

No. 743,514.

PATENTED NOV. 10, 1903.

C. JENATZY, FILS.
MAGNETIC CLUTCH.

APPLICATION FILED JUNE 27, 1903.

NO MODEL.

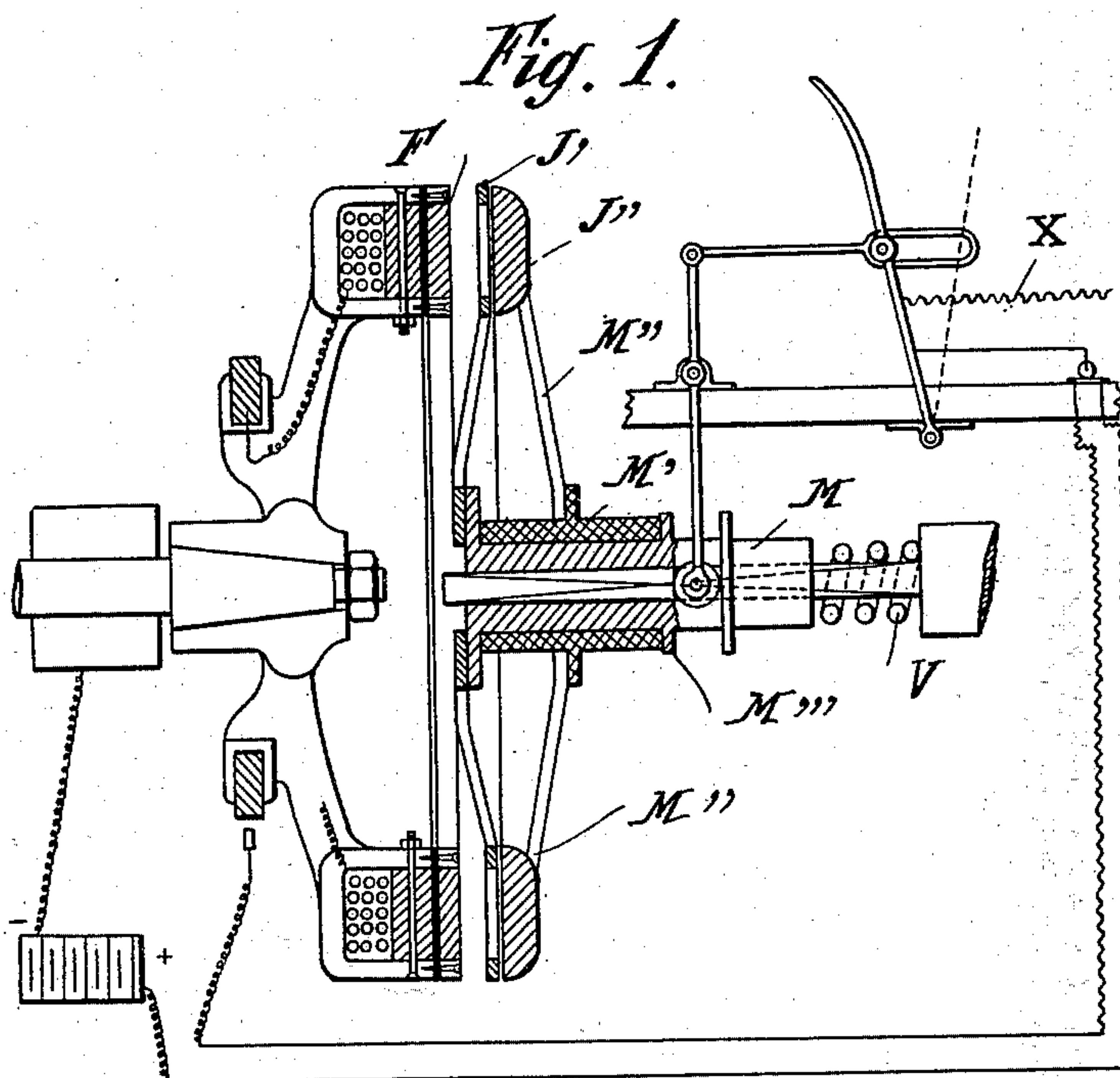
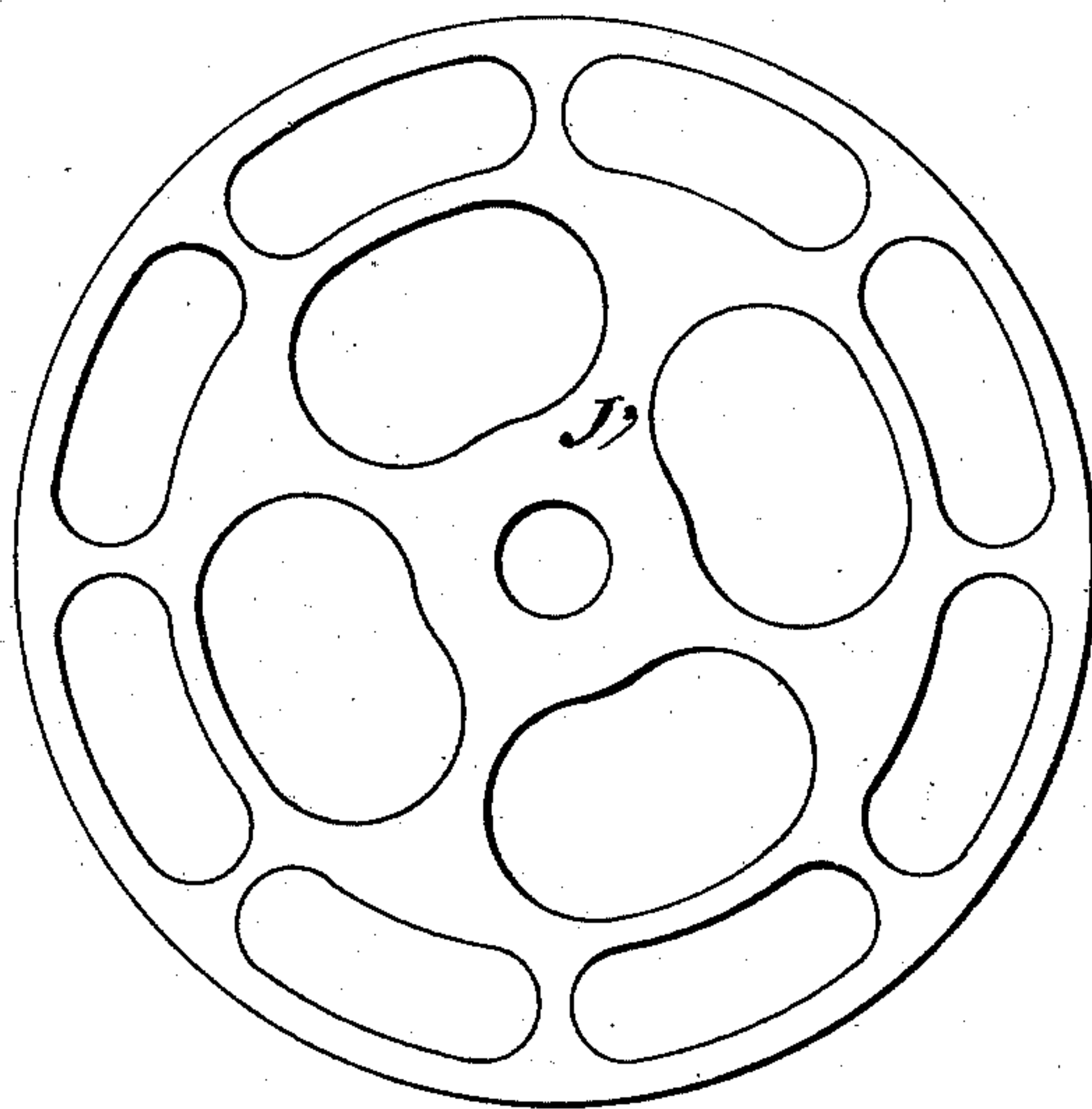


