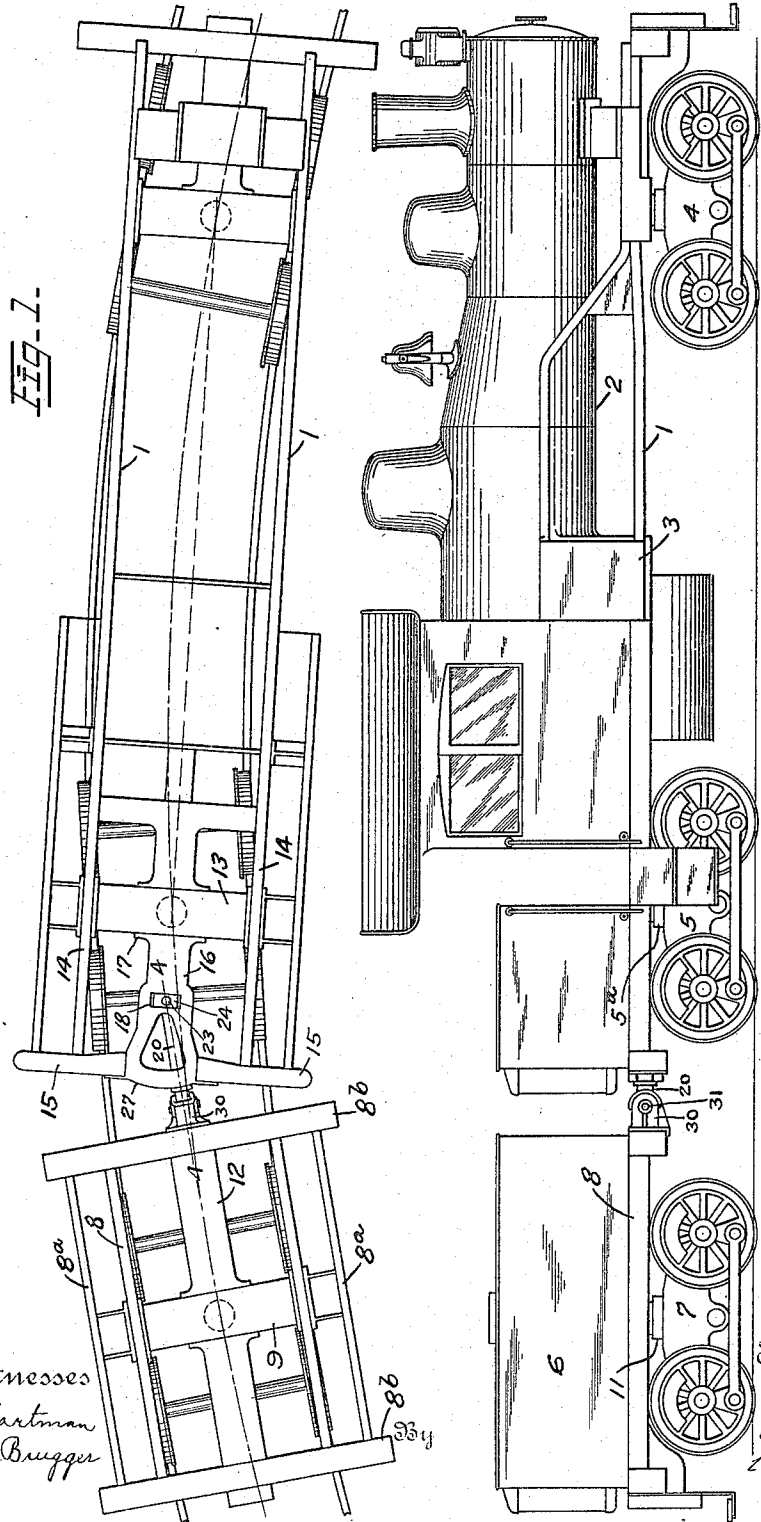


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 LOCOMOTIVE AND TENDER.  
 APPLICATION FILED APR. 22, 1915.

1,169,141.

Patented Jan. 25, 1916.

