

No. 650,893.

Patented June 5, 1900.

L. S. BUFFINGTON.
AUTOMOBILE.

(Application filed Nov. 13, 1899.)

(No Model.)

4 Sheets--Sheet 1.

Fig. 1.

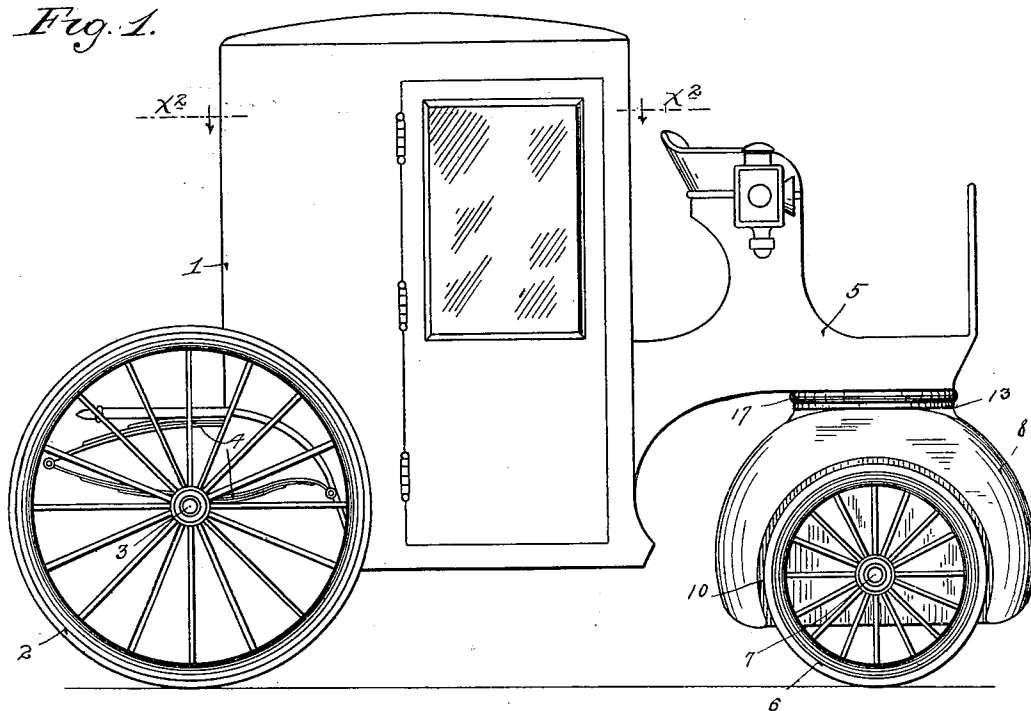
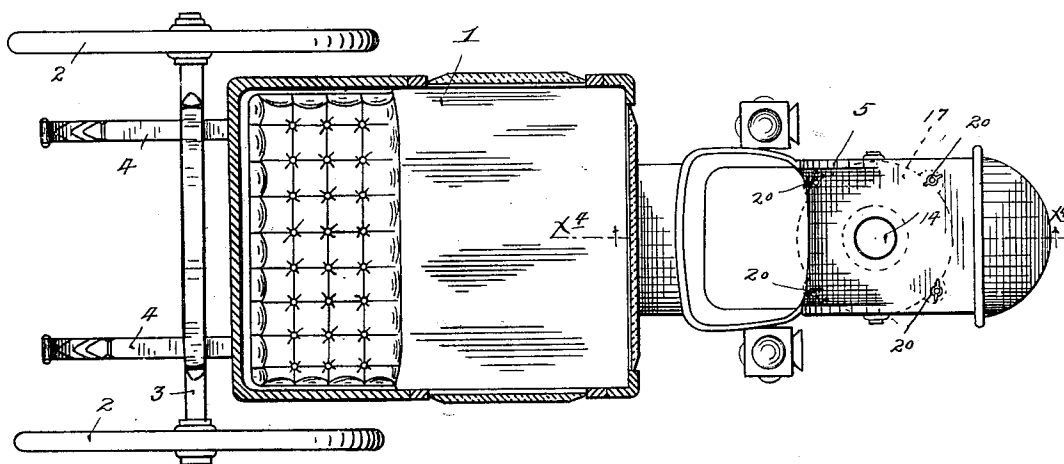


Fig. 2.



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No. 650,893.

