No. 688,838.

Patented Dec. 17, 1901.

F. F. DORSEY.

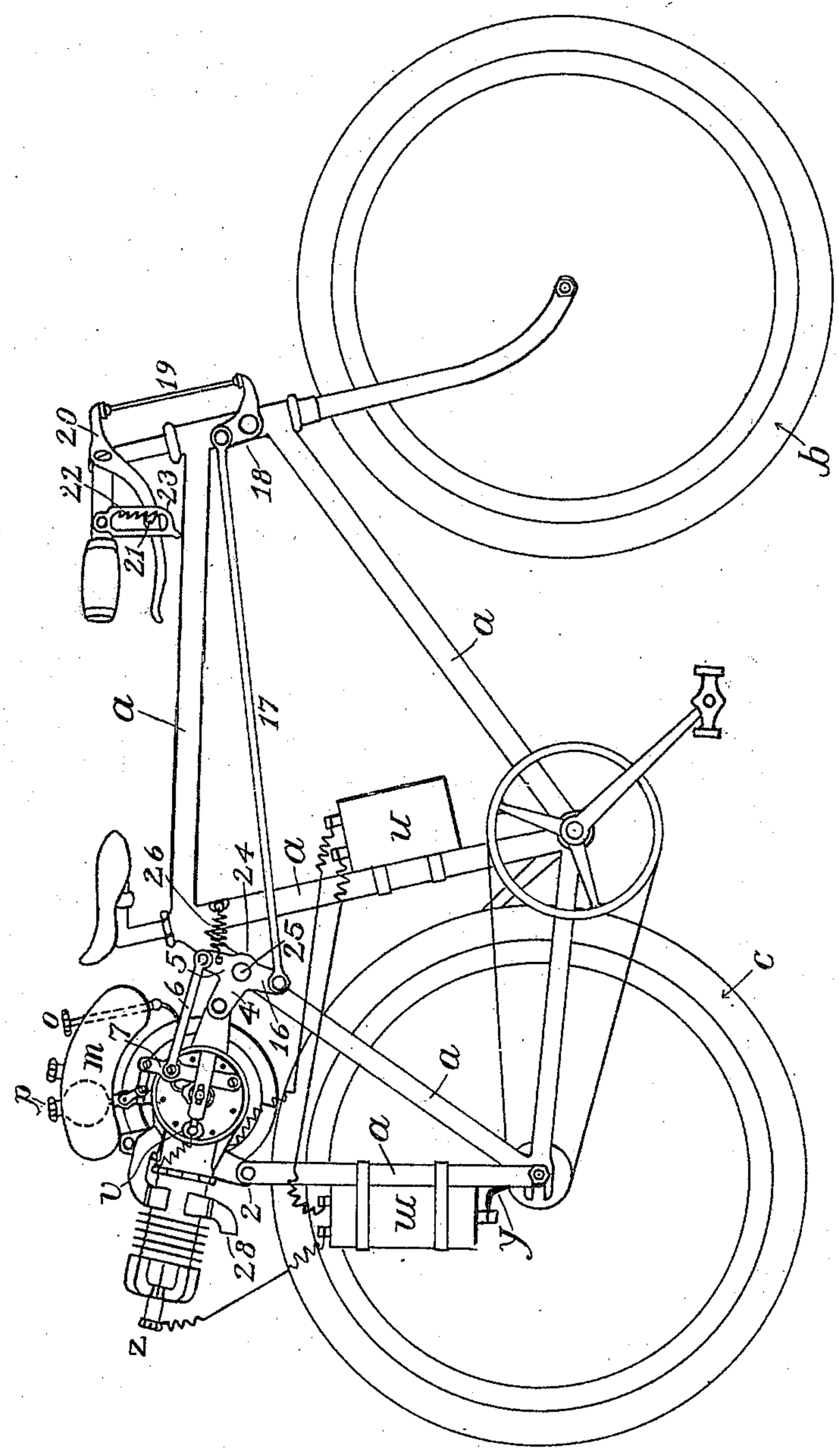
MOTOR VEHICLE.

