

(No Model.)

3 Sheets—Sheet 1.

G. G. FLOYD.
CAR TRUCK.

No. 587,948.

Patented Aug. 10, 1897.

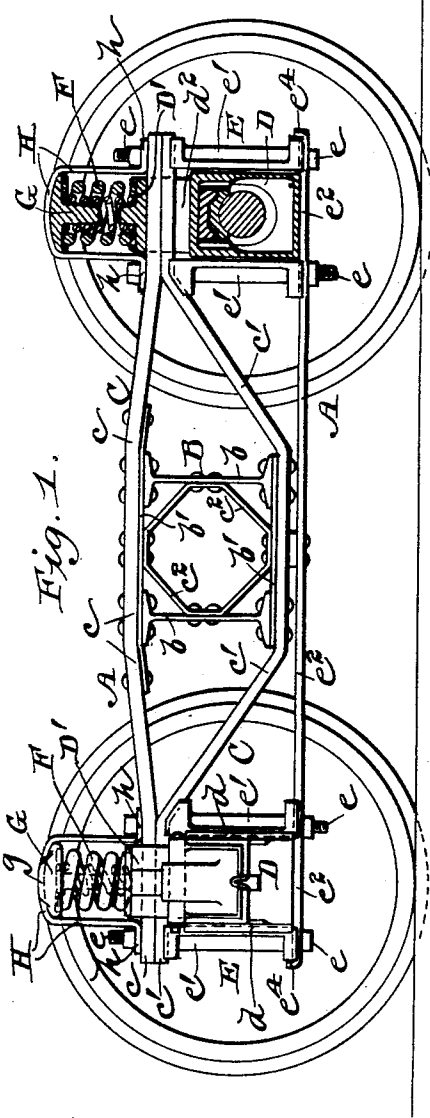


Fig. 1.

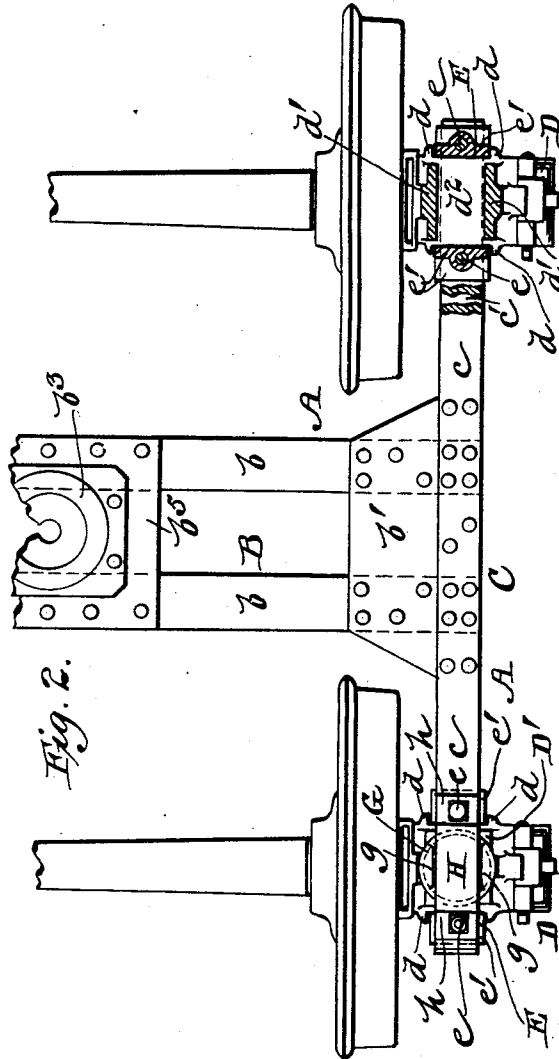


Fig. 2.

WITNESSES

Everance.
L. P. Cliff.

