

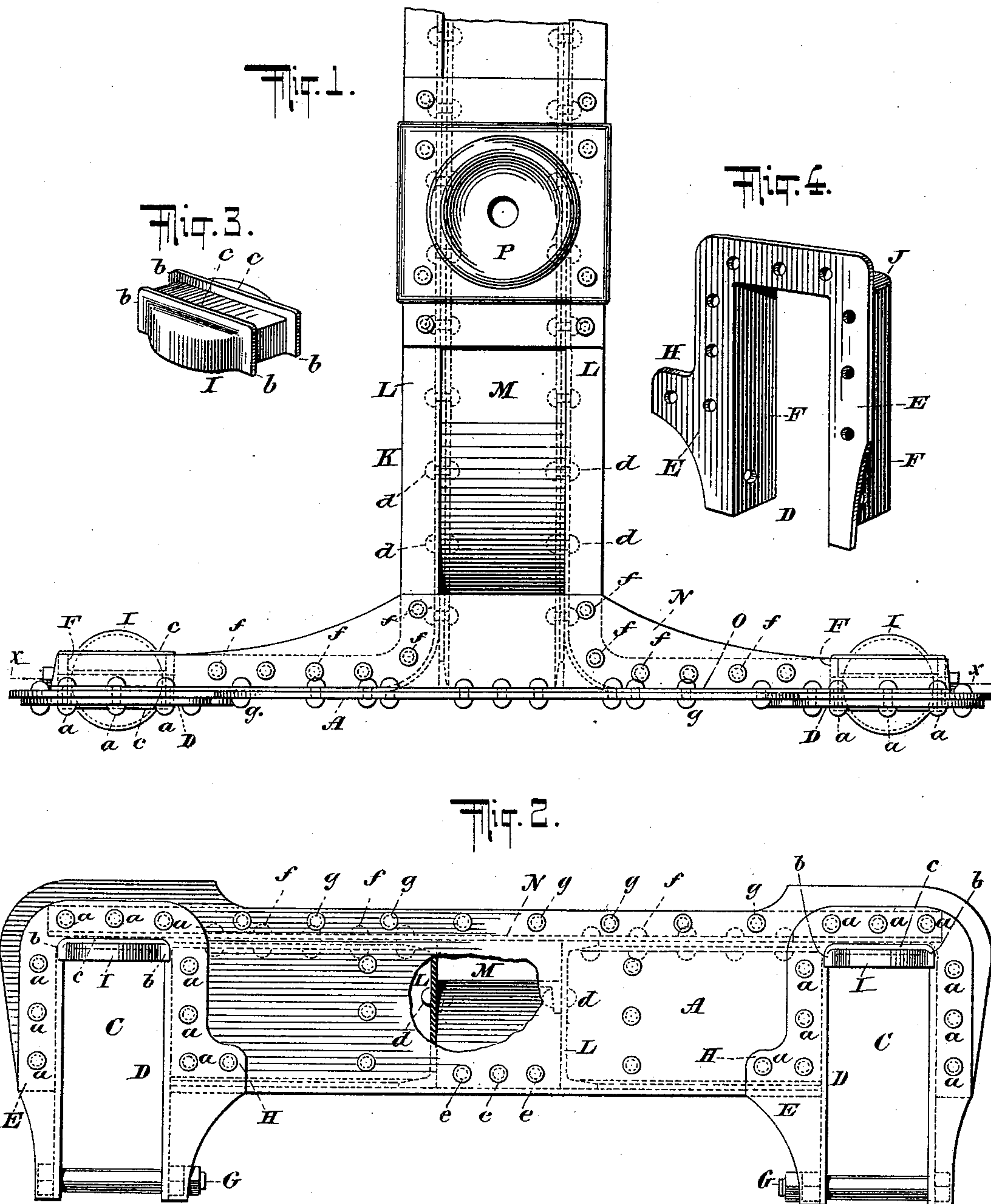
(No Model.)

2 Sheets—Sheet 1.

B. W. TUCKER.
CAR TRUCK.

No. 583,610.

