

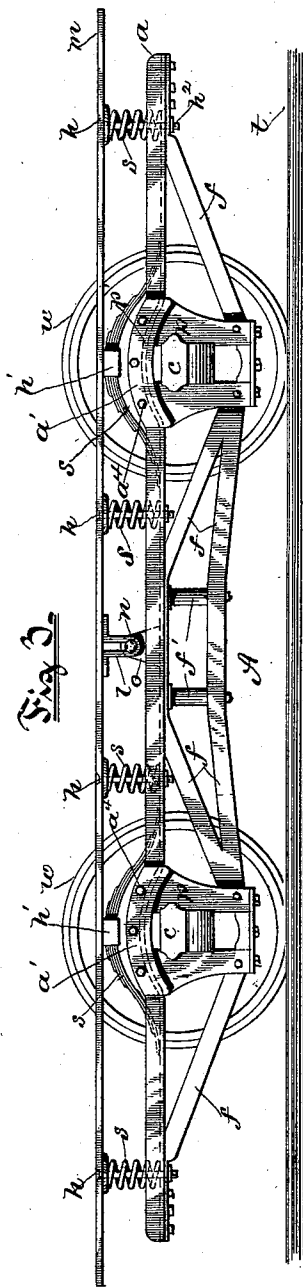
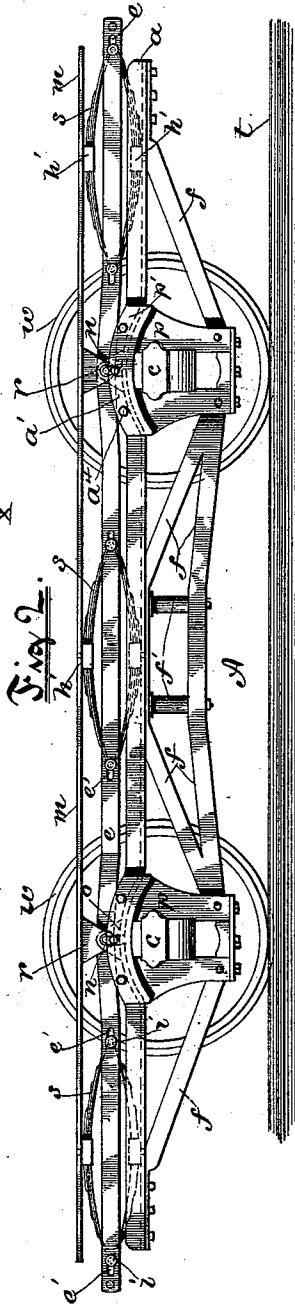
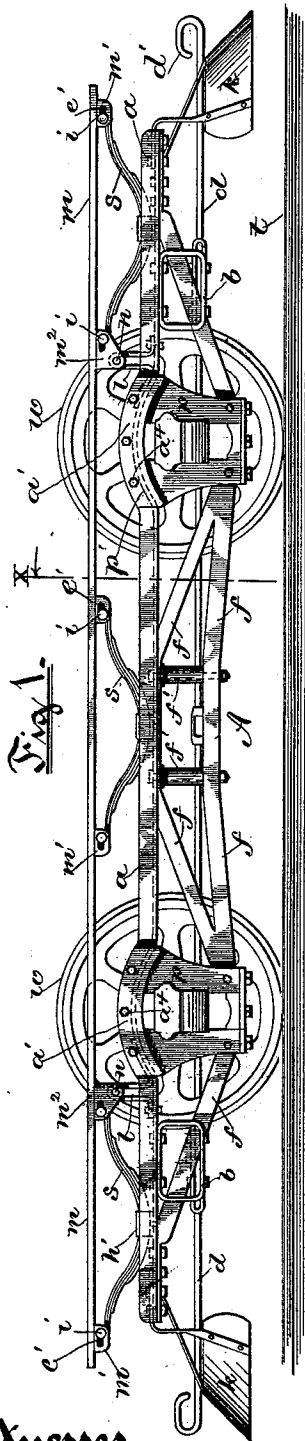
(No Model.)

2 Sheets—Sheet 1.

B. F. MANIER.
CAR TRUCK.

No. 510,277.

Patented Dec. 5, 1893.



Witnesses

Fred. Arnold.

Ida M. Warren.

Inventor.