INVENTOR

George G. Floyd
By his Attorney
Marion F. Smith

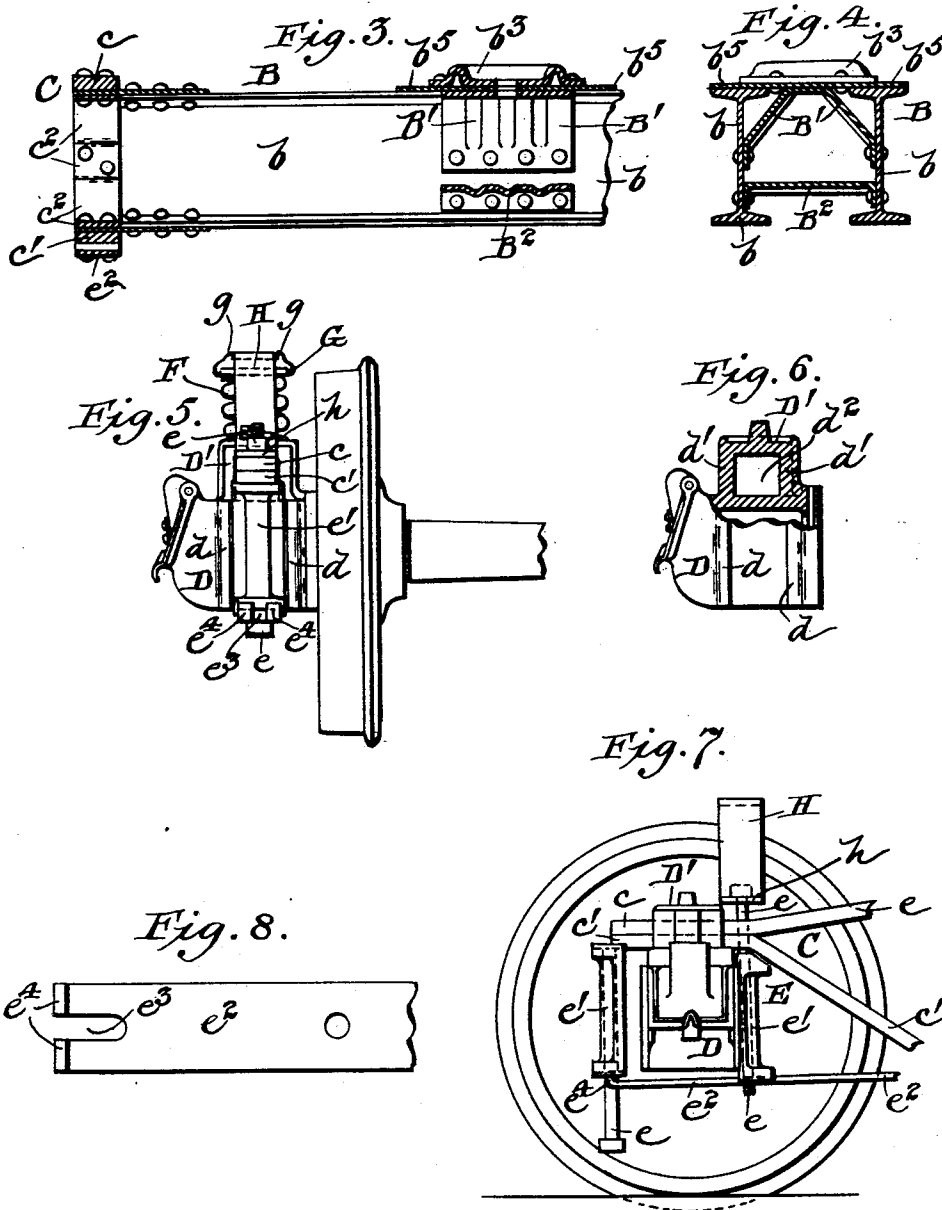
(No Model.)

3 Sheets—Sheet 2.

G. G. FLOYD.
CAR TRUCK.

No. 587,948.

Patented Aug. 10, 1897.



