

(No Model.)

F. S. OWEN.
STEEL RAILWAY FREIGHT CAR TRUCK.

No. 578,579.

Patented Mar. 9, 1897.

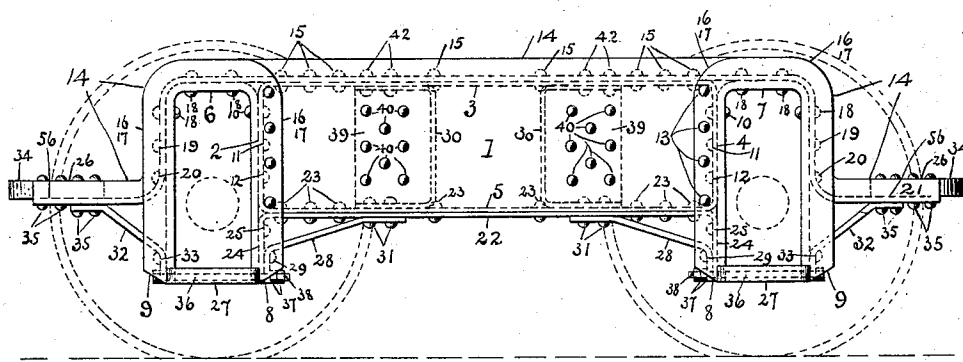
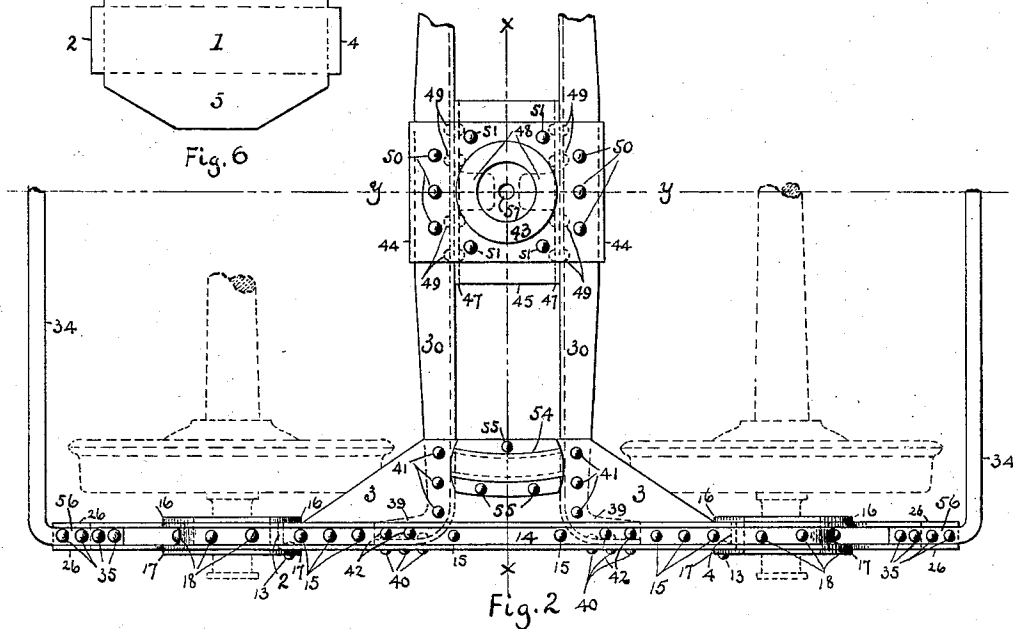
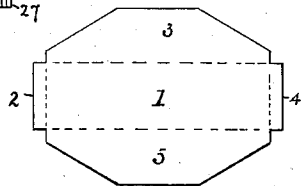
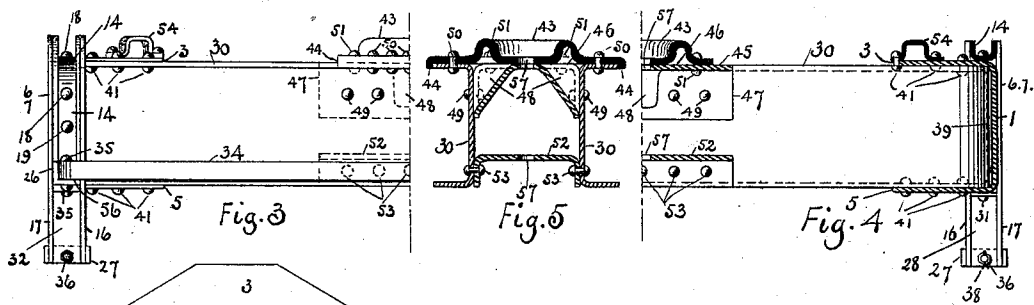


Fig. 1

Witnesses.
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UNITED STATES PATENT OFFICE.

