No. 675,065. Patented May 28, 1901.

F. F. LOOMIS.

DEVICE FOR OPERATING AND CONTROLLING ELECTRIC AUTOMOBILES.

(Application filed Nov. 3, 1900.)

(No Model.) 2 Sheets—Sheet 1

Fig. 1.

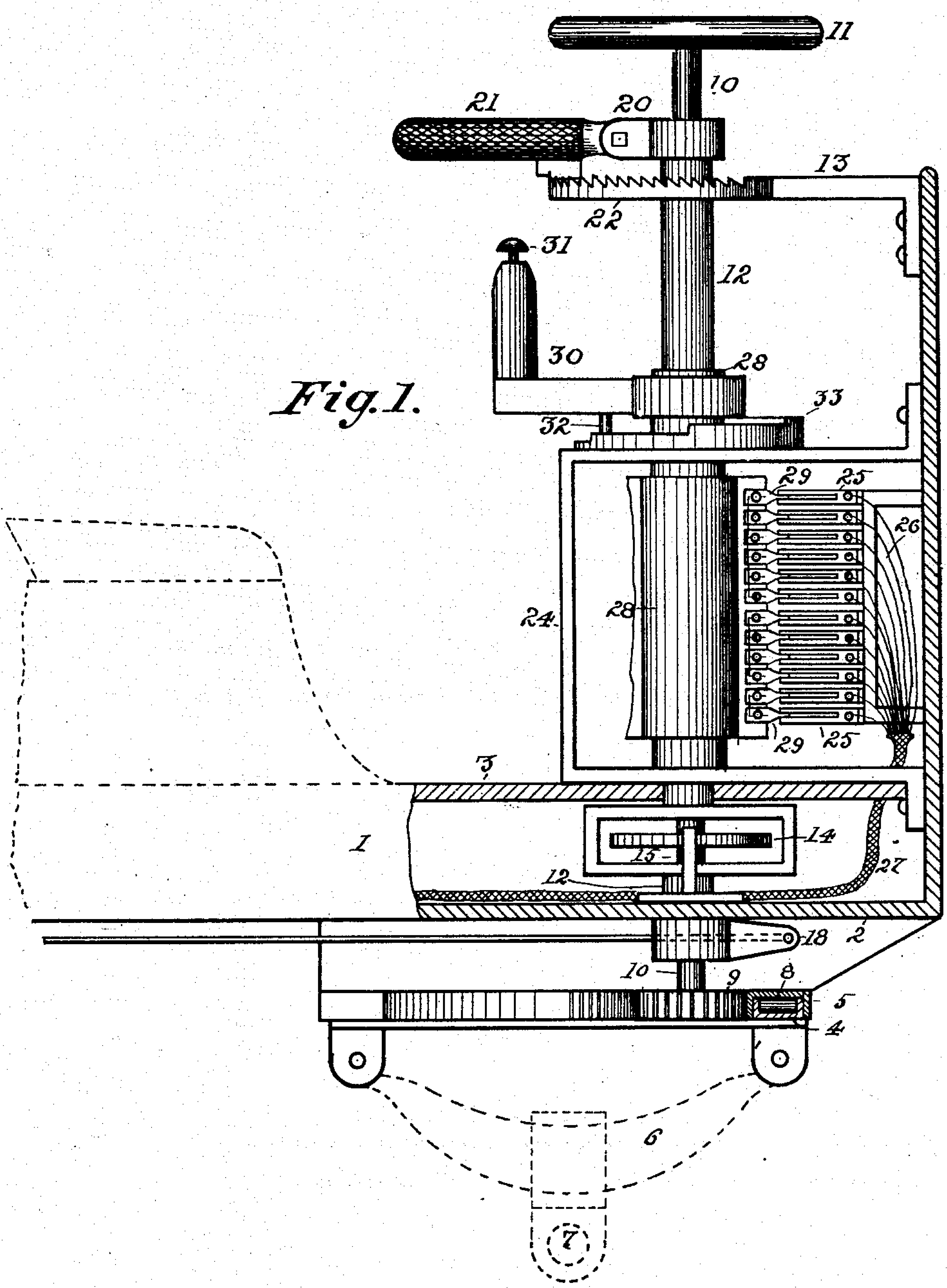

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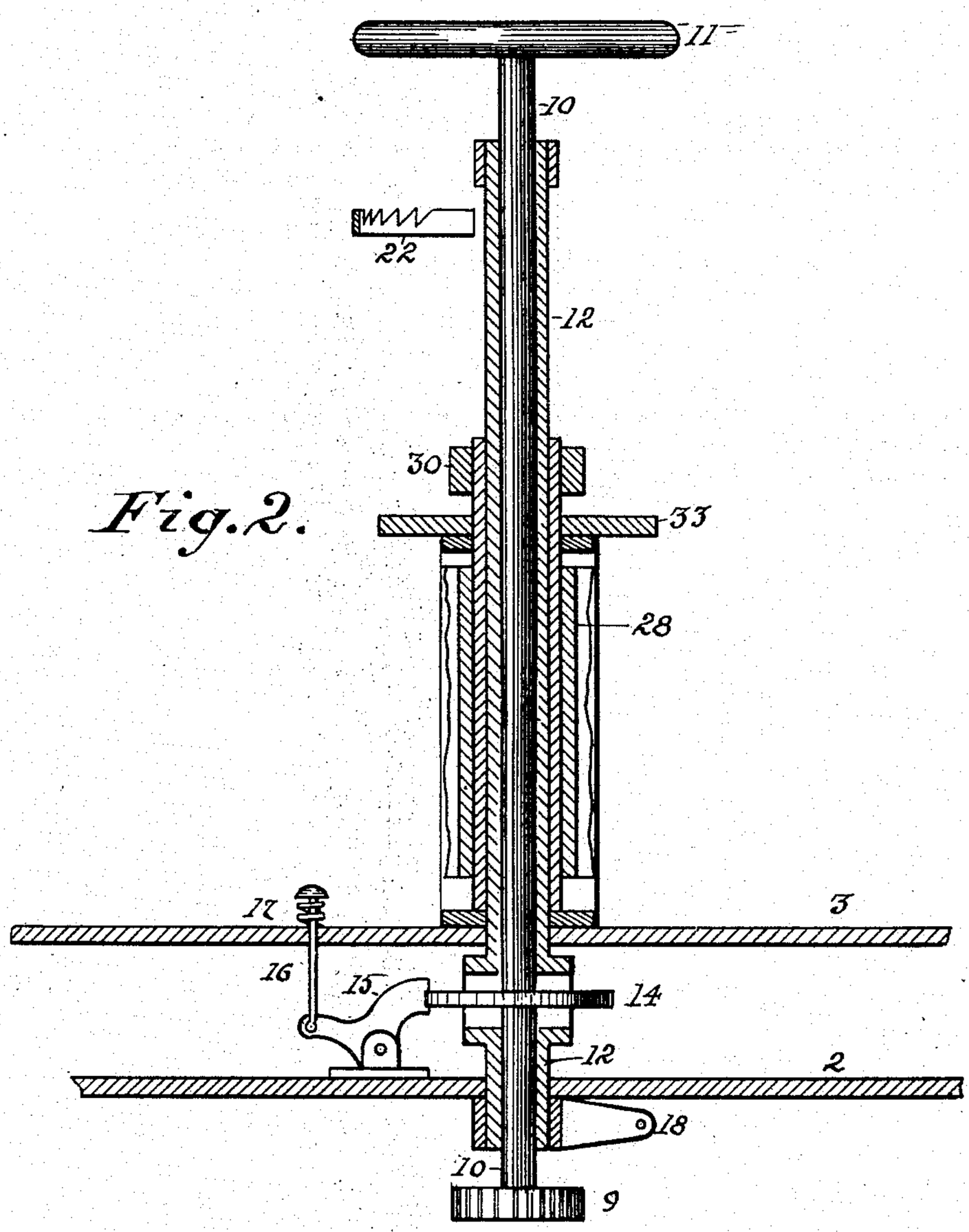
Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK F. LOOMIS, OF AKRON, OHIO, ASSIGNOR TO THE INTERNATIONAL FIRE ENGINE COMPANY, OF NEW YORK, N. Y.

DEVICE FOR OPERATING AND CONTROLLING ELECTRIC AUTOMOBILES.

SPECIFICATION forming part of Letters Patent No. 675,065, dated May 28, 1901.

Application filed November 3, 1900. Serial No. 35,356. (No model.)

To all whom it may concern.

Be it known that I, FRANK F. LOOMIS, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Devices for Operating and Controlling Electric Automobiles, of which the following is a specification.

My invention has relation to improvements in the construction and arrangement of those parts of the mechanism used for steering the vehicle, controlling the switches by which the electric current is applied to the motors, and operating the brake of electric automobiles, and particularly that class of vehicles used for police-patrol purposes, where rapid operation of the different elements of the machine is required by reason of the ordinary exigency of each call and on roads and surfaces of great difference in character and condition.

One object of my invention is to place the apparatus that governs the different mechanisms aforesaid immediately in front of the driver, so that his attention will not be diverted from watchfulness of the path of the vehicle in seeking for the necessary handle, and also to place the handles in the most convenient positions for passing the hand to one or the other when necessary.

A further object is to render the handles so distinct in form and movement as to permit their identification by the touch merely; and a final object is to render the whole compact, so as to occupy the least space consistent with their proper construction and operation.

To the aforesaid objects my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described and then specifically pointed out in the claims, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar reference-numerals indicate like parts in the different views, Figure 1 is a side elevation of the front end of a wagon-body and fifth-wheel with a portion in vertical section and showing my improved device mounted therein, and Fig. 2 a section transverse to Fig. 1 of my improved device.