(Application filed Mar. 19, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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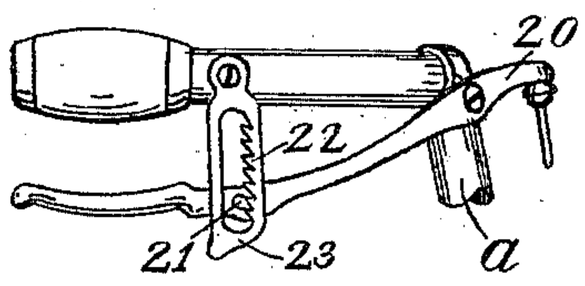

Fig. 4.

Fig. 2.

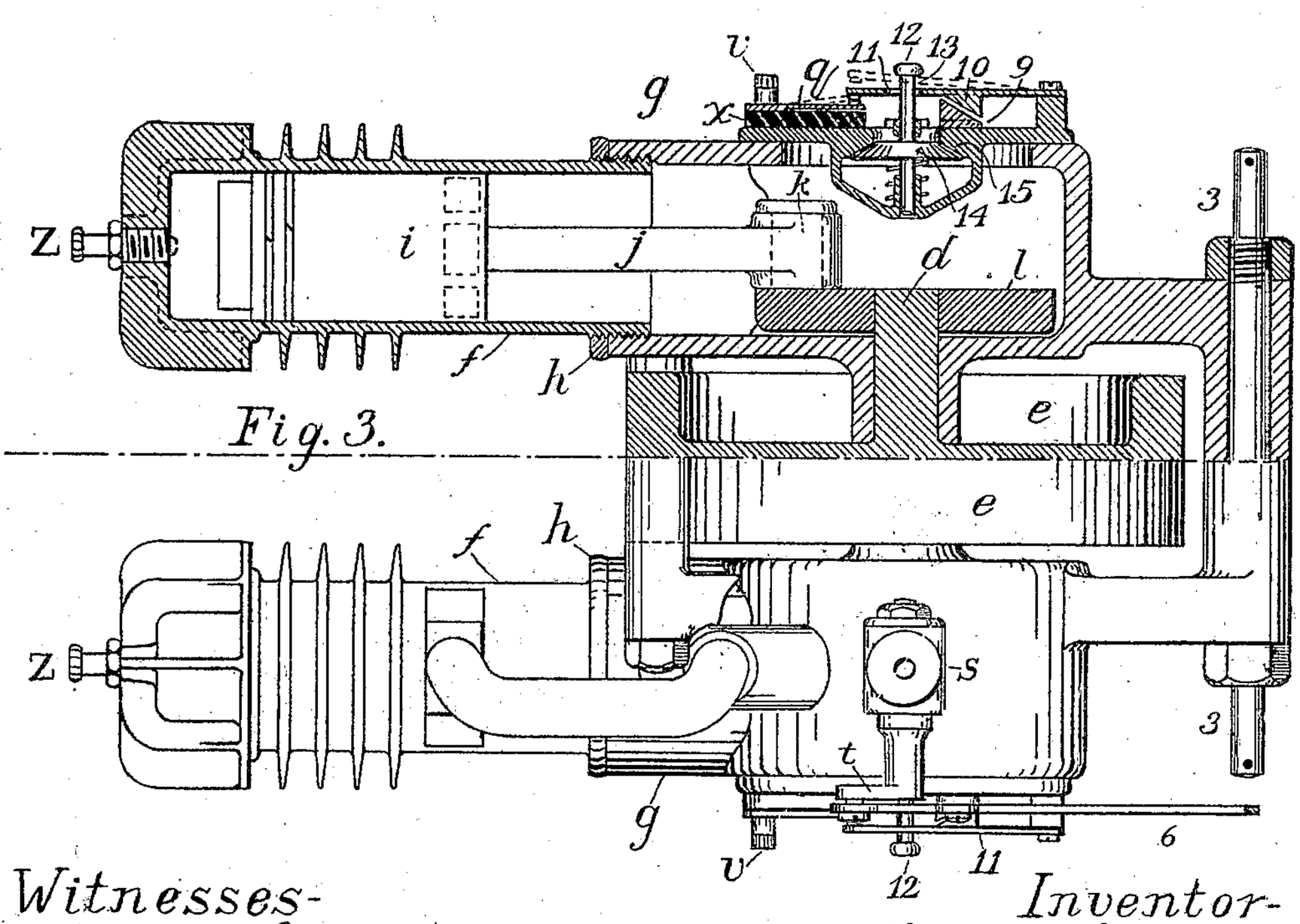

Fig. 3.