Patented June 1, 1897.



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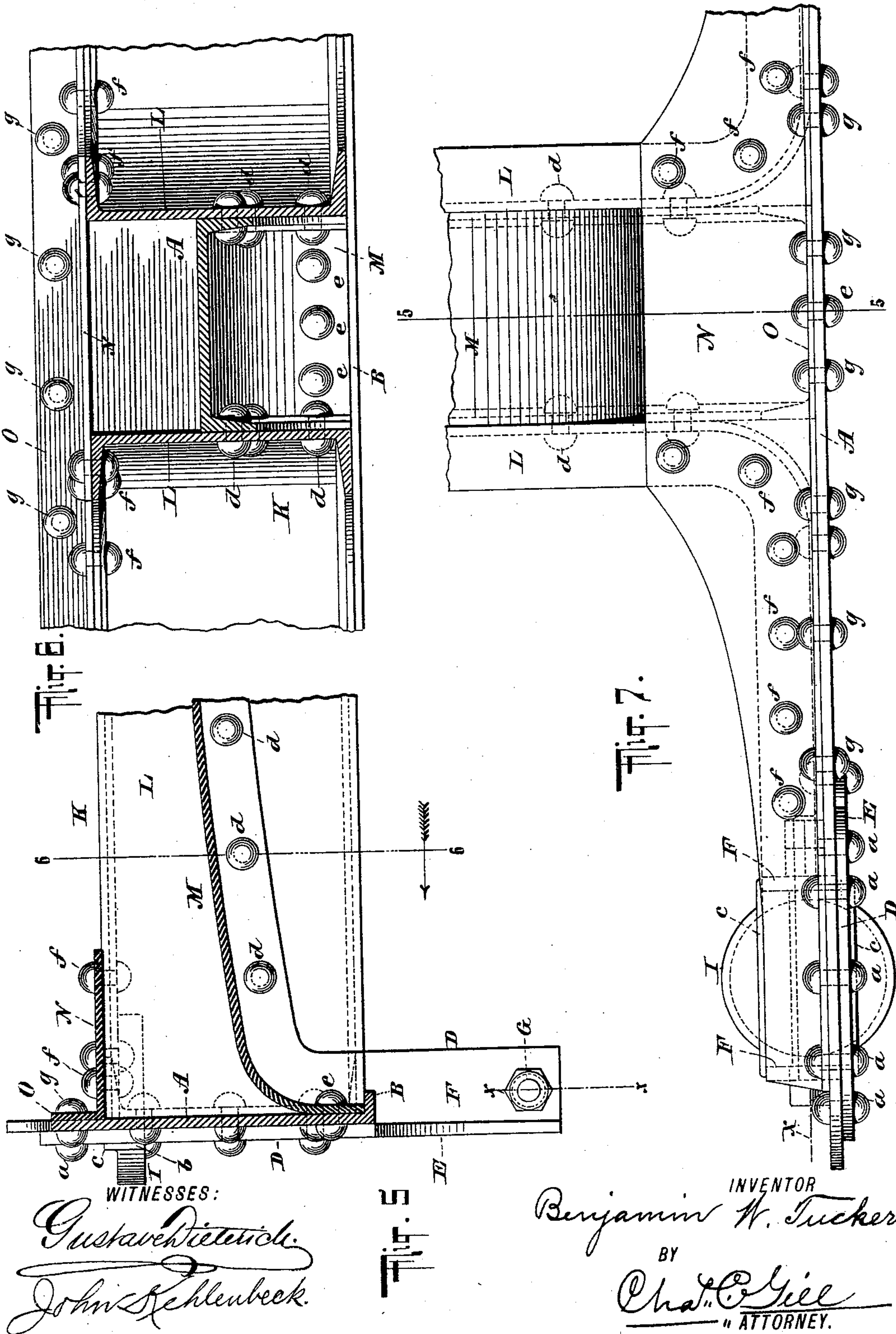
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UNITED STATES PATENT OFFICE.

