Aug. 8, 1933. J. ROBINSON 1,921,207

AUTOMATIC TRAIN PIPE CONNECTER

Original Filed Oct. 14, 1929

Fig. 1.

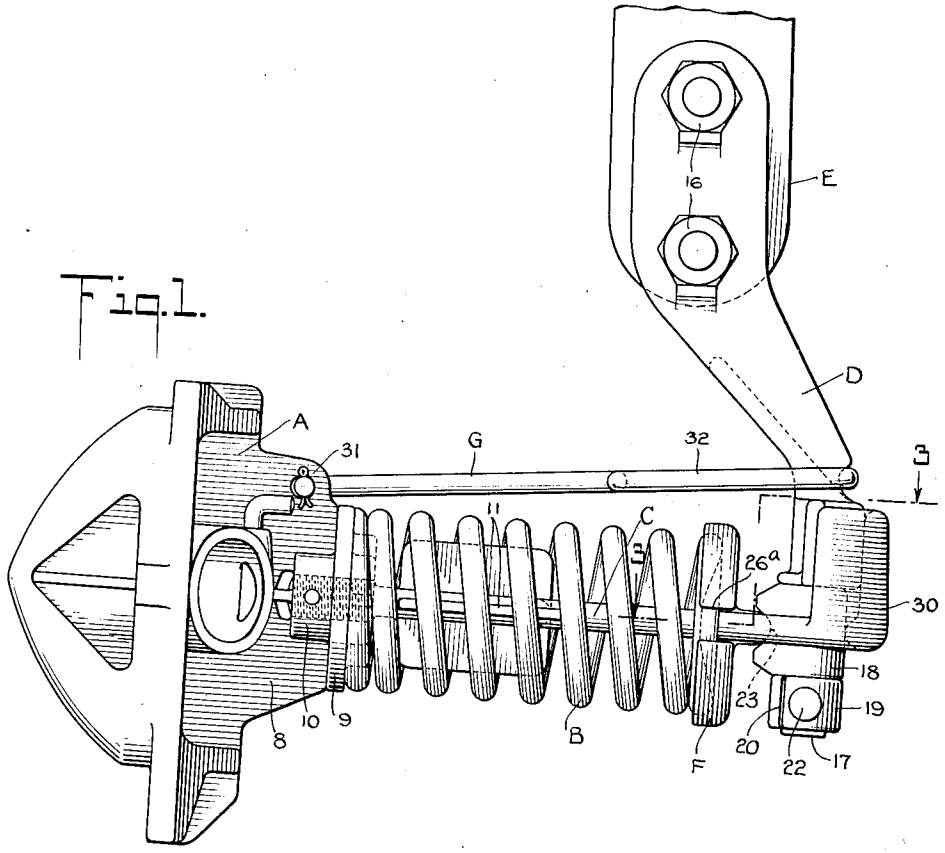


Fig. 2.

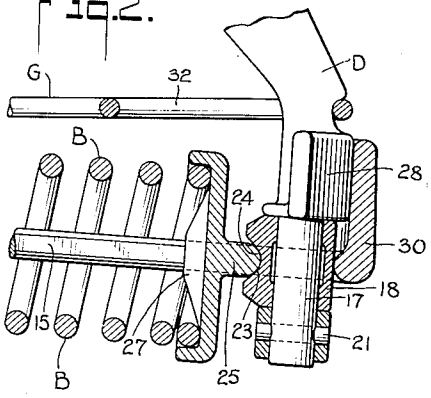


Fig. 3.

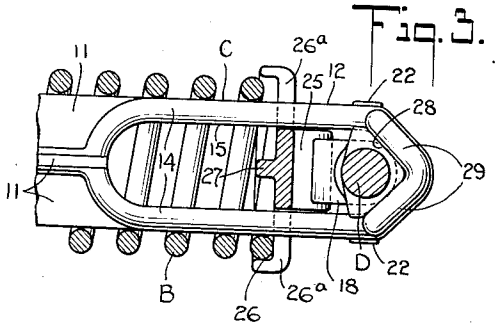
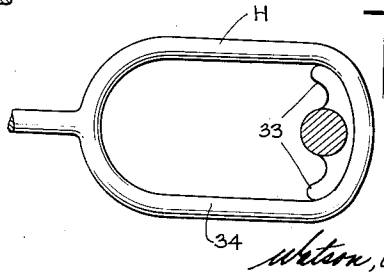


Fig. 4.



INVENTOR

BY Joseph Robinson

Watson, Cole, Morse & Grindle

ATTORNEYS

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1,921,207

AUTOMATIC TRAIN PIPE CONNECTER

Joseph Robinson, New York, N. Y.