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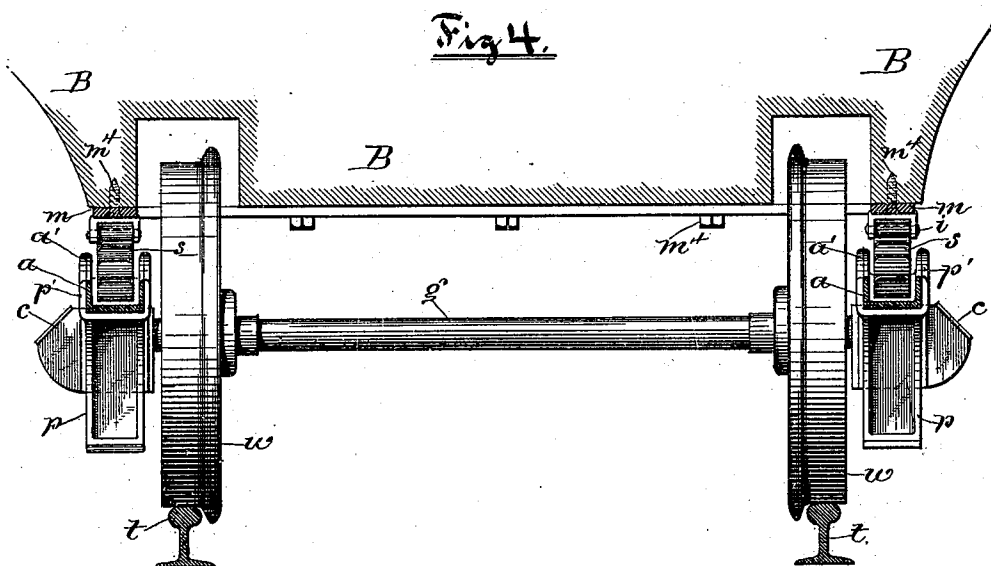
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UNITED STATES PATENT OFFICE.

BENJAMIN F. MANIER, OF POQUONOC BRIDGE, CONNECTICUT, ASSIGNOR OF
ONE-HALF TO BENJAMIN F. MANIER, JR., OF PROVIDENCE, RHODE ISLAND.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 510,277, dated December 5, 1893.

Application filed August 3, 1893. Serial No. 482,237. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. MANIER, a citizen of the United States, residing at Poquonoc Bridge, in the county of New London and State of Connecticut, 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention relates to certain novel improvements in car-trucks, the latter being made of metal and of the class more especially adapted to be used on street cars, such for example as electric and cable cars.

The objects I have in view are primarily to produce a metallic car-truck constructed so as to locate the car-floor nearer the track; the truck-frame is continuous on each side and stiffened by braces and secured to the pedestals in such manner that the weight of the car, &c., is carried without sagging; the frame is connected to the car so as to relieve the springs from undue strain, the springs at the same time being mounted so as to prevent oscillation or end motion of the car.

In order to accomplish the advantages above referred to, my invention consists essentially in the combination of trussed continuous channel bars forming the main framing of the car-truck, axle-carrying pedestals rigidly secured to said bars, a top plate adapted to be rigidly secured to the car base or body, and a series of guided springs interposed between said plate and bars, through which springs the weight of the car and its load is transmitted to the truck-frame, all as will be more fully hereinafter set forth and claimed.

In a patent of the United States granted to me August 27, 1889, No. 409,993, I have claimed an all-iron car-truck possessing certain novel features; for example the truck-frame is composed essentially of compound side bars arranged vertically edgewise in pairs and bolted together, and the supporting springs are located below the upper side bars and in substantially the same horizon-

tal plane with the car-axles. My present improvement differs from said patented device in that each side of the truck-frame is composed of a trussed continuous channel bar on top of which the supporting springs are mounted; the arrangement rendering the truck more efficient, lighter and less expensive. Moreover, in my present device the draw-connection is so made that the springs are practically relieved of all lateral movement or strain longitudinally of the car.

In the accompanying two sheets of drawings, Figure 1, Sheet 1, is a side elevation of a street car truck, embodying my present improvement. Figs. 2 and 3 are similar views, some of the minor parts being omitted, showing modified forms of the supporting springs and the manner of mounting the same. Fig. 4, Sheet 2, is an enlarged transverse sectional view, taken substantially on line *x x* of Fig. 1, showing the relative arrangement of the several parts, and also indicating the base portion of a car body secured to the top plate.

In car-trucks of the class forming the subject of this invention it is to be understood that in case electric motors be used the same are secured to and carried by the car-axle and not by the car-body, since the latter is usually spring-cushioned and therefore adapted to vibrate independently of the axles.