2 SHEETS—SHEET 1.



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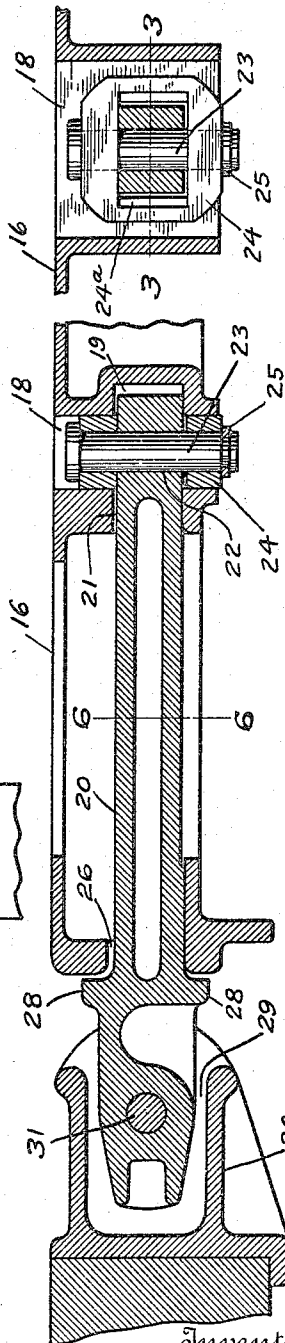
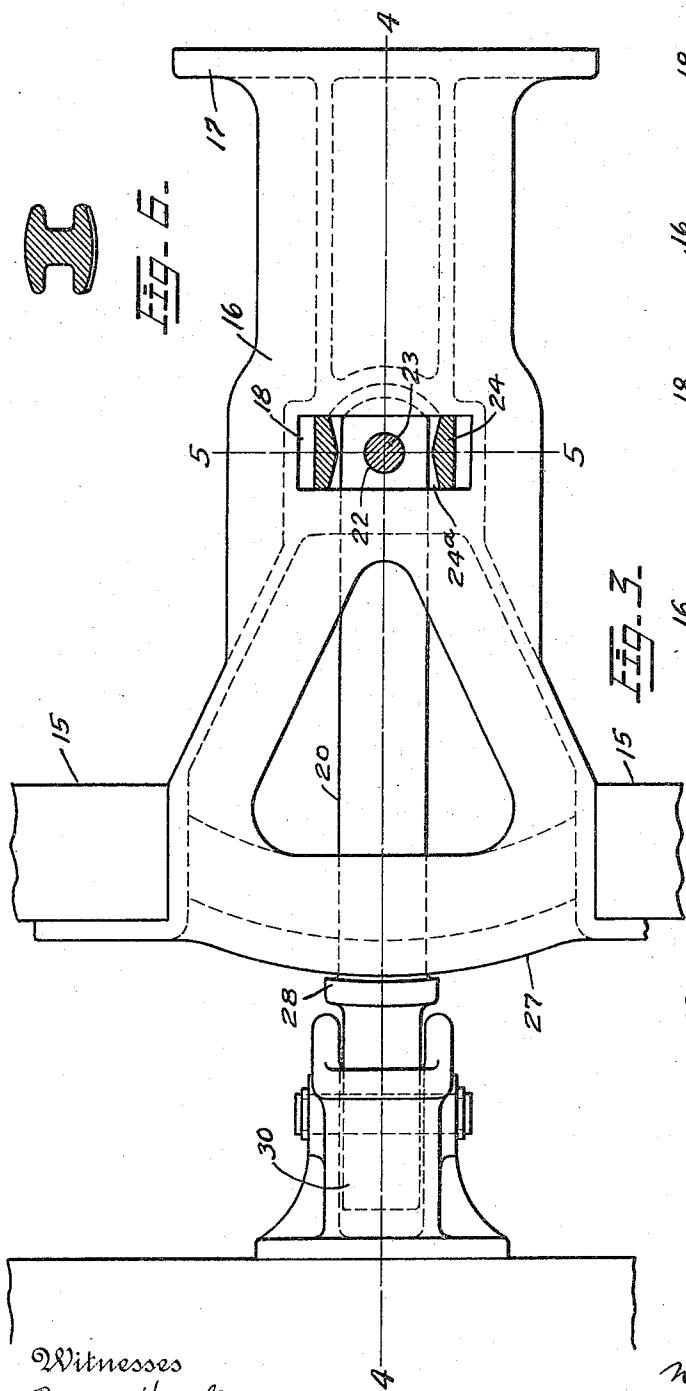


FIG. 6.

FIG. 5.

FIG. 3.

FIG. 4.

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# UNITED STATES PATENT OFFICE.

WILLIAM M. FAWCETT, OF ERIE, PENNSYLVANIA, ASSIGNOR TO HEISLER LOCOMOTIVE WORKS, OF ERIE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## LOCOMOTIVE AND TENDER.

1,169,141.

Specification of Letters Patent.

Patented Jan. 25, 1916.

Application filed April 22, 1915. Serial No. 23,051.

*To all whom it may concern:*

Be it known that I, WILLIAM M. FAWCETT, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Locomotives and Tenders, of which the following is a specification.

This invention relates to locomotives and tenders and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

The object of the invention is to form a connection between a locomotive and its tender which connection will tend to properly position the tender utilizing the locomotive proper for this purpose.