Application October 14, 1929, Serial No. 399,670
Renewed April 20, 1932

14 Claims. (Cl. 285—58)

My invention relates to improvements in automatic train pipe connecters, and particularly to means for supporting such connecters for free universal movement with respect to the car coupler. An object is to provide a simple form of such support, which will be inexpensive to make, strong and dependable, and on which the coupling head may swing to a position at a right angle to the longitudinal direction of the track if necessary in order to protect itself against damage when car couplers slip by.

In the accompanying drawing

Figure 1 is a side elevation of my improvement;

Figure 2 is a sectional detail inside view of the universal joint;

Figure 3 is a sectional plan view of parts of the universal joint, and

Figure 4 is a sectional plan view of a modification of my improvement.

It will be understood that any type of automatic train pipe connecter head may be used with my invention. I illustrate a coupling head A of the pin and funnel type, but a head of the butt face wing type, or other form, may be used if desired. The head is provided with a suitable shank 8 secured to the head in any desired manner. The shank has an annular seat 9 to receive the front end of the buffer spring B. The shank is threaded, or otherwise arranged, as at 10 to receive the front end of the eye bolt or tie member C. The member is provided with radially extending fins or webs 11 which form a support for the forward end of the spring. Extending rearwardly away from these fins the tie member is provided with a perforated head 12 comprising horizontally disposed portions 14 spaced apart. These portions are flattened on the inner surface as at 15 to provide greater clearance for the associated parts. The bracket D, formed of one or more pieces, is secured at its upper end to the usual lug E which is suitably connected to the underside of the car coupler, not shown. The bracket is secured to the lug by bolts or rivets 16 or by other means. At its lower end the bracket is supplied with a vertically disposed cylindrical shaped lug or trunnion 17 over which is slipped a pivot block 18, the block having rocking movement on the lug or trunnion. A retaining member 19 is rigidly secured to the bottom of the trunnion after the pivot block has been applied. The retaining member serves of course to support the pivot block in place. It is slotted at 20, and its inside diameter is slightly less than the diameter of the trunnion 17, so that when the retaining member is pressed on to the trunnion its grips the same firmly. A pin 21 is inserted in the member and trunnion to further secure the member in place. Laterally extending lugs 22 extend away from the opposite sides of the member 19 a distance greater than the width of the perforated head 12 of the link C. These are provided to prevent dislodgement of the connecter body from the bracket in case of breakage of a spring or other part. Upon its front face the pivot block 18 is provided with a transversely extending horizontally disposed curved bearing or seat 23 which receives the complementarily shaped face 24 of the bearing lug 25 of the spring seat F, the seat and the lug being preferably integral though they may, of course, be formed separately if preferred. The seat is provided with an annular bearing 26 for the rear end of the spring B. At opposite sides it is slotted at 26a to slidingly receive the bars 14 of the link C. Between these slots I provide a vertically disposed reinforcement web 27.

As appears in the drawing, the trunnion 17, and the pivot block 18, lie within the elongated opening in the head 12 of the link C. The link spans or extends around these parts and engages the rear face of the bracket. The bearing lug 25 also lies within the opening in the link C, the portions 14 serving to prevent the lug from shifting laterally out of its bearing or seat 23 on the pivot block 18.

To centrally position the coupling head laterally with respect to the bracket, I provide the bracket, at a point adjacent the pivot block and preferably above the same, with a V-shaped seat or bearing surface 28, see particularly Figure 3, which is spanned by a complementarily shaped jaw 29 of a vertically disposed flange or projection 30 formed integral with the rear end of the link or member C. This V-shaped seat forms an abutment for positioning the block 18 on the bracket against undesired vertical upward movement. The base of the flange or projection extends preferably about half way around the pivot block 18, as shown, and is preferably an integral part of the link C. As the coupling head A is swung in the horizontal plane around the trunnion 17 a cam action is set up between the V shaped seat 28 and the jaw 29 which embraces it, thus drawing the link C rearwardly against the tension of the spring B. When the force is removed the coupling head A will, of course, be at once returned to its normal position shown in Figure 1. Inasmuch as the flange 30 straddles the seat 28 of the bracket, the link

C cannot unduly rotate about its longitudinal axis on the bracket, nor, in consequence, can the coupling head A so rotate. Rotation is permitted, however, when the connecters couple up, at which time the projection or flange 30 is pressed rearwardly away from the rear face of the bracket D. However, contact between the bearing lug 25 and its seat on the pivot block 18 prevents the spring seat F from rotating on the bracket about the longitudinal axis of the connecter. As the walls 14 of the link C have a fairly close sliding fit in the slots 26ª of the seat the several parts are, by this arrangement, at all times prevented from excessive rotation about the longitudinal axis of the connecter.