BENJAMIN W. TUCKER, OF NEWARK, NEW JERSEY.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 583,610, dated June 1, 1897.

Application filed February 27, 1897. Serial No. 625,325. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN W. TUCKER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in 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 letters of reference marked thereon, which form a part of this specification.

The invention relates to car-truck frames, and pertains particularly to the side frames or beams, the transom connecting said side frames or beams, the pedestal-frames, and other features, as hereinafter described and claimed.

In accordance with this invention the side frames or beams are duplicates of one another, and each is formed from a rolled beam or plate having, preferably, an inturned flange along its lower edge. The pedestal-frames fit spaces formed in the ends of the side frames or beams and are of angle-iron shape in cross-section, one flange of the angle-iron being riveted to the web of the side frame and the other flange extended through the pedestal-spaces to form guiding and rubbing surfaces for the axle-boxes. The transom comprises two parallel rolled beams connecting the side frames or beams and an intermediate horizontally-disposed beam which, at its edges connects the facing sides of the parallel beams and at its ends engages the side frames or beams, and the top plate at each side of the truck-frame connects the parallel transom-beams and is riveted or bolted to the side frames or beams.

The object of my invention is to produce a car-truck frame of great efficiency and one capable of withstanding all of the severe usage and resisting the various strains to which car-truck frames are subjected.

A further object of the invention is to perfect the general construction of car-truck frames.

The novel structure by which my invention is carried into effect will be fully understood from the detailed description hereinafter pre-

sented, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of a portion of a car-truck frame constructed in accordance with and embodying the invention. Fig. 2 is a side elevation of same, partly broken away and in section to disclose the intermediate transom-beam. Fig. 3 is a detached perspective view of the spring-socket located at the upper end of each pedestal-space to receive the usual coiled springs. Fig. 4 is a detached perspective view of one of the pedestal-frames. Fig. 5 is a detached vertical section through the central portion of the car-truck frame on the dotted line 5 5 of Fig. 7. Fig. 6 is a vertical section through the transom on the dotted line 6 6 of Fig. 5, and Fig. 7 is an enlarged top view of a portion of the car-truck frame.

In the drawings, A designates the side beam or frame of the truck, which frame or beam is formed of rolled metal having no flange at its upper edge, but provided with the horizontal inwardly-projecting flange B at its lower edge. The rolled beam A has pedestal-spaces C formed in it at its ends, said spaces being of rectangular shape and bounded on three sides by the web of the beam or frame A. Within the spaces C are placed the pedestal-frames D, each of which is in an integral piece and formed of angle-iron, whose one flange E is secured by the rivets *a* to the web of the side beam or frame A, as clearly shown in Fig. 2, and whose other flange F extends transversely through the pedestal-spaces C and forms a box-like inclosure for the usual axle-boxes and springs. The side portions of the flange F is of the proper width to receive and guide the usual axle-boxes, and this flange F is, as shown in Fig. 4, integral with the flange E, which is riveted to the side beams or frames A entirely around the pedestal-spaces C formed therein. The lower ends of the pedestal-frame D extend downward below the lower horizontal edge of the side beam or frame A, in order to form sufficient space for the axle-boxes and their springs and to permit of the said boxes having a vertical movement when in use. The lower ends of each pedestal-frame D will be closed by suitable means, and in the present instance I close the same by a removable bolt

G, as illustrated in Fig. 2, this bolt passing through the lower ends of the flange F, which is suitably apertured to receive the same, as indicated in Fig. 4. At the inner side of each pedestal-space C the flange E of the pedestal-frame is formed with the wing or extension H to receive an additional rivet. The pedestal-frame D is formed from a straight angle-iron bar, which is bent into shape and has its flange E sheared to the form fully illustrated in Figs. 2 and 4. The side beam A is thus in one piece of metal and each pedestal-frame is in one integral piece of metal riveted to the side beam or frame A.

