

No. 699,028.

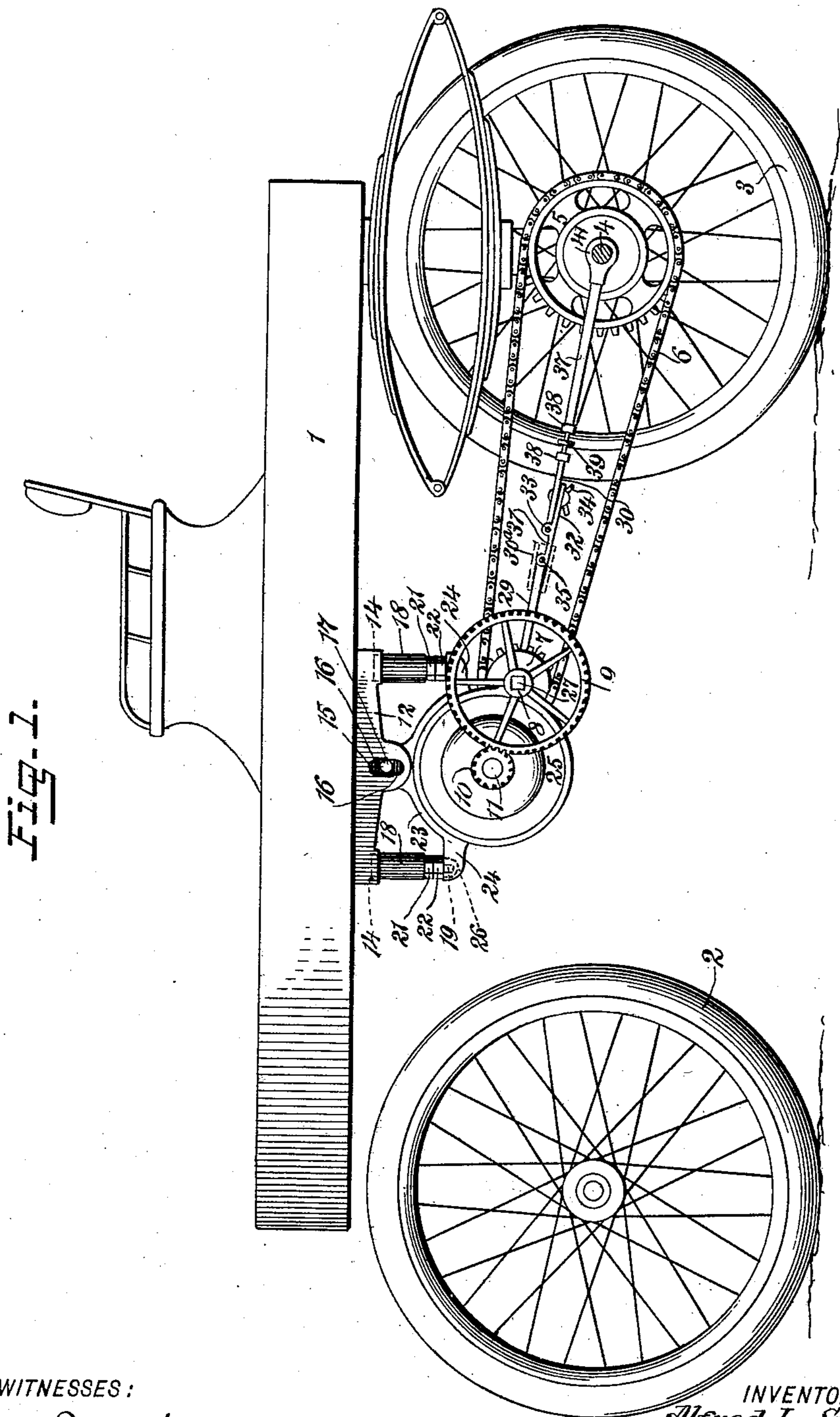
Patented Apr. 29, 1902.

