

Sept. 6, 1932.

K. S. HOWARD ET AL

1,875,380

RAILWAY TRUCK STRUCTURE

Filed April 21, 1930

4 Sheets-Sheet 1

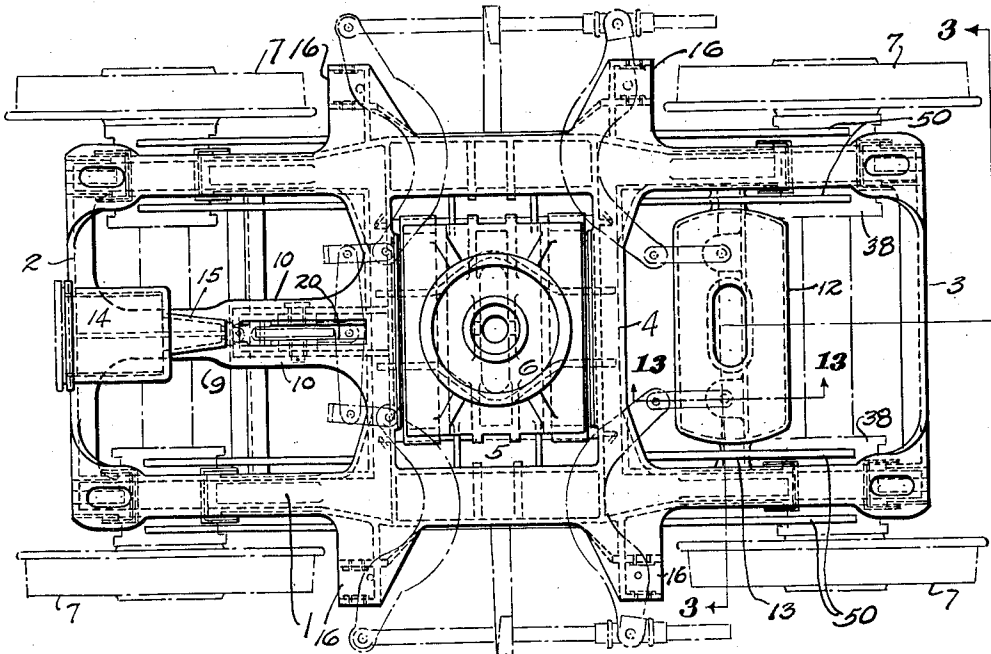


Fig. 1.

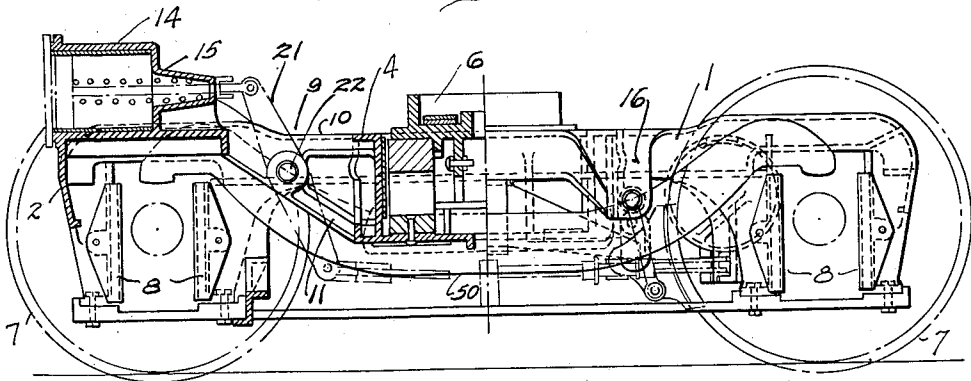


Fig. 2.

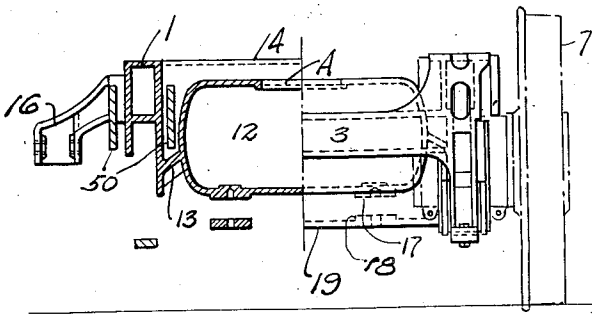


Fig. 3.

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Fig. 4.

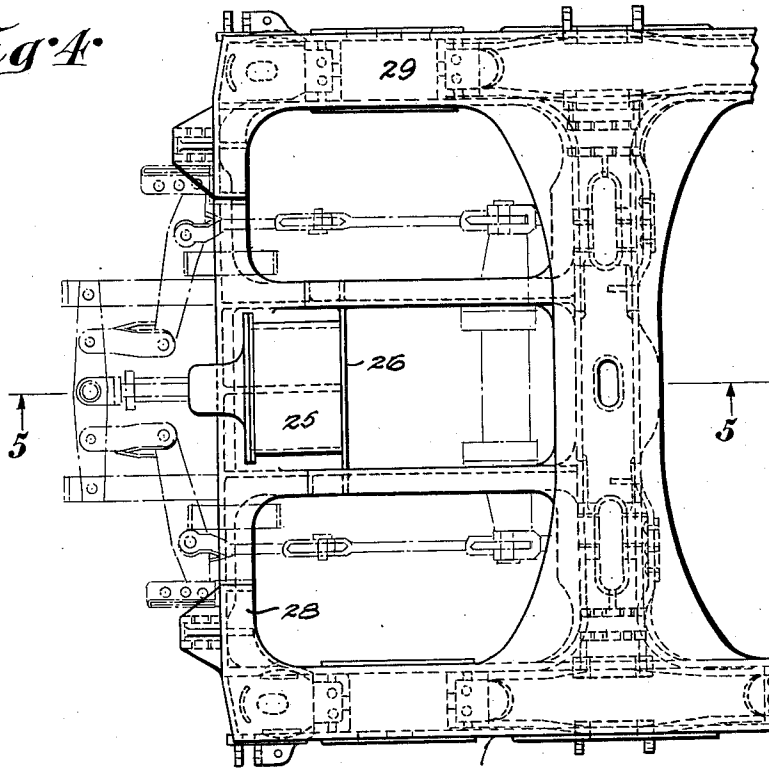


Fig. 5.

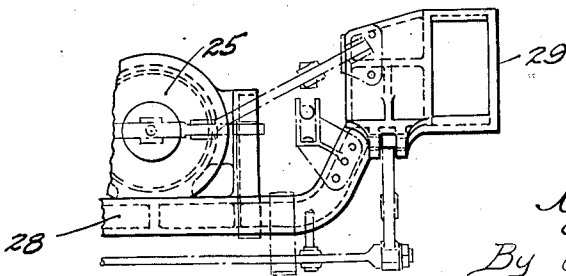
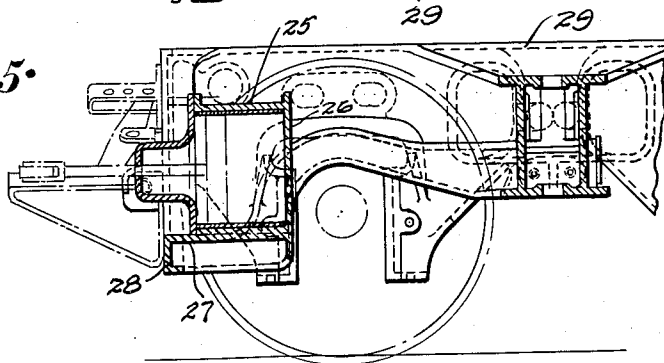


Fig. 6.