Fig. 2.



Witnesses:

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CAMILLE JENATZY, FILS, OF BRUSSELS, BELGIUM.

MAGNETIC CLUTCH.

SPECIFICATION forming part of Letters Patent No. 743,514, dated November 10, 1903.

Application filed June 27, 1903. Serial No. 163,309. (No model.)

To all whom it may concern:

Be it known that I, CAMILLE JENATZY, Fils, engineer, a subject of the King of the Belgians, residing at 222 Rue du Progrés, Brussels, in the Kingdom of Belgium, have invented certain new and useful Improvements in Magnetic Clutches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel magnetic clutch in which the prejudicial effect of the inertia of the clutch-plate during the speed-changing operation is absolutely obviated, while at the same time far more gradual starting is rendered possible. With this object the fly-wheel of the clutch remains exactly the same as in my patent dated July 7, 1903, No. 732,943, but with the interposition of anti-friction metal cast between the concentric rings F to the level of the rings themselves in order to prevent during sliding the gripping of the driving-plate.

In the accompanying drawings, Figure 1 is a longitudinal section of the apparatus, and Fig. 2 is an end view of portion of the apparatus shown in Fig. 1.

The sleeve M, formed with a square hole, carries a driving-plate J', completely hollowed out and bolted upon the said sleeve M. (See Fig. 2.) This driving-plate J' is hollowed in such a manner that those portions of it which are circularly solid or continuous bear upon the flanks of the concentric rings F. This method of construction permits of lightening the said driving-plate J' within very wide limits. A second auxiliary plate J'', completing the section necessary for the magnetic field, is mounted by the intermediary of elastic arms M'' upon a sleeve M', rotating with easy friction or in any other suitable manner upon the sleeve M, provided with a square hole.

The auxiliary plate J'' by the intermediary of its elastic arms is arranged in such a manner that the said plate when released remains automatically at a longitudinal distance of one-half millimeter from the driving-plate J',

owing to the elastic action of its arms. The position of the sleeve M' in the longitudinal direction is limited by stops M''', provided on the sleeve M.

Assuming, as shown in Fig. 1, that disengagement has been completely effected—that is to say, that the pedal is at the extremity of its stroke—the driving-plate separated from the fly-wheