

No. 864,192.

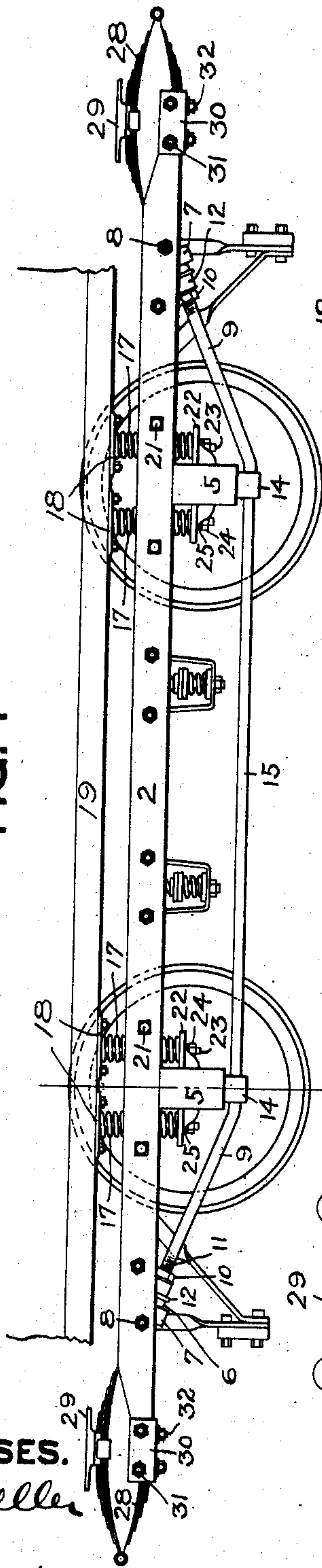
PATENTED AUG. 27, 1907.

W. G. PRICE.
CAR TRUCK.

APPLICATION FILED JAN. 3, 1906.

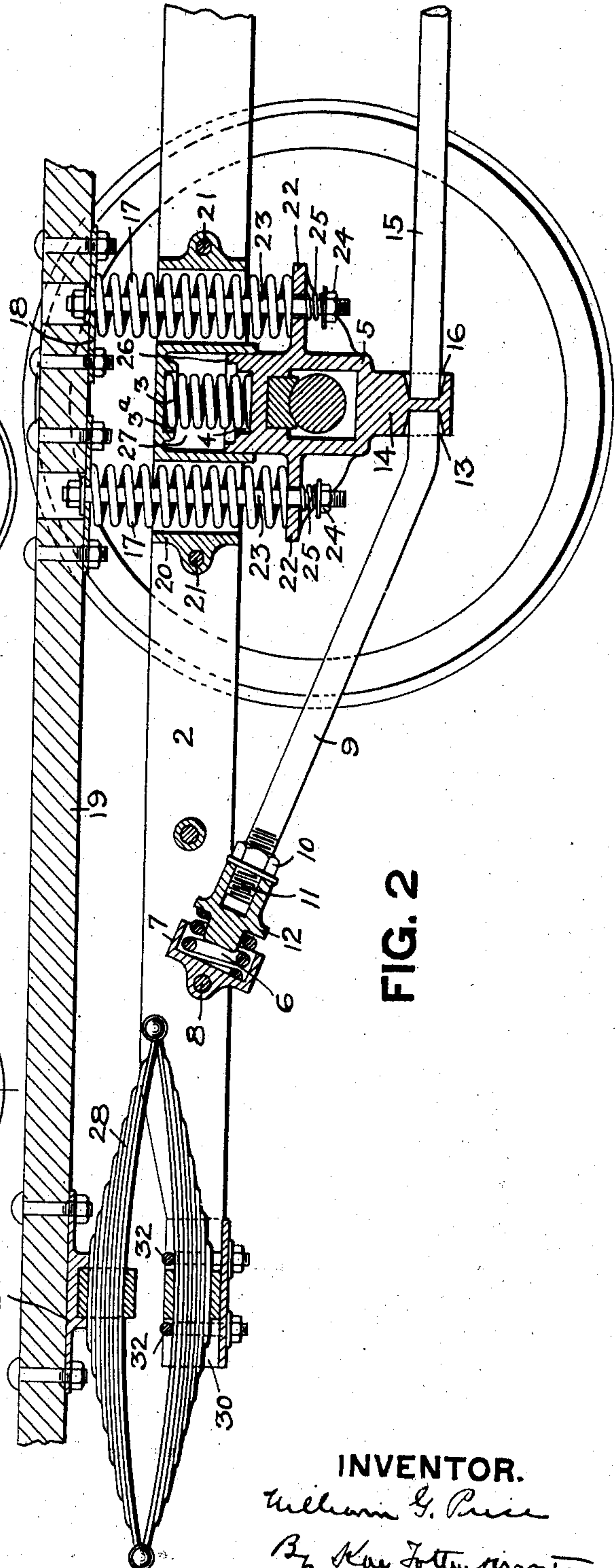
2 SHEETS—SHEET 1.