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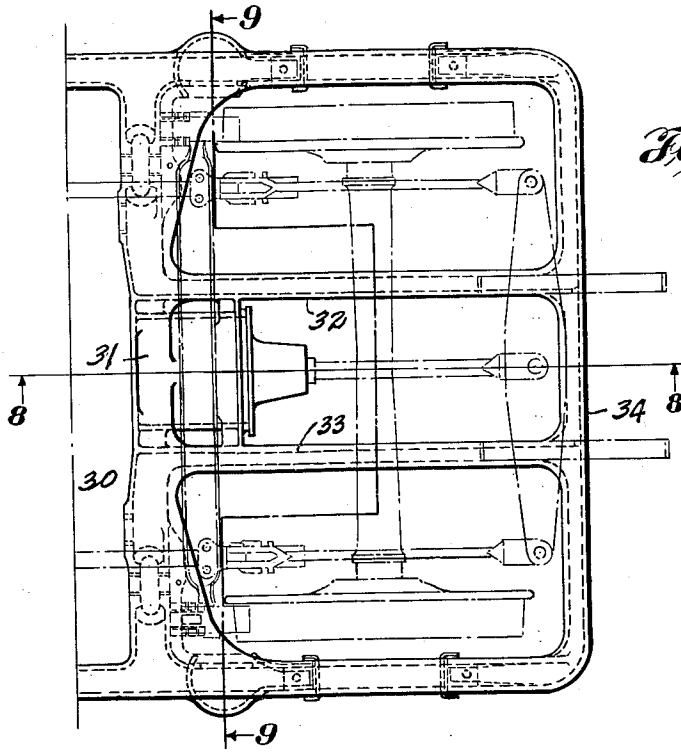


Fig. 7.

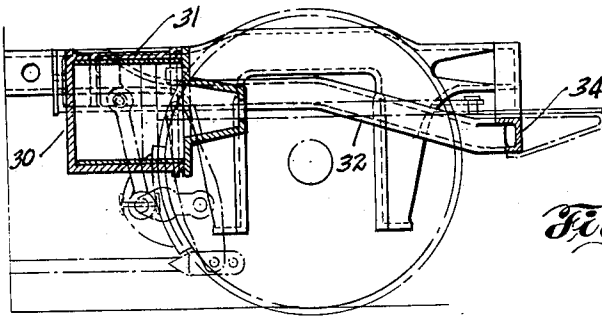


Fig. 8.

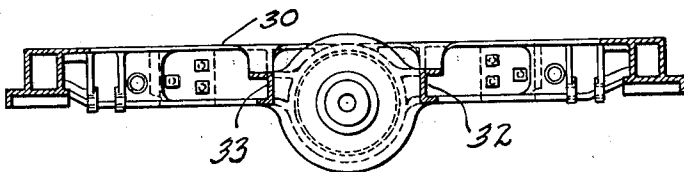


Fig. 9.

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Fig. 10.

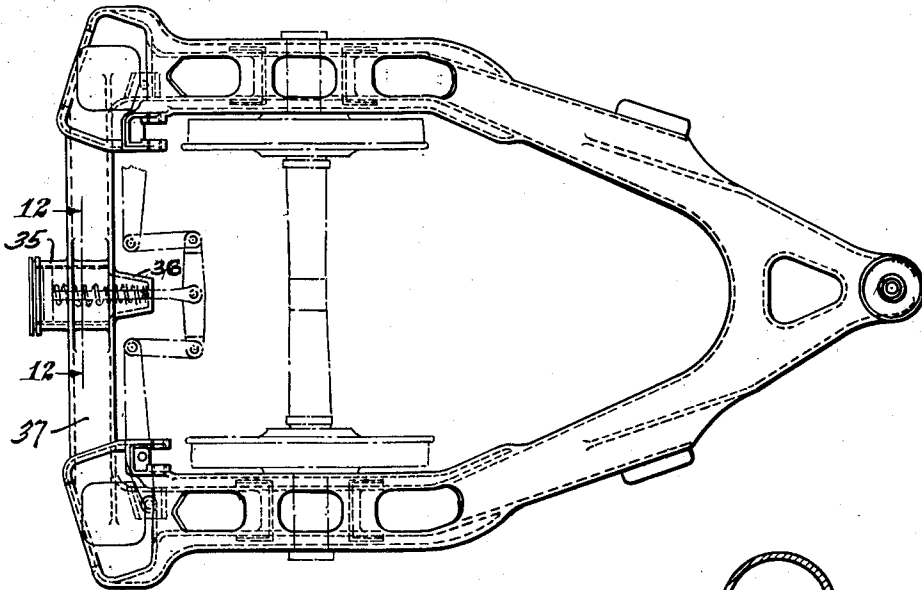


Fig. 11.

