

(No Model.)

2 Sheets—Sheet 1.

S. D. PALMER.
ROAD CART.

No. 456,056.

Patented July 14, 1891.

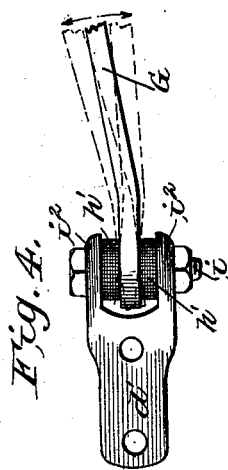
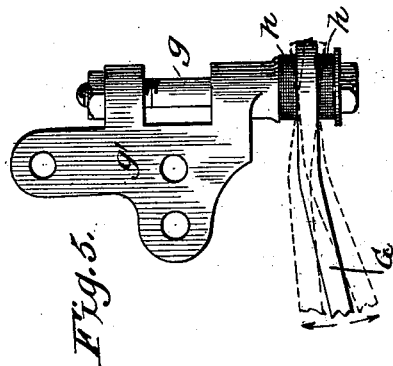
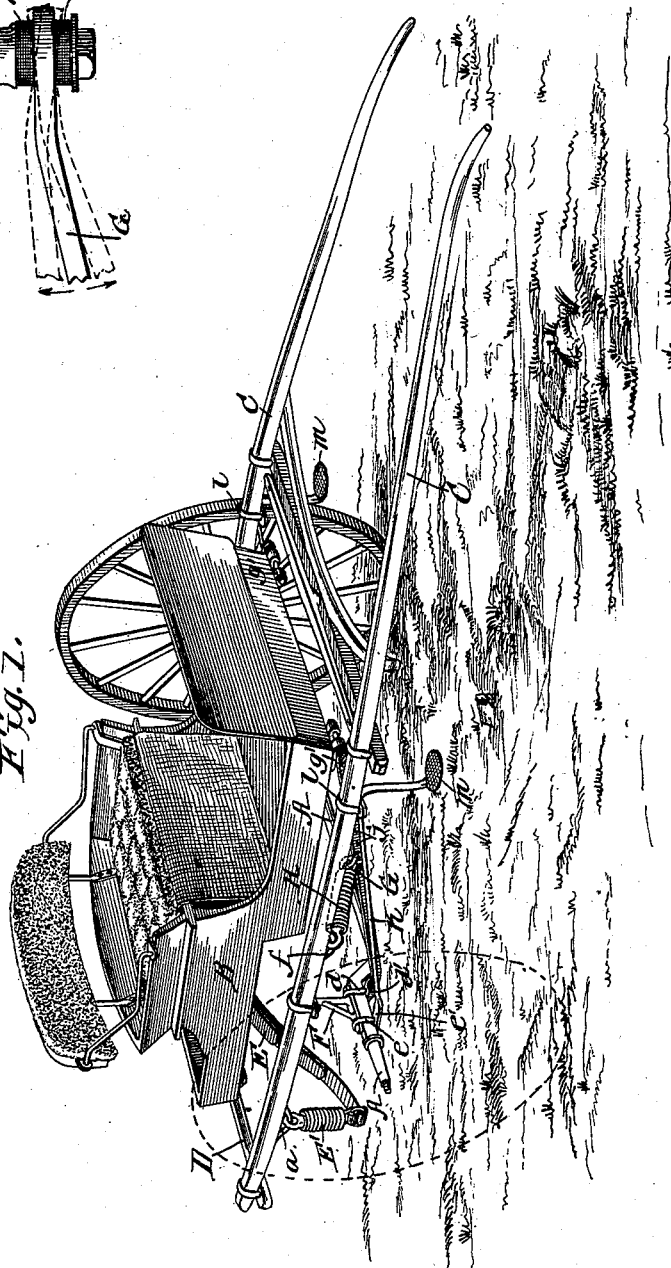


Fig. 7.