WITNESSES

Everance
W. P. Clift

INVENTOR

George G. Floyd
by his Attys
Wm. French Lawrence

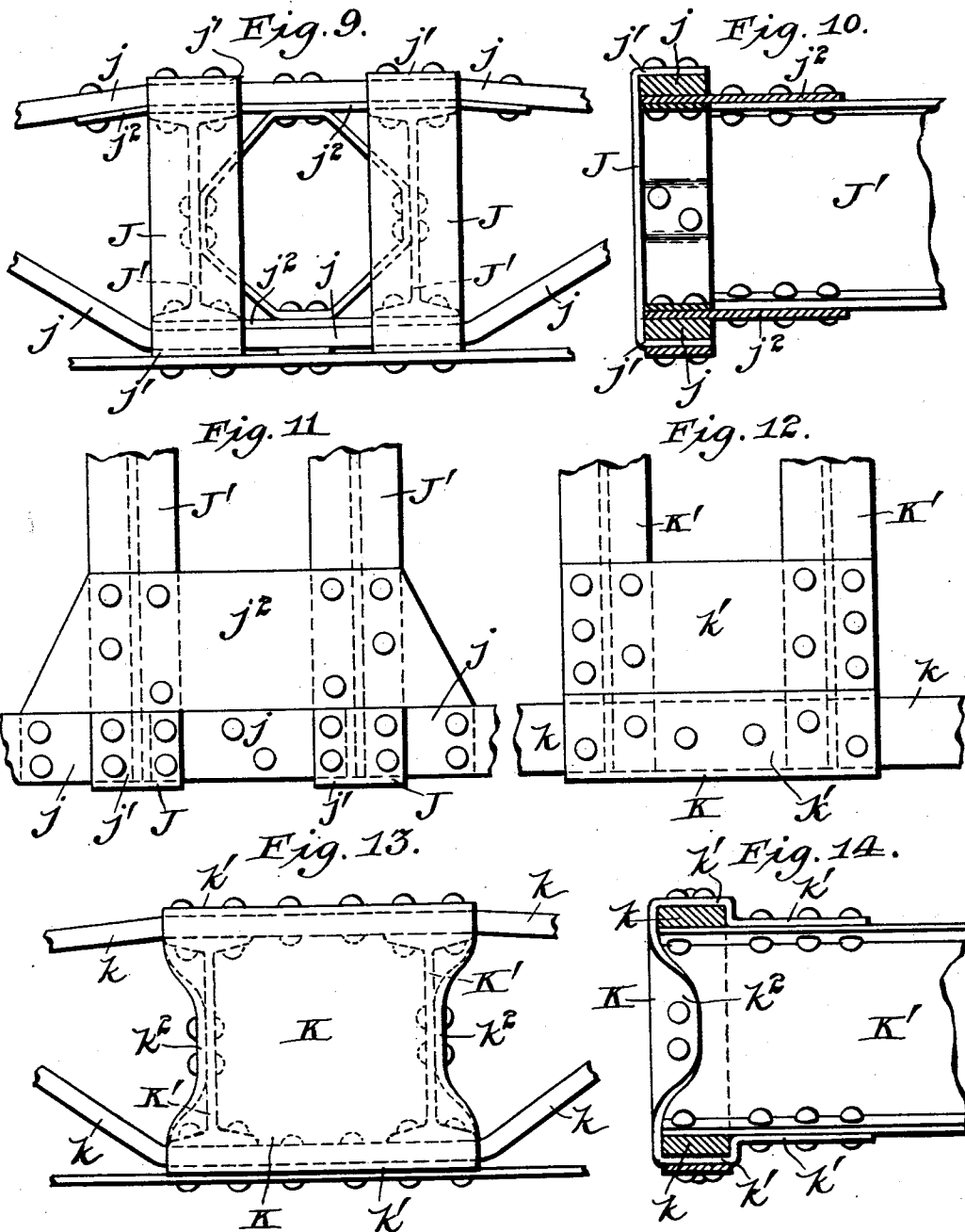
(No Model.)

3 Sheets—Sheet 3.

G. G. FLOYD.
CAR TRUCK.

No. 587,948.

Patented Aug. 10, 1897.



WITNESSES

E. J. Severance.
J. P. Clift.

INVENTOR

George G. Floyd
By his Attys
Wm. T. Smith & Co.

UNITED STATES PATENT OFFICE.

GEORGE G. FLOYD, OF SEDALIA, MISSOURI.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 587,948, dated August 10, 1897.

Application filed January 12, 1897. Serial No. 618,985. (No model.)

To all whom it may concern:

Be it known that I, GEORGE G. FLOYD, a citizen of the United States, residing at Sedalia, in the county of Pettis and State of Missouri, have invented certain new and useful Improvements in Car-Trucks; and I do hereby 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.

My invention relates to improvements in car-trucks, and particularly to that class of car-trucks which are known as "pedestal-trucks."

It consists in the combination of a truck provided with pedestals and side frames formed of arch-bars.

It also consists in the combination of a truck having pedestals, side frames formed of arch-bars, and a transom consisting of I-beams.