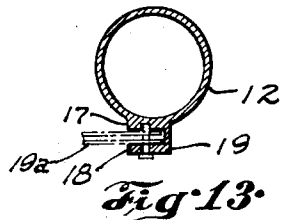
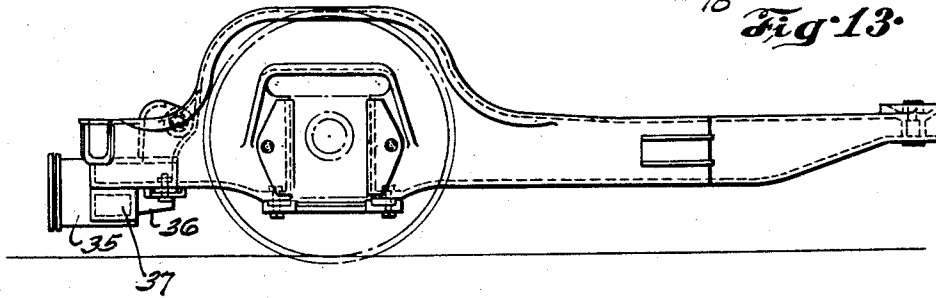


Fig. 13.

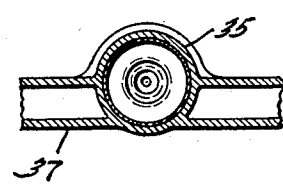


Fig. 12.

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UNITED STATES PATENT OFFICE

KARL S. HOWARD AND EDWIN C. JACKSON, OF ST. LOUIS, MISSOURI, ASSIGNORS TO
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RAILWAY TRUCK STRUCTURE

Application filed April 21, 1930. Serial No. 446,124.

Our invention relates to railway rolling stock and consists in a novel railway truck structure and more particularly in the combination of a fluid reservoir and fluid brake cylinder with the truck frame.

Customarily, reservoirs and brake cylinders have been completed separately from the truck frame structure of the vehicle and have been provided with flanges adapted to be attached to brackets on the vehicles framing and by which the reservoirs and cylinders have been secured in place. This construction requires frequent and detailed inspection to see that the rivets or bolts are tight to insure the maintenance of proper assembly. Such construction is likely to result in unnecessary play in the brake rigging since the brake cylinder is secured to a part that moves in relation to the truck on which the brake beams and their actuating levers are mounted.

The main objects of our invention are to secure rigidity, to decrease maintenance attention and delays and to effect certain other economies and advantages by making the reservoir integral with the side frames of the truck, and by making the brake cylinder integral with a transverse element of the truck frame and, preferably, with a longitudinal member of the frame.

We also desire to form either the brake cylinder pressure head or the non-pressure head or the non-pressure head and housing or pressure head and housing or housing integral with the truck frame.

Other detail objects of our invention will appear from a reading of the following description of the device with reference to the accompanying drawings of the same.

The reservoir and brake cylinder elements may be formed integrally with the truck framing by casting or by any combination of the methods of casting, welding, forging, etc.

In the accompanying drawings which illustrate our invention—

Figure 1 is a top view of an engine truck embodying a preferred form of our invention showing the reservoir integral with the side frames of the truck and showing the brake cylinder integral with the end sill and

the longitudinal member connecting the end sill and a transverse transom of the truck frame.

Figure 2 is in part a side view and in part a vertical section taken on the longitudinal center line of Figure 1.

Figure 3 is in part an end view and in part a vertical transverse section, taken on the line 3—3 of Figure 1.

Figure 4 is a top view of one end of a car truck embodying a modified form of our invention.