FIG. 1



WITNESSES.
J. R. Keller
F. W. Kay.

FIG. 2



INVENTOR.
William G. Price
By Kay, Fotheringham
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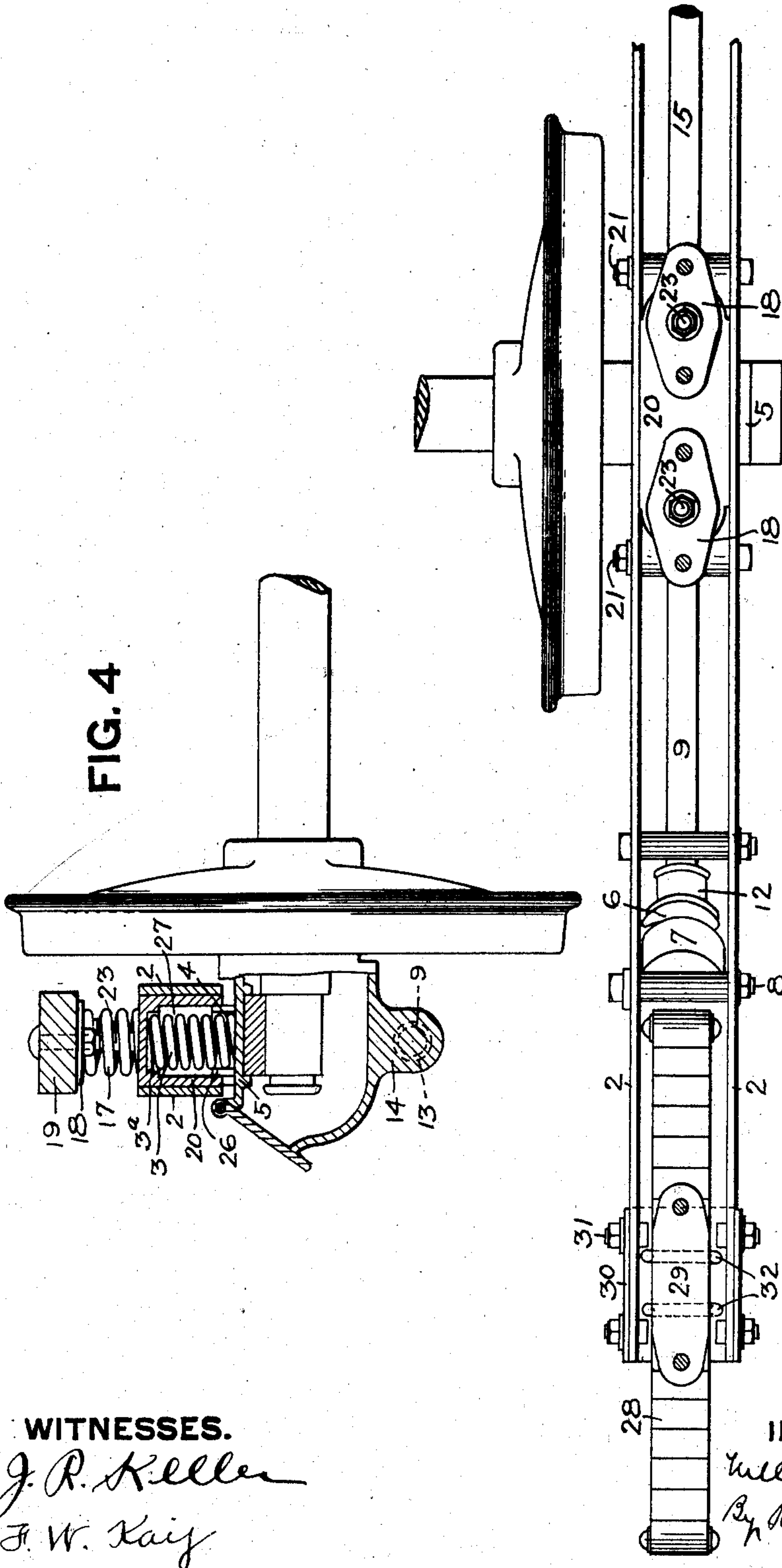
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2 SHEETS—SHEET 2.



