

(No Model.)

J. F. SHAWHAN.
ELECTRIC MOTOR CAR.

No. 438,192.

Patented Oct. 14, 1890.

Fig. 1.

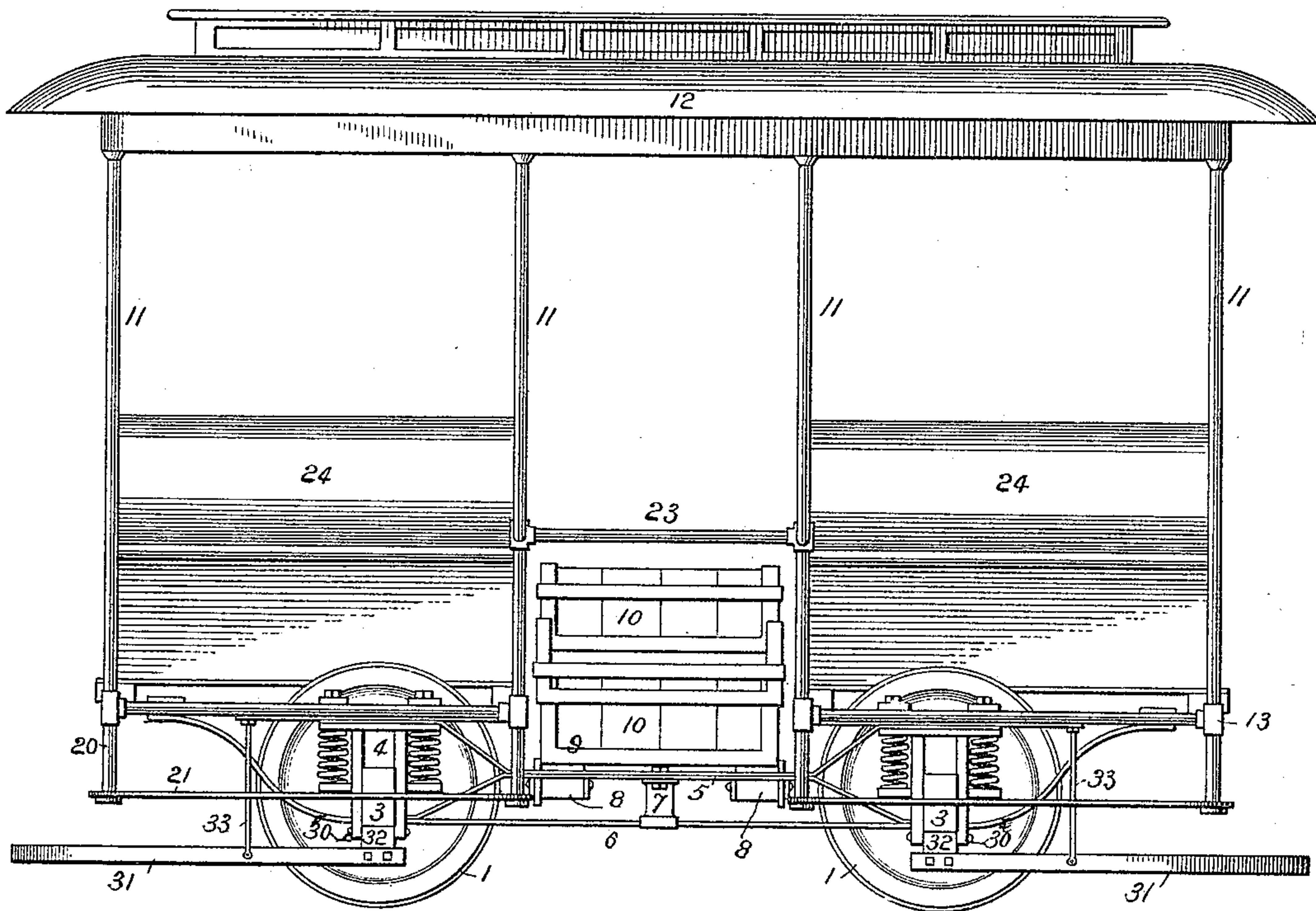


Fig. 2.

