

(No Model.)

G. T. CHAPMAN.
STREET CAR.

No. 464,450.

Patented Dec. 1, 1891.

Fig. 1.

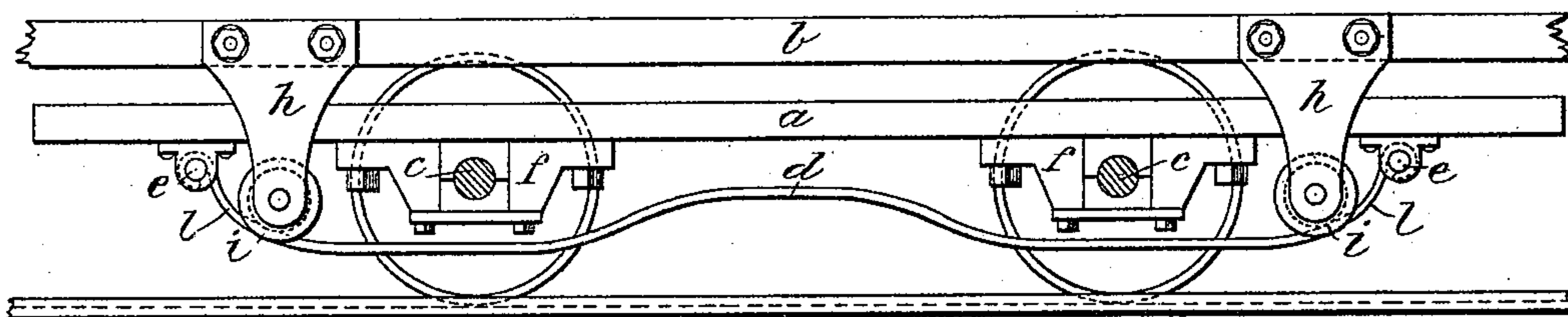


Fig. 2.