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Edw. W. Byrne,

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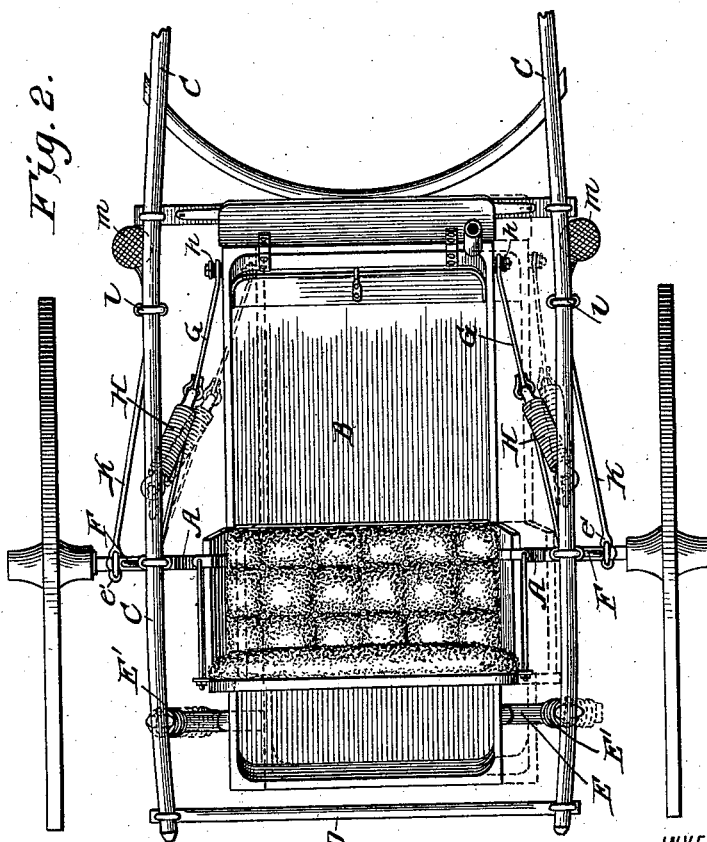
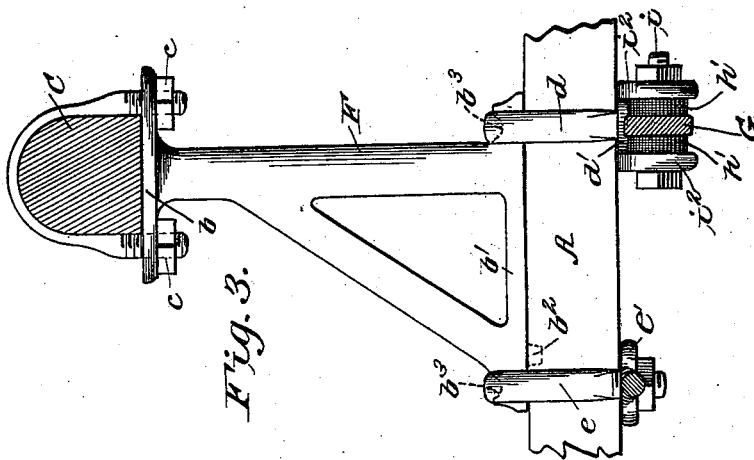
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UNITED STATES PATENT OFFICE.

STATES D. PALMER, OF MARSHALLTOWN, IOWA.

ROAD-CART.

SPECIFICATION forming part of Letters Patent No. 456,056, dated July 14, 1891.

Application filed February 24, 1891. Serial No. 382,686. (No model.)

To all whom it may concern:

Be it known that I, STATES D. PALMER, of Marshalltown, in the county of Marshall and State of Iowa, have invented a new and useful Improvement in Road-Carts, of which the following is a specification.

My invention relates to road-carts of that class in which provision is made for relieving the body of the cart from the horse motion, and it comprehends certain features of improvement upon the Olmsted patent, No. 376,962, which I will now proceed to describe with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the cart, the near wheel being removed to show the parts of the running-gear. Fig. 2 is a plan view; and Figs. 3, 4, and 5 are details.

In the drawings, A represents the axle, B is the body, and C C the shafts, which latter are extended back past the axle and are connected in rear of the body by a cross-bar D. The rear of the body is supported upon a transverse semi-elliptic spring E, whose outer ends are connected to the lower ends of spiral springs E', and the upper ends of which spiral springs are provided with couplings that are sustained in metal loops *a*, attached by screws or bolts to the under side of the shaft-extensions. At the point where the shafts cross the axle they are sustained upon the axle in a position elevated above the same by means of brackets F of a triangular shape. These brackets (see Fig. 3) have at their upper ends a flat plate *b*, with two holes through it to receive the screw-threaded ends of the yoke-shaped clip that embraces the shaft and holds it firmly to the top of the bracket, screw-nuts *c c* being applied to the threaded ends of said clip below the top plate *b* of the bracket. The bottom of the bracket is formed with a flat base *b'*, that rests upon the flat upper surface of the axle next to the wheel. To prevent this base from slipping on the axles it is provided on its lower surface with a lug *b²*, that enters an indentation in the axle. This base portion is also provided with a transverse groove *b³* at each end to form seats for the yoke portions of two clips *d* and *e*, that fasten the bracket to the axle in such manner that it cannot slip or move from its place. These brackets, it will be seen, not

only serve to hold the shafts at a proper distance above the axle, but they also brace the shafts as against lateral movement.

