Nov 2, 1937. G. E. EDMUNDS ET AL 2,097,969

WHEEL MOUNTING

Filed Nov. 4, 1935 2 Sheets-Sheet 1

Fig. 1.

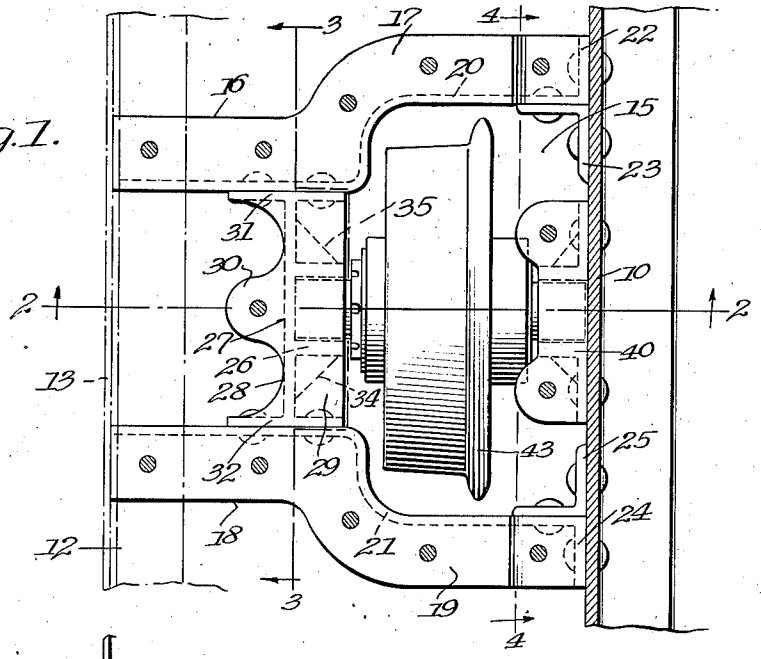



Fig. 2.

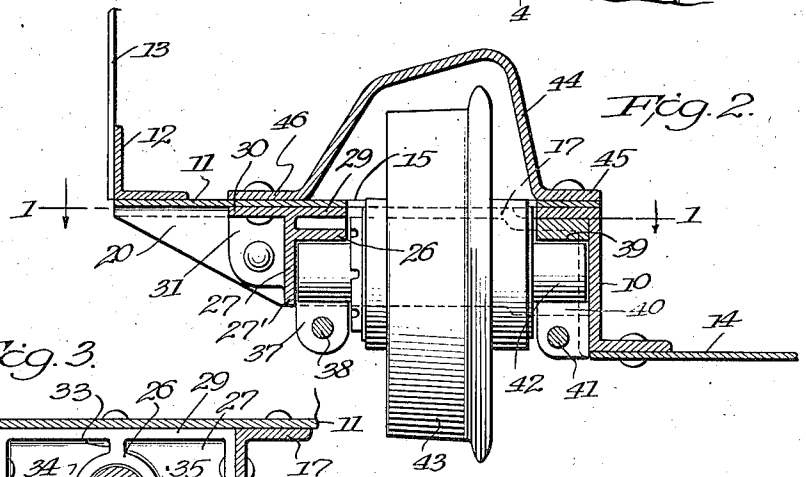



Fig. 3.

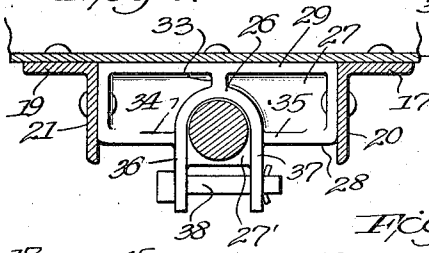
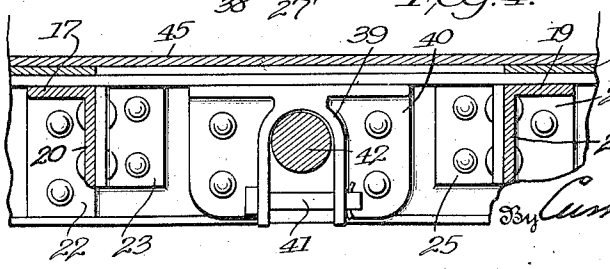



Fig. 4.