In carrying out my invention I first provide a flat rectangular shaped skeleton frame *m*, formed say of three inch by three-fourths inch bar iron, adapted to be rigidly secured to the under side of the car-body *B* by bolts or lag-screws *m'*. See Fig. 4. The car-axles *g* are mounted to revolve in boxes formed in the iron pedestals *p*; the upper portion *p'* of the latter may be curved upwardly and provided with side flanges, thus forming a U-shaped seat transversely for the truck-frame proper about to be described. The car wheels *w* are secured to said axles and are adapted to run on the track-rails *t*, substantially as common.

The truck-frame consists essentially of two iron girders *a*; I prefer, however, to use girders having a channel or U-shaped form; the same being located on each side of and extending longitudinally of the truck and parallel with each other. The girders may be bent, as at *a'*, to conform to the curvature of

the top portion p' of the pedestals and are seated therein; side bolts a^4 being employed to secure the parts together. The under sides of the girders are further stiffened or braced
 5 by plates f of iron placed edgewise; these plates when secured to the girders and pedestals form what may be termed trusses. The center truss uniting the two pedestals on each side of the truck is provided with compression members or studs f'' , all as clearly shown
 10 in Figs. 1, 2 and 3.

The weight of the car-body and its load is transmitted to and supported by the trussed frame a through the medium of the series
 15 of yielding springs s . These springs may be full elliptic or semi-elliptic in form, as in Figs. 2 and 1, or coiled, as in Fig. 3. The springs are interposed between the adjacent faces of the top frame m and the girders a .
 20 When coiled springs are used I prefer to pass a headed bolt h downwardly through the parts m and a and said springs, a nut or pin h^2 at the bottom serving to keep the bolt in position. The diameter or width of the
 25 springs is slightly less than the distance between the adjacent inner vertical faces of the flanges of the girders transversely. In the case of elliptic or leaf springs the attachment is made at the center, as at h' , the end portions being free to move. When the springs
 30 are inverted, see Fig. 1, I provide the top frame m with lugs or brackets m' , m^2 , having horizontal slots e' through each of which a pin i extends, the latter also passing through
 35 the end of the spring; this arrangement serves to keep the springs in position laterally, while at the same time they are free to expand and contract. In Fig. 2 it will be seen that in lieu of the lugs m' I provide long
 40 pieces e of metal slotted contiguous to the ends of the several springs to receive pins i , substantially as before described.

In order to prevent undue vertical movement or vibration of the car I provide the
 45 frame m with a connection consisting of a vertically slotted yoke l , and the girders a with a bracket o , a bolt or pin n passing transversely through both, as shown in Fig. 3. Substantially the same device is represented
 50 in Figs. 1 and 2; in the latter figure the yokes or brackets r are located just above the pedestals. This arrangement serves to practically relieve the springs from any strain due to starting and stopping of the car, since the

connection insures that the endwise move- 55
 ment of the car body will be simultaneously transmitted to the car-truck.

To the ends of the girders are secured V-shaped pieces k of metal, the same extending
 60 below the brake connection d for the purpose of breaking up and dislodging masses of mud and ice which if allowed to collect would seriously impair the efficiency of the truck mechanism.

I would state that minor changes may be 65
 made in the construction of the truck framing without departing from the spirit of the invention; for example, the girders a may be made up of several pieces or members and
 70 fastened together so as to form a continuous girder, and the form of the bracing may be changed if desired.

I claim as my invention—

1. The combination of the truck-frame provided with axle-carrying pedestals and trusses
 75 secured both to the frame and pedestals, with the body-supporting springs and vertically slotted draw-connections secured to and interposed between the under side of the car and the top of the truck-frame, substantially
 80 as described.

2. The combination of the trussed truck-frame having axle-carrying pedestals secured thereto, with the top plate or member m
 85 adapted to be rigidly secured to the car body, a series of elliptic springs interposed between and attached to said frame and plate, and having the ends of the springs guided and free to move longitudinally of the car, and
 90 draw-connections uniting the frame and plate, arranged to relieve said springs from endwise strain, substantially as set forth.

3. The combination with the trussed frame a and pedestals secured thereto, of a spring-resisted plate m located above said frame, a
 95 slotted yoke secured to one of said members a corresponding bracket or lug secured to the other member and a connecting pin passing transversely through said yoke and lug, substantially as hereinbefore described and for
 100 the purpose set forth.

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

BENJAMIN F. MANIER.

Witnesses:

E. W. MORGAN,
 B. F. MANIER, Jr.