A. L. SIMPSON & H. B. PALMER.
AUTOMOBILE.

(Application filed Dec. 4, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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Walton Harrison

INVENTORS

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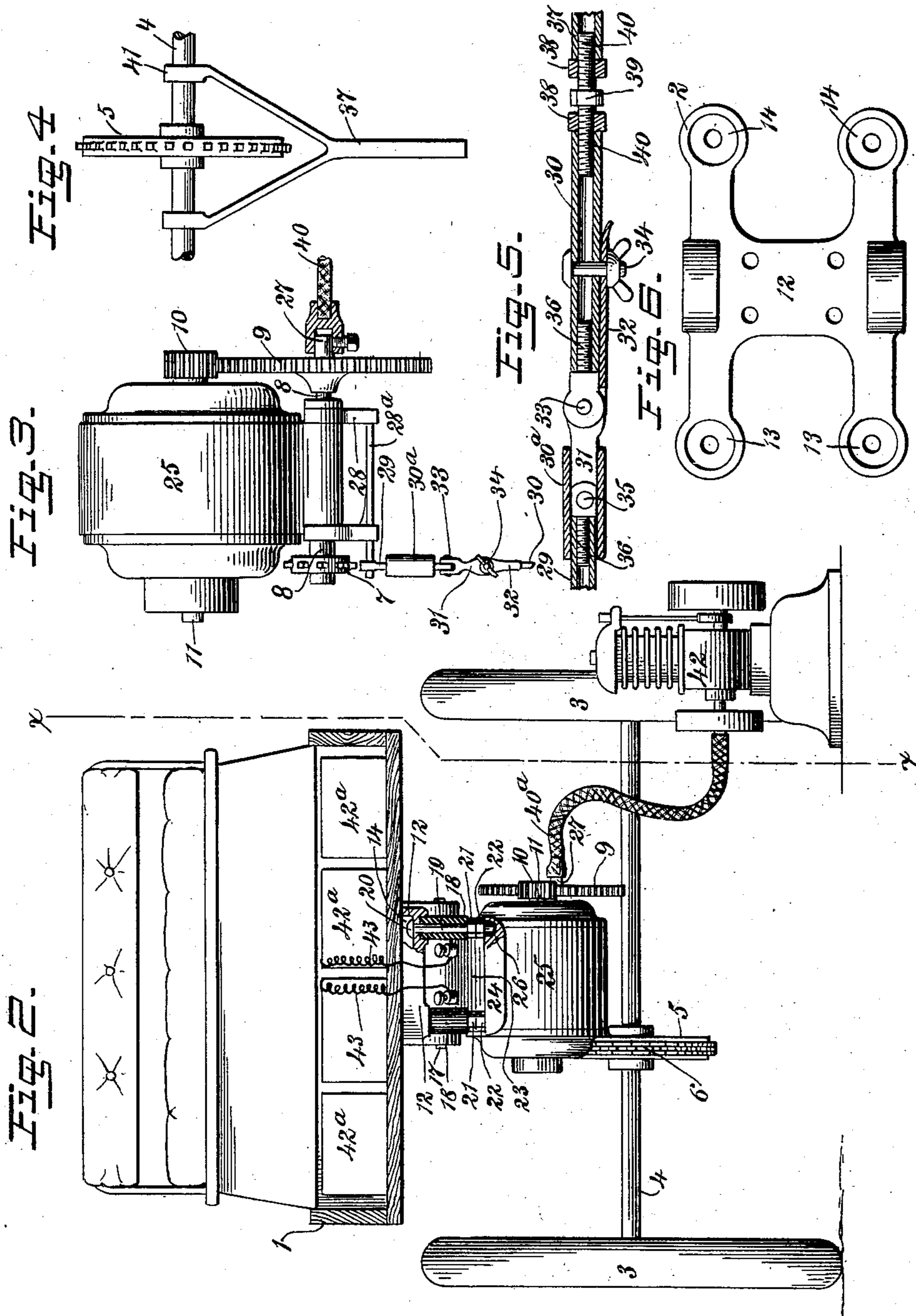
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UNITED STATES PATENT OFFICE.

ALFRED LISSACH SIMPSON AND HARRY BUCHANAN PALMER, OF NEW YORK, N. Y.; SAID PALMER ASSIGNOR TO SAID SIMPSON.