It also consists in the combination of a truck provided with pedestals, side frames formed of arch-bars, and a cross-frame or transom, journal-boxes having spring-seats formed upon their upper sides, springs resting upon said seats, and means for resting the weight of the truck upon said springs.

It further consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of my improved pedestal car-truck, parts being shown in section. Fig. 2 is a top plan view of a portion of said truck. Fig. 3 is a vertical longitudinal sectional view of a portion of the transom and one of the side frames. Fig. 4 represents a vertical cross-section of the transom through its central portion. Fig. 5 represents an end elevation of one side of my improved truck. Fig. 6 represents a side elevation of a journal-box, partially in section, showing the spring-seat formed thereon. Fig. 7 represents a side elevation of a portion of my truck, illustrating the manner of removing the wheels and journal-boxes. Fig. 8 is a detail view of the end portion of the tie-bar for the pedestals. Fig. 9 is a detail view, in side elevation, of a portion of a truck, showing strengthening-plates applied

to the side frames. Fig. 10 is a detail sectional view of the same. Fig. 11 is a detail top plan view of a portion of the side frames and bolster strengthened in this manner. Fig. 12 is a detail top plan view of a portion of a truck, showing another form of strengthening-plate applied thereon. Fig. 13 is a detail side elevation, and Fig. 14 is a detail sectional view of the same.

A in the drawings represents my improved car-truck; B, the cross-frame or transom thereof; C, the side frames, and E the pedestals secured therein.

It is my purpose to construct a pedestal-truck that may be built in any car or railroad shop with the usual tools at hand in such shops and to build it of common, standard, and commercial material always on hand in almost all railway and car shops. My purpose is also not only to use common and standard material but to use it in such a way as to require as little work as possible in assembling the parts of the truck.

For the side frames of the truck I contemplate using the diamond or arch-bar truck-frame similar to those now in common use. These side frames C are preferably composed of top arch-bars *c* and bottom inverted arch-bars *c'*, to the central portions of which are secured the ends of the transom B. The ends of the arch-bars *c* and *c'* meet above the journal-boxes, as illustrated. The cross-frame or transom B is composed, preferably, of two I-beams *b b*. It will be noticed that they will require no bending or forging or special shaping by special machinery. In fact the rolling-mills will cut them off at the proper length without extra charge. Then the only work to be done on these I-beams is to drill the holes for rivets. The I-beams *b b* are attached to the arch-bars *c* and *c'* by rivets or bolts. To strengthen this connection as well as to hold the truck perfectly square and in true, gusset-plates *b'* are used between the arch-bars *c c'* and the top and bottom of the I-beams. The arch-bars *c c'* and I-beams *b b* are further connected, strengthened, and braced by the braces *c²*. The usual side bearings of the truck (not shown) are located on top of the upper gusset-plates the usual distance from center of the truck. The center bearing *b³* is riveted to a large plate *b⁵*,

which plate is riveted to the top flanges of the I-beams $b\ b$. This plate b^5 serves as a bearing on which center bearing b^3 rests and also holds the top flanges of the I-beams $b\ b$ together, stiffening them by connecting the two together. The center bearing b^3 is further supported and the I-beam braced and tied together by the braces B' . To prevent the bottom flanges of the beams spreading, they are held together by the tie-plate B^2 , connected to the web of the beams $b\ b$. This connection is made to the web so as to make no holes in the bottom flanges of beams, as the bottom flanges at this point are under a tension strain and holes would weaken them. The side frame of arch-bars and cross-frame of I-beams are in themselves old and time-tried constructions, but in my truck are used and applied in a new way.

Instead of attaching the ends of the arch-bars c and c' where they meet over the top of boxes $D\ D$ directly to the top of journal-boxes, as is commonly done in arch-bar trucks, the bolts e and e' that are used for this purpose pass down through the journal-box guide-bars $e' e'$, one on each side of each box, and then on through the tie-bar e^2 . Thus pedestals or rectangular frames are formed with the arch-bars $c\ c'$ for the top, the guide-bars $e' e'$ for the sides, and the tie-bar e^2 for the bottom, in which the journal-boxes $D\ D$ slide vertically up and down.

The journal-boxes $D\ D$ are provided with lugs or guides $d\ d$, that engage the guide-bars $e' e'$, thus preventing any transverse motion of the boxes in the pedestals.