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UNITED STATES PATENT OFFICE.

FARNUM F. DORSEY, OF WINCHESTER, MASSACHUSETTS.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 688,838, dated December 17, 1901.

Application filed March 19, 1901. Serial No. 51,838. (No model.)

To all whom it may concern:

Be it known that I, FARNUM FRANCIS DORSEY, of Winchester, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Motor-Vehicles, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my new motor-vehicle. Fig. 2 is a side elevation of the motor. Fig. 3 is a plan view of the motor, the fuel-tank being removed and one-half being shown in section on line A A, Fig. 2. Fig. 4 is a detail showing a locking device secured to the handle-bar.

My invention relates to motor-vehicles, and has for one of its objects to provide driving means free from clutch mechanism and transmission-gearing—that is, to produce a direct-connected motor-vehicle. The fly-wheel is brought into and out of direct frictional contact with the rear wheel of the motor-vehicle, and the use of clutch mechanism and gearing is obviated thereby.

Another object of my invention is to provide simple means for controlling the power applied. By mechanism hereinafter described the fly-wheel of the motor is raised out of contact with the rear wheel of the motor-vehicle, and simultaneously the flow of the fuel and lubricant is stopped and the igniting battery-circuit is opened. Also the flow of the fuel and lubricant is made to vary directly with the degree of friction or pressure between the fly-wheel of the motor and the wheel of the motor-vehicle.

A third object of my invention is to adapt a two-cylinder engine to a motor-vehicle. By using a two-cylinder engine a more perfect balance is obtained and a more uniform thrust upon the main shaft of the motor. Again, greater power for the same weight is obtained, and the power applied may be made to vary from a light load on one cylinder to a heavy load on both cylinders.

A fourth object of my invention is to dispense with unnecessary valves and in other ways to simplify the construction. In the motor hereinafter described the functions of vaporizer-valve, inlet-valve, and throttle-valve are performed by a single valve. The functions of fly-wheel and friction drive-wheel are performed by one wheel—the fly-wheel of the motor. The fuel-tank incloses the lubricant-tank. The cylinders are screwed into the crank-cases and secured by a locking-nut.

Another object of my invention is to provide a simple means for locking the motor and its supply mechanisms in any desired position.

My invention consists in the mechanisms and combination of mechanisms hereinafter described and claimed.

In the drawings illustrating the principle of my invention and the best mode in which I have contemplated applying that principle, *a* is the frame of the motor-vehicle, *b* the front wheel, and *c* the rear wheel. The motor is a double-cylinder motor having a shaft *d*, upon which is the fly-wheel *e*. The cylinders *f* are screwed into the crank-cases *g* and are locked therein by means of the nuts *h*. The pistons *i* are, by means of the connecting-rods *j* and wrist-pins *k*, secured to the cranks *l*, fast upon shaft *d*. The fly-wheel *e* is centrally located between the crank-cases *g*, and above it is secured to the motor-frame the fuel-tank *m*, Figs. 1 and 2. The fuel is supplied to the valve-casing through the pipe *n*, and the supply is controlled by the valve *o*. The lubricant is held in a cup *p*, inclosed in the fuel-tank *m*, and is fed by capillary attraction into the pipe *r*. The flow of the lubricant is controlled by the valve *s*, provided with a crank-arm *t*. From the poles of the battery *u*, Fig. 1, extend wires, one to a circuit-breaker (not shown) and thence to the binding-post *v* and the other to one terminal of the primary of the Ruhmkorff spark-coil *w*, Fig. 1. The binding-post *v* is separated by the insulation *x*, Fig. 3, from the crank-casing. The common terminal of the primary and secondary is connected to the frame of the motor-vehicle, as at *y*, Fig. 1, and the other terminal is connected to the igniter *z*.