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Fig. 5.

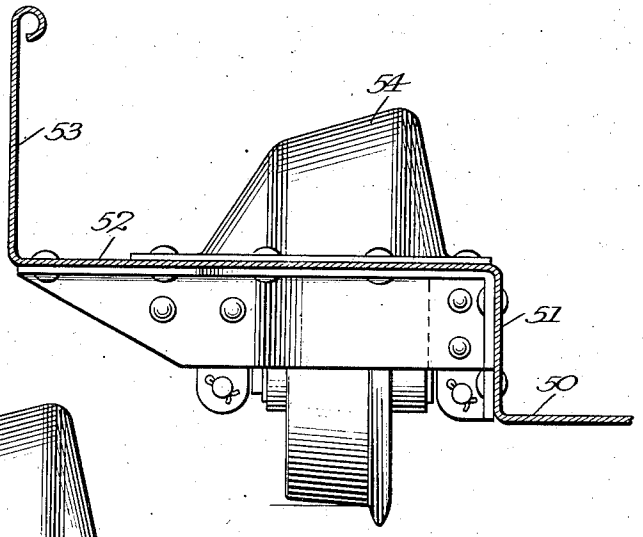



Fig. 6.

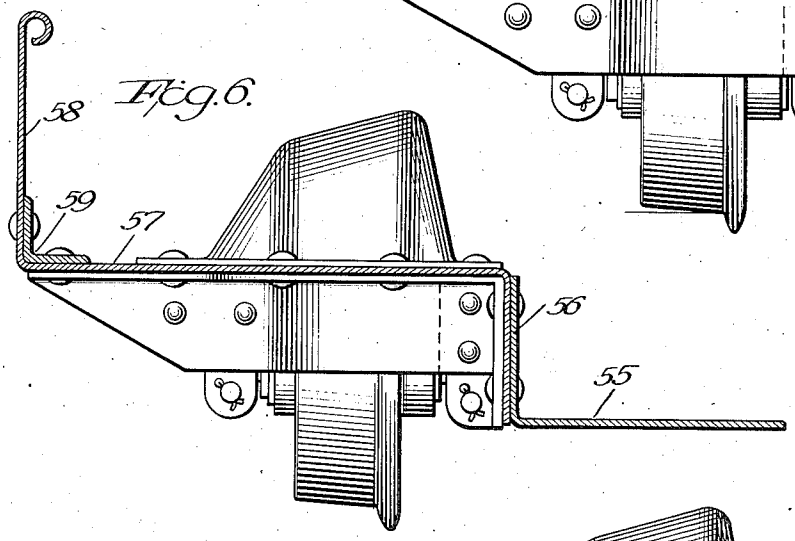



Fig. 7.

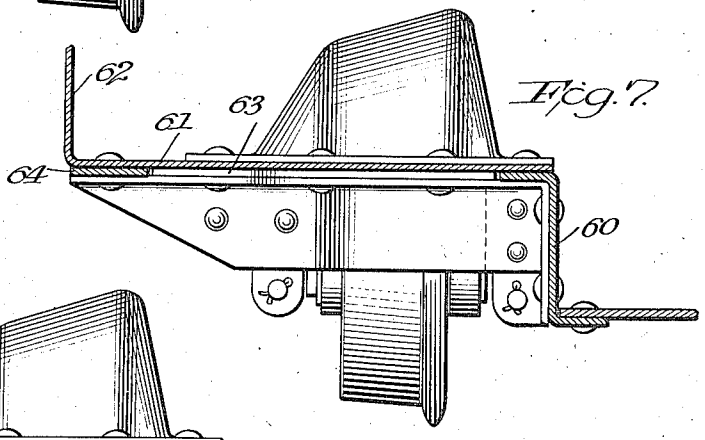
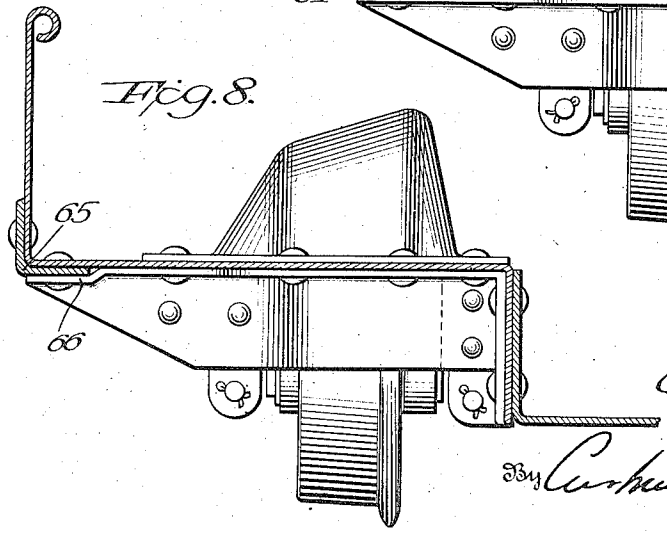