Figure 5 is a vertical longitudinal section taken on the line 5—5 of Figure 4.

Figure 6 is a half end view of the structure shown in Figure 5.

Figure 7 is a top view of the end of a car truck embodying another modification of our invention.

Figure 8 is a vertical longitudinal section, taken on the line 8—8 of Figure 7.

Figure 9 is a vertical transverse section, taken on the line 9—9 of Figure 7.

Figure 10 is a top view of a locomotive trailer truck embodying another modified form of our invention.

Figure 11 is a side view of the structure shown in Figure 10.

Figure 12 is a vertical section, taken on the line 12—12 of Figure 10.

Figure 13 is a section taken on line 13—13 of Figure 1.

In the structures shown in the first three figures, the side frames of the truck are indicated at 1 and are integrally connected by end transoms 2 and 3 and center transoms 4. Between the transoms 4, is mounted the bolster 5, carrying the center plate structure 6. The truck frame is mounted in the conventional manner on wheels 7 by means of equalizers 8 resting on axle boxes in the pedestal jaws 8.

The truck frame in this form of our invention has a longitudinal member 9 extending between one end transom 2 and the nearer center transom 4. Member 9 has one portion 10 extending horizontally to the top of transom 4 slightly below the level of the top of end transom 2 and another portion 11 extending downwardly and centrally to the

bottom of transom 4. At the juncture of portions 10 and 11, the member 9 is continued upwardly and outwardly to merge with end transom 2.

5 Further reinforcement is given to the truck frame by the reservoir member 12 which is integrally joined to the side frames 1 and is disposed transversely with respect to the truck. Preferably, this reservoir is of substantially cylindrical shape, but if desirable
10 may be made of oval, rectangular or other cross section. The reservoir has an opening A to facilitate casting. This opening is closed by a cap plate which is welded over
15 the same after the casting operation is completed.

Reservoir 12 is integrally joined to but spaced from the pedestal jaws 8 of the side frames 1 by means of the diagonal flanges 13
20 at the ends of the reservoir and is spaced between the top and bottom levels of the frames. This disposition of flanges 13 enables the equalizer bars 50 to extend over flanges 13 and between the ends of the reservoir 12 and pedestal jaws 8 to a point over the axle boxes 38.
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Brake cylinder housing 14 is integral with and above the end transom 2 and longitudinal member 9, placing the cylinder above the mean top level of the truck frame. Non-pressure head 15 is formed integral with the cylinder housing 14.
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To further carry out the main objects of our invention, as much of the brake rigging mounting structure as possible is made integral with the main parts of the frame. Integral brake hanger brackets 16 extend outwardly and downwardly from the top of the side frames 1. Brake rigging brackets 17 are integral with the bottom of reservoir 12.
35 These latter brackets together with projections 18 on the transverse angular member 19 are adapted to pivotally hold a portion 19a of the brake rigging. Member 19 is integral with the pedestal jaws 8 on the opposite sides
40 of the truck frame and also is integral with the reservoir member 12. Upper portion 10 of member 9 is vertically divided as shown at 20 to receive a brake rigging arm 21 which is pivotally held in position in the transom
45 by means of pin 22 extending through the sides of the member 9. The brackets referred to are for the mounting of a conventional braking system.
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In the modification illustrated in Figures 4, 5 and 6, the cylinder housing 25 and pressure head 26 are shown integral with the channel shaped end sill 28 and the cylinder extends inwardly therefrom, the side of the cylinder merging with the top flange 27 of the end sill. The end sill 28 is substantially
60 below the level of the side frame 29, bringing the housing 25 and pressure head 26 of the brake cylinder below the level of the top of the truck frame.
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In the modification illustrated in Figures

7, 8 and 9, a brake cylinder is shown integral with the center transom 30, the upper surface of the housing 31 of the cylinder being substantially in the plane of the top surface
70 of the transom, while the lower surface of the housing 31 is substantially below the level of that portion of the bottom surface of the transom at the sides of the transoms. The cylinder is also integral with longitudinal
75 members 32 and 33 which extend outwardly from transom 30 to the end transom 34.