FREDERICK S. OWEN, OF WALTHAM, MASSACHUSETTS.

STEEL RAILWAY-FREIGHT-CAR TRUCK.

SPECIFICATION forming part of Letters Patent No. 578,579, dated March 9, 1897.

Application filed January 6, 1897. Serial No. 618,135. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK S. OWEN, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Steel Railway-Freight-Car Trucks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in trucks for railway-cars, principally for use under freight-cars, and has advantages over those heretofore in use, and especially over the form in general use known as the "arch-bar" truck, composed partly of metal and partly of wood, put together with rough bolts passing through unfinished holes and subject to racking, twisting, and getting out of alignment, thereby causing vexatious delays and expense and great uncertainty of cars reaching their destination on time or without being wrecked when mounted on such trucks. Besides, the old-style trucks are needlessly heavy and therefore entail the necessity of hauling non-paying dead-weight.

To overcome the disadvantages enumerated, I have constructed a truck of light but sufficiently strong shape, and have used therefor many parts of pressed steel, all my parts being solidly and unyieldingly riveted together, except where it is necessary for them to be removed, in which instance the parts are bolted together. The thrusts of the wheel-flanges against the rails in the old-style truck forced the frames out of square, causing hot boxes, excessive rail and flange wear, and friction to be overcome by the locomotive, thus impairing its earning capacity, while causing its useless wear and tear and the extra expenditure of oil and fuel. In my truck its weight is carried upon springs over the axle-boxes, thus reducing the dead-weight which unyieldingly bears upon the rails and hammers their joints in its passage and jolts and destroys the car-body and its contents. I unite the ends of my truck transversely, thus making one side assist the other in re-

sisting shocks incident to curving and also affording a means to secure the brakes to the outside of the wheels, where they are more readily applied or removed, and more certain to be more carefully inspected than when hung inside, where they are not so readily seen, thus saving time in renewals either in the shop or in case of failure upon the road in train service, and also by the ease of inspection insuring better and more certain service and less liability to damage of cars, their loads, and the railway from accidents. My truck is so constructed that its users can make their own repairs, thus saving loss of service from having to transport the truck a distance to its makers or to provide at much expense an equipment of special machinery and shops for such repairs.

I am aware that there are others who have experimented to overcome the objections to the arch-bar trucks heretofore so generally used, but in my construction I have embodied features which are new and useful beyond such constructions which have preceded mine, and which are wholly essential to overcome all of the evils heretofore existing, and which have only been partially touched upon by others.

I attain these objects by the mechanism illustrated in the following drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a plan of one-half of the truck, both sides being alike. Fig. 3 is an end view of one-half of the truck. Fig. 4 is a vertical section on line *x x*, Fig. 2. Fig. 5 is a vertical section on line *y y*, Fig. 2. Fig. 6 shows panel-plate before being bent to shape.

Similar characters of reference refer to similar parts throughout the several views.

The sides of my truck are composed of central panels 1, preferably of pressed steel, having flanges 2 3 4 5 turned inwardly, the flanges 2 4 being narrower than 3 5, which project at quite a distance inward, as will be further described hereinafter. Adjoining the flanges 2 4 and secured thereto are pedestals 6 7, formed of U-section bars either rolled or pressed, the bars being bent to the shape of an inverted Ω , the connected top of which reaches exactly flush with the top of flange 3 of panel 1, and the ends of the downwardly-extending

legs 8 9 passing somewhat lower than the flange 5 of panel 1.

At 10 11 12 rivets attach the pedestal 7 to the flange 4, the rivets 11 12 having countersunk heads to clear the axle-boxes introduced into the pedestals. Rivets 13 secure the pedestal 7 to the panel 1. The pedestal 6 is secured exactly similar by rivets to panel 1. Above and along the top of flange 3 of panel 1 I place a bar 14 of U section, which I secure by rivets 15 to flange 3. The bar 14 also extends over the tops of the pedestals 6 7 within their flanges 16 17, and thereafter is downwardly turned over the outer legs 9 of the pedestals 6 7, conforming to the shape thereof, snugly fitting and secured by rivets 18 19 20, the rivets 19 20 having countersunk heads inside the pedestals for the purpose heretofore mentioned regarding rivets 11 12. When about midway down pedestal-legs 9, the bar 14 is bent to reach out horizontally from the pedestal, as seen at 21. Along the bottom of the panel 1 and snugly fitting underneath its flange 5 a bar 22 is placed and secured thereto by rivets 23. The ends 24 of the bar 22 are turned downward within the flanges 16 17 of the pedestal-legs 8 and are secured to the pedestals 6 7 by rivets 25, which have countersunk heads to clear the axle-boxes, as heretofore noted.