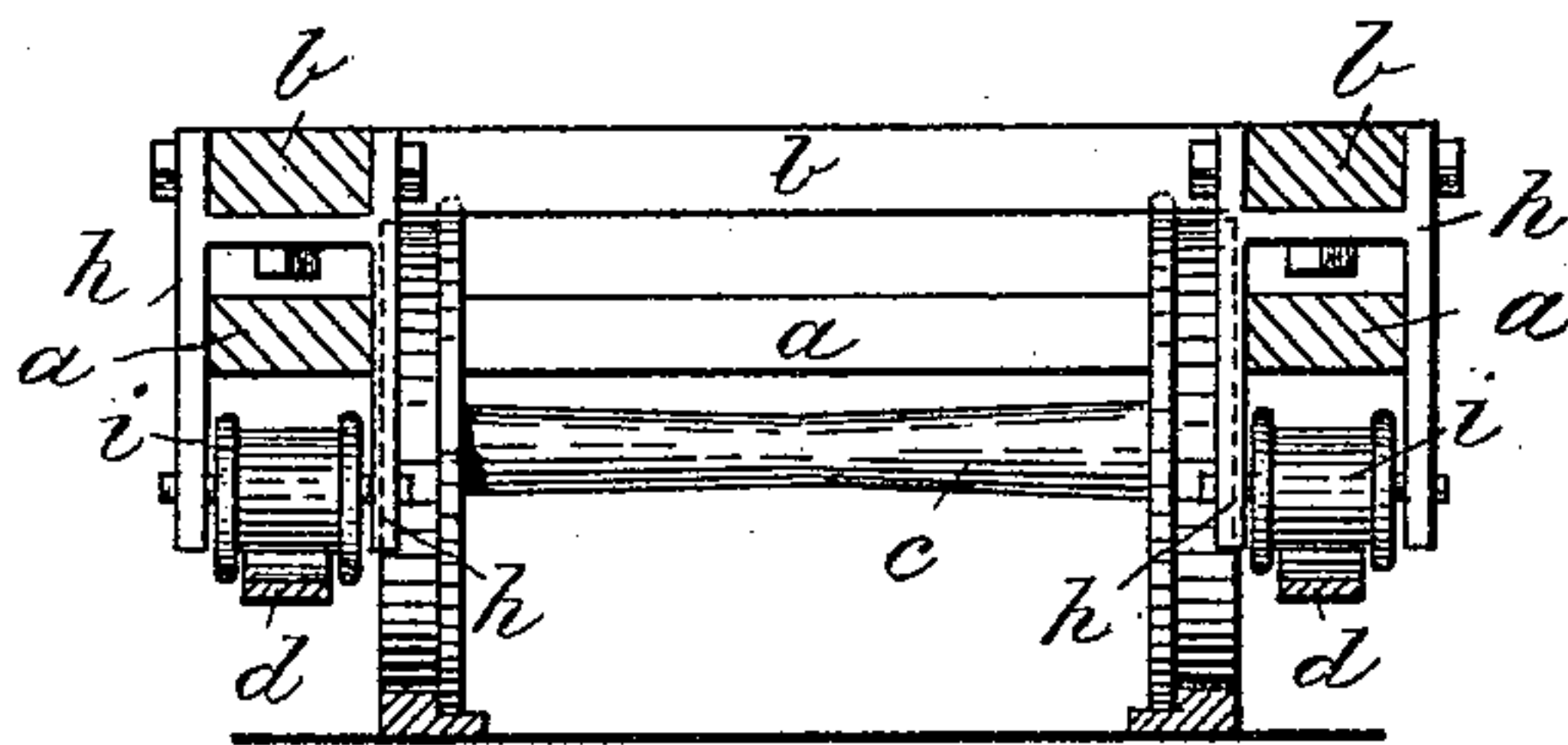


Fig. 3.

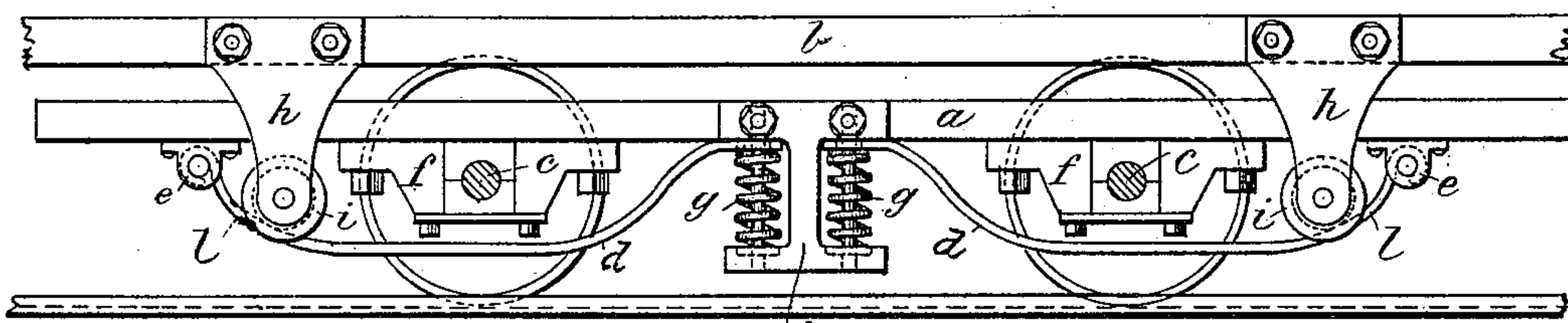
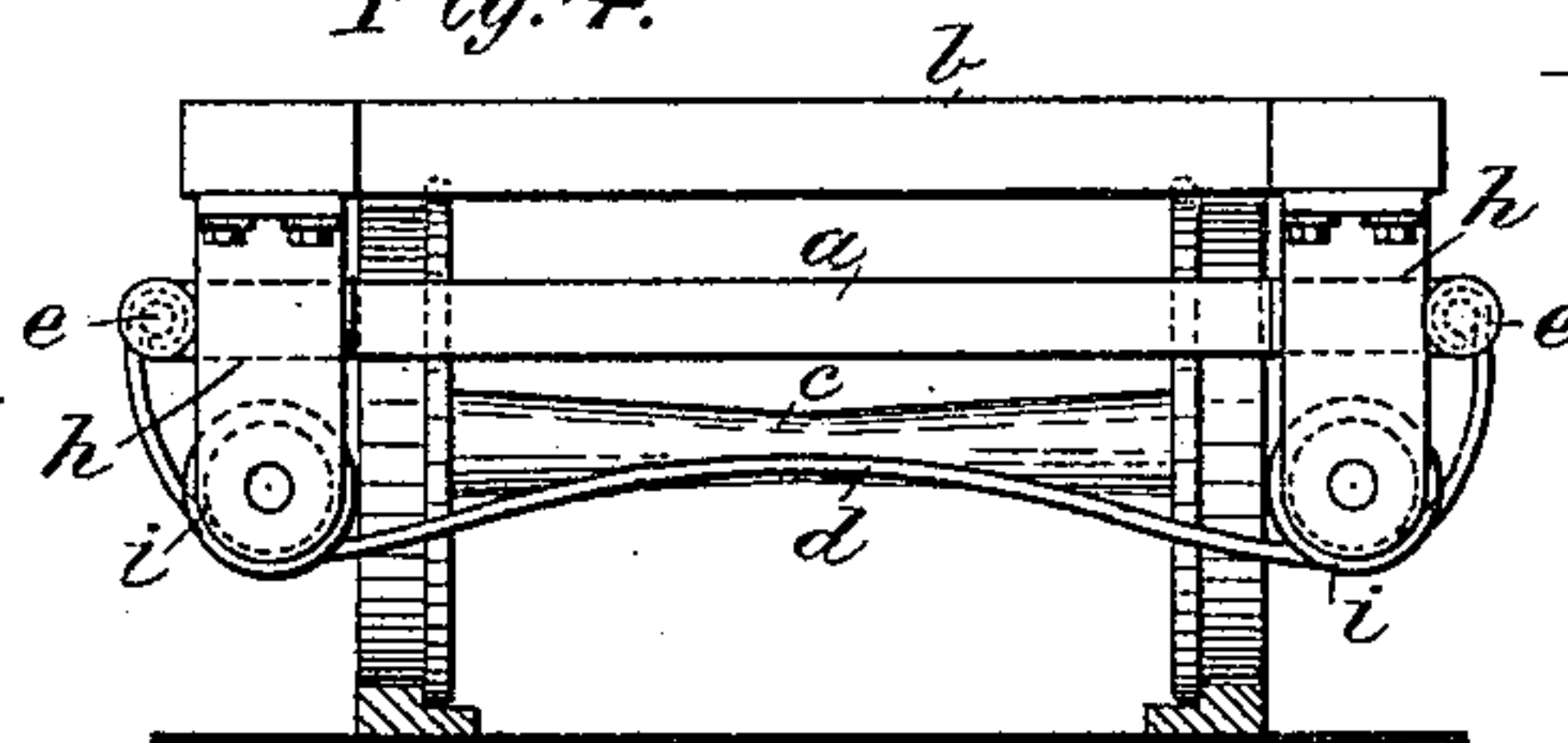