Fig. 8.




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Patented Nov. 2, 1937 2,097,969

# UNITED STATES PATENT OFFICE

2,097,969

## WHEEL MOUNTING

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Application November 4, 1935, Serial No. 48,232

2 Claims. (Cl. 105—364)

The present invention relates to mounting means for the wheels of stub axle vehicles such as mine cars, locomotives, and the like. A principal purpose of the invention is to provide mounting means which may be economically produced and readily assembled with a car to provide a rigid and serviceable construction.

For the purpose of illustration, we have shown the invention in the accompanying drawings embodied in mine cars of varied body construction.

Figure 1 is a section substantially on line 1—1 of Figure 2, showing the new mounting means in plan as applied to a car body of the type shown, for example, in U. S. Patent No. 1,974,018, granted September 18, 1934, to Glenn E. Edmunds;

Figure 2 is a section substantially on line 2—2 of Figure 1, the view including the directly associated parts of the car body structure;

Figure 3 is a section substantially on line 3—3 of Figure 1;

Figure 4 is a section substantially on line 4—4 of Figure 1;

Figure 5 is a transverse section taken on one side of a car of modified structure, the wheel mounting means appearing in elevation;

Figure 6 is a view similar to that of Figure 5 of a further modified form of car;

Figure 7 is a view similar to that of Figure 5 of a still further modified form of car, and

Figure 8 shows a still further form of car in a section taken as that of Figure 5.

Referring to the drawings, reference numeral 10 designates a main longitudinal sill in the form of a Z-bar with a top, outwardly directed horizontal flange and a lower, inwardly directed flange. A side lading bottom or flare plate 11 is secured on top of the upper flange of the main sill and projects outwardly, an angle bar 12 constituting a side or auxiliary sill having a bottom flange on top of the outer marginal portion of the flare plate and secured thereto. A side plate 13 is shown as secured to the outer side of the vertical leg of auxiliary sill 12, which thus serves as a connector between the flare and side plates. A central lading bottom 14 is secured to the bottom flange of the main sill and it will be understood that the described main and auxiliary sills and flare and side plates are duplicated at the other side of the car. The flare plate 11 is provided with a pair of longitudinally spaced wheel openings of which one is shown at 15. The wheel opening 15 is directly adjacent the main sill and inwardly spaced from the auxiliary sill.

A stiffener member 16 extends from the outer face of the main sill beneath and to the outer face of the auxiliary sill. The stiffener member comprises a horizontal flange 17 which underlies the flooring margin at one end of the wheel opening and is riveted thereto. As shown in Figure 2, the inner end of flange 17 is bent under the top flange of the main sill for riveting thereto, the top surfaces of these flanges being otherwise in the same horizontal plane. A similar stiffener 18 has a similar horizontal flange 19 underlying and secured to the opposite flooring margin. At the outer extremity of the wheel opening 15, the flange portions are approached and then are continued, in parallel relation again, outwardly, the outer portions directly underlying the flooring portion which lies outwardly of the wheel opening. The flanges 17 and 19 of the stiffener members are riveted at intervals to the flooring, their extremities being also riveted through the horizontal flange of the auxiliary sill. On its side toward the wheel opening, flange 17 is rimmed by an integral vertical depending flange 20, flange 19 being similarly rimmed by a flange 21, the vertical flanges being preferably coextensive with the horizontal flanges. Flanges 17 and 20 at their inner extremities merge in a flange 22 which lies against the outer face of the main sill and is riveted thereto. Also, the vertical flange 20 is connected at its other side with the main sill by means of a clip angle 23. Flanges 19 and 21 are secured to the main sill through a similar flange 24 and clip angle 25.