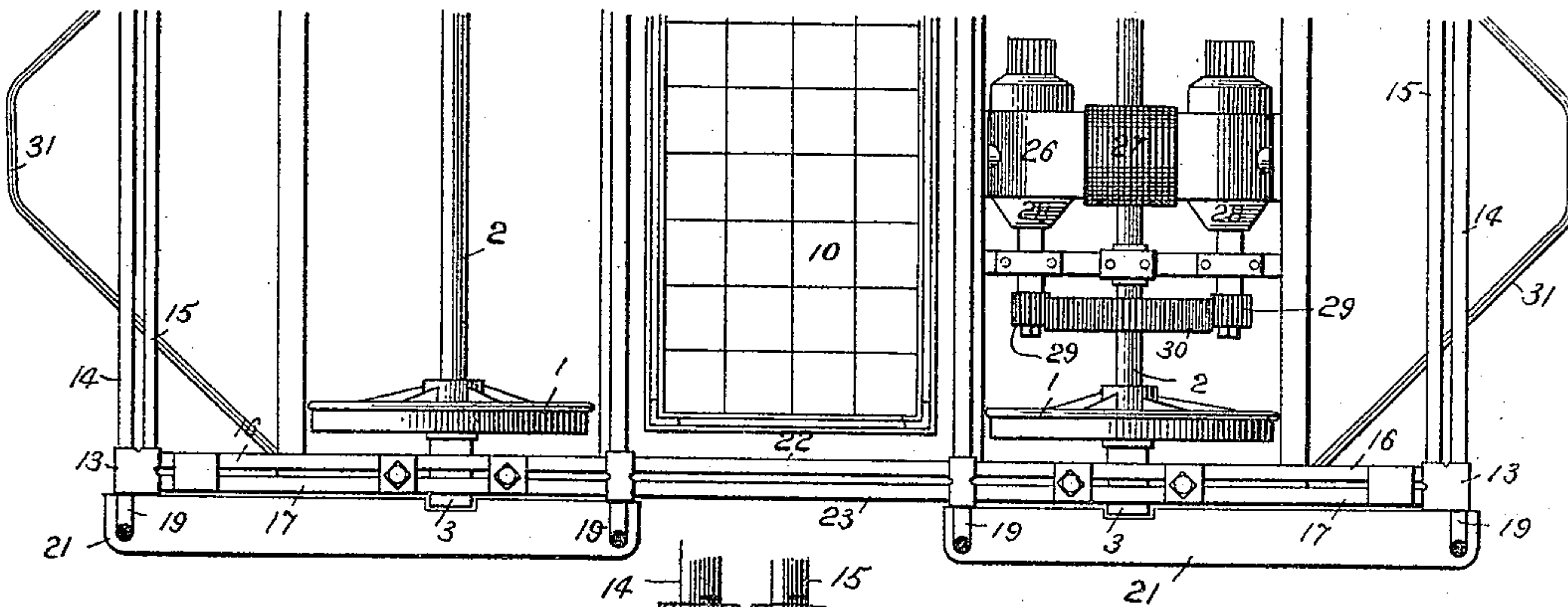
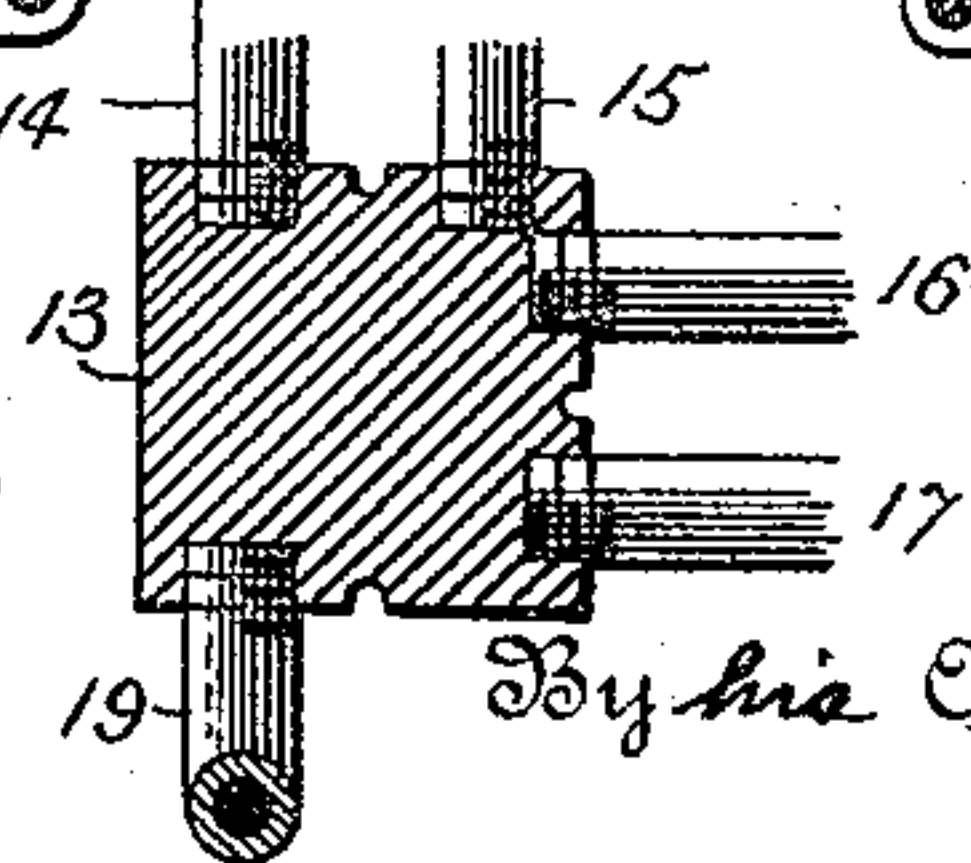