The motor is supported by trunnions, which are journaled in the frame at 2, Fig. 1. This construction permits the motor to be lowered and raised on its trunnions to bring the fly-wheel into and out of contact with the rear wheel *c* of the motor-vehicle. Secured in the front end of the frame of the motor is a pin 3, Fig. 3, the ends of which are pivotally secured in the crank-arms 4, one of which is

shown in Fig. 1. The crank-arm 5 is joined by a link 6, Figs. 1 and 2, to a lever 7, the upper end of which is connected by a link 8 to the crank-arm *t*, that turns the valve *s*, which controls the supply of lubricant. To the lever 7 is secured a wedge 9, Fig. 3, that is adapted to engage a wedge 10, secured to the flat spring 11. The engagement of the wedges 9 and 10 is produced by the forward movement of the lever 7 and results in breaking the battery-circuit, as will be evident from Figs. 1 and 3. Again, when the spring 11 is raised it engages the head 12 of the valve-stem 13 and draws the valve 14 tightly against the valve-seat 15, Figs. 2 and 3. Thus the forward movement of the lever 7 breaks the battery-circuit and shuts off the fuel-supply from the cylinders. The crank-arm 16, Fig. 1, is joined by the link 17 to one arm of the bell-crank 18, the other arm of which is connected by the link 19 to the lever 20. A lug 21, formed on the lever 20, is adapted to engage the teeth of the rack 22, that is formed on the wall of the slot in the swinging arm 23. The crank-plate 24, Fig. 1, from which project the crank-arms 16, 4, and 5, is fast upon the shaft 25, upon the other end of which is fast a similar crank-plate. (Not shown.) A spring 26 connects the crank-plate 24 to the frame *a* of the motor-vehicle.

The operation of my motor-vehicle is as follows: The lug 21 on the lever 20 is disengaged from the teeth 22 and the rear end of lever 20 is raised, by which, first, the motor fly-wheel *e* is lowered into contact with the rear wheel *c* of the motor-vehicle; second, the valve *s* that controls the flow of lubricant is opened, and, third, the wedges 9 and 10 are disengaged, thereby releasing the flat spring 11 and closing the battery-circuit. The release of the flat spring 11 releases the valve 14. The fuel and air are drawn by suction through the valve 14 into the crank-case, and the operation of the engine is similar to that of the ordinary two-cycle gas-engine. The exhaust takes place through the pipe 28. The speed of the motor is decreased by pushing the swinging arm 23 forward, releasing the lever 20, and lowering the rear end of the lever 20. This movement of lever 20 is transmitted by the link 19, bell-crank lever 18, link 17, crank-plate 24, crank-arm 5, and link 6 to lever 7. The forward movement of lever 7 causes the wedge 9 thereon to engage the wedge 10 on the spring 11, and thereby raise the spring 11. This raising of the spring 11 limits the throw of the valve 14, so as to decrease the amount of air and fuel drawn in, or the supply is "throttled." As the spring 11 is raised the spring *q* follows it, so as to preserve the contact until just before the spring 11 reaches the limit of its motion. When the spring 11 has reached the limit of its motion, the battery-circuit is opened and the valve 14 is locked tightly on its seat. (See dotted lines, Fig. 3.) By the same operation the valve *s* has through the crank *t* and the link 8 been closed, so as to shut off the flow of the lubricant. By the same operation the fly-wheel *e* is raised out of contact with the tire of the rear wheel *c*. The speed of the motor is increased by reversing the operation—that is, raising the rear end of the lever 20. The desired speed having been obtained, the lever 20 is locked in position by the engagement of the lug 21 with the teeth 22.

In my new motor-vehicle the supporting pivotal points or trunnions of the motor are between its ends and near the junction of the crank-cases and the cylinders, and hence near its center of gravity. This reduces the force necessary to raise the motor and makes easier the operation of the controlling devices.

