

No. 715,411.

Patented Dec. 9, 1902.

C. E. NEAL.
RUNNING GEAR FOR AUTOMOBILES.

(Application filed Dec. 24, 1901.)

(No Model.)

Fig. 1.

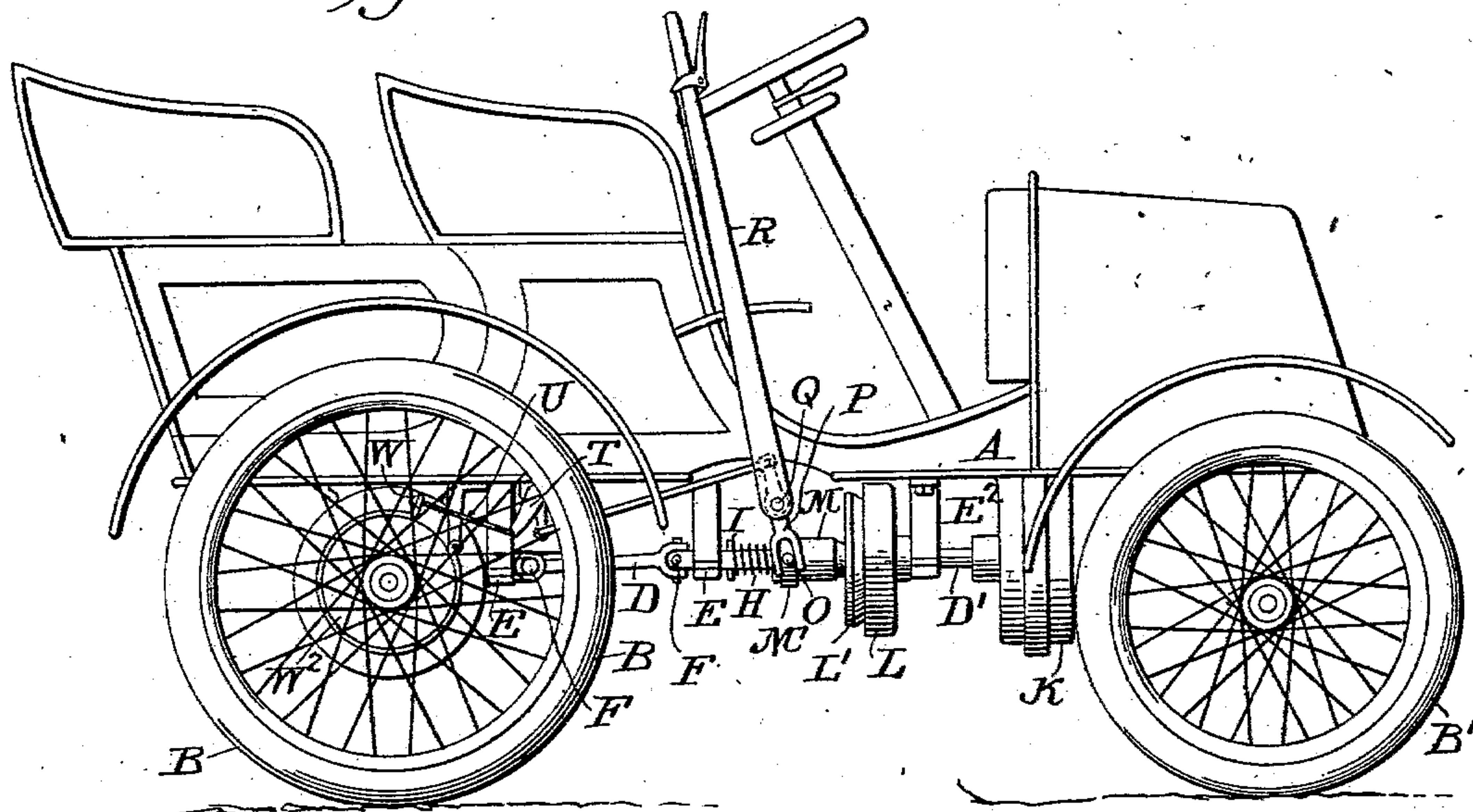
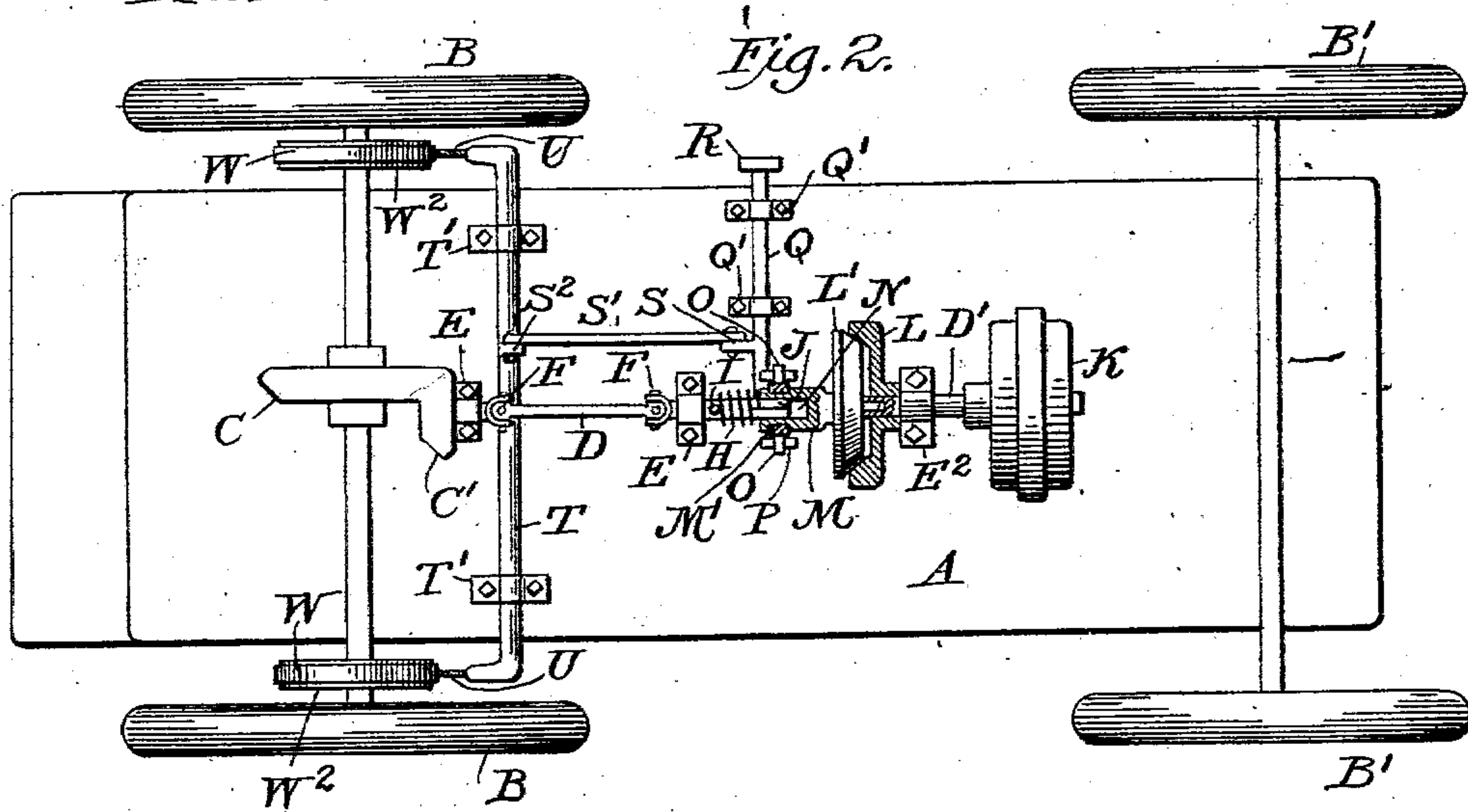