AUTOMOBILE.

SPECIFICATION forming part of Letters Patent No. 699,028, dated April 29, 1902.

Application filed December 4, 1901. Serial No. 84,669. (No model.)

To all whom it may concern:

Be it known that we, ALFRED LISSACH SIMPSON and HARRY BUCHANAN PALMER, citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Automobile, of which the following is a full, clear, and exact description.

Our invention relates to automobiles, more particularly of the type employing storage batteries.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation showing a vehicle partly in section on the line $x x$ in Fig. 2 and showing our device in elevation. Fig. 2 is a vertical cross-section of the vehicle, showing our device in elevation, certain details being in section. Fig. 3 is an inverted plan of the motor and its immediate connections. Fig. 4 is a fragmentary plan of the sprocket-wheel upon the rear axle. Fig. 5 is a fragmentary section showing our buckle-joint and its immediate connections, and Fig. 6 is an inverted plan of the frame upon which the motor is pivoted.

The storage battery is carried upon the body of the vehicle, and the motor is suspended immediately beneath the bed of the same, being normally free to swing slightly. By means of a brace, the length of which can be lengthened or shortened at will, as hereinafter described, the motor is prevented from swinging, and the gearing is maintained in its proper relation. The shortening of the brace allows the motor to swing backward, so that the gearing can be disconnected. The motor is provided with buffers for cushioning the swinging motion peculiar to road-surfaces, and thereby protecting the brace and other parts from excessive strain. The gearing is so arranged as to be readily disconnected, so as to allow the storage battery to be charged. The battery is charged by means of a flexible shaft connected with some extraneous source of mechanical power which causes the motor to act as a dynamo.

The bed or body 1 of the vehicle is mounted upon wheels 2 3 in the usual manner. The

axle 4 of the rear wheels is revoluble, and mounted rigidly upon this axle is a rear sprocket-wheel 5, which is connected by a sprocket-chain 6 with the front sprocket-wheel 7, which is mounted rigidly upon the shaft 8. This shaft is journaled upon the motor-casing and is provided with a gear 9, which meshes with a pinion 10 upon the armature-shaft 11.

Located centrally beneath the bed of the vehicle is a rigid frame or plate 12, provided with apertures 13 14, as indicated more clearly in Fig. 6. This frame is also provided with apertures 15, the upper and lower parts of which are provided with resilient blocks 16, one disposed above and the other below the pivotal shaft 17 for the purpose of cushioning the said pivotal shaft 17, and thereby giving the motor more or less resilience directly upward and downward. Located upon opposite ends of said frame 12 are buffers, the same comprising cylindrical members 18, preferably of rubber and mounted on the longitudinal stems 19, which are swiveled or loosely mounted by means of the heads 20 in the frame 12. The stems are merely inserted through the holes in the plate, so that the heads 20 lodge in the apertures 13 14. The cylindrical rubber members 18 are next placed upon the said longitudinal stems, and the nuts 21, which are threaded for the purpose, are screwed upon the lower portions of said stems and tightened by means of the nutlocks 22. By this arrangement the buffers are rendered adjustable.

The motor-casing 25 is suspended from a yoke 23, which is provided with oppositely-disposed lugs 24, and these lugs have cup-shaped apertures 26, in which the lower ends of the longitudinal stems 19 have more or less play. The object of this arrangement is to allow the lugs 24 to accommodate themselves to the position of the longitudinal stems 19, as the motor may assume slightly-different positions.

By means of the adjustable nuts above described one of the rubber cylindrical members can be shortened and the other lengthened, so that the motor can be made to normally rest in different predetermined positions. By means of these adjustable nuts the tension of the cylindrical rubber members may also be regulated.

One end of the shaft 8 is provided with an angular head 27, which is used in actuating the motor by means of an external source of power for the purpose of charging the storage battery. In this case the motor acts as a dynamo, as above explained.

