

No. 629,521.

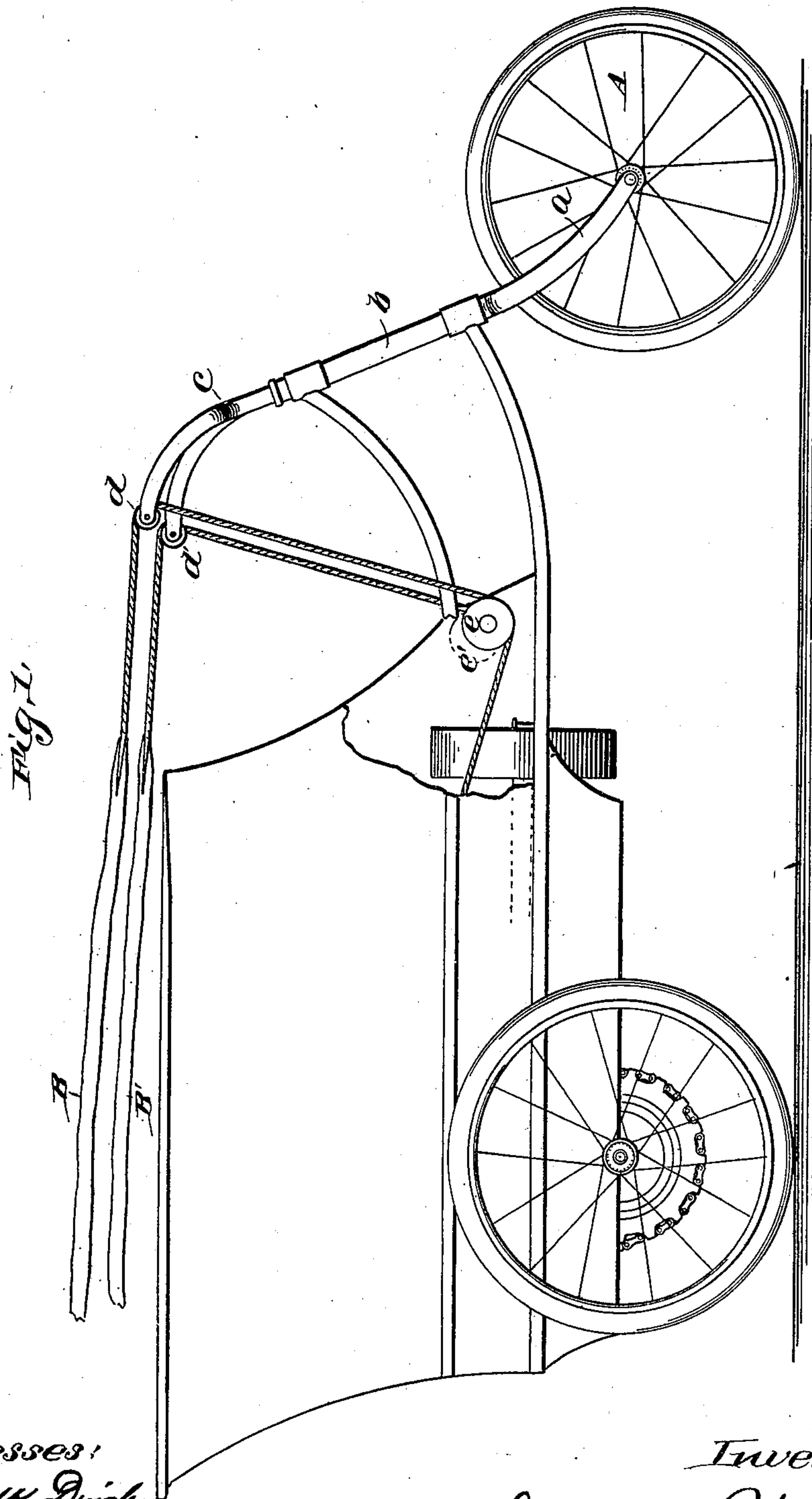
Patented July 25, 1899.

L. J. PHELPS.  
MOTOR VEHICLE.

(Application filed June 20, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
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Ida M. Phelps.