In the modification illustrated in Figures 10, 11 and 12, we show our invention applied to a trailer truck for a locomotive in
80 which brake cylinder housing 35 and non-pressure head 36 are shown formed integral with the rear transom 37 of the truck frame.

We direct attention to our copending application, Serial Number 446,125, filed April
85 21, 1930, which illustrates other truck structures having brake cylinder elements integral with the truck frame.

Some features of our invention may be included in any structure in which instead of
90 the entire reservoir or cylinder being integral with the frame as described above, suitable brackets for supporting the reservoir or cylinder are integral with the truck frame.
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Other details in the structure of our invention may be modified without departing from the spirit thereof and we contemplate the exclusive use of all modifications that
100 come within the scope of our claims.

We claim:

1. A railway truck frame including a fluid brake cylinder body and a fluid reservoir integral therewith, portions of said body and
105 said reservoir constituting structural elements of the frame.

2. An integral railway truck frame including a fluid reservoir extending transversely across the frame, and a fluid brake cylinder extending longitudinally of the frame.
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3. In combination in a railway truck, a plurality of sets of wheels, and an integral frame mounted thereon and including a fluid brake cylinder between one set of wheels and
115 a fluid reservoir between another set of wheels.

4. In combination in a railway truck, a plurality of sets of wheels, an integral frame mounted thereon and including a fluid reservoir extending transversely across said frame
120 between one set of wheels and a fluid brake cylinder disposed longitudinally of said frame between another set of wheels.

5. A railway truck frame including side
125 frames, an end transom and a longitudinal member, a fluid reservoir disposed transversely of said truck frame and integral with said side frames, and a fluid brake cylinder disposed longitudinally of said truck frame
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and integral with said end transom and with said longitudinal member.

6. In a railway truck frame, spaced side frames and a fluid reservoir integral with and bracing said side frames.

7. A railway truck frame including a fluid brake cylinder and a fluid reservoir integral with the frame, said brake cylinder being above the mean top level of the frame, and said reservoir being below the mean top level of the frame.

8. A railway truck frame including spaced side frames and a cylindrical fluid reservoir extending transversely of and integral with said side frames.

9. A railway truck frame including a fluid brake cylinder and a fluid reservoir integral with the frame, portions of said cylinder and reservoir constituting structural elements of the frame and said brake cylinder being above the mean top level of said frame.

10. A railway truck frame including a fluid brake cylinder and a fluid reservoir being integral with the frame, said reservoir being above the mean bottom level of said frame.

11. A railway truck frame including a fluid reservoir, said reservoir being integral with and below the top level of said frame.

12. A railway truck frame including a fluid reservoir extending above the bottom level of said frame and being integral therewith.

13. In a railway truck, spaced side frames, a fluid reservoir disposed transversely of and integral with said side frames, and brackets for brake rigging integral with said reservoir.

14. In a railway truck, spaced side frames, a fluid reservoir disposed transversely of and integral with said side frames, brackets for brake rigging integral with said reservoir, and additional brackets for brake rigging integral with said side frames.

15. In a railway truck frame, a fluid reservoir, and a fluid brake cylinder having a head, said reservoir, cylinder and head all being integral with said frame.

16. A railway truck frame including an integral brake cylinder having side and end wall portions integral with frame members.

17. A railway truck frame including side frames and an end transom, and a brake cylinder integral with said end transom, with the cylinder's side and end wall being formed by extensions of the side and top walls of said transom.

18. In a railway truck frame, an end transom and a longitudinal member, and a brake cylinder disposed longitudinally of said truck frame and integral with said end transom and said longitudinal member, parts of said transom and member forming at least a portion of the wall of said cylinder.

19. A railway truck frame including side

frames and a longitudinal member intermediate said side frames, and a brake cylinder integral with said member, a portion of the wall of said cylinder being formed by said member.

In testimony whereof we hereunto affix our signatures this 14th day of April, 1930.

KARL S. HOWARD.
EDWIN C. JACKSON.

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