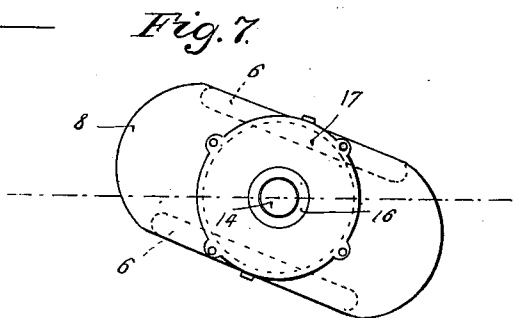
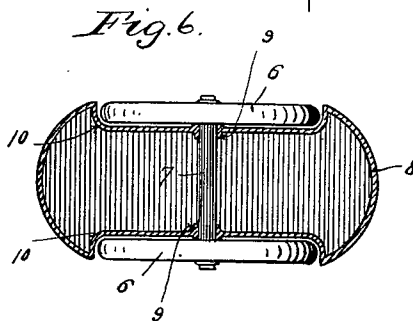
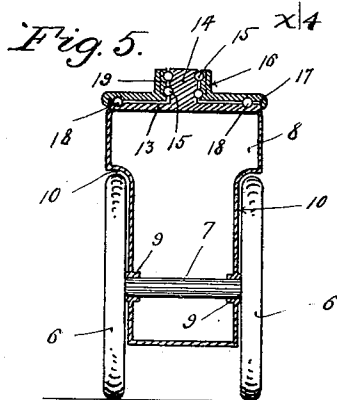
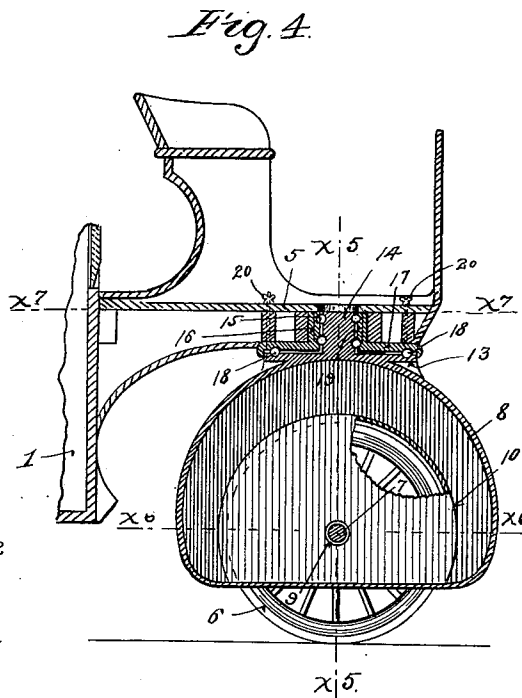
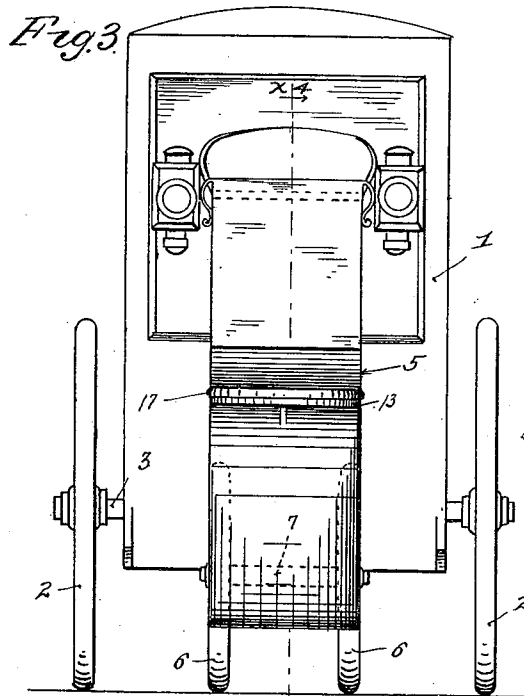
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4 Sheets—Sheet 2.



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Fig. 8.

