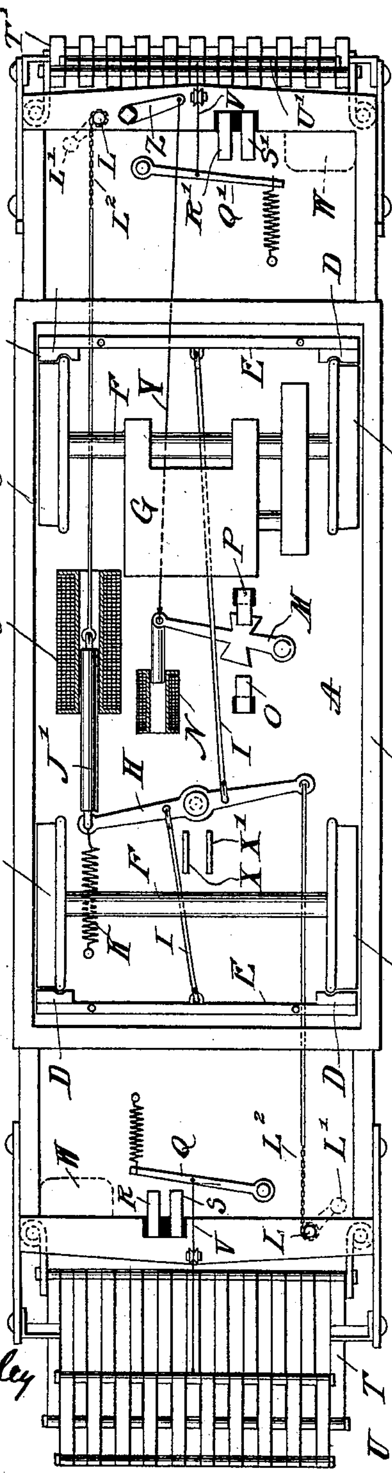
No. 635,941. Patented Oct. 31, 1899.

J. P. MÜLLER.

SAFETY ATTACHMENT FOR PROPELLED VEHICLES.

(Application filed Aug. 5, 1899.)

(No Model.) 2 Sheets—Sheet 1.



WITNESSES:

Frank S. Ober.

George T. Hackley

INVENTOR:

John P. Müller.

BY

[signature]

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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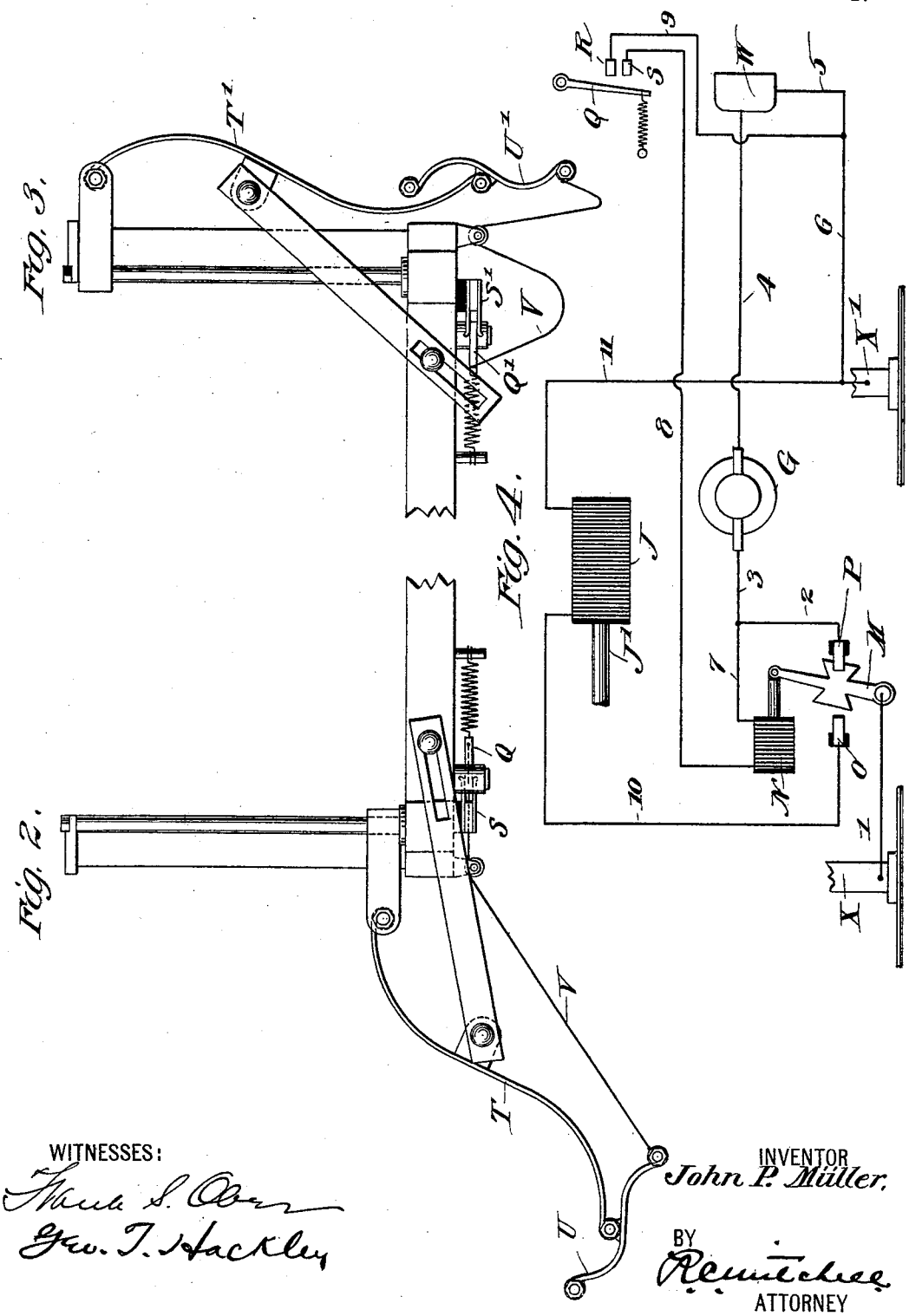