I will now describe the means for supporting the front end of the cart-body in an elastic manner. For this purpose I employ on each side of the body a bar G, which at its forward end is connected to the cart-body, at its rear end is connected to the axle, and at an intermediate point is connected by a spiral spring H with a loop, hook, or staple *f*, secured to the shaft. These connections are peculiar, and are designed for special results, as follows: The first object is to sustain the front of the cart-body in an elastic manner, so that it does not partake of the horse motion. The front of the cart being sustained upon the front end of the bar G, and the latter being hung from the shafts by the spiral springs H, it will be seen that this object of an independent springing motion is at once secured. It is also necessary, in order to avoid the jolts and jars due to lateral pitching caused by the passage of one wheel into a hole or over an elevation, that the body should have a free lateral motion to break the suddenness of these lateral jolts or jerks. This is provided for as follows: At the front end of the bar it is perforated to receive a long bolt *g*, (see Fig. 5,) which is seated in a long bearing, or two bearings separated from each other, formed in a plate *g'*. This plate is provided with holes by means of which it is bolted firmly to the bottom of the cart-body near its front end. Instead of using a bolt on each side of the body a single long rod or bar of metal or wood might be connected to the body and project on the sides, so as to serve as a connection for the front end of the bar G. In any case the bar has on each side of it, where it connects with the bolt or rod *g*, a soft-rubber washer *h* and *h*, or spring-cushions, which while holding the front end of the bar G tight as against rattling, still allow the angle which the bar makes with the body to be changed, thus giving a free lateral swing of the body horizontally between the bars G G, as shown in dotted lines in Fig. 2. It is desirable that the rear ends of these bars G should be similarly provided with gum washers or spring-cushions. The said rear end (see Fig. 4) is perforated to receive a bolt *i*, which passes

through the bar, and also through two perforated lugs or ears $i^2 i^2$ of a clip-plate d' , which latter is perforated with two holes to receive the screw-threaded ends of the clip d , which helps to hold the bracket to the axle. The ears i^2 are separated a distance far enough apart to admit between them not only the rear end of bar G, but also the two gum washers $h' h'$, one on each side of bar G. This construction and arrangement gives to the bars G freedom for lateral motion at their rear ends. In this connection it will be seen that the same clip $d d'$ is made to serve the double purpose of connecting the bracket to the axle, and also the bar G to the axle.

In connecting the bars G with the shafts by means of the supporting-springs H, the bar G is provided with a series of holes j , into either one of which the springs may be hooked. This permits the front part of the body to be always held in an approximately horizontal position, irrespective of the size of the horse and the angle of elevation of the shafts. Thus when the shafts are held in an unusually elevated position by a tall horse the lower ends of the springs H are adjusted nearer to the axle to lower the front end of the cart-body, and vice versa.

K is a brace which extends from the axle to the shaft. These braces stiffen the shafts on the brackets against forward and backward strains. Said braces are formed at their rear ends as clip-plates e' , which co-operate with clips e that hold the brackets, and at their front ends are connected to the shaft by the same clip e that secures the step m .

As shown, my improvements are applied to a two-wheeled vehicle; but they may also be applied to four-wheeled vehicles.

Having thus described my invention, what I claim as new is—

1. The combination, with the axle, the shafts, and the body of a vehicle, of a pair of bars connected at their rear ends to the axle, at their front ends to the body and provided at such points with elastic cushions to permit

horizontal vibration, and springs connecting the middle parts of said bars with the shafts, substantially as shown and described.

2. The combination, with a vehicle-body, its shafts, and the axle, of a pair of bars connected to the axle at the rear, connected at intermediate points to the shafts by means of springs, and having at their front ends a laterally-yielding connection with the body, substantially as shown and described.

3. The combination, with the axle, the shafts, and the body of a vehicle, of a pair of bars connected at their rear ends to the axle, at their front ends to the body, and having at an intermediate point a spring connection with the shafts made adjustable along the length of said bars, substantially as and for the purpose described.

4. The combination, with the vehicle-body and the bars G, of a plate attached to the vehicle-body and provided with a long bearing, a bolt or rod extending through the same and also through the ends of the bars, and elastic washers or cushions arranged about said bolt on each side of the bars, substantially as and for the purpose described.

5. The combination, with the axle, with clip d thereon, of the clip-plate d' , formed with ears, a bolt passing through the same, the bar G, hung upon said bolt, and elastic washers or cushions arranged on each side of the bar between the ears, substantially as shown and described.

6. The combination, with the axle and the shaft, of the bracket having a broad base seated upon and extending longitudinally along the axle for sustaining the shaft above the axle, the bar G, and clip $d d'$, securing the base of the bracket at one end, and the longitudinal brace K, and clip $e e'$, securing the base of the bracket at the other end, substantially as shown and described.

STATES D. PALMER.

Witnesses:

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A. C. PRICE.