At the upper end of each pedestal-space C is provided the inverted socket I for the reception of the upper end of the usual coiled springs, and this socket, as more clearly shown in Fig. 3, is provided with the end gibs *b b* and upper horizontal gibs *c c* to pass upon and engage the edges of the pedestal-frame D in the manner clearly indicated in Figs. 2 and 7. The gibs *b b* fit upon the edges of the vertical portion of the inturned flange F of the pedestal-frame D and the gibs *c c* fit upon the horizontal portion J of said flange F, and by means of the aforesaid gibs the socket I is suitably guided and held in place and locked against twisting.

The transom K is formed of the two parallel channel-beams L L and the intermediate channel-beam M, which is horizontally disposed and has its edge flanges secured by the rivets *d* to the webs of the transom-beams L. The ends of the intermediate horizontally-disposed channel-beam M are turned downward and rest upon the inwardly-projecting horizontal flanges at the lower edges of the side frames or beams A, and the web portion of the ends of said beam M is secured by rivets *e* to the web of the side frames or beams A, as illustrated in Figs. 2 and 5. The end portions of the channel transom-beams L turn outward from one another and extend along the webs of the side frames or beams A, as indicated by the dotted lines in Figs. 1 and 7 and by full lines in Fig. 6. The lower edges of the end portions of the channel transom-beams L rest upon the lower inwardly-projecting flanges B of the side frames A, and the upper flanged edges of the end portions of the beams L are engaged by the top plate N, whose horizontal portion is secured by rivets *f* directly to said upper flanged edges of the beams L. The outer edge of the top plate N is formed with the vertical flange O, which is directly riveted to the upper edges of the side frame or beam A by means of the rivets *g*. The flange O of the top plate N extends just across the pedestal-spaces C, and the rivets *a* along the upper horizontal portion of the pedestal-frames D pass through said frame and also through the side beam A and said flange O. Thus the rivets at the upper portions of the pedestal-frames secure said frames, the side frames A, and the flange O together, while the rivets *g* intermediate the

pedestal-frames D simply pass through the side frame A and the said flange O of the top plate N. The beams L may be connected by any suitable center-bearing plate, one form of which is indicated at P in Fig. 1.

An important feature forming a part of some of the combinations presented and embodied in the truck hereinbefore described is that the line of union between the transom and side frame or beam is outward beyond the center line through the inclosing surfaces for the usual axle-boxes, whereby the strain and weight upon the transom-beam are resisted and supported by the side beams or frames at points outward beyond the middle part of the axle-boxes. This is a feature of importance in the construction of car-truck frames and results in greatly-increased efficiency in the truck and in the capability thereof of withstanding the severe usage and great strain to which car-trucks are subjected. The importance of this feature of the invention may be more readily appreciated by comparing the same with trucks in which the transom is joined or connected with the side frame or parts thereof on a line inward beyond the longitudinal central line through the inclosing surfaces for the axle-boxes, and in this latter form of construction it will be found that the entire weight on the transom is suspended or hung mainly upon the rivets by which the transom is connected at its ends with the side frames or beams.

The transom hereinbefore described is of special importance in view of its construction and the use therein of the horizontally-disposed intermediate beam M, which is preferably arched and connects the vertical beams L together and to the side frames and also connects the said side frames together. The intermediate beam M adds greatly to the durability and efficiency of the truck without adding materially to the cost thereof, since said beam M may be a commercial rolled channel-beam whose edge flanges will contact with the web portions of the channel-beams L and may be securely riveted or bolted thereto. The ends of the intermediate beam M are through their web portion riveted to the web portion of the side frames or beams, and said ends find additional support by resting upon the flanges B at the lower edges of the side frames or beams. The invention is not limited to the particular bending of the beam M nor to the said beam being in one continuous piece extending from one side frame A to the other side frame A, although I much prefer to have the same in one piece and to arch said beam, since thereby greater efficiency is secured.