WITNESSES:

Thos. S. Oberly

Geo. T. Hackley

INVENTOR

John P. Müller.

BY

R. C. Mitchell

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN P. MÜLLER, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO LOUIS GOLDSMITH, JR., AND NATHAN GOLD, OF SAME PLACE.

SAFETY ATTACHMENT FOR PROPELLED VEHICLES.

SPECIFICATION forming part of Letters Patent No. 635,941, dated October 31, 1899.

Application filed August 5, 1899. Serial No. 726,241. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. MÜLLER, a subject of the Emperor of Germany, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Safety Attachments for Propelled Vehicles, of which the following is a full, clear, and exact description.

My invention relates to improvements in vehicles, and particularly to that class of vehicles that are propelled by electric power.

The chief object of my invention is to secure safety to pedestrians and others by the provision of an effective brake mechanism which is automatic in action and is of a construction that is simple, effective, and durable.

In the accompanying drawings, Figure 1 is a view of the under side of a car provided with my improved safety attachments. Fig. 2 is a relatively-enlarged side elevation of one end of said car. Fig. 3 is a similar view of the opposite end of said car. Fig. 4 is a diagrammatic view of one form of circuit that may be advantageously employed in my invention.

A is the car-body.

B is a truck.

C C are wheels.

D D are brake-shoes. E E are brake-bars carrying said brake-shoes.

F F are the car-axles.

G is a motor suitably connected to one of the axles F to impart rotary movement to the wheels C.

H is a brake-lever, and connected thereto are brake-rods I I, which in turn connect with the bars E E, the connections being such that when the lever H is turned in one direction the brake-shoes will be brought into engagement with the wheels and when turned in the opposite direction will be free therefrom.

J is a solenoid-magnet, which when electrically energized draws in the core J′ in the usual manner. The core J′ is attached to the lever H in such manner that when said solenoid is energized the brakes will be applied.

K is a spring which may be employed to release the brakes when the electric current is cut off through the solenoid J.

L is a spindle to which an ordinary form of brake-handle L′ may be attached, and M is a connection between the spindle and the core J′, by which the brake may be operated in the usual way independent of the solenoid J.

M is a switch operated by a solenoid N in the usual manner to vary the direction of the current, in the manner and for the purpose hereinafter described, by alternately making connection with terminals O P of different circuits.

Q is a circuit-closer standing nominally open, but adapted to close a circuit through the points or terminals R and S.

T is a fender at one end of the car, and T′ a fender at the opposite end of the car.