What I claim is—

1. In a motor-vehicle, the combination of the vehicle; a motor provided with trunnions journaled in the upper ends of supporting-arms, the lower ends of said arms being secured to the axle of one of the wheels of said vehicle; said axle; said supporting-arms; a friction-wheel on the shaft of said motor; a wheel of said vehicle; and mechanism for rotating said motor on its trunnions to throw said motor friction-wheel into and out of contact with said motor-vehicle wheel.

2. In a motor-vehicle, the combination of the vehicle-frame; a motor pivotally mounted in said frame; its supporting pivotal points or trunnions being between the ends of the motor and near the center of gravity thereof; a friction-wheel fast upon the shaft of said motor; a wheel of the motor-vehicle; and means under control of the operator for rotating said motor on its trunnions to throw said friction-wheel into and out of frictional contact with said motor-vehicle wheel.

3. In a motor-vehicle, the combination of the vehicle-frame; a motor pivotally mounted in said frame; a friction-wheel fast upon the shaft of said motor; a wheel of the motor-vehicle; and means under control of the operator for rotating the motor on its trunnions and regulating by the same operation and in unison the inflow of explosive mixture and the pressure of the motor friction-wheel on the motor-vehicle wheel.

4. In a motor-vehicle, the combination of the vehicle-frame; a motor pivotally mounted in said frame; a friction-wheel fast upon the shaft of said motor; a wheel of the motor-vehicle; and means under control of the operator for rotating the motor on its trunnions and regulating by the same operation and in unison the amount of lubricant fed to the motor and the pressure of the motor friction-wheel on the motor-vehicle wheel.

5. In a motor-vehicle, the combination of the vehicle-frame; a motor pivotally mounted in said frame; a friction-wheel fast upon the shaft of said motor; a wheel of the motor-vehicle; and means under the control of the operator for rotating the motor on its trunnions and controlling by the same operation and in

unison the flow of current in the electric circuit and the pressure of the motor friction-wheel on the motor-vehicle wheel.

6. In a motor-vehicle, the combination of the valve that controls the inflow of the explosive mixture; the valve that controls the inflow of the lubricant; and means under control of the operator for throttling or increasing the inflow through said valves by one operation and in unison.

7. In a motor-vehicle, the combination of the vehicle-frame; a lever mounted upon said frame, and under the control of the operator; crank-plates pivoted in said frame; a motor pivotally secured to said vehicle-frame and to said crank-plates; mechanism connecting said lever with crank-plates; and mechanism connecting said crank-plates with the valve that controls the inflow of the explosive mixture.

8. In a motor-vehicle, the combination of a vehicle-frame; a lever mounted upon said frame and under the control of the operator; crank-plates pivoted in said frame; a motor pivotally secured to said vehicle-frame and to said crank-plate; mechanism connecting said crank-plate with the valve that controls the inflow of the explosive mixture and with the valve that controls the inflow of the lubricant.

9. In a motor-vehicle, the combination of a vehicle-frame; a lever mounted upon said frame and under the control of the operator; crank-plates pivoted in said frame; a motor pivotally secured to said vehicle-frame and to said crank-plate; mechanism connecting said lever with said crank-plate; and mechanism connecting said crank-plate with the valve that controls the inflow of the explosive mixture and with a make-and-break device in the electric igniting-circuit.

10. A motor-vehicle comprising the combination of a vehicle-frame; a two-cylinder motor symmetrically mounted on said frame; and a fly-wheel upon the shaft of said motor; said fly-wheel being mounted outside of and between the crank-cases of the motor.

11. In a motor-vehicle, a locking device comprising the combination of a slotted member formed with a rack on one of the walls of the slot, said member being pivotally secured to the motor-vehicle frame; and a lever formed with a lug adapted to engage the teeth of said rack.

In testimony whereof I hereunto set my hand, in the presence of two subscribing witnesses, this 14th day of March, A. D. 1901.

FARNUM F. DORSEY.

Witnesses:

JOSIAH DEARBORN,

JAMES HAMILTON.