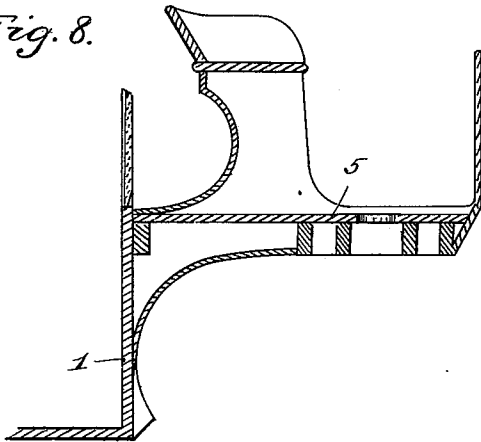


Fig. 9.

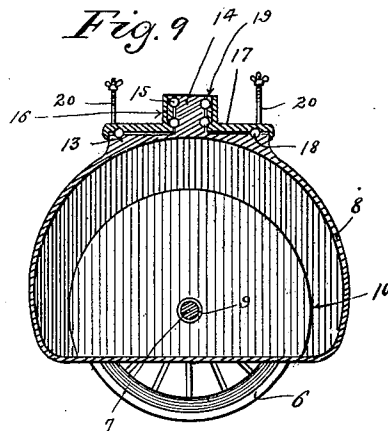
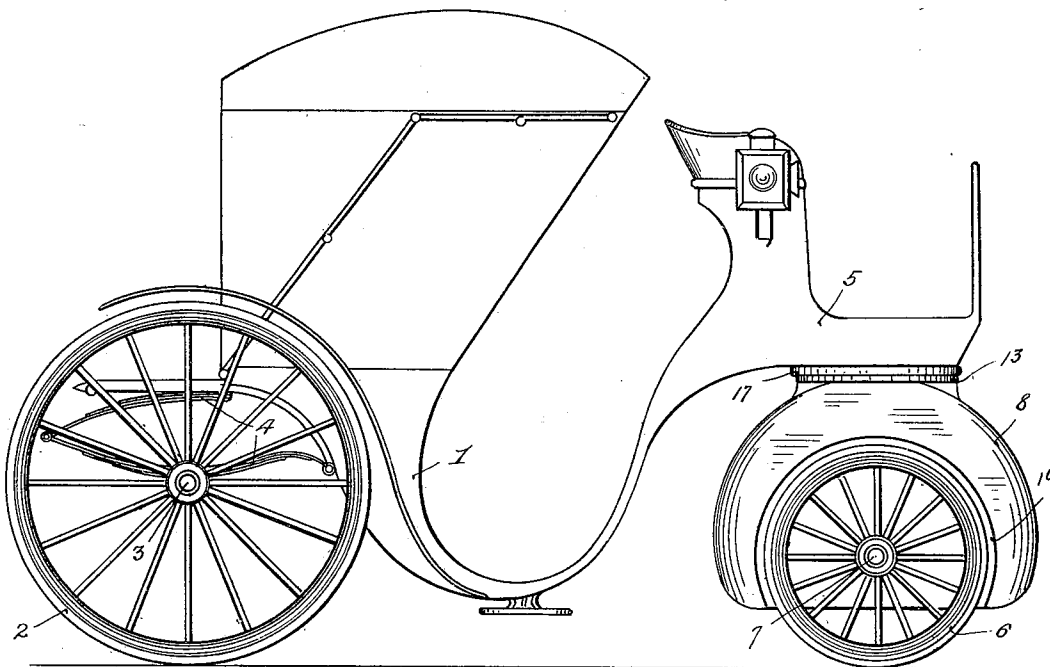


Fig. 10.



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4 Sheets—Sheet 4.

Fig. 11.

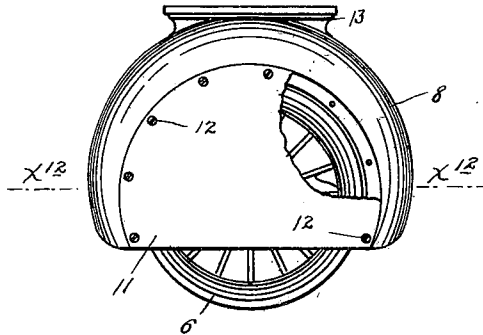


Fig. 12.

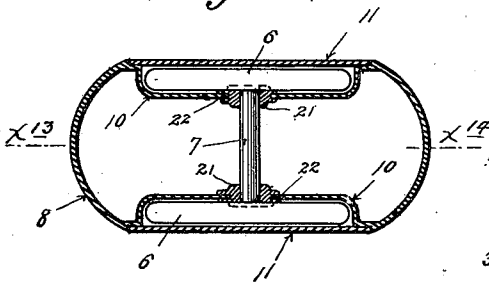


Fig. 13.