Fig. 4.



Witnesses:

Ernst Sundgren

W. J. Morgan

Inventor:

G. T. Chapman

By A. P. Thayer
att'y

UNITED STATES PATENT OFFICE.

GEORGE T. CHAPMAN, OF WHITE PLAINS, ASSIGNOR OF ONE-HALF TO
WILLIAM HARVEY MERRITT, OF NEW YORK, N. Y.

STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 464,450, dated December 1, 1891.

Application filed March 21, 1891. Serial No. 385,930. (No model.)

To all whom it may concern:

Be it known that I, GEORGE T. CHAPMAN, a citizen of the United States, and a resident of White Plains, Westchester county, and State of New York, have invented new and useful Improvements in Street-Cars, of which the following is a specification.

My invention consists in an improved arrangement for mounting street-cars, and also other cars, the objects of which are to provide for more uniform action of the springs under the varying condition of the load; also, to provide for more substantial and durable contrivance of the springs, and especially to provide against the very disagreeable lengthwise rocking motion to which such cars are subject as mounted at the present time, all as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of the bed-frame of a car-body and the wheel-base of a car as I propose to construct them. Fig. 2 is a transverse section of the same. Fig. 3 is a side elevation in which I represent the main supporting-springs separated at the middle and having other springs supporting the ends of the separate parts of said main springs. Fig. 4 is an end elevation showing the springs arranged crosswise of the car.