Inventor:  
Lucius J. Phelps

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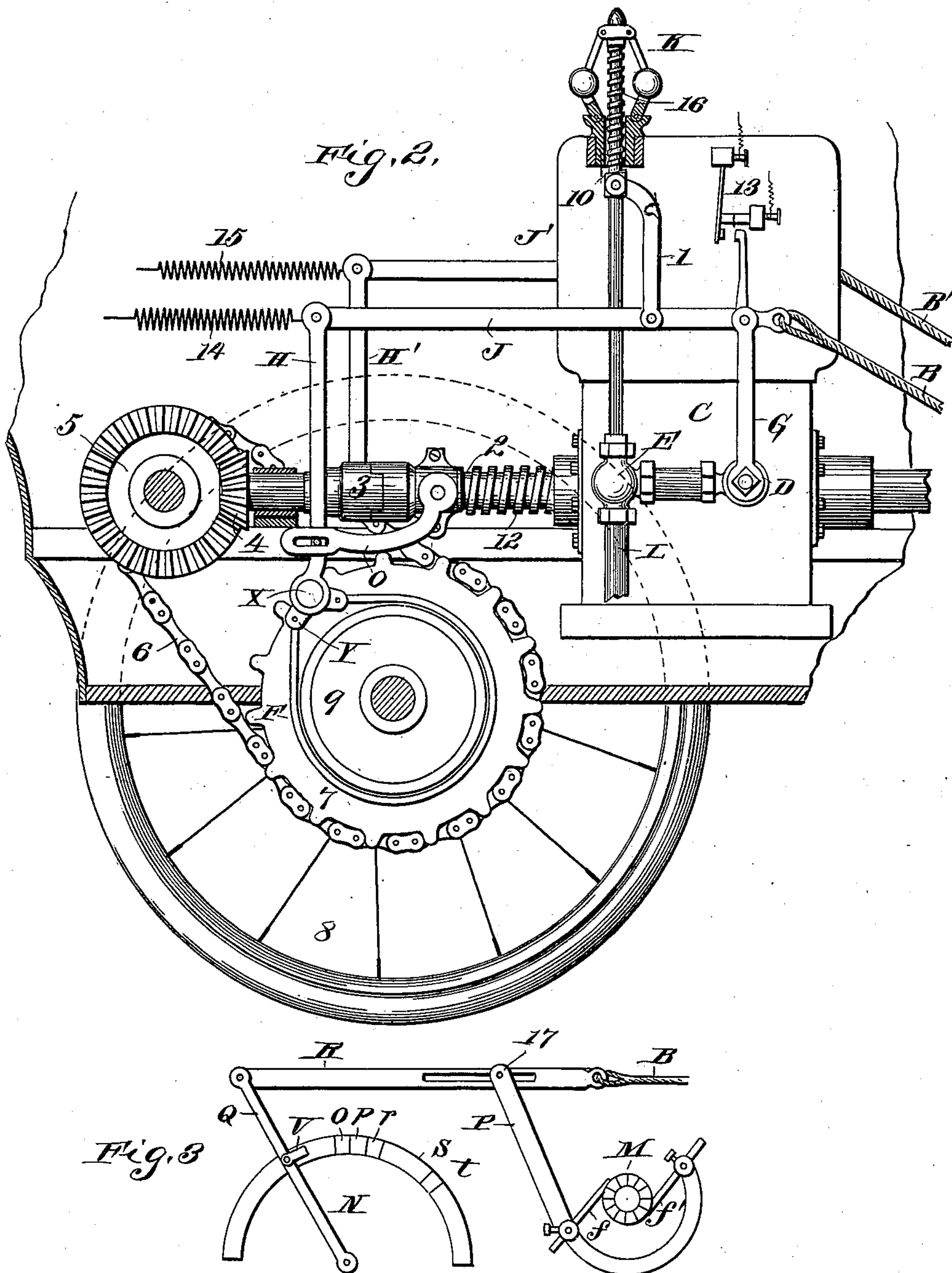
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Lda M. Phelps.

*Inventor:*

Lucius J. Phelps



# UNITED STATES PATENT OFFICE.

LUCIUS J. PHELPS, OF NEW BRUNSWICK, NEW JERSEY.

## MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 629,521, dated July 25, 1899.

Application filed June 20, 1898. Serial No. 684,027. (No model.)

*To all whom it may concern:*

Be it known that I, LUCIUS JOSHUA PHELPS, a citizen of the United States, residing at New Brunswick, in the county of Middlesex and State of New Jersey, have invented a new and useful Locomotive-Tractor, of which the following is a specification.