The pedestal-frames D, of angle-iron shape in cross-section and inclosing three sides of the pedestal-space, is also particularly efficient and durable, and said frame D when riveted to the outer side of the side frame A, as shown, increases the strength of the side frame around the pedestal-space and permits

its flange which forms the inclosing surfaces of the axle-box to be inserted inward through the pedestal-space and bring its longitudinal central line inward beyond the line at which the transom and top plate are connected to the side frames. The angle-iron shape of the pedestal-frame D is also important in that the frames themselves are thereby of durable construction and inexpensive of manufacture and afford the proper guiding-surfaces for the usual axle-boxes. The said pedestal-frame D, constructed as described, is also capable of having the extension or wing H formed directly thereon and integral therewith and also of having its lower ends, which project downward below the side frames A, neatly trimmed, as shown, and the said frame D is also conveniently adapted to receive the spring-socket I and by means of the gibs on said socket prevent the latter from twisting or becoming otherwise displaced.

The top plate N effectually connects the transom-beams L L together and to the upper web portion of the side frame A, and the vertical flange O of said top plate N furnishes strength for the side frame A and increases the efficiency of the truck. The ends of the top plate N strengthen the end portions of the side frame A directly over the pedestal-spaces C and admit of the top plate at its ends being secured to the side frames by the rivets *a*, which secure the upper ends of the pedestal-frames D to said side frames.

The car-truck as a whole has been designed with a view of securing simplicity and practicability of construction and of insuring great strength, durability, and efficiency in each and every part of the truck-frame.

In Figs. 1, 5, and 7 I indicate by the dotted line *x* the longitudinal central line through the inclosing surfaces for the axle-boxes in order that it may be apparent that the attachment of the transom and top plate to the side beam A is outward beyond said central line *x*.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A car-truck frame comprising the side frames having the inwardly-extending top plates at their upper edges and the inwardly-extending flanges at their lower edges, and a transom connecting said side frames and comprising the parallel channel-beams extending transversely across the truck with their flanges turned outward from one another and their end portions turned outward toward the ends of the truck, said outwardly-turned end portions having their webs extending along the webs of the side frames and their upper and lower flanges housed between said top plates and lower flanges of said side frames; substantially as set forth.

2. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of said side frames, transom-beams extending transversely between and connecting said side frames, and the top plates connecting the

transom-beams to one another and to said side frames, each top plate being provided at its outer edge with the vertical flange which is directly riveted to the web portion of the side frame; substantially as set forth.

3. A car-truck frame comprising beam side frames, pedestal-frames at the ends of said side frames, transom-beams extending transversely between and connecting said side frames, and the top plate at each side of the truck connecting said transom-beams to one another and to the side frame, the lower edge of said side frames having an inwardly-turned flange and the outer edge of said top plates having the upwardly-extending vertical flange riveted directly to the web portion of the side frame; substantially as set forth.

4. In a car-truck the beam side frames, having the vertical pedestal-spaces formed within their ends, combined with the angle-iron pedestal-frames engaging said spaces and having the flange riveted to the web of the side beams and the flange extending through said spaces from said vertical flange and forming the box to receive the axle-boxes; substantially as set forth.

5. In a car-truck the beam side frames having the pedestal-spaces formed in their ends, combined with the pedestal-frames of angle-iron shape in cross-section, said frames each comprising the vertical flange riveted to the outer side of the web of said side beams and the inwardly-extending flange passing from said vertical flange through said pedestal-spaces and forming the inclosing surfaces for the axle-boxes; substantially as set forth.

6. A car-truck frame comprising the beam side frames having the pedestal-spaces formed at their ends, a transom connecting said side frames, and the pedestal-frames of angle-iron shape in cross-section, fitting said spaces and having one flange riveted to the web of the side beams and the other flange extending through said space and forming the inclosing surfaces for the axle-boxes, the central longitudinal line through said inclosing surfaces being inward beyond the line on which said transom is connected to said side beams; substantially as set forth.