U U′ are hinged frames carried, respectively, by the fenders T T′. For the purpose of aiding in the description the said frames U U′ will be characterized hereinafter as "triggers." The trigger U is connected in any suitable manner, as by cord V, to the circuit-closer Q. The nominal position of said trigger U is shown in Fig. 2. Should an obstruction be encounted while the car is advancing, the fender will pick said obstruction up, or if said obstruction is located too low it will raise the forward end of said trigger U, so as to swing the lower end forward, causing the circuit-closer Q to close the circuit through the terminals R S. The proportions of the apparatus are such that the fender will pick up such obstructions as have their center of gravity located above the upper portion of the trip U. If, however, the obstruction lies close to the ground, it will hold squarely against the forward end of the trip U, so as to rotate it upon its axis, thus shoving the lower edge of said trip forward, so that it will stand with relation to the fender substantially as shown in Fig. 3 of the drawings, in which position it will scoop up said object. It should be understood, of course, that the normally lower edge of the trip when in the position shown in Fig. 2 rests upon or very closely to the ground-line, while the opposite edge of the trip stands only a little above it, at the same time sufficiently far above it to permit an obstruction to rotate the said trip upon its pivotal axis. The drawings of course are illustrative rather than definitive. At the opposite end of the car is located, by

preference, a corresponding circuit-closer Q', together with terminals R' S', and said circuit-closer Q' may be operated in like manner from and by the trigger U'.

In Fig. 4 I have shown a diagrammatic view of the circuits as operated from one end of the car, and to make clear the operation of the safety apparatus reference will now be had to said figure. W is a controller. X X' are contact brushes or shoes by which a current of electricity is passed through the motor G in the usual manner from a suitable source of supply. (Not necessary to show.) The various attachments, including the switch M and the circuit-closer Q, are in a position in which the circuit passes through the motor, and said circuit is as follows: from brush X through wire 1, switch M, wire 2, wire 3, motor G, wire 4, controller W, wire 5, and wire 6 to brush X'. Assuming an obstruction is encountered and is not successfully raised by the fender, the trigger carried thereby will close the circuit by means of the closer Q through the points R S, and then a portion of the current going through the main circuit will be shunted through the solenoid N in the following manner: from wire 2 through wire 7 to the solenoid N, through wire 8 to the circuit-closer Q, through the circuit-closer Q to the wire 9, and through wire 9 to wire 6 of the main circuit. By passing the current or a portion of it through the solenoid N the switch M is thrown out of the main circuit and into contact with the terminal O of another circuit. This shifting of the switch M cuts out the motor G, so that the car may readily be stopped. The stopping of the car is effected by the brakes under the influence of the solenoid J, which is then in circuit and which draws in the core J', so as to operate the brake-lever H. The circuit for the solenoid J is as follows: from brush X through wire 1, switch M, terminal O, wire 10, solenoid J, and wire 11 to brush X'. The current will continue to pass through the solenoid J until the switch M is shifted to its original position, which may be done, for example, by a suitable connection Y between said switch M and a manually-controlled lever Z, which may be operated by the motorman. Before the motorman can start the car it will be necessary to restore the trigger U to its nominal position, whereby the circuit-closer Q will open the circuit at the points R and S. This should be done before the position of the switch M is shifted, as before referred to.

The accompanying drawings do not attempt to illustrate the proper relative proportions between the parts or details of construction or arrangement, which it is contemplated may be quite radically varied or changed without departing from the spirit and scope of my invention.

What I claim is—

1. In an electrically-propelled vehicle, a main circuit, a motor therein, wheels driven by said motor, a shunt, a circuit-closer therefor, means for operating said circuit-closer, a second circuit, a switch and means for operating said switch to cut out the main circuit and throw in the second circuit, brakes, and means controlled by said second circuit to operate said brakes.

2. In an electrically-propelled vehicle, a main circuit, a motor therein, wheels driven by said motor, a shunt, a circuit-closer therefor, means for operating said circuit-closer, a second circuit, a switch and means for operating said switch to cut out the main circuit and throw in the second circuit, brakes, and means carried by said second circuit to operate the same.

3. In an electrically-propelled vehicle, a main circuit, a motor therein, wheels driven by said motor, a shunt, a circuit-closer therefor, means to operate said circuit-closer comprising a trigger located in the path of travel of said car and in front of the wheels, a second circuit, a switch and means for operating said switch to cut out the main circuit and throw in the second circuit, brakes, and means carried by said second circuit, to operate the same.

4. In an electrically-propelled vehicle, a main circuit, a motor therein, wheels driven by said motor, a shunt, a circuit-closer therefor, means for operating said circuit-closer a second circuit, a switch, a solenoid in said shunt for operating said switch to cut out the main circuit and throw in the second circuit, brakes, a solenoid in said second circuit, and means operated thereby to bring the brakes into operative engagement with the wheels.

Executed this 3d day of August, 1899.

JOHN P. MÜLLER.

Witnesses:
R. C. MITCHELL,
L. GOLDSMITH, Jr.