Fig. 3.



Witnesses

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JABEA F. SHAWHAN, OF DETROIT, MICHIGAN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE SHAWHAN MOTOR COMPANY, OF MICHIGAN.

ELECTRIC MOTOR-CAR.

SPECIFICATION forming part of Letters Patent No. 438,192, dated October 14, 1890.

Application filed May 10, 1890. Serial No. 351,339. (No model.)

To all whom it may concern:

Be it known that I, JABEA F. SHAWHAN, a citizen of the United States, residing at Detroit, Wayne county, State of Michigan, have
5 invented certain new and useful Improvements in Electric Motor-Cars, of which the following is a specification.

My invention is a motor-car especially adapted for electric railroads, in which secondary batteries are used to furnish the propelling power; and the object of the invention is to construct a cheap, simple, light, and yet strong car, which shall have conveniences for rapidly and easily supplying and charging the batteries; and to these ends my invention consists in a motor-car constructed and arranged substantially as hereinafter set forth.

Referring to the accompanying drawings,
20 Figure 1 is a side view of a car embodying my invention. Fig. 2 is a plan view of a portion of the car with the top removed, showing the lower frame-work and the preferred manner of applying the motor; and Fig. 3 is a detail.

25 In the drawings I have shown the four-wheeled truck having wheels 1 secured to the axles 2, the ends of the axles running in axle-boxes 3, supported in pedestals 4. These pedestals are connected by the equalizing-bars 5, which are made in the manner indicated in the drawings, and consist of plates of iron connected together at their centers and branching at their ends and secured to the upper and lower portions of the pedestals,
30 being in the form of an elongated X. Also connecting the lower portions of the pedestals is a rod or bar 6, and between this bar and the double bar 5, I arrange suitable connectors, as 7, to strengthen the parts and maintain them in their proper relations.

Mounted in suitable hangers depending from the bars 5 are the friction-rollers 8, and these are arranged with their axes at right angles to the axes of the car-wheels. These rollers serve to support the case or box 9, containing the battery-cells 10, and it will thus be seen that when it is desired to replace the exhausted battery-cells with fresh ones it is only necessary to withdraw this box and insert another, and this can quickly and easily

be done without interfering with the running-gear or other portions of the motor-car.

As the batteries are quite heavy in themselves, it is desirable to make the frame of the motor-car as light as possible consistent with strength, and I therefore make a skeleton frame of metal pipes or tubes and mount upon these tubes a suitable roof or covering. In the construction shown there are four upright tubes 11 on each side, supporting a roof
55 12. These tubes are fitted into suitable sockets in the roof, being preferably screwed thereto in the usual manner.