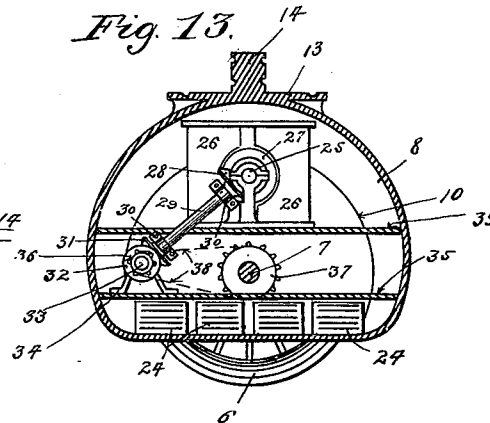
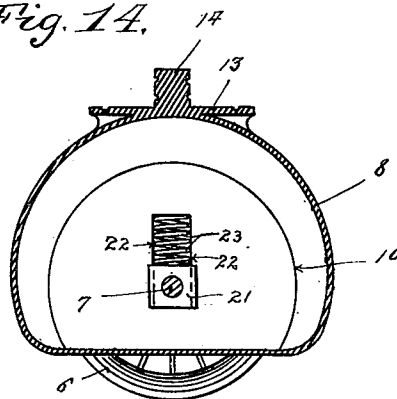


Fig. 14.



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UNITED STATES PATENT OFFICE.

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AUTOMOBILE.

SPECIFICATION forming part of Letters Patent No. 650,893, dated June 5, 1900.

Application filed November 13, 1899. Serial No. 736,731. (No model.)

To all whom it may concern:

Be it known that I, LEROY S. BUFFINGTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automobiles; 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.

My present invention relates to automobiles or so-called "motor-carriages;" and it has for its object to improve the same in the several particulars hereinafter noted.

One of the particular objects of this invention is to provide a motor-truck of improved construction which may be interchangeably used as the motor-truck of different vehicles which are incomplete without, but are rendered complete when provided with the said motor-truck. The motor-truck itself is of novel construction and involves a peculiar form of housing for the motor mechanism and has an important relation to the forward traction-wheels. The forward traction-wheels are closely spaced, being separated approximately one-third the distance between the rear or main wheels of the vehicle, this being done for an important reason to be hereinafter set forth. Minor novel features will also later appear in the specific description of the drawings.

To the ends above indicated the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation showing an automobile constructed in accordance with my invention, the design shown being that of a coupé. Fig. 2 is a horizontal section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a front elevation of the automobile or motor-carriage shown in Figs. 1 and 2. Fig. 4 is a vertical section taken approximately on the line $x^4 x^4$ of Figs. 2 and 3, some parts being broken away. Fig. 5 is a transverse section taken on the line $x^5 x^5$ of Fig. 4. Fig. 6 is a

horizontal section on the line $x^6 x^6$ of Fig. 4. Fig. 7 is a plan view of the forward or motor truck disconnected from the body of the coupé, approximately on the line $x^7 x^7$ of Fig. 4. Fig. 8 is a view corresponding to Fig. 4, but with the motor-truck removed therefrom. Fig. 9 is a vertical section of the motor-truck, taken on the same line as Fig. 4. Fig. 10 is a view in side elevation, showing my improved motor-truck as applied to or incorporated in a vehicle or carriage of the so-called "victoria" type. Fig. 11 is a view in side elevation, with some parts broken away, showing a slightly-modified form of the motor-truck. Fig. 12 is a horizontal section taken on the line $x^{12} x^{12}$ of Fig. 11. Fig. 13 is a vertical section taken through the motor-truck illustrated in Figs. 11 and 12, approximately on the line $x^{13} x^{14}$ of Fig. 12, some parts being removed; and Fig. 14 is a vertical section taken also on the line $x^{13} x^{14}$ of Fig. 12, some parts being removed.

The numeral 1 indicates the body of the vehicle or carriage, whether in the form of a coupé or victoria or other vehicle, and the numerals 2 indicate the rear wheels of the said vehicle, mounted on axles 3 and secured to the body 1 through spring devices 4 in the ordinary or any suitable way.

The so-called "motor-truck," which will now be described, is pivotally mounted for movement on a vertical axis to the forwardly-projected frame portion 5 of the vehicle-body at a point which is approximately where the so-called "fifth-wheel" of an ordinary carriage would be located.