I provide a truck-frame *a* for the wheels independently of the bed-frame *b* of the car, and preferably mount it rigidly on the axles *c* without springs, but may employ springs if thought best, and under the side or end bars of this frame *a* I arrange long flat springs *d* by suspending them at the ends in any approved way, as at *e*, between the wheels and the ends of the frame, respectively, with the bow extending from one to the other of the points of connection under the housings *f* of the truck when said springs are placed lengthwise, either constructing the spring in one continuous plate, as in Fig. 1, or making it in two pieces parted at the middle and seated thereat on the coiled or other springs supported on the hanger *j*, suspended from the side bars *a* of the bed-frame. When placed crosswise, the springs may be suspended forward of the wheel-truck on the studs *e*, suitably projected for the purpose, and I mount the car-body on these springs by the stand-

ards *h*, having a grooved or flanged roller *i* in the lower end resting on the springs, the standards preferably being forked, so as to straddle the bars *a* when the springs are arranged at the sides and receive the flanged rollers between the prongs of the forks, and they will also be suitably forked for the rollers when the springs are arranged at the ends; but any other approved form of standard may be used. Directly in advance of where the rolls *e* rest on the springs they are turned upward in abrupt bends *l*, and therefrom the direction is nearly vertical to the points *e*, by which they are suspended. Crosswise or lengthwise movements of the car-body are prevented by these abrupt curves in front of the rolls *i*, according as the springs are arranged. In this arrangement of springs the range of vertical motion is less by shocks and between light and loaded conditions than in the ordinary arrangements, and yet it is much less jerky in any condition than in the car of the ordinary arrangement when loaded. The effects of the shocks are expended on the middle portions of the springs, where the motion is much greater than where the car-body rests, to the relief of the body and without injurious stress on the springs, because of the stress through the length from the bearing-points to the middle. It will be seen that the length between the centers of the standards is much greater than it can be between the centers of the ordinary car-body supports, because in such arrangement they have to be over the axles, and the distance between the axles is limited to a certain distance beyond which the wheels will not run freely on the curves of the track. In consequence of this greater distance between the supports in my improved arrangement, and also because the wheel-frame is mounted without springs, the body will be most effectually prevented from rocking lengthwise, to which it is greatly subject in the common arrangement, especially when light and when passengers collect on the platforms.

My invention is applicable to other forms of cars and to other vehicles, and I do not limit myself in the use of it to any particular form of vehicle; but it is more particularly applicable to street-cars. When the springs

are parted at the middle and have the coiled or other springs for supporting the ends thereat, they may be made more stiff and rigid as levers, the springs *g* in such case affording the requisite elasticity. The springs thus made independent of each other may be longer and overlap each other along the midway portions. This may be more preferable when the springs are employed in the crosswise arrangement at the ends.

I claim—

1. The combination, in a car or other vehicle, of the truck-frame mounted on the axles, the bow-springs suspended at the ends from supports carried on the truck-frame, and the car-body supported on said springs by standards resting in the curves of the bow near the ends by which the springs are suspended, substantially as described.

2. The combination, in a car or other vehicle, of the truck-frame mounted on the axles, the bow-springs suspended at the ends from supports carried on the truck-frame, and the car-body supported on said springs by standards having a flanged roll pivoted in the lower end and resting in the curves of the bow near the ends by which the springs are suspended, substantially as described.

3. The combination, in a car or other vehicle, of the truck-frame mounted on the axles, springs suspended from and below the truck-

frame, and the bed-frame of the body, supported over the truck-frame by standards resting on the springs near the ends and below said truck-frame, substantially as described.

4. The combination, in a car or other vehicle, of the truck-frame mounted on the axles, springs suspended at the ends under the side bars of the truck-frame between the axles and the ends of said frame, respectively, and the bed-frame of the body, supported over the truck-frame by standards resting on the springs between the axles of the truck and the ends of the springs and below the truck-frame, substantially as described.

5. The combination, in a car or other vehicle, of the truck-frame mounted on the axles, springs suspended at one end from and below the truck-frame, and the bed-frame of the body, supported over the truck-frame by standards resting on the springs near one end and below the truck-frame, and other springs supporting the other ends of the said car-body-supporting springs, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 31st day of October, 1890.

GEO. T. CHAPMAN.

Witnesses:

W. J. MORGAN,

W. B. EARLL.