In order that the base of the car-body may be sufficiently rigid and strong, I use two sets of tubes, as shown more particularly in Fig. 2, and attach the ends of these two tubes to the same socket or head-piece 13. These sockets, which are shown more in detail in Fig. 3, consist, essentially, of a block of cast metal or other similar material having recesses for the reception of the tube—for instance, the head-pieces 13 at the corners have two recesses on one side for the tubes 14 and 15 and on the other side at right angles thereto for the tubes 16 and 17. These tubes form the base of the frame, and they may be united by tie-pieces or clamps 18 to assist in maintaining their requisite rigidity. Also connected to the head-pieces at their outside is a short tube 19 in the form of a T-joint, and secured to the under side of this joint are the short pipes 20, preferably headed at their lower ends and arranged to support the step or running bar 21. The upright bars 11 are attached to the outer portion of this T-joint, and while these uprights may extend out different distances I prefer to carry them about five inches beyond the main side pieces 16 and 17, so as to give as wide a support for the roof as is practicable. These main side pieces 16 and 17 are divided in their center, leaving the space between their ends for the reception of the battery box or case, and the intermediate connecting-tubes 22 23 are arranged above the case. These bars serve as a support for a platform, upon which can be arranged the switch device for regulating the current, if desired.

The ends of the car may be provided with

seats 24, preferably running lengthwise of the car, and leaving a space between the backs for the motor-man, although it is evident that any other arrangement of seats may be made.

While any desired form of motor may be used, I preferably use one substantially like that indicated in the drawings and claimed more particularly in my application, Serial No. 351,338, filed concurrently herewith, in which the field-magnets 26 are wound with coils 27 at their center and have two armatures 28, each armature carrying a pinion 29, meshing into a gear-wheel 30, fixed on the axle 2. Of course more than one motor can be used when it is desired and all be controlled by the same switch apparatus in the usual way. One reason for using such a motor in connection with my motor-car is that if perchance any accident should happen to the motor it can readily be removed from the motor-car with its axle and another one substituted in its place. To do this it is only necessary to remove the bolts 30 in the bottom of the pedestals, which hold the axle-boxes therein, and disconnect the electrical connections with the motor, when the axle and the motor carried thereby can be withdrawn.

It is often necessary or desirable to attach life-guards to the motor-car, and I have shown such a guard 31 secured to the block 32, supported on the pin 30 of the pedestal, and as a matter of safety it is sometimes advantageous to provide a connecting-rod 33, connecting the guard with the truck. In this way the removal of the pin or bolts 30 disconnects the life-guard and allows the motor and axle to be removed, as before stated, the life-guard being preferably pivoted to the rods 33 when they are used.

Having thus described my invention, what I claim is—

1. In a motor-car, a truck the axles of which are connected by the equalizing-bars, the said bars forming a support for the battery-box, substantially as described.

2. In a motor-car, the combination, with the axles, of the equalizing-bars, the additional strengthening-bar between the axles, and the connections between the equalizing-bar and the strengthening-bar, the whole forming a support for the battery-box, substantially as described.

3. In a motor-car, the combination, with the axles, of the equalizing-bars, the said bars be-

ing provided with friction-pulleys forming a support for the battery-box, substantially as described.

4. The combination, in a motor-car, of the truck, the equalizing-bars forming supports for the battery-box, and a frame supported on said truck and having an opening in the side above the equalizing-bars, substantially as described.

5. In a motor-car, the combination, with the truck the equalizing-bars of which are adapted to support the battery-box, of a framework composed of tubes mounted on the truck and having an opening or space above the equalizing-bars, substantially as described.

6. In a motor-car the frame of which is composed of tubes, a head-block having two recesses in two of its sides for the reception of the double tubes of the main frame and having a recess in its outer side for the reception of the T-joint supporting the upright tubes, substantially as described.

7. In a motor-car, the combination, with the truck, of a life-guard secured to the truck by pins or bolts passing through the pedestals and provided with connecting-rods extending between the guard and truck, substantially as described.

8. In a motor-car, the combination, with the truck-frame having pedestals, of the axle-boxes supported in said pedestals and bolts securing both the axle-boxes and pedestals, substantially as described.

9. A motor-car the frame of which is composed of tubes, the main frame consisting of head-blocks having the double tubes connected thereto to form the end portions of the car, the middle connecting-tubes being arranged above the main tubes on the ends to form a space between the ends for the reception of the battery-box, substantially as described.

10. In a motor-car, the combination, with the frame, of a truck supporting the frame and an axle connected by the truck through the axle-boxes in the pedestals, whereby the axle and its attached motor may be removed upon the removal of the pedestal-bolts, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JABEA F. SHAWHAN.

Witnesses:

ALBERT BEEBE,
CYRUS JOHNSTON.