7. A car-truck frame comprising the beam side frames, having the pedestal-spaces formed at their ends, a transom connecting said side frames, and the pedestal-frames fitting said pedestal-spaces and being of angle-iron shape in cross-section with one flange riveted to the outer side of the side frames and the other flange extended through said pedestal-spaces to form the inclosing surfaces for the axle-boxes, the outer flange of said pedestal-frames having adjacent to the lower edge of the side frames the inward wing or extension; substantially as set forth.

8. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of said side frames, transom-beams extending transversely between and connecting said side frames, and a top plate at each side of

the truck connecting the transom-beams to one another and to the side frame, the said top plate having at its outer edge the vertical flange which is riveted to the side frames and
5 also to the upper ends of said pedestal-frames; substantially as set forth.

9. A car-truck frame comprising the beam side frames having the pedestal-spaces formed at their ends, the pedestal-frames of angle-
10 iron shape in cross-section riveted to said side frames and extending transversely through said pedestal-spaces and forming the guiding-surfaces for the axle-boxes, and the socket at the upper end of each pedestal-frame, said
15 socket being an integral inverted receptacle having at its opposite edges the parallel vertical gibs to engage the vertical sides of the pedestal-frame and having along its top the parallel gibs to engage the opposite upper
20 edges of the pedestal-frame; substantially as set forth.

10. A car-truck frame comprising the side frames, pedestal-frames at the ends of said side frames, and a transom extending trans-
25 versely between and connecting said side frames, said transom being composed of the parallel beams riveted to the side frames and an intermediate horizontally-disposed flanged beam extending transversely between said
30 parallel beams and riveted to said parallel beams and to the side frames of the truck; substantially as set forth.

11. A car-truck frame comprising the side frames, pedestal-frames at the ends of the
35 side frames, and a transom connecting said side frames, said transom comprising the flanged parallel beams connected at their ends with the side frames and the horizontally-disposed flanged beam intermediate said parallel
40 beams and riveted to said vertical webs thereof; substantially as set forth.

12. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of said side frames, and a transom connecting
45 said side frames, said transom comprising the parallel beams extending transversely across the truck and having their ends turned outward along the sides of the side frames to which they are riveted, and the horizontally-
50 disposed flanged beam intermediate said parallel beams and riveted through its flanges to the web portion of said parallel beams and also riveted at its ends to the side frames; substan-
tially as set forth.

55 13. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of said side frames, and a transom extending transversely between and connecting said side frames, said transom comprising the

flanged parallel beams extending transversely 60 across the truck and the horizontally-disposed flanged beam intermediate said beams and secured thereto and to the side frames, said horizontally-disposed beams being arched; substantially as set forth. 65

14. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of the said side frames, and the transom extend-
ing transversely between and connecting said side frames, said transom being composed of 70 the parallel beams and the horizontally-disposed beam intermediate said parallel beams, said horizontally-disposed beam being arched and having its flanges turned downward and riveted to the web portions of said parallel 75 beams and also having its ends engaging the lower inwardly-turned flange on the side frames; substantially as set forth.

15. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of 80 said side frames, and a transom connecting said side frames, said transom comprising parallel beams whose web portions are riveted to the webs of the side beams and the hori- 85 zontally-disposed beam riveted to the web portion of the said parallel beams and also to the web portion of the side frames; substan-
tially as set forth.

16. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of 90 said side frames and a transom extending transversely between and connecting said side frames, said transom comprising the parallel beams secured at their ends to the side frames and the horizontally-disposed beam interme- 95 diate said parallel beams and riveted at its edge flanges to the webs thereof, said intermediate beam at its ends turning downward to bring its web portion in contact with the web portion of the side frames to which it is 100 riveted; substantially as set forth.

17. A car-truck frame comprising the beam side frames, pedestal-frames at the ends of said side frames, and a transom connecting 105 said side frames, said transom being composed of the parallel channel-beams having their flanges turned outward from one another and the intermediate horizontally-disposed channel-beam whose flanges are riveted to the web portions of the said parallel beams; 110 substantially as set forth.

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

BENJAMIN W. TUCKER.

Witnesses:

CHAS. C. GILL,
E. JOS. BELKNAP.