The so-called "motor-truck" in itself comprises a pair of traction-wheels 6 on an axle 7, and a case or shell 8, having preferably somewhat the form of a flattened or truncated hollow sphere, as shown in the drawings. The axle 7 is mounted in suitable bearings 9 and extends entirely through the case 8, narrow-wise thereof, and the flattened sides of said case 8 are pressed inward, as shown at 10, so that the wheels 6, running therein, will be about flush at their outer sides with the widest portions of the said case. The bottom of the case 8 extends considerably below the axle 7 and stands above the ground only high enough

to clear such obstacles as must necessarily be passed over by the vehicle.

In the construction illustrated in Figs. 11 to 14, inclusive, the outer faces of the wheels 6 are inclosed by guard-plates or shields 11, that are removably secured to the sides of the case 8 by means of screws or bolts 12 or otherwise.

To effect the pivotal connection between the frame portion 5 of the vehicle-body and the case 8 of the motor-truck, the said case 8 is formed at its top or crown with a disk-like bearing-surface 13, from the center of which rises a short but heavy trunnion 14. The trunnion 14 is pivotally mounted, as shown, by ball-bearings 15 in a socket 16 of a disk-like bearing-plate 17. The bearing-plate 17 coöperates with the bearing-surface 13 to form what corresponds to the so-called "fifth-wheel" of an ordinary vehicle, and preferably bearing-balls 18 are placed between the said bearing-plates 13 and 17. The socket 16 and bearing-plate 17 are thus pivotally mounted on the trunnion 14 and bearing-plate 13, but are held against axial displacement by the ball-bearing ring 19 or other suitable device, so that the said parts are together applied to the vehicle and removed therefrom.

In applying the motor-truck to the frame portion 5 of the vehicle a plurality of nutted bolts 20 are passed through the said frame portion 5, as best shown in Fig. 4, and thus the said bearing-plate 17 and its socket 16 are rigidly but detachably secured to the same frame-section 5, while the motor-truck, with its case 8, is free for pivotal movement on the axis of the vertical trunnion 14.

In practice it is desirable to have the case of a motor-truck spring-supported from the axle 7 of the traction-wheels 6, and in the construction illustrated in Figs. 11 to 14, inclusive, this is shown as accomplished by mounting the said axle in bearing-boxes 21, that move vertically in guides 22, formed in the sides of the case 8, suitable spring devices 23, either in the form of coils or rubber blocks, being placed between the said bearing-boxes 21 and the tops of the guides 23.

In Fig. 13 a portion of a motor and driving-gear are shown. The motor in this instance involves a storage battery, (indicated by the numeral 24,) and this battery is secured within and to the bottom of the case 8 below the axle 7. A short transverse armature-shaft 25 is driven from a suitable electric motor 26. The armature-shaft 25 is provided with a bevel-gear 27, that meshes with a companion bevel-gear 28 on a shaft 29, suitably mounted in bearings 30 and provided at its lower end with a bevel-wheel 31. The bevel-wheel 31 meshes with the companion gear 32 on a shaft 33, supported by bearings 34 on a horizontal partition 35. The counter-shaft 33 is provided with a small sprocket 36, over which and a larger sprocket 37 on the shaft 7 of the traction-wheels 6 a sprocket-chain 38 is mounted to run. By these connections motion is

transmitted from the armature-shaft 27 of the electric motor 26 to the said traction-wheels 6.

The electric motor 26 is shown as supported by a horizontal shelf or partition 39, supported within the case 8 above the axle 7, and the magnets of the said motor are of course connected in the ordinary manner to the storage battery 24.

I do not of course limit myself to a storage battery as a source of motive power, and it will be understood that either steam or an explosive fluid operating through properly-designed engines may be employed.

It will of course be understood that a suitable steering device would be applied to the so-called "motor-truck;" but as this feature is not part of my present invention it has been left off.