On top of each journal-box D is a seat D' , in which rests a journal-box spring F . The spring-seat D' is elevated above the top of the journal-box proper and is connected to top of said box and supported by two legs or walls $d' d'$. The box, seat, and vertical walls are preferably cast in one piece. An opening or hollow space d^2 is formed by the seat D' , the two walls $d' d'$, and the top of the journal-box proper, D , through which the ends of the arch-bars c and c' pass and in which they work up and down vertically. This opening d^2 is a trifle wider than the arch-bars to allow them to work freely. The height of this opening d^2 is made equal to the thickness of the two arch-bars $c\ c'$ plus the extent of compression of the spring F .

The spring F , resting in the seat D' , is also provided with a cap G , which in turn supports a spring-yoke H . The cap G has two lugs or projections $g\ g$ to hold the yoke H in position. The lower ends of the legs of the yoke H are turned out at right angles to the legs, as at h , and have holes bored in them to receive the bolts $e\ e$. These bolts $e\ e$ pass through the angles $h\ h$ of the legs of the spring-yoke H , through both arch-bars $c\ c'$, through the guide-bars $e' e'$, and then through the tie-bar e^2 , holding these members or parts all firmly together. It will thus be seen that the side frames are hung upon the springs $F\ F$

by the yokes $H\ H$, the springs resting upon the seats $D' D'$ upon the journal-boxes $D\ D$. The length of the legs of the spring-yoke H are such that when nuts of the bolts $e\ e$ are drawn up tight it will give the spring F a little compression, so as to hold the arch-bars up hard against the bottom of the spring-seat D' , which will leave all the difference between the height of the opening d^2 and the thickness of the two arch-bars between the bottom of arch-bar c' and the top of journal-box proper. This space between arch-bar c' and top of box D is to allow for the compression of the spring F under load of car.

Fig. 7 shows the method of opening the pedestal to take out a pair of wheels.

The ends of tie-bar e^2 are slotted from the hole of bolt e out to the end, as shown at e^3 in Fig. 8. This would leave the lower end of the guide-bar e' so it could be pushed out away from the journal-box in a direction lengthwise of the tie-bar e^2 or slot e^3 . To prevent this being done, the end of the tie-bar e^2 is turned up at right angles, as at e^4 . This angle or lip e^4 bears against the guide-bar e' and holds the same in place against the side of the journal-boxes. The outer bolt e is used with the nut on top.

The process of removing a pair of wheels is as follows: The nuts of the bolts $e\ e$ are taken off. Then the tie-bar e^2 can be forced down until the angles e^4 will clear under the guide-bar e' . The outer bolt e is pulled down until it will clear the under side of arch-bar c' . Then the outer bolt e and with it the guide-bar e' may be removed, as shown in Fig. 7 of the drawings. The inner bolt e is driven up enough so the spring-yoke H may be raised and turned around, as shown in Fig. 7, when spring F and cap G may be lifted off, and then the wheels with the boxes still on the journals may be rolled out. The outer bolts $e\ e$ are preferably inverted, as shown, for the reason that in most of the cars now built the bottom of the car-body is only thirty-six to thirty-eight inches from the track, which only leaves about eleven to twelve inches from top of arch-bar c to bottom of car. The bolt e is about eighteen inches long. Therefore the head of the bolt would strike the car before the thread end of the bolt would be out of the holes in the arch-bar. Even by placing the head of the bolt e below, as shown, it can only be dropped about ten inches, or to a level with the top of track. So the difficulty which might arise therefrom is obviated by slotting the end of the tie-bar at e^3 and turning up the angles e^4 , as hereinbefore described.

In adapting my trucks for use upon cars of heavy capacity it is advisable to strengthen the arch-frames which bear the weight of the transoms and car-bodies. For this purpose I contemplate using tie-plates, as illustrated in Figs. 9, 10, and 11 of the drawings. These plates $J\ J$ are of the same width, as the flanges of the I-beams $J' J'$ cover the ends of the same, pass up and down by the outer edges

of the arch-bars $j j$, and are bent at right angles at their ends, as at $j' j'$. The top angle j' folds over on the top side of the top arch-bar j , and the bottom angle j' folds under and against the bottom side of the lower arch-bar j . The angles of the plates $J J$ are secured in place by the same bolts or rivets that secure the arch-bars j and the gusset-plates j^2 to the flanges of the I-beams $J' J'$ at this point. In this simple inexpensive manner I prevent the possibility of the arch-bars being spread apart under heavy strain.