From the motor-casing depend two lugs 28, which support a transverse rod 28^a, upon one end of which is pivoted a tubular rod 29. Another tubular rod 30 is pivotally connected to a lever 31, which has a guard-plate 32. The pivotal connection between the guard-plate and the tubular member 30 is shown at 33. By means of a thumb-screw 34 the guard-plate 32 is secured to the tubular member 30, thus rendering the lever as a whole and the tubular member practically integral for the time being. The upper end of the lever 31 is pivoted to the tubular member 29 by means of the joint 35. Screws 36 serve to fasten the parts securely together. The tubular members 30 and 37 are provided with threaded disks 38, rigidly secured thereto and internally provided with screw-threads for the purpose of engaging the two threaded ends 40 of a turnbuckle 39. The object of this arrangement is that by turning the turnbuckle 39 with a wrench or other appropriate means the tubular members 30 and 37 are drawn together or forced asunder, as the case may be, thus lengthening or shortening the brace as a whole. The tubular member 37 is provided with a bearing 41 for engaging the rear axle, which is revoluble as above described. The flexible shaft 40^a is only used when the motor is to be employed as a dynamo for the purpose of charging the battery. In such event it is connected to some source of power, such as a gas-engine 42. (Shown in Fig. 2.) By means of flexible wires 43 the storage batteries 42^a are connected with the motor.

Our invention is used as follows: Supposing that the storage battery is exhausted, the motor is connected with the gas-engine in the manner above described and is actuated by said gas-engine until the batteries are properly charged. As any motor can be used as a dynamo, this action will be readily understood. In order that the movements of the motor when used as a dynamo may not turn the wheels of the vehicle, the gearing is disconnected while the battery is being charged. In order to readily disconnect the gearing, all that is necessary is to disengage the thumb-screw 34, which enables the lever 31 to turn transversely to the general direction of the tubular members 29 and 30. The sleeve 30^a is moved to the left from the position indicated in Fig. 5 for this purpose. After the battery is charged the screw 34 is replaced, and the brace is then rendered rigid, and the sleeve 30^a is slipped back into place. The flexible shaft 40^a is disconnected from the angular head 27 of the shaft 8, and the machine is ready for use.

By adjusting the nuts 21 and locking the

same by means of the nut-locks 22 any desired degree of tension can be given to the buffers, as above described. If the vehicle in traveling along a road strikes a stone, the motor, together with its casing and gearing, is thrown forward and then immediately rebounds, the buffers taking up all unnecessary lost motion. As the longitudinal stems 19 play loosely upward and downward through the holes in the plate 12, there is practically no limit to the amount of spring given to the buffers, except the limit of elasticity in the rubber cylindrical members 18. We find in practice that this arrangement of buffers upon the motor is highly efficient and saves the machinery from severe strains and shocks. We find it preferable to arrange the buffers upon opposite sides of the motor and at opposite ends of the plate 12 in order that the buffers may rest firmly against said plate or frame. By this means the swinging of the motor either backward or forward is received directly against the under side of the vehicle-bed, which being loaded with the storage-batteries and passengers is practically unyielding.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. An automobile, comprising a wheeled vehicle provided with depending lugs, an electric motor suspended from said lugs and mounted free to swing, gearing connecting said motor to a wheel of said vehicle, a longitudinal brace connecting said motor with some rigid part of said vehicle, and provided with a movable joint for shortening the same, and a thumb-screw for normally holding said movable joint in a predetermined position.

2. An automobile, comprising a wheeled vehicle provided with depending lugs having apertures, a horizontal bar extending into said apertures, blocks of rubber located in said apertures above and below said horizontal bar for supporting the same and allowing a limited springy motion thereof, a motor suspended from said bar, and means for connecting said motor with a revoluble member of said vehicle.

3. An automobile, comprising a wheeled vehicle provided with depending lugs, an electric motor suspended from said lugs and mounted free to swing, four additional lugs attached to said motor, bolts attached to said lugs, on which are mounted rubber buffers, said bolts being adjustable at the four corners to enable said rubber buffers to be tightened and adjusted at will, said bolts passing through said buffers and up into the frame from which the motor is hinged, thereby giving the motor a limited spring horizontal motion.

4. An automobile, comprising a vehicle-bed provided with a longitudinal frame rigid therewith, a motor pivoted centrally to the said frame and provided with oppositely-disposed groups of lugs, and oppositely-disposed

groups of buffers engaging the opposite ends of said frame and also engaging said lugs on said motor.