WITNESSES.

J. R. Keller
J. W. Kaiz

INVENTOR.

William G. Price
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UNITED STATES PATENT OFFICE.

WILLIAM G. PRICE, OF BUTLER, PENNSYLVANIA.

CAR-TRUCK.

No. 864,192.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed January 3, 1906. Serial No. 294,451.

To all whom it may concern:

Be it known that I, WILLIAM G. PRICE, a resident of Butler, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Car-Trucks; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to improvements in the construction of non-pivotal trucks for electric motor cars.

One of the main objects of my invention is to locate the car springs near the ends of the car body in order to prevent the bending down or sagging of the ends of the car and so support the car by the springs to dispense with the use of the stiffening truss which is usually attached to the sills of such cars.

Other objects of my invention are to prevent the excessive oscillation or galloping of the car body when the ends of the car alternately move up and down, and to prevent horizontal movement of the journal boxes with the truck frame, and furthermore by eliminating unnecessary parts thereby reducing the weight of the truck.

To these ends my invention comprises the novel features hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents a side view of my improved truck; Fig. 2 is an enlarged side elevation partly in section; Fig. 3 is a plan view of a portion of one side of the truck; Fig. 4 is a cross section on line 4—4, Fig. 3.

Like numerals designate like parts in the different figures of the drawings.

In the drawing the numeral 2 designates the side frame of the truck which is carried upon the springs 3. These springs 3 rests in seats 4 in the journal boxes 5, and at their upper ends engage the seats 3^a in the casting 20 to said side frames. The side frames 2 are further supported by the springs 6 which are carried in pockets 7, said pockets being secured by the bolts 8 to the side frame 2 whereby said pockets are free to revolve when not connected up to the truss rods 9. These truss rods 9 have at their forward ends the nuts 10 engaging the threads 11, and beyond said nuts the bearing blocks 12 against which said springs 6 abut. The opposite ends of the truss rods 9 enter the seats 13 formed in the lugs 14 of the journal boxes 5. These seats 13 are slightly outwardly flaring so as to permit a certain amount of angular movement on the part of said truss rods due to any oscillation on the part of the side frames 2. By adjusting the nuts 10 the length of the truss rods 9 may be varied to take up any wear or for other reason. The truss rods 15 extending from one journal box to the other have their ends fitting in seats 16 formed in the lugs 14, said seats being likewise slightly outwardly flaring so as to permit of a certain amount of angular movement on the part of the truss rods 15. The helical springs 17 have their upper

ends in contact with the spring caps 18 bolted to the car sill 19, said springs passing down through the guide-casting 20, secured by bolts 21 to the side frames 2 and resting at their lower ends upon the brackets 22. Bolts 23 secured to the caps 18 pass down through the springs 17 and through the brackets 22 where said bolts are provided with the nuts 24. These nuts 24 engage said bolts 23 at a slight distance below the brackets 22 and comparatively weak springs 25 are interposed between said nuts 24 and the lower face of the brackets 22 to prevent the rattling of the said bolts 23. A collar or flange 26 on the upper faces of the journal boxes 5 project up into the central cavities 27 of the guide castings 20, whereby the said journal boxes are held securely in position against lateral movement and are free to move up and down therein.

Elliptic springs 28 are secured between the two bars of the side frames 2 and said springs carry the caps 29 which are bolted to the car sills 19. The U-shaped pieces 30 are secured to the outer ends of the side frames 2 by means of bolts 31 and the lower sections of the springs 28 fit within said U-pieces 30 and U-bolts 32 securely unite the said springs with the U-pieces 30. The helical springs 17 are weaker than the elliptic springs 28 so that the larger part of the car body and load will be carried by said springs 28. These springs 28 are purposely made with a large number of leaves or plates so as to give a large damping effect. Springs 28 being located as far apart as possible longitudinal of the car, their damping power has comparatively large leverage to resist the endwise oscillation or galloping of the car and the energy which produces the oscillation is quickly absorbed by such springs in such a location.