In Figs. 12, 13, and 14 I show another way of strengthening the arch-frames. When using the tie-plates $K K$ as illustrated in these figures, I dispense with any braces like those shown at c^3 in Figs. 1 and 3 and cause a simple single plate to perform the offices of braces, tie-plates, and gussets. The plate K is wide enough to cover the ends of both of the I-beams $K' K'$ of the transom and is bent so as to fold over the top of the upper arch-bar k and under the bottom of the lower arch-bar k , as at $k' k'$, and back against the upper and lower flanges of the I-beams $K' K'$, extending toward the center of the truck. Thus the truck is not only held square and in true, but the arch-bars are securely tied together. The tie-plate K is bent snugly against both sides of the arch-bars $k k$ and is riveted securely to both the arch-bars and the flanges of the I-beams $K' K'$.

A part of the vertical edges of the tie-plate K between the arch-bars is bent in at right angles to the plane of the plate and parallel with the plane of the webs of the I-beams $K' K'$, as at k^2 , to which webs said bent-in portions are riveted. This prevents the web of the I-beams from buckling under a load, as well as serving to hold the frame in true. By constructing trucks in this manner they are capable of sustaining cars of the largest capacity without injury or danger.

It will be observed from the foregoing that I am enabled by constructing a truck in accordance with my invention to produce one which will be a pedestal-truck with side frames of arch-bars similar to the ordinary arch-bar truck, and also one in which the manner of forming the pedestal connecting the arch-bars, pedestals, journal-boxes, springs, spring-yokes, spring-seats, and caps is such that by removing a part of the same the wheels and axles, with the journal-boxes, may be rolled out or disconnected from the truck without having to raise the truck with its load of car and load any more than just enough to take the weight from the journals of the axles, and all this accomplished in the cheapest, most simple, and most durable manner. The matter of changing the wheels and axles under freight-cars particularly is a very important thing to consider in truck construction, for the labor connected therewith and the cost of the same amounts to a great deal. It is found that about two-thirds of the labor is in the time taken up by having to raise the car

high enough for the pedestals to clear the top of the journal-boxes in trucks now in common use. It will be noted that I have obviated this disadvantage by my invention, and, furthermore, that I am enabled to produce a truck which can be made in any railroad-car shop, for it is composed simply of materials which are commonly kept in stock in all such shops and which require no great labor or special machinery to be put into the shapes described.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a car-truck having pedestals, of side frames comprising arches, a transom connecting the said side frames, journal-boxes, springs upon the same and yokes straddling each spring and bolted to the upper surface of the bars of the side frames for sustaining the truck upon the springs, substantially as described.

2. In a car-truck the combination of a transom, side frames secured thereto, pedestals in said frames, journal-boxes having spring-supporting seats thereon, springs upon said seats, caps upon said springs provided with downwardly extended projections or studs adapted to limit the depression of the said springs, yokes resting upon said springs and pedestal-bolts passing through the pedestals, side frames and yokes for securing the parts in place and holding them together, substantially as described.

3. In a car-truck the combination of side frames formed of arch-bars, a cross-frame or transom, pedestals in said side frames, journal-boxes working in said pedestals, spring-seats formed upon the upper sides of said journal-boxes and extending above the arch-bars, springs resting upon said seats, and means for resting the weight of the truck upon said springs, substantially as described.

4. The combination in a car-truck having pedestals, of side frames comprising arch-bars, a transom connecting said side frames and gusset-plates interposed between said transom and the side frames and connecting the I-beams together for strengthening the same and holding the said truck in true, a center plate secured to said transom, a diagonally-arranged brace-plate for strengthening the transom in the center and a corrugated plate connecting the webs of the I-beams near the bottoms thereof for preventing the spreading of the same, substantially as described.

5. The combination in a car-truck having pedestals of side frames comprising arch-bars, a transom composed of I-beams, gusset-plates interposed between said transom and side frames, and connecting the top of the I-beams and braces secured to the webs of the said I-beams extending diagonally to the upper and lower arch-bars and secured thereto for strengthening the same, substantially as described.