5. An automobile, comprising a wheeled vehicle having a rigid frame provided with lugs, a motor pivoted centrally upon said frame and provided with oppositely-disposed lugs mating said lugs upon said frame, and buffers normally connecting said lugs upon said frame with said lugs upon said motor.

6. An automobile, comprising a vehicle having a frame provided with holes, a motor pivoted upon said frame and provided with lugs, longitudinal members swiveled in said holes, and buffers connecting said frame with said lugs upon said motor.

7. An automobile, comprising a vehicle having a frame provided with holes, a motor pivoted upon said frame and provided with lugs, longitudinal members swiveled in said holes and provided with screw-threads, buffers surrounding said longitudinal members, and adjusting-nuts engaging said screw-threads for governing the tension of said buffers.

8. An automobile, comprising a vehicle having a frame provided with holes, a motor pivotally mounted upon said frame and provided with cup-shaped lugs, longitudinal members swiveled in said holes and extending loosely into said cup-shaped lugs, said longitudinal members being threaded, cylindrical cushions of resilient material adjacent to said longitudinal members, and adjustable nuts upon said longitudinal members for tensioning said cushions, the arrangement being such that the swinging of said motor causes said longitudinal members to reciprocate through said holes in said frame.

9. An automobile, comprising a wheeled vehicle provided with a frame, a motor pivotally connected to said frame and normally free to swing, buffers for cushioning the swinging motions of said motor, and a brace of variable length for governing the position of the motor relatively to said vehicle.

10. An automobile, comprising a wheeled vehicle provided with a frame, a motor pivotally connected to said frame and normally free to swing, buffers for cushioning the swinging motions of said motor, means controllable at will, for adjusting said buffers relatively to said motor, and a brace of variable length for governing the position of said motor relatively to said vehicle.

11. An automobile, comprising a wheeled vehicle provided with a frame, a motor suspended from said frame and provided with lugs, said motor being normally free to swing, buffers connected with said frame and said lugs and disposed upon opposite sides of said motor for cushioning the same when swung in either direction, and a brace of variable length for governing the tension of said motor relatively to said vehicle.

12. An automobile, comprising a wheeled vehicle provided with a frame, a motor sus-

pended from said frame, buffers connected with said motor and said frame and disposed on opposite sides of said motor for cushioning the same when swung in either direction, means controllable at will, for adjusting said buffers, and a brace of variable length for governing the position of said motor relatively to the vehicle.

13. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing relatively thereto, gearing connecting said motor with a wheel of said vehicle, means for disconnecting said gearing, and buffers for cushioning the swinging movements of said motor.

14. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing relatively thereto, gearing connecting said motor with a wheel of said vehicle, a longitudinal brace for normally holding said motor in a predetermined position, means for virtually changing the length of said brace to allow the gearing to be disconnected, and buffers for cushioning the swinging motions of said motor.

15. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing relatively thereto, gearing connecting said motor with the running-gear of the vehicle, mechanism for normally holding said motor in a predetermined position, and buffers located upon opposite sides of said motor to cushion the swinging motion thereof in opposite directions.

16. An automobile, comprising a wheeled vehicle, an electric motor mounted upon said vehicle and normally free to swing, gearing connecting said motor with a wheel of said vehicle, buffers for cushioning the swinging of said motor, a brace connecting said motor with some rigid part of the vehicle, means for virtually shortening the brace, and means controllable at will, for adjusting said buffers and thereby changing the normal position of said motor relatively to said wheel of said vehicle.

17. An automobile, comprising a wheeled vehicle provided with a storage battery, an electric motor pivotally mounted upon said vehicle, gearing connecting said motor with a wheel of said vehicle, a rigid longitudinal member for normally holding said motor in a predetermined position, buffers disposed upon opposite sides of said motor for cushioning the same in two directions, and screw members for adjusting the normal tension of said buffers.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALFRED LISSACH SIMPSON.

HARRY BUCHANAN PALMER.

Witnesses:

WALTON HARRISON,

EVERARD B. MARSHALL.