Attached to the legs 8 of pedestals 6 7 are diagonal braces 28, secured by countersunk-head rivets 29, lying within the flanges 16 17 and thereafter passing upward and united to bar 22, flange 5, and transoms 30 by rivets 31. Attached to the legs 9 of the pedestals 6 7 are diagonal braces 32, secured by countersunk-head rivets 33, lying within the flanges 16 17 and thereafter passing upward and united to bar 14 and transverse ties 34 by rivets 35. Thus it will be seen that the pedestals of each side of the frame are secured to the panels 1 through bars 14 22, braces 28 32, and by rivets directly through the panel and its end flanges 2 4, making a strong but light structure.

The lower ends of pedestal-legs 8 9 are spaced by the tie 27, seated on and overlapping them, and the legs 8 9 are held against the tie 27 by bolts 36, which pass through the lower ends of braces 28 32, bar 22, and pedestal-legs 8 9, and have lock-nuts 37 and key or split pin 38 to prevent any jarring off. Transoms 30 extend across the truck adjacent to its transverse central line, one being each side thereof. These transoms are preferably made of mild steel pressed to shape, being in depth equal to the distance between flanges 3 5 of panel 1, their section being U-shaped, having the flanges extending outward, the flanges being wider at the center than at the ends of the transoms, where they are curved outward, forming feet 39, which are secured to the inside of panel 1 by rivets 40, to flange 3 by rivets 41, to flange 3 and bar 14 by rivets 42, to flange 5 by rivets placed same as 41, and to flange 5, bar 22, and braces 28 by rivets 31,

thus securing a firm hold, and unlike some other forms of fastenings heretofore used by others my transom ends retain the full strength of both flanges and the web, no part being cut away, as was done in constructions heretofore. It will be observed by reference to Figs. 2, 3, and 4 that the flanges 3 5 of panel 1 are carried well in toward the center of the truck, the distance only being limited by a clearance for the wheels, and much farther than can be done in those constructions where the brakes are hung to the outside of the transoms. The length of the flanges 3 5 at the inner extremity corresponds with the overall measurements of the transoms at the same point, and thereafter the flanges 3 5 lengthen in diagonal lines to a distance equal to the distance between the flanges 16 17 of pedestals 6 7.

At the center of the truck is a center plate 43, preferably of pressed steel, overlapping transoms 30 and lipped over the same at the outer edges 44. Under the center plate is a tie-support 45, of pressed steel, which extends somewhat beyond the center plate transversely, has its top 46 directly under the center plate and flush with the tops of transoms 30, and from the top 46 flanges 47 extend downward against the inside of transoms 30. Crimps 48 are formed in the tie-support 45, longitudinally at its center, to give added support to the center plate 43 and also to add to its own strength. Rivets 49 unite the tie-support to the transoms 30, while rivets 50 secure the center plate 43 to the transoms 30 and rivets 51 secure it to the tie-support 45. At the center of the truck, at the lower side of the transoms 30, I secure a tie 52 by rivets 53. Thus it will be seen that transoms 30 are securely and immovably tied to each other by center plate 43, tie-support 45, and tie 52. King-bolt hole 57 is formed in center plate 43, support 45, and tie 52. Side bearings 54, preferably formed of pressed steel, are secured to flanges 3 of panel 1 by rivets 55. I wish to call particular attention to the fact that my construction is devoid of any gussets, which are so extensively used in other constructions of trucks.

The transverse ties 34 at each end of my truck extend across from one side structure to the other and are straight, except as to their ends, which curve inwardly and rest in pockets 56, formed by flanges 26 of bar 14, where they are secured by rivets 35. The ties 34 not only tie the ends of the frames beyond the pedestals and assist one side to resist the shocks and strains subjected to the other side, but they also provide a means whereby the necessary brake-shoes and brake-beam suspensions, hangers, and springs may be attached to enable the brakes to be applied to the outside of the wheels, where they are much more accessible for the purposes of renewals and inspection than when applied to the inside of the wheel, and the work of application, repairs, and inspection being thus greatly fa-

cilitated insures greater service to the truck, its car, and the goods carried thereby. I have made my truck of few pieces and have no small flanged or gusset pieces in its construction, and while pressed steel has been mentioned in describing such details as center plate and side bearings it is in no manner essential that such must be used, as those members will be of such construction as to conform to those now used by railway companies to secure uniformity in adapting my truck to cars already in use.

It will be observed that my central panel 1 is of the same construction for each inwardly-projecting flange 3 5 and has as secure a hold upon the lower flanges of transoms 30 as upon the upper flanges, and can have its flanges 3 5 extend inwardly upon the transoms 30 for a much farther distance than where they must be kept out of the way to clear brakes hung inside of the wheels upon the transoms, thus affording greater strength at the union of the sides and transoms than heretofore secured in other like structures and greater security against the twisting of the frame sidewise, aside from the added securing given by the transverse ties 34.