By reference particularly to Figs. 2 and 3 it will be seen that the forward wheels are spaced approximately one-third of the distance between the rear wheels of the vehicle. In virtue of this construction the main lateral stability of the carriage is given by the rear wheels, and at the same time the weight of the entire vehicle is distributed at four points equidistant transversely to the direction of travel when the vehicle is running straight ahead. Furthermore, I have determined that with the traction-wheels spaced approximately as above described both of the same may be rigidly secured on the driving-axle 7 without interfering with the steering movements of the motor-truck in turning around or traveling in a curve. However, if desired, the turning of the motor-truck is much more easily accomplished with the wheels spaced substantially as described. On the other hand, if the traction-wheels were to be spaced much closer than one-third the distance between the main wheels the stability of the carriage would be impaired in proportion to the distance that they are closed up or more closely spaced. The traction-wheels being mounted within the transverse dimensions of the case 8, makes it impossible for these wheels to be interlocked with the corresponding wheels or, in fact, with any of the wheels of another vehicle, and, furthermore, the bulged or rounded forward portion of the case 8 projecting in front of other parts of the vehicle makes serious accidents by the running together of two vehicles of this character almost impossible, as the said cases cannot interlock and would readily clear each other without doing much or any damage. Furthermore, with the motor, which is relatively heavy as compared with the body of the vehicle, located in front the greater force of the shock in case of a collision will be taken by the motor truck or case, and the passengers or occupants of the vehicle are thus to a very considerable extent protected in case of accidents.

It will be noted that the motor-case follows closely the general outline of the front wheels

of an ordinary carriage, so that the appearance of the automobile as an entirety is maintained very closely to an ordinary carriage or vehicle of the corresponding type—
5 such as a victoria or a coupé, for example.

It is a well-known fact that the motive power and driving devices of an automobile represent by far the greater part of the cost of the complete automobile. It is in accordance with one of the objects of my invention,
10 as above indicated, that I make the so-called "motor-truck" interchangeably usable with the otherwise incomplete parts of an automobile carriage. To illustrate, a man might
15 purchase one automobile carriage and the bodies and rear-wheel mechanisms of a coupé and a victoria or other forms of carriages, and he could at will apply the said motor-truck to either of the said carriages.

Another object of my present invention which is accomplished by the invention above disclosed is to provide an automobile in which the seat or seats, exclusive of the driver's seat,
20 may be spring-mounted and carried substantially as in corresponding horse-drawn carriages, thus retaining the light spring actions and easy-riding characteristics of the latter. As is obvious, these results are attained in my invention, wherein the motor and heavy
25 power devices are carried by the front truck far in advance of the main body of the carriage.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

35 1. An automobile having a pivoted two-wheeled forward truck, provided with a case filling in the space between and projecting forward of the wheels thereof and protecting said wheels in case of collision, substantially
40 as described.

2. An automobile having a pivoted forward truck provided with a case having recesses or depressions in its sides, in which the traction-wheels run, substantially as and for the purposes set forth.
45

3. An automobile having a pivoted forward truck, involving a case for the motor and driving mechanism, said case having recesses or depressions in its sides, in which the traction-
50 wheels run, and having removable outside

shields secured to the said case and incasing the wheels, substantially as described.

4. An automobile, having a pivoted forward truck, involving a dust-proof case, a storage battery within said case, below the axle of the truck, and an electric motor within said case above the truck-axle, said motor having driving connections to the traction-wheels of said truck, substantially as described. 55

5. An automobile, having a pivoted two-wheeled forward truck, involving a case filling in the space between said truck-wheels flattened at its lower portion and extending throughout its main portion on a curve outward of the truck-wheels but approximately concentric therewith, substantially as and for the purposes set forth. 60

6. An automobile, having a pivoted two-wheeled forward truck, involving a case which fills in the space between and projects forward of the truck-wheels and other parts of the vehicle, approximately in the horizontal plane of the forward wheel-hubs and is rounded at its forwardly-projected portion to avoid interlocking by collisions, substantially as described. 65

7. An automobile, having a pivoted two-wheeled forward truck involving a case filling in the space between the truck-wheels and provided at its top and central portion with a pivoted bearing-plate, which bearing-plate is detachably securable to the vehicle-body, substantially as described. 70

8. In an automobile, the combination with the body and rear truck thereof, of a two-wheeled forward truck pivoted to said body and provided with small truck-wheels that are spaced apart approximately one-third of the distance between the rear wheels of the vehicle and a case filling in the space between said small truck-wheels and projecting rearward, upward and forward thereof on the line of a curve, substantially as and for the purposes set forth. 75

In testimony whereof I affix my signature in presence of two witnesses. 80

LEROY S. BUFFINGTON.

Witnesses:

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F. D. MERCHANT.