The stiffeners 16 and 18 being in the form of angles, and being rigidly secured to the main and auxiliary sills and the side flooring, provide an extremely rigid structure so that drooping of the side flooring under load is prevented, the stiffeners constituting in effect knee braces. The stiffeners may be made by forming structural angles to suitable contour or they may be constituted by castings, preferably steel, and they may be of various sizes to satisfy various conditions.

A bearing 26 comprises an inverted U-shaped saddle formed on one side of a vertical flange 27 of a bracket or pedestal 28 which has a horizontal top flange including a portion 29 overlying the bearing and an oppositely projecting portion 30. These flanges are connected at their extremities by vertical flanges 31 and 32 which lie against the opposed faces of the approached outer portions of flanges 20 and 21 of the stiffener members to be securely riveted thereto. Bracket 28 is preferably formed as an integral casting, a compres-

sion web 33 being formed between its top and the overlying flange portion 29 and gussets 34 and 35 joining its leg portions with the lower edge of flange 27. The leg portions designated at 36 and 37 are continued below the lower edge of flange 27 and are pierced to receive a retaining pin 38.

Bracket 28 is positioned beneath the side flooring with the bearing 26 faced toward the main sill and with the edge of flange portion 29 substantially flush with the outer edge of the wheel opening. The flange 30, as indicated in Figure 1, may be localized at the central portion of the bracket. The end flanges 31 and 32 of bracket 28 have considerable width and a depth preferably the same as that of the stiffener flanges 20 and 21 to which they are secured. Stiffener flanges 20 and 21 are preferably of uniform depth from the main sill to bracket 28. Outwardly of bracket 28 they may be upwardly tapered to their extremities, as indicated in Figure 2.

Opposite bearing 26 a bearing 39 in the form of an inverted U-shaped saddle, preferably integral with a bracket or pedestal 40, is secured to the main sill in the manner clearly shown in Figures 2 and 4. The bracket 40 has a vertical web securely riveted against the outer face of the main sill and a top horizontal flange which overlies the saddle and directly underlies the top flange of the main sill. This bracket also is preferably formed as an integral steel casting with a compression web between the top of the bearing and the horizontal flange of the bracket. The lower extremities of the depending legs of the saddle are pierced to receive a retaining pin 41.

The opposed bearings receive the opposite ends of a stub axle 42 on which is mounted, preferably with the usual anti-friction provisions, a flanged wheel 43. The wheeled stub axle is inserted upwardly to position and retained by means of the pins 38 and 41. The outer end of bearing 26 is closed by the vertical flange 27 which has a downward extension 27' in order to cover the end of the axle entirely and to provide a thrust surface. Outward displacement of the axle is thus prevented. Bearing 39 is transversely open and inward displacement of the axle is prevented by the adjacent surface of the main sill.

To complete the assembly, there is provided a wheel hood 44 which has an inner horizontal flange 45 overlying and secured to the top flange of the main sill and an outer flange 46 riveted through the flooring to the horizontal flange 30 of bracket 28. The wheel hood preferably has end flanges riveted through the flooring to the underlying portions of flanges 17 and 19 of the stiffeners, thus giving additional rigidity to the wheel mounting structure.

The vertical flanges of the stiffeners give the latter great load carrying strength and provide expanded attachment surfaces for the end flanges 31 and 32 of bracket 28. Consequently, the bracket with its bearing 26 is very rigidly positioned and the same of course applies to bracket 40 which is secured to the main sill. Due to the proximity to each other of the outer portions of the stiffeners, bracket 28 is relatively short and, hence, all the more rigid.

It will be understood that the described structure is duplicated at the four wheel openings and that while the wheel mountings have been described as built up of parts, these parts, particularly 16, 18 and 28, might be formed as an integral casting.