My invention relates to improvements in motor-vehicles for use on the public highways; and the object of my invention is to secure the perfect control and handling of a motor-vehicle by means of a pair of reins in the hands of a driver located in an independent vehicle drawn by the motor-vehicle. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the side elevation of the tractor, partly in section. Fig. 2 is a view of the internal mechanism of the tractor; and Fig. 3 is a modification of the motive power, showing part of a dynamo-machine with the reversing-lever.

Similar letters and figures refer to similar parts throughout the several views.

Fig. 1 represents a vehicle mounted on three wheels which is well adapted to the application of my invention. A is the steering-wheel, mounted in the fork *a*, which is pivoted in the steering-head *b* and terminating in the forked handle-bar *c*. The two extremities of the handle-bar are fitted with sheave-wheels *d* and *d'*, through which the reins B and B' pass, and from thence downward and through the sheave-wheels *e* and *e'*, attached to the frame of the vehicle, to the interior, where they are attached to the controlling mechanism, as hereinafter described.

Referring now to Fig. 2, C is a petroleum-motor of ordinary construction. The power is transmitted from the same through the driving-shaft 2, clutch-coupling 3, beveled pinion 4, bevel gear-wheel 5, and chain 6 to the sprocket-wheel 7, attached to the axle of the two main driving-wheels 8, only one of which is shown in the drawing. L is the feed-pipe through which the explosive mixture is drawn to the engine. D is a throttle-valve situated in the feed-pipe L for the purpose of controlling the intake of explosive mixture at the will of the driver. E is a valve situ-

ated also in the feed-pipe L and controlled by the governor K for the purpose of automatically regulating the speed of the engine. F is a brake-shoe encircling the brake-wheel 9, which is rigidly attached to the axle of the driving-wheels 8. H and H' are levers, each rigidly attached to the rocking shaft X, which carries the lugs Y and Z, which are pivotally attached to the brake-shoe F. G is a lever rigidly attached to the throttle-valve D at its lower end, and its upper end is attached to the horizontal lever J, to one end of which the rein B is attached, and its opposite end is attached to the upper extremity of the lever H, the rein B' being attached to the lever J' in like manner. I is another lever, one end of which is pivoted to the horizontal lever J, and its opposite end is pivoted to the collar 10, which moves freely upon the governor-rod 11 and by its action controls the speed of the motor by varying the tension of the governor-spring 16. O is a lever connecting the lever H with the movable portion of the clutch-coupling 3 and slotted at its rear end to allow the free movement of the lever H within certain limits. 12 is a spring adapted to normally keep the clutch 3 closed.

The explosion of the mixture within the engine-cylinders is produced by an electric current which is passed through the contact-points 13, and this contact is adapted to be broken by the lever G if it moves backward beyond its normal position, as shown in Fig. 2, thus stopping the engine instantly.

The operation is as follows: In Fig. 2 the parts are all shown in their normal working position when the tractor is in motion. If now the driver, seated in an independent vehicle behind the tractor, draw upon the reins, the upper end of the lever H will be moved forward, and through the lever O the movable portion of the clutch 3 will be moved against the spring 12, opening the clutch, thereby detaching the motor from the driving-gear. At the same time the shaft X is rocked, causing the lugs Y and Z to tighten the brake-shoe F on the face of the brake-wheel 9, stopping the tractor. At the same time the upper end of the lever G is moved forward, partially closing the valve D, thus reducing the amount



of explosive mixture flowing to the engine, and by the action of the lever I the collar 10 is lowered, reducing the tension of the spring 16, rendering the governor more sensitive, and causing the engine to run at a slow rate of speed. In this position the tractor is held at rest, with the engine moving slowly independently of the driving-gear. To start the tractor, the action is reversed. The driver slackens upon his reins sufficiently to allow the spring 12 to close the clutch 3. The throttle-valve D is opened, giving increased charges to the engine. The lever I raises the collar 10, increasing the tension of the governor-spring 16, causing the engine to run at a higher rate of speed, which may be regulated at will by the forward and backward movement of the reins without disturbing the clutch 3, the pin 22 moving freely in the slot in lever O and the levers H and H' being drawn backward by the springs 14 and 15. Now should a rein break or the driver drop his reins altogether from any cause the springs 14 and 15 will draw the levers H and H' still farther back and the upper extension of lever G will break the electric contact 13, stopping the engine instantly.

To overcome the shock in starting, I prefer to use a friction-clutch in place of the jaw-clutch 3 shown in the drawings; but as the clutch is no part of my invention and any clutch of well-known construction may be used I have shown the simplest.