Fig. 2.



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RUNNING-GEAR FOR AUTOMOBILES.

SPECIFICATION forming part of Letters Patent No. 715,411, dated December 9, 1902.

Application filed December 24, 1901. Serial No. 87,117. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ELLSWORTH NEAL, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Running-Gear for Automobiles, of which the following is a specification.

My invention relates to means for throwing the driving-motor into or out of connection with the gearing which causes the revolution of the wheels of automobiles and to at the same time release or apply the brakes thereof and to simplify the running-gear; and to this end my invention consists in certain elements and combinations, fully specified and claimed hereinafter.

In order that those skilled in the art to which my invention appertains may understand, construct, and use my invention, I will proceed to describe it, referring to the drawings herewith, in which—

Figure 1 is a side elevation of my invention, showing the machinery coupled to the driving-motor through a friction-clutch and showing the brakes released. Fig. 2 is a bottom view of same, showing a part-sectional view of the friction-clutch.

A is the bottom of the automobile-frame. B represents the rear driving-wheels, connected together by a shaft or axle, as usual, and attached to the frame of the carriage in suitable journals. B' represents the front wheels of the same.

C is a gear located upon the rear axle about centrally thereof.

C' is a gear which meshes into gear C and is secured upon a longitudinal shaft D, held in bearing E E.

F represents universal joints in shaft D, located, as usual, between the bearings E E. On the end of the shaft D, after it passes the inner bearing E, a coil-spring H is wound, backed by a pin I, which passes through shaft D. The inner end of shaft D is square or angular at J for a short distance from its inner end. By "inner" end I mean the end toward the motor.

K is a driving-motor supported under the frame A of the carriage. A shaft D' connects the motor through bearing E' with a friction-clutch mechanism L and L' when in

gear to operate the wheels of the automobile. The part L' of the friction-clutch is located upon the squared or angular end of the shaft D through a sleeve M, which is provided with a central square or angular slot N, which coincides with the square or angular end of shaft D, which enters it. This angular slot is elongated, so that it is permitted to move backward and forward over the angular end J of shaft D, but never leaves it, so that the revolutions of the shaft D' by the motor K causes the shaft D to revolve, and consequently the gears C' C and the wheels B when the clutches L' and L are in frictional conjunction. The coil-spring H bears always against pin I and also against the face of sleeve M. It is now seen that the carriage is driven by the motor through the clutches L and L' and connecting parts, as described. To throw the clutch L and L' out of frictional contact, a lever mechanism is employed as follows: Pins O are located on a collar M', which sets into a groove in sleeve M, so that sleeve M can revolve freely without moving collar M', and a forked and slotted lever P takes onto said pins O. Forked lever P is attached to a shaft Q, which is located in bearings Q' beneath the frame A. At the outer end of shaft Q an upright lever R is secured, which rises above the frame A and can be grasped and operated by the driver of the carriage back and forth at will, so that the clutch L L' may be thrown in and out of frictional contact, as may be desired, to drive the automobile forward or to stop its motion. In the act of throwing the part L' out of contact with the part L the spring H is compressed and in throwing the parts L' and L together again the spring H acts to throw them together forcibly and quickly. On shaft Q near its inner end a lever S is fixed, projecting upward above the said shaft, and an arm S' connects it to a lever S², fixed to a pipe T, located in bearings T' T', and runs crosswise of the frame A of the carriage. The outer ends of this pipe are bent downward, so that a cord which passes through pipe T and connects with brake-bands W, wound upon brake-wheels W² and secured upon the axle to wheels B, will tighten and loosen said bands W by the forward or backward throw of lever R at the same time that

it operates the said clutch mechanism. The result is that when the clutch is thrown out of gear and the motor disconnected with the shaft D and its several connections the brake
 5 mechanism is applied at the same time and by the same motion. Thus the operator or driver is enabled to check the speed of his machine quickly and with one lever motion and also to throw the parts into gear again
 10 quickly and surely. The advantage of this operation will be readily apparent to all who have used the clumsy and complicated mechanisms at present in use and appreciate the simplicity of my present invention.

15 Having now fully described my invention and the manner in which I have embodied it, what I claim as new and as my invention, and desire to secure by Letters Patent, is—

In a running-gear mechanism for auto-
 20 mobiles, the combination consisting of a motor K; motor-shaft D'; clutch member L; bearing E²; supported beneath the mobile-frame; shaft D; bearing E E; universal joints F F; clutch member L'; constructed
 25 to move back and forth on shaft D, through sleeve M, and to revolve with said shaft D; coil-spring H, on shaft D, operating against

bearing E, and sleeve M, to throw the clutch member L', into operative connection with member L on shaft D'; gear C'; on shaft D, 30 and gear C, on axle-carrying wheels B; mechanism substantially as specified, for operating the friction-clutch, consisting of lever R, mounted upon shaft Q, running crosswise beneath the automobile-frame, and supported 35 in bearings Q'; forked lever P, located on shaft Q, at its outer end; sleeve M; collar M'; and pins O; mechanism for operating brakes, consisting of lever S, on shaft Q, arm S', and lever S², on pipe T; pipe T operating 40 in bearings T' T' crosswise of the automobile-frame A, and supported beneath it, and arranged to operate brake-bands W, on wheels B, by means of a connecting-cord; all constructed, arranged and combined to operate 45 substantially as and for the purposes hereinbefore specified.

Signed at New York, in the county of New York and State of New York, this 2d day of December, A. D. 1901.

CHARLES ELLSWORTH NEAL.

Witnesses:

CHARLES W. LAW,
 JAMES M. HICKS.