6. In a car-truck, the combination with a

transom of side frames comprising arch-bars, pedestals secured to said side frames, journal-boxes, spring-seats formed upon said journal-boxes, and forming with the top of said boxes, recesses to receive the ends of said arch-bars and springs upon said seats for supporting the side frames, substantially as described.

7. In a car-truck the combination with a transom of side frames, pedestals secured thereto, journal-boxes working in said pedestals, spring-seats above said journal-boxes and connected to the same by supporting-walls forming recesses through which the ends of the side frames extend and in which they may move vertically and springs upon said seats for bearing the weight of the truck-frame, substantially as described.

8. In a car-truck the combination with a transom and side frames, of pedestals secured to said side frames, journal-boxes working in said pedestals, spring-seats upon the tops of said journal-boxes extending above the side frames, springs supported by said seats, and yokes secured upon the top of said side frames, and passing over the upper ends of the springs, whereby the truck-frame is adapted to be supported upon said springs, substantially as described.

9. In a car-truck the combination with a transom and side frames, of pedestals secured to said side frames, journal-boxes working in said pedestals, spring-seats upon the tops of the journal-boxes extending above the side frames, springs supported by said seats, cap-pieces upon the tops of said springs, and yokes resting upon said caps and secured to said side frames, whereby the weight of the truck-frame is supported by the springs, substantially as described.

10. In a car-truck the combination of a transom, side frames secured thereto, pedestals in said frames, journal-boxes, having spring-supporting seats thereon, springs upon the said seats, yokes resting upon said springs and pedestal-bolts, passing through the pedestals, side frames and yokes for securing the parts in place and holding them together, substantially as described.

11. In a car-truck, the combination of a transom, side frames comprising arch-bars, vertical guide-bars mounted in the ends of said frames, forming pedestals for the journal-boxes, journal-boxes movably held in said pedestals and extending above the side frames, springs resting upon said boxes, and means secured to the top of the side frames for suspending the weight of the truck-frame upon said springs, substantially as described.

12. In a car-truck the combination of a transom, side frames comprising arch-bars, guide-bars and bolts passing through the same for securing them in place in the side frames for forming pedestals, journal-boxes adapted to move vertically in said pedestals and extending above the side frames, springs upon said

journal-boxes, and means on the upper side of the side frames for suspending the truck-frame upon said springs, substantially as described.

13. In a car-truck the combination of a transom, side frames comprising arch-bars, and a tie-bar, vertical guides removably secured between the arch-bars and the tie-bar to form pedestals, journal-boxes movably held in said pedestals and extending above the arch-bars and springs for supporting the truck-frame upon the said journal-boxes, substantially as described.

14. In a car-truck the combination of a transom, side frames comprising arch-bars, vertical guides forming pedestals, bolts passing through said pedestals for holding them in place, and a tie-bar provided with slots in ends, whereby the outer bolts with their guides may be taken from the frames without pulling the bolts out of the guides, substantially as described.

15. In a car-truck the combination of a transom, side frames comprising arch-bars, vertical guides forming pedestals, bolts passing through said pedestals for holding them in place, and a tie-bar provided with slots in its ends and having its ends bent up to hold the lower end of the outer guides securely in place, substantially as described.

16. The combination in a car-truck of side frames formed of arch-bars, a transom formed of I-beams and secured at their ends to said arch-bars, tie-plates covering the ends of said I-beams, and bent over the top of the upper arch-bar and under the bottom of the lower arch-bar and secured thereto for tying said arch-bars together, substantially as described.

17. The combination in a car-truck of side frames formed of arch-bars, a transom formed of I-beams and secured at their ends to said arch-bars, tie-plates covering the ends of said transom and having bent end portions secured at the top and bottom to the arch-bars and extending over the top and bottom flanges of the I-beams toward the center of the truck for holding the same in true, substantially as described.

18. The combination in a car-truck of side frames formed of arch-bars, a transom composed of I-beams secured thereto, tie-plates covering the ends of said transom and having bent end portions secured at the top and bottom to the arch-bars and extending over the top and bottom flanges of the I-beams toward the center of the truck for strengthening the same, the vertical edges of said tie-plates being bent inwardly and secured to the webs of the said I-beams, substantially as described.

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

GEORGE G. FLOYD.

Witnesses:

LEE MONTGOMERY,
H. D. MUIR.