Fig. 3 illustrates one method of stopping and backing the tractor when an electric motor is used to propel the tractor, in which M is the commutator of the electric motor and  $f$  and  $f'$  are the brushes. N is a rheostat for introducing variable resistance, in which  $o$ ,  $p$ ,  $r$ , and  $t$  are contact-plates.  $v$  is the trailer, and  $s$  is insulation. P is a lever adapted to revolve the brushes about the commutator of the motor, and Q is a lever for moving the trailer of the rheostat. R is a horizontal lever pivotally connected to the lever Q and slotted to receive the pin 17 in lever P and, extending beyond lever P, receives the end of the rein B.

The action is as follows: When all the parts are in the position shown in the drawings, the motor is at rest. If now the driver draws upon the reins till the trailer  $v$  rests upon the contact-plate  $o$ , the circuit is closed through the battery and motor, and as the trailer  $v$  passes over the plates  $p$  and  $r$  the circuit remains closed, but with varying resistance. When the trailer reaches the insulated plate  $s$ , the circuit is broken and at the same time the end of the slot in lever R reaches the pin 17, and as the trailer moves over the insulation  $s$  the lever P revolves about the commutator, carrying the brushes  $f$  and  $f'$  until when the trailer  $v$  reaches the contact-point  $t$  the positions of the brushes are changed, so as to run the motor in the reverse direction.

I do not confine myself to the use of an elec-

tric motor; but any engine or motor which can be reversed and throttled by the use of levers may be substituted without departing from the principles of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a locomotive-tractor, the combination of a steering-wheel mounted in a fork with steering-head and handle-bar, and sheave wheels or pulleys mounted at the extremities of the handle-bar, a pair of reins passing around the sheave-wheels and attached to levers for controlling the movements of the tractor substantially as described.

2. In a locomotive-tractor provided with a suitable motor which is controlled by a throttle-valve, the combination of a steering-wheel mounted in a fork with steering-head and handle-bar, sheave-wheels mounted at the extremities of the handle-bar and a pair of reins passing around the sheave-wheels and attached to the controlling-lever of the throttle-valve, substantially as described.

3. In a locomotive-tractor provided with a suitable motor controlled by a governor, the combination of a steering-wheel with steering-head and handle-bar, sheave-wheels mounted at the extremities of the handle-bar, a pair of reins passing around the sheave-wheels and attached to a lever controlling the governor, substantially as described.

4. In a locomotive-tractor provided with a motor fitted with a reversing-lever, the combination of a steering-wheel mounted in a fork with steering-head and handle-bar, sheave-wheels mounted at the extremities of the handle-bar, and a pair of reins passing around the sheave-wheels and attached to the reversing-lever, substantially as described.

5. In a locomotive-tractor provided with a brake, the combination of a steering-wheel mounted in a fork with steering-head and handle-bar, sheave-wheels mounted at the extremities of the handle-bar and a pair of reins passing around the sheave-wheels and attached to the brake-lever, substantially as described.

6. In a locomotive-tractor provided with a motor, suitable driving-gear and a movable clutch for connecting the motor with the driving-gear and disconnecting it at will, the combination of a steering-wheel mounted in a fork with steering-head and handle-bar, sheave-wheels mounted at the extremities of the handle-bar, and a pair of reins passing around the handle-bar and connected to the clutch by means of suitable levers, substantially as described.

7. In a locomotive-tractor provided with an electric motor controlled by a rheostat and commutator by means of which the motor is started, regulated, stopped and reversed, the combination of a steering-wheel mounted in a fork with steering-head and handle-bar, sheave-wheels mounted at the extremities of the handle-bar and a pair of reins passing



around the sheave-wheels and attached to the lever of the commutator, substantially as described.

8. In a locomotive-tractor provided with an explosive-engine wherein the explosions are produced by an electric spark, the combination of a throttle-valve lever, an electric-circuit breaker, a spring and a pair of reins whereby the extreme movement of the lever in one direction closes the throttle-valve and the extreme movement in the opposite direction breaks the electric circuit, substantially as described.

9. In a locomotive-tractor the combination of a pair of steering-reins and the throttle-valve of the engine whereby the throttle may

be opened, held at any desired position and closed by means of the reins without interfering with the steering of the tractor, substantially as described.

10. In a locomotive-tractor the combination of a pair of steering-reins and a governor on the engine whereby the sensitiveness of the governor may be controlled at the will of the driver, by means of the reins without interfering with the steering of the tractor, substantially as described.

LUCIUS J. PHELPS.

Witnesses:

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