrench.

I insert a joint conventionally shown at 32 between the part 33 connected more directly to the tube 22 and the part 34 rigidly connected to the half coupler 35 interfitting with the half coupler 36 carried by the train pipe hose 37.

By this construction the rigid section 38 swings about the joint in a diagonal plane which is always the same and which may be selected to bring the two half couplers together to the best advantage without requiring torsion of the train pipe.

Two forms of joint are shown in Figures 7 and 8. In Figure 7 the parts 33^1, 34^1 are duplicates except for the bolt-receiving construction and that one carries a ring 39 and the other a groove 40. Packing 41 assists in forming the seal.

The spring bolt 42 is secured to one of the parts at one end, is coiled at 43 to give it longitudinal spring and passes through the other part to a nut 44 resting upon packing 45. A cap 46 covers the nut and packing and may itself be fluid-tight.

In the other joint the parts 33^2, 34^2, meet in opposing flanges 47, 48, spaced by packing 49. One of the flanges is threaded to receive a cap 50 which engages the other flange also to draw the flanges together.

It will be evident that various changes may be made by others interested in obtaining part or all of the advantage of my invention without copying it; and it is my purpose to include herein all such changes as come within the reasonable spirit and scope of my invention.

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

1. In an automatic train pipe connecter, a connecter head, a train pipe terminal free to slide longitudinally therein, an angular connection at the rear of said terminal, a rigid section adapted to be connected there-

with, a joint between the section and the connection, permitting movement in a plane and a coupler carried by said rigid section adapted to engage with a mating coupler upon a train pipe.

2. In an automatic train pipe connecter, a connecter head, a train pipe terminal therein adapted to move along its axis, an angular connection at the rear of said terminal, a rigid section adapted to be connected therewith, a joint between the section and connection permitting movement in a plane and a coupler carried by said rigid section adapted to engage with a mating coupler upon a train pipe.

3. In an automatic train pipe connecter, a head, a tubular train pipe terminal movable longitudinally of the terminal therein, means for preventing angular rotation of the terminal, an angular connection at the rear of said terminal, a rigid section adapted to be joined to said connection, a joint between the rigid section and connection, adapted to move in a plane without disconnection and a coupler carried by the rear end of the section adapted to mate with a coupler upon a train pipe.

4. In an automatic train pipe connecter, a connecter head, a tubular train pipe terminal therein, a gasket carried by the terminal, a spring engaging the terminal to move it forward, an abutment against which the spring presses, an angular connection movable with the terminal, a rigid section adapted to be joined to the connection, a joint therebetween permitting movement in a plane without disconnection, a coupler carried by the rear of the section and means for preventing undue rotation of the terminal.

5. In an automatic train pipe connecter, a connecter head, a tubular train pipe terminal therein, a gasket carried by the terminal, a spring engaging the terminal to move it forward, an abutment against which the spring presses, an angular connection rigid with the terminal, a rigid section adapted to be joined to the connection, a joint therebetween permitting movement in a plane without disconnection, a coupler carried by the rear of the section and a mount for the head engaging the parts in the rear of the head to prevent undue rotation of the parts.

6. In an automatic train pipe connecter, a connection head, a tubular train pipe terminal therein, a gasket carried by the terminal, a spring engaging the terminal to move it forward, an abutment against which the spring presses, an angular connection rigid with the terminal, a rigid section adapted to be joined to the connection, a joint therebetween permitting movement in a plane without disconnection, a coupler carried by the rear of the section and a laterally-apertured tubular mount for the head through which the parts pass to prevent undue rotation of the terminal.

7. In an automatic train pipe connecter, a train pipe having a coupler, a connecter head, a tubular train pipe terminal movable longitudinally in said head and angular connections between the terminal and the coupler embodying a mating coupler and a joint giving movement in a plane without disconnection, said connections being rigid except for said joint and interfitting of the coupler parts.

WILLIAM STEELL JACKSON.