Referring to the drawings, 1 is a portion of a wagon-body having a floor 2 and a superimposed floor 3, having a chamber or recess between them, this being a preferred form of construction, although not essential to the proper operation of my device. The body 1 is supported on a fifth-wheel of a recognized form of construction consisting of a lower annular grooved channel 4, with an upper concentric inclosing grooved channel 5, the whole supported on springs 6, resting on the axle 7, and with rollers 8 between the members of the fifth-wheel. The upper member 5 of the fifth-wheel has internal gear-teeth, and in these meshes a pinion 9, mounted on a shaft 10, bearing at the upper end a hand-wheel 11. This shaft 10 is concentrically revolubly mounted in a hollow shaft 12, which is in turn revolubly mounted in the floor and superimposed floor on the body and in a top-supporting bracket 13. The shaft 10 bears on its lower portion a tight disk 14, partially inclosed in a chamber created by enlarging the shaft 12 at that point. The disk 14 has in its edge a notch arranged to be engaged by a latch 15, pivotally mounted in ears attached to the floor 2, and this latch is arranged to be rocked out of engagement by a push-rod 16, that projects through the floor 3 in convenient position to be pressed by the foot of the driver and is constantly pressed upward by a spring 17. The arrangement of the notch in the disk 14 and latch 15 is such that when the latch is in engagement the vehicle will run in a straight line. The hollow shaft 12 has near its lower end and below the floor 2 a tight collar with a radial arm, to the outer end of which is attached a rod 19, that runs back to the brake at the rear wheels, which brake may be of any preferred form, either band or rubber. On the upper end of the shaft 12 is a tight collar having ears 20, between which is pivotally mounted a handle 21, having a downwardly-extending blade adapted to engage the teeth of a curved ratchet-bar 22, secured to the bracket 13.

From the foregoing description it will be apparent that the front axle is turned to guide the vehicle by the hand-wheel 11, and the brake can be applied by the handle 21 and retained by the ratchet-bar 22.

Secured to the dashboard 23 is a frame 24,

which may be a skeleton frame, as shown, or preferably a closed box, which projects back far enough to inclose the before-mentioned shafts and the switch-bearing cylinder to be described. Insularly secured in this frame are series of forked contacts 25, some being connected with storage batteries under the vehicle-seats, others with the field-magnets of the motors, and still others with the armatures of motors by wires 26, united in a cable 27. Revolubly mounted on the shaft 12 is a hollow shaft 28, that bears on its surface ranks of switch-blades 29, arranged to be brought into contact with the contacts 25 by the partial revolution of the shaft 12. There are in practical use numbers of ranks of these switch-blades variously electrically connected to afford different combinations and degrees of electromotive force for propelling the vehicle forward or backward; but as this is the subject of another application now pending in the Patent Office further description is unnecessary, the object of the illustration being to show their position with regard to the other elements of this application. On the upper end of this shaft 28 is a crank-arm and handle 30 by which it is turned, and in the crank-arm is a pivoted lever (not shown) adapted to have its outer end pressed down by a rod 31 in the handle and having from its inner end a projecting pin 32, adapted to rest on the cap 33 of the case inclosing the cylinder or shaft 28. This cap is divided by abrupt radial shoulders into different spaces so arranged that when the pin 32 encounters one or the other some one of the ranks of switch-blades will be in connection with the contacts 25 to give a determined combination of electrical energy to the motors; but as this is also embodied in the before-mentioned application it is only stated here to show its relation to the other mechanism.

By the foregoing arrangement of parts it will be evident that the driver has complete control of the different functions of the apparatus without changing position, and from the variety in the form of their construction the touch will enable him to identify each without diverting his attention from the path of the vehicle.

I claim as my invention—

1. In a device for operating and controlling electric automobiles, the combination with a revoluble shaft having a pinion to mesh in a toothed member of the fifth-wheel, and a handle for operating it; an inclosing revoluble concentric hollow shaft having a radial arm to draw a brake-rod, a handle for turning it and a ratchet to retain said handle at a determinate position; and an inclosing shaft revolubly mounted on the brake-shaft, bearing ranks of switch-blades variously connected to produce different degrees of electrical energy to operate motors to cause the vehicle to move forward or backward, in combination with electrical contacts arranged to be simultaneously connected with ranks of said blades, and variously determinately connected with batteries, and the field-magnets and armatures of motors arranged to drive said vehicle substantially as shown and described.

2. In a device for operating and controlling electric automobiles the combination of an inner revoluble shaft and two concentric surrounding hollow shafts each being adapted to revolve independent of the others; each having means for so independently revolving it; one of said shafts being arranged by suitable mechanism to move the front axle on the fifth-wheel to guide the vehicle; another to operate brakes to arrest its progress, and the third to operate switching mechanism to apply electromotive force to drive said vehicle substantially as shown and described.

In testimony that I claim the above I hereunto set my hand in the presence of two subscribing witnesses.

FRANK F. LOOMIS.

Witnesses:
DAVID PHILLIPS,
E. J. RUSSELL.