Having now described the manner in which I prefer to carry out my invention, but without limiting it to the exact form of its parts or the exact fastening of those parts to each other, I claim—

1. In a car-truck, a central panel having flanges inwardly turned at each side and end, pedestals of U section secured to the end flanges and projecting below the panel, and a bar of U section seated upon the top flange of the panel and upon the pedestals but within the flanges thereof, turned down over the outer leg of the pedestals within their flanges and thence turned and projecting outward at about midway of the pedestal length, and united to the central panel and the pedestals, substantially as set forth.

2. In a car-truck, a central panel having inwardly-projecting flanges from each side and from each end, the ends of the panel passing within the flanges of pedestals of U section and thereto secured through the panel and pedestal-flange, and through the panel-flange and pedestal, a bar of U section seated upon the top flange of the panel and upon the pedestals within their flanges and secured to the panel-flange and to the pedestals at their tops and outer sides and thereafter outwardly turning and projecting, and a bar secured to the lower flange of the panel, then turned down passing within the pedestal-flanges and secured to the panel-flange and the pedestal, in manner substantially as described.

3. In a car-truck, a central panel substantially as described and united to pedestals of U section at its ends, and at its top to a U-section bar embracing the pedestals and braces from the inner pedestal-legs to a bar secured to the inner legs of the pedestal and

the central panel in manner and form substantially as described.

4. In a car-truck a central panel flanged as set forth, pedestals doubly secured to the ends of the panel, a bar secured to the lower flange of the panel and the pedestals, an overlapping bar secured to the upper flange of the panel and the upper and outer sides of the pedestals, and a brace secured to the outer lower pedestal-leg and the overlapping bar, substantially as set forth.

5. In a truck, a central panel flanged upon its sides and ends, double-flanged pedestals of inverted-U shape secured to the ends of the panel, a bar overlapping the outer side of the pedestals and seated upon the top thereof and the panel, a bar secured to the lower edge of the panel and the pedestals, braces from the pedestals to the panel, braces from the pedestals to the bar overlapping and seated on the pedestals and within its flanges, and ties seated and secured to the pedestal-legs in manner and form substantially as set forth.

6. In a truck-frame, central panel therefor having flanges at each end, flanges at the top and bottom thereof, broadened at the center and tapering thereafter toward each end, and transoms of U section extending transversely from the inside of one panel to the inside of the other panel, the ends of the transoms passing between the upper and lower flanges of the panel and thereafter outwardly turned and seated upon the panel, and means to secure the transom ends to the panels, their flanges, the pedestal-braces, and the bar overlapping the panels upper flange and the pedestals in manner and form substantially as described.

7. In a truck, side panels formed and united at their end flanges to pedestals of U shape and U section, at their upper flanges to transoms and a bar of U section overlapping and secured to the pedestals at their top and outer side, at their bottom flanges to transoms, to a bar also united to the pedestals at their inner side, and to braces secured to the pedestals at their outer end, and to the panel the lower bar and transoms at their inner end, means to secure transoms to the panels, and means to tie the transoms at their center at their upper and lower parts, substantially as described.

8. In a truck, a central panel, pedestals secured thereto as described, a lower bar and braces secured thereto, an upper bar embracing the panel and pedestals and secured thereto and thereafter outwardly turned, end braces from the pedestals to the upper bars and transverse ties seated on and secured to the outwardly-turned ends of the upper bars, and reaching across from side to side of the truck, all in form and attachment in substance as and for the purposes set forth.

9. In a truck, central-flanged panels, pedestals of U section and N shape, overlapping and secured thereto, lower bars secured to

the panels and the pedestals inner leg, braces from the inner leg of the pedestals to the lower bar and panel and secured thereto and to the transom's end flanges, overlapping
5 bars upon the upper part of the panel, and the pedestals at their tops and outer sides and secured thereto, transverse ties from the outer ends of the overlapping bars and seated thereon, and braces secured to the lower end
10 of the outer pedestal-legs and to the outer end of the overlapping bars and the cross-ties, substantially as described.

10. In a car-truck, a central panel having upper and lower inwardly-projecting flanges
15 embracing and secured to transoms, pedestals of U section secured to the central panel by means of inwardly-projecting flanges formed thereon and by double flanges on the pedestals, a bar secured to the lower flange

of the central panel and thereafter down- 20
wardly turned to fit the pedestals inner legs and secured and braced to the panel and pedestals, an upper bar of U section secured to the upper flange of the central panel, passing
25 within the flanges at the top and outer side of the pedestals and secured thereto, its outer ends turned outwardly and braced to the outer pedestal-legs, and means upon the outer ends of the upper bars ends for their connection from one side to the other of the truck
30 outside of the wheels, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK S. OWEN.

Witnesses:

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FRANK P. KENNEY.