In order to provide sufficient strength to carry the springs 28, I have strengthened and braced the side frames 2 with the truss rods 9 and 15 which form a truss in which the said rods 9 and 15 are in compression while the journal box 5 acts as the vertical tension member of the truss. The springs 3 and 6 connect the vertical and diagonal members of the truss to the top chord which is the side frame 2 so that said side frame is spring supported upon its truss. Where the side frame is supported upon the journal boxes, as illustrated, said journal boxes will be in tension below the axles and in compression above same, but the side frame is not necessarily supported by the journal boxes and in that event the journal boxes are not in compression above the axles. The springs 17 which rest directly upon the journal box brackets 22 pass through the close fitting holes in the guide castings 20 and thus prevent any swaying of the car body with reference to the truck frame, while at the same time part of the vehicle is carried by the journal boxes independent of the side frames. The truss rods 9 and 15 hold the bottoms of the journal boxes so that they can have practically no

movement in direction longitudinal of the truss. The springs 6 being short and very stiff, their variable deflections can cause but very slight longitudinal movement of the truss rods 9 and 15. The springs 3, 17 and lugs 26 on the journal boxes 5 which engage the guide casting 20 prevent practically all horizontal movement of the upper end of the journal box. This effect is very desirable as the electric motors when secured to the trucks cannot push the wheels against the brake shoes, which is liable to occur when the journal boxes have a considerable movement longitudinally of the truck frame. By my invention, however, the journal boxes have practically no lateral movement so that the wheels cannot be forced into contact with the brake shoes by the motor as above described.

In order to support the ends of the side frames 2 the springs 6 necessarily carry a much greater portion of the load than the springs 3 so that by this arrangement the spring base is much longer than it is in trucks which carry their frames by springs located only at the journal boxes and there is less liability of oscillation. By this arrangement the removal of wheels and axles is much facilitated as it is only necessary to first remove the nuts from the lower end of the bolts 23.

By my invention therefore, I provide a truck which supports the car in such manner that excessive oscillation or galloping of the car body is avoided while at the same time the journal boxes are so supported as to prevent their moving horizontally, and the car is so supported by the springs as to avoid the necessity of the stiffening truss which has heretofore been almost universally employed.

What I claim is:

1. In a truck, the combination with axles and journal boxes therefor, of a side frame having a single truss, the journal boxes forming the vertical tension members of said truss.
2. In a truck, the combination with axles and journal boxes therefor, of a side frame having a single truss, the journal boxes forming the vertical tension members of the truss, and springs interposed between said journal boxes and the tension member of the truss.
3. In a truck, the combination with axles and journal boxes therefor, of a side frame, and diagonal truss rods extending from said journal boxes to said side frame, and a truss rod in compression connecting said journal boxes.
4. In a truck, the combination with axles and journal boxes therefor, of a side frame, and diagonal truss rods extending from said journal boxes to said side frame, springs interposed between said truss rods and said side frames, and a truss rod in compression connecting said journal boxes.
5. In a truck, the combination with axles and journal boxes therefor, of a side frame, diagonal truss rods extending from said journal boxes to said side frames, springs interposed between said truss rods and side frames, and means for increasing or decreasing the tension of said springs.
6. In a truck, the combination with axles and journal boxes therefor, of a side frame, truss rods connecting said journal boxes with said side frames, nuts on the ends of said truss rods, and springs interposed between said nuts and said side frames.
7. In a truck, the combination with axles and journal boxes therefor, of side frames, pockets on said side frames, truss rods extending from said journal boxes to said side frames, springs in said pockets bearing against said truss rods, and a truss rod in compression connecting said journal boxes.
8. In a truck, the combination with axles and journal boxes therefor, of side frames, pivotal pockets on said side

frames, truss rods extending from said journal boxes to said side frames, and springs in said pockets bearing against said truss rods.

9. In a truck, the combination with axles and journal boxes therefor, of a side frame, truss rods engaging seats in said axle boxes and extending to said side frame, and truss rods in compression connecting said journal boxes.

10. In a truck, the combination with axles and journal boxes therefor, of a side frame, truss rods engaging enlarged seats in said journal boxes and extending from said journal boxes to said side frame, and a truss rod in compression engaging enlarged seats in said axle boxes and extending from one axle box to the other.

11. In a truck, the combination with axles and journal boxes therefor, of a trussed side frame, the journal boxes forming the vertical tension members of the truss, and truss rods extending from said journal boxes to said side frame and from one journal box to the other.