The invention is illustrated in the accompanying drawings as follows:—

Figure 1 shows a plan view of the locomotive frame and tender frame with their wheel supports in the positions assumed on a curved track. Fig. 2 a side elevation of a locomotive. Fig. 3 a plan view of the connection between the tender and locomotive frame. Fig. 4 a section on the lines 4—4 in Figs. 1 and 3. Fig. 5 a section on the line 5—5 in Fig. 3. Fig. 6 a section on the line 6—6 in Fig. 4.

1 marks the locomotive frame, 2 the locomotive boiler, 3 the fire box, 4 the front truck, 5 the rear truck, 6 the tender, 7 the tender truck, and 8 the frame of the tender comprising the side pieces 8<sup>a</sup> and cross beams 8<sup>b</sup>. The bolster 9 is arranged on the frame of the tender and rests on the spring bar 11 of the truck. The buffer bar 12 extends from the bolster 9 to the cross beam 8<sup>b</sup> forming the end of the frame. The rear bolster 13 on the locomotive frame extends between the side pieces 14 of that frame and rests upon the spring bar 5<sup>a</sup> of the rear truck 5. The end pieces 15 are arranged on the frame and these are secured to the draw-head 16 and with the draw head form the rear cross beam of the main frame of the locomotive. The draw head has a flange 17 at the front end and is secured to the bolster 13. It has about midway in its length a vertical slot 18 with a forwardly extending pocket 19. The connecting bar 20 extends through a longitudinal slot 21 in the draw-head 16 and through the vertical slot 18. It has a vertical perforation or opening 22.

A pin 23 extends through a collar 24 and through the perforation 22 in the bar 20, the pin having a locking washer 25 on its bottom end. The collar 24 is arranged in the vertical slot 18 and the opening 24<sup>a</sup> in the collar is such as to permit of the lateral swinging of the bar 20 on the pin 23 as clearly shown in Fig. 3. The front end of the bar 20 extends into the cavity 19 thus affording sufficient material in the bar in front of the pin 23 to sustain the strain on the bar. It will be observed by this construction the bar 20 may swing laterally on the pin 23 and is also swiveled in the opening 21, the bar being near enough round in cross section as shown in Fig. 6 to permit of a sufficient swinging movement to take care of the swinging of the tender incident to uneven track. The bar 20 extends through a slot 26 in the rear end of the draw-head 16. The rear end of the draw-head has a face 27 which is curved to an arc of a circle having the axis of the pin 23 as a center. The bar has the shoulders 28 top and bottom which are adapted to engage this face and thus form a buffer for the bar. It will be readily seen that the bar 20 may swing laterally in the slot 26 on the pivot formed by the pin 23. At the same time it is supported, top and bottom, and thus extends out of the rear end of the locomotive frame and is practically fixed against vertical movement relatively to this frame. The bar extends into a socket 29 in the coupling-head 30 secured to the front of the frame of the tender. The coupling-pin 31 extends through the coupling-head and through the bar 20, the axis of the pin 31 being horizontal, and the socket 29 being of a size permitting of the rocking of the bar on the pin 31.

Observing Fig. 1, it will be seen that the point in the main frame of the locomotive at the rear bolster 13 is maintained in constant lateral relation to the track. By making the swinging connection between the tender and the locomotive frame at a point to the rear of the bolster 13 or that part of the frame having constant relation with the track, the joint on a curve is swung outside of the curve so that the bar 20 which is in alinement with the center of the tender is practically tangent to the curve of the track at the center of the tender. By this point of connection or joint in the connec-

tion between the end of the frame and the bolster, the tender is maintained in approximate alinement with the track, however, the track may be curved. Furthermore, the tender with its slight wheel base and bolster construction is maintained in a horizontal position, that is to say, is prevented from tilting up and down at its front end by reason of the support given it by the connecting bar. The connecting bar, it will be observed, extending through the slot 26 is locked against vertical movement relatively to the main frame of the locomotive and having a connection with the front of the tender supports the front end of the tender or holds it against a tilting movement. At the same time, the joint on the pin 31 permits the tender frame and main frame of the locomotive to swing relatively to each other to follow the uneven conditions of track. Furthermore, the swiveling of the bar by means of the collar permits the tender and main frame of the locomotive to swing relatively to each other on this pivot having a longitudinal axis to take care of uneven conditions of track causing swaying of the locomotive.

What I claim as new is:—

1. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; and a connecting bar between the main frame and the tender and fixed in alinement on a horizontal plane with the tender comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support.

2. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; and a connecting bar between the main frame and the tender and fixed in alinement on a horizontal plane with the tender comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support, said connecting bar having a transverse pivotal joint with a horizontal axis at the front end of the tender.

3. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; a connecting bar between the main frame and the tender and fixed in alinement on a horizontal plane with the tender

comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support; and a support at one side vertically of said connecting bar and at the rear end of said main frame, said support permitting a lateral sliding movement of the connecting bar on the support.

4. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; a connecting bar between the main frame and the tender and fixed in alinement on a horizontal plane with the tender comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support; and a support for said connecting bar above and below said bar at the rear end of said main frame, said support permitting a lateral sliding movement of the bar on the support.

5. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; a connecting bar between the main frame and the tender and fixed in alinement on a horizontal plane with the tender comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support; a support at one side vertically of said connecting bar at the rear end of said main frame, said support permitting a lateral sliding movement of the connecting bar relatively to the support; and a shoulder on said bar engaging the rear face of said support and acting as a buffer for the connection.

6. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; and a connecting bar between the main frame and the tender comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support, said bar having a swivel connection with a horizontal axis.

7. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main

frame; a connecting bar between the main frame and the tender comprising a joint with a vertical axis, said joint being between the end of the main frame and the rear point on the main frame maintained in constant lateral relation to the track by the wheel support, said connecting bar having a pivotal joint with a horizontal axis at the front end of the tender; and a swivel connection on said bar, said swivel connection having a longitudinal axis.

8. In a locomotive and tender, the combination of two frames joined together, one the main frame and the other the tender frame; a draw-head on one of said frames, said draw-head having a vertical slot therein; a draw-bar extending into said vertical slot; a collar on the draw-bar; a pin connection between the collar and draw-head permitting the draw-bar to swing on the pin, said collar and draw-bar being free to rotate in the head forming a swivel connection with a longitudinal pivot; and a connection between the draw-bar and the other of said frames.

9. In a locomotive and tender, the combination of two frames joined together, one the main frame and the other the tender frame; a draw-head on one of said frames, said draw-head having a vertical slot therein; a draw-bar extending into said vertical slot; a collar on the draw-bar; a pin connection between the collar and draw-head permitting the draw-bar to swing on the pin, said collar and draw-bar being free to rotate in the head forming a swivel connection with a longitudinal pivot; and a connection between the draw-bar and the other of said frames, said connection having a horizontal pivot.

10. In a locomotive and tender, the combination of two frames joined together, one the main frame and the other the tender frame; a draw-head on one of said frames, said draw-head having a vertical slot therein; a draw-bar extending into said vertical slot; a collar on the draw-bar; a pin connection between the collar and draw-head permitting the draw-bar to swing on the pin, said collar and draw-bar being free to rotate in the head forming a swivel connection with a longitudinal pivot, said draw-head having a horizontal slot in its rear face through which the draw-bar extends, the draw-head forming a sliding support for said draw-bar; and a connection with the other of said frames.

11. In a locomotive and tender, the combination of two frames joined together, one

the main frame and the other the tender frame; a draw-head on one of said frames, said draw-head having a vertical slot therein; a draw-bar extending into said vertical slot; a collar on the draw-bar; a pin connection between the collar and the draw-head permitting the draw-bar to swing on the pin, said collar and draw-bar being free to rotate in the head forming a swivel connection with a longitudinal pivot, said draw-bar having a shoulder engaging the rear face of the draw-head and forming a buffer therefor; and a connection with the other of said frames.

12. In a locomotive and tender, the combination of two frames joined together, one the main frame and the other the tender frame; a draw-head on one of said frames, said draw-head having a vertical slot therein; a draw-bar extending into said vertical slot; a collar on the draw-bar; a pin connection between the collar and the draw-head permitting the draw-bar to swing on the pin, said collar and draw-bar being free to rotate in the head forming a swivel connection with a longitudinal pivot, said draw-bar having a shoulder engaging the rear face of the draw-head and forming a buffer therefor; and a connection with the other of said frames, said connection having a horizontal pivot.

13. In a locomotive and tender, the combination of a main frame; a wheel support for said frame; a tender; a wheel support for the tender, the wheel support of the tender being shorter than that of the main frame; a draw-head on the main frame having a vertical slot to the rear of the point on the main frame having a constant lateral relation with a track; a draw-bar extending longitudinally of the head into said vertical slot; a collar arranged in the slot and having a pin connection with the draw-bar making a joint for the draw-bar with a vertical axis, said draw-bar and collar being free to turn on a longitudinal axis with relation to the draw-head, said draw-head having a slot in its rear end forming a sliding support for the rear end of the draw-bar; and a pivotal connection between the rear end of the draw-bar and the tender, the axis of said pivotal connection being horizontal.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM M. FAWCETT.

Witnesses:

H. R. JEFFS,  
D. E. SHREVES.