In Figures 5 to 8, we have shown the wheel mounting appurtenances as applied to bodies of different construction. Referring to Figure 5, a body is shown as having a central depressed flooring portion 50, a riser 51, a side flooring portion or flat plate 52 and a side wall 53 bent from a single sheet of material. It will be understood that the central flooring portion is continued into a riser, flare plate and side wall in the opposite side of the car. The inner bearing is riveted to the riser and the transverse members to the flare plate around the wheel opening, the transverse members extending beneath the side wall. The side wall serves in effect as a plate side sill and the riser 51 as an inner sill so that the body is of extremely simple construction. The wheel hood 54 has peripheral flanges riveted through the side flooring to the transverse stiffeners, outer bearing, and, desirably, to the top flange of the inner bearing.

In Figure 6, the central flooring 5 has upturned lateral flanges as at 56, the flange 56 being riveted to a down-turned flange of the flare plate 57, the other edge of the flare plate being turned up to provide a side wall 58. An auxiliary sill 59 in the form of an angle preferably extending from end to end of the car but at least between the wheel mounting frames at the same side of the car is riveted in the angle between the flare plate and side wall and to the outer ends of the transverse stiffeners. These, their appurtenances, and the wheel hood are applied as before. The riser being of double thickness as compared to that of Figure 5 is of course that much stronger. In Figure 7 as in Figures 1 to 4, the riser is constituted by a Z-bar sill, this being designated at 60, Figure 7. The flare plate 61 and side wall 62 are bent from a single sheet of material, the inner margin of the flare plate being riveted to the top of the outwardly turned flange of the main sill. In Figure 7, as contrasted to Figures 1 to 4, the transverse stiffeners have top surfaces in a single plane throughout and filler strips as at 63, of the same thickness as the top flange of the main sill, are interposed between the stiffeners and the flare plate. The outer ends of the stiffeners may be connected by a flat longitudinally extending bar 64 which serves as an auxiliary sill and may extend throughout the length of the car or merely between the two sets of wheel mountings at the same side of the car.

In Figure 8, the body is made up as in Figure 6 except that the auxiliary sill 65 is external instead of internal. In order to accommodate the bottom flange of the auxiliary sill, the transverse stiffeners or frame members have downwardly offset terminal portions as at 66 so that these members will have flat bearing throughout.

From the above, it will be seen that the new wheel mounting is adaptable in use to various car body constructions. Also, the wheel mounting means may themselves be varied in detail without departure from the invention as hereinafter claimed.

We claim:—

1. In a car comprising a main sill and an auxiliary sill spaced outwardly of the main sill, said auxiliary sill having a vertical flange and a horizontal flange, and side flooring extending between said sills and secured to the top portion of the main sill and to the horizontal flange of the auxiliary sill, said flooring having a wheel opening, the combination of wheel mounting means comprising a pair of transverse stiffener members of which one is at each end of said opening, each of

said stiffener members comprising a horizontal flange and a depending vertical flange of which the former laps the flooring and is secured thereto for the support thereof, the outer portions of said members being mutually approached, a bearing between the outer portions of said members and rigidly secured thereto, a second bearing secured to the main sill opposite the first bearing, and a wheeled stub axle journaled in said bearings.

2. In a car comprising a main sill and an auxiliary sill spaced outwardly of the main sill, said auxiliary sill having a vertical flange and a horizontal flange, and side flooring extending between said sills and secured to the top portion of the main sill and to the horizontal flange of the auxiliary sill, said flooring having a wheel opening, the combination of wheel mounting means comprising a pair of transverse stiffener members of which one is at each end of said opening, each of said stiffener members comprising a horizontal flange and a depending vertical flange of which the former laps the flooring and is secured thereto for the support thereof, the ends of said members being rigidly secured to said sills, a bracket extending between the vertical flanges of said members and rigidly joined thereto, said bracket comprising a horizontal flange and a depending vertical flange and carrying a bearing on that side of its vertical flange toward the main sill, a second bearing secured to the main sill opposite the first bearing, and a wheeled stub axle journaled in said bearings, the vertical flange of said bracket forming a thrust surface for the outer end of said axle.

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