12. In a truck, the combination with axles and journal boxes therefor, of a trussed side frame, the journal boxes forming the vertical tension members of the truss, and compression members engaging seats in said journal boxes and extending to said side frames, and from one journal box to the other.

13. In a truck, the combination with axles and journal boxes therefor, of a trussed side frame, the journal boxes forming the vertical tension members of the truss, the compression members of the truss engaging enlarged openings in said journal boxes and extending to the side frame and from one journal box to the other, whereby said compression members are permitted a certain amount of angular movement.

14. In a truck, the combination with axles and journal boxes therefor, of a trussed side frame, the journal boxes forming the vertical tension members of the truss, and springs interposed between said journal boxes and the side frame and between the compression members of said truss and said side frame.

15. In a truck, the combination with axles and journal boxes therefor, of a side frame having a single truss extending substantially the entire length of said frame, load carrying springs and means for imparting an angular movement to the compression members of the truss with reference to each other under varying loads on the truss.

16. In a truck, the combination with axles and journal boxes therefor, of a side frame having a single truss extending substantially the entire length of said side frame, and load carrying springs located between the connecting parts of the truss.

17. In a truck, the combination with axles and journal boxes therefor, of a flexible trussed side frame.

18. In a truck, the combination with axles and journal boxes therefor, of a side frame and diagonal braces supporting the ends of said frame, and springs interposed between said frame and said braces.

19. In a truck, the combination with axles and journal boxes therefor, of a two-piece side frame, car supporting springs located between the parts of the frame, and diagonal braces supporting the ends of said frame and springs interposed between said frame and said braces.

20. In a truck, the combination with axles and journal boxes therefor, of a single truss side frame spring supported on diagonal braces.

21. In a truck, the combination with axles and journal boxes therefor, of side frames, vehicle carrying springs, means for supporting the vehicle partially by the side frames and partially by the journal boxes independent of the side frame.

22. In a truck, the combination with the axles and journal boxes therefor, of side frames, vehicle springs carried by said side frames and vehicle springs carried by said journal boxes, whereby the vehicle is partially carried by said side frames and partially by the journal boxes independent of said side frames.

23. In a truck, the combination with axles and journal boxes therefor, of a side frame, vehicle springs carried by said side frames, and weaker vehicle springs carried by said journal boxes, whereby the vehicle is carried partially by the side frames and partially by the journal boxes independent of said side frames.

24. In a truck, the combination with the axles and journal boxes therefor, of trussed side frames, vehicle springs therefor, the compression members of the truss connected directly to the journal boxes.

5 25. In a truck, the combination with the axles and journal boxes therefor, of trussed side frames and vehicle carrying springs therefor, the compression members of said truss supporting the journal boxes against movement longitudinally of the truss.

10 26. In a truck, the combination with the axles and journal boxes, of side frames and vehicle supporting springs, the journal boxes supporting the side frames upon one set of springs, and said journal boxes supporting the vehicle upon another independent set of springs.

15 27. In a truck, the combination with the axles and journal boxes therefor, of side frames and vehicle carrying springs, and means for supporting the side frames and vehicle independently upon the journal boxes.

20 28. In a truck, the combination with the axles and journal boxes therefor, of side frames, springs supported by said journal boxes and upon which said side frames rest, and springs carried by said journal boxes independent of said side frames and supporting the vehicle.

25 29. In a truck, the combination with the axles and journal boxes therefor, of side frames each having a single truss, springs supporting same, the spring base being greater than the wheel base.

30. In a truck, the combination with axles and journal boxes therefor, of side frames, springs supporting same, the base of said supporting springs being of greater length than the distance from center to center of said journal boxes. 30

31. In a truck, the combination with axles and journal boxes therefor, of a trussed side frame, the journal boxes forming one member of the truss supporting said side frame, and being in tension below the axle and in compression above same. 35

32. In a truck, the combination with axles and journal boxes therefor, of a side frame, vehicle supporting springs passing through guide ways in said side frame and resting upon said journal boxes. 40

33. In a truck, the combination with axles and journal boxes therefor, of a two piece side frame, a member connecting said side frame between the pieces thereof and having spring guides therein, vehicle springs passing through said guide ways and supported by said journal boxes. 45

In testimony whereof, I the said WILLIAM G. PRICE have hereunto set my hand.

WILLIAM G. PRICE.

Witnesses:

ROBERT C. TOTTEN,
G. C. RAYMOND.