While the length of the flange or projection C may be such as to dependably support the coupling head A in the normal position shown in Figure 1, I have provided an auxiliary support therefor. This consists of the rod G which is suitably connected to the coupling head at 31, and is provided with an elongated perforated eye 32 which rotatably embraces the bracket D at a point above the buffer spring B, as shown. When the connecter couples up the supporting effect of this rod is removed and the connecter is free to move universally. It will be understood, see particularly in Figure 3, that the coupling head and the supporting mechanism therefor may move around the bracket to a position at a right angle to the track to accommodate itself to extreme car coupler slip-bys.

The modification shown in Figure 4 consists in eliminating the V-shaped seat 28 on the rear side of the bracket, and eliminating the projection or flange 30. In their stead a fin or curved rib 33, relatively wide transversely, is formed integral with the bracket at the point now occupied by the V-shaped seat 28. The tie rod or auxiliary support H is provided with an enlarged head 34 which extends around this flange, as shown. Obviously, when the coupling head A is swung laterally on its pivot on the bracket, the engagement between the rod H and the bracket will cause the head either to lift, or it will compress the buffer spring B. In either case when the force is removed from the head the latter will be immediately returned to and held in the normal position shown in Figure 1.

It will be noted that the tie rod or link C extends through the spring B, though it may of course span it, and that the spring is seated at one end against the flange 9 of the shank 8 and at the other end against the spring seat F, and that the spring is placed under the desired compression by screwing the head on to the stem C after the other parts have been assembled. The plate or spring seat F is assembled into the tie rod C by turning the plate sidewise and passing it into the opening in the link C until its slots 26ª are in line with the bars or walls 12 of the link, and then turning it to the position shown in Figure 1. This application covers improvement on the structure shown in my co-pending application Serial #392,704 filed September 14th, 1929.

What I claim is:

1. An automatic train pipe connecter comprising in combination, a coupling head and a support therefor, said support including a bracket having on its lower portion a vertically disposed trunnion, a pivot block suitably mounted on said trunnion, a spring rotatably supported on the bracket by said pivot block, and a member extending from the coupling head rearwardly beyond said spring and spanning said trunnion and pivot block.

2. An automatic train pipe connecter comprising in combination, a coupling head and supporting means therefor, said means including a bracket having at its lower portion a vertically disposed cylindrically shaped trunnion, a pivot block rotatably mounted on said trunnion for movement in a horizontal plane, means for securing the block in place, a seat for a spring mounted on the block for rocking movement thereon, a spring for extending said coupling head, the spring being mounted on said seat, and a member connected to the head and extending rearwardly thereof past said spring and seat and around said pivot block.

3. An automatic train pipe connecter comprising in combination, a coupling head and a resilient support therefor, said support including a bracket having at its lower end a pivot block mounted on the bracket for rotary movement in a horizontal plane, said block having on its front face a seat, a part mounted in said seat for rocking movement thereon in the vertical plane, a spring between said coupling head and said part with one end supported by said part, and a member extending rearwardly of the head through said spring and said part and around said pivot block and said bracket, said pivot block, said part and said member being rotatable in either direction around said bracket to the extent of at least 90° from their normal position.

4. An automatic train pipe connecter comprising in combination, a coupling head, a bracket for supporting the head from the coupler of the car, said bracket being provided at its lower portion with a seat, a pivot block mounted on said seat, a spring between the coupling head and the bracket and exerting pressure against said pivot block, said bracket being provided at a point above the pivot block with a forwardly flared bearing surface, and a member spanning the lower portion of said bracket and extending forwardly thereof along said spring into engagement with said head, said member being provided with a vertically extending projection shaped to engage said flared surface to position said coupling head.

5. An automatic train pipe connecter comprising in combination, a coupling head, a member secured thereto and extending readwardly thereof, said member being provided with a head having an elongated opening therein, a bracket extending from above said member downwardly through said opening, said bracket being provided with a pivot block mounted for rotation on a vertical axis around the bracket and lying partly within said opening, said pivot block having on its front face a horizontally disposed transversely extending bearing, a seat for a spring mounted on said bearing for rocking movement thereon, a part of said seat being also within the elongated opening in said member, said member serving to prevent said seat from slipping laterally out of said bearing, and a spring interposed between said seat and said coupling head.

6. An automatic train pipe connecter comprising in combination, a coupling head having suitably secured thereto a shank provided with an annular seat, a spring mounted on said seat, a tie member anchored to said shank and extending rearwardly along said spring, said member being provided at its front portion with lat-

erally extending webs to support the forward coils of the spring and being provided at its rear portion with a head having therein an elongated opening, a seat for a spring lying partly within said opening, said seat having slots in its sides to receive said tie member, a bracket extending downwardly into the elongated opening in said member and having therein a trunnion, a pivot block mounted for rotary movement on the trunnion, said block being provided on its front face with a bearing to pivotally receive a rearwardly extending lug formed on the rear side of said spring seat, and a vertically extending hollow projection on the rear end of said member and engaging said bracket, the bracket and its point of engagement with the projection being flared in opposite directions complementary of the meeting surfaces of said projection.

7. An automatic train pipe connecter comprising in combination, a coupling head and a support therefor, said support including a bracket, a pivot block mounted on the lower portion of the bracket for rotary movement thereon in the horizontal plane only, a spring, a member connected with the coupling head and extending rearwardly past said spring and embracing said pivot block and the lower portion of said bracket, and a rod engaging the bracket above said spring and anchored to the coupling head for cooperating with said spring and member to support the head, said pivot block, said member said rod and said spring being rotatable together around said bracket to the extent of at least 90° from their normal position.

8. An automatic train pipe connecter, comprising in combination, a coupling head and a support therefor, a bracket extending downwardly through said support, said bracket adjacent its lower end having a vertically disposed trunnion portion, a pivot block rotatably supported on said trunnion and having a forwardly facing seat, a member pivotally engaging said seat and a spring carried by said member and arranged to press the same against said seat and said support against the rear side of the bracket.

9. An automatic train pipe connecter, comprising in combination, a coupling head, a bracket having an elongated vertically arranged trunnion portion adjacent its lower end, a supporting member connected to said head and extending rearwardly and spanning said bracket, said member at its rear end having a contact portion adapted to bear against the rear side of said bracket, a pivot block rotatably mounted on said trunnion and having a forwardly facing seat, a member pivotally engaging said seat and a spring for pressing said member against said seat and said contact portion against the bracket, said supporting member, pivot block and spring being rotatable in either direction about said trunnion to the extent of at least 90° from their normal position.

10. An automatic train pipe connecter comprising, in combination, a coupling head and a support therefor, said support including a bracket having adjacent its lower end a vertically disposed trunnion, a pivot block engaging the front face of said trunnion and rotatable around the same, said block having a seat on its front face, a spring supporting member engaging said block and having a portion arranged in said seat, said member being rotatable in a vertical plane relative to said block, a head supporting member connected to said head and extending rearwardly and having spaced portions arranged on opposite sides of said trunnion and said pivot block and also having a portion arranged to engage the rear side of said bracket and a spring arranged between said spring supporting member and said head, said spring supporting member having parts arranged to engage the spaced portions of said head supporting member whereby the former is held in proper position to engage said seat on said block.

11. An automatic train pipe connecter comprising, in combination, a coupling head and a support therefor, said support including a bracket having adjacent its lower end a vertically disposed trunnion, a pivot block mounted on said trunnion and rotatable around the same, a spring pivotally supported on the bracket by said pivot block, a member extending from the coupling head rearwardly beyond said spring and spanning said trunnion and pivot block, said pivot block, said member and said spring being rotatable around said trunnion to the extent of at least 90°, and means for preventing rotation of said member on its longitudinal axis relative to the bracket.

12. An automatic train pipe connecter comprising, in combination, a bracket having a substantially vertically arranged trunnion portion, a pivot block rotatably supported on said trunnion portion, a coupling head, a member connected to the head and extending rearwardly and spanning said pivot block and said trunnion portion, a spring supported on said member and bearing against said pivot block, said pivot block, member, spring and head being rotatable around said trunnion portion to the extent of at least 90° to the normal longitudinal direction of the connecter.

13. An automatic train pipe connecter comprising, in combination, a bracket having a vertically arranged trunnion, a pivot block bearing against said trunnion, a coupling head in front of said bracket, a member extending rearwardly from said head and spanning said trunnion and said pivot block, a spring seat bearing against said pivot block, a spring arranged between said head and said spring seat, said pivot block, member, spring seat and spring being rotatable about said trunnion into a position at right angles to the normal longitudinal direction of the connecter.

14. An automatic train pipe connecter comprising, in combination, a coupling head, a member connected thereto and extending rearwardly thereof, said member having horizontally spaced portions, a bracket having a trunnion portion extending downwardly between said spaced portions of said member, a pivot block arranged in front of and bearing against said trunnion portion of the bracket, a spring seat bearing against said pivot block, a spring arranged between said head and said spring seat, said pivot block, member, spring seat and spring being rotatable about said trunnion portion of the bracket into a position at right angles to the normal longitudinal direction of the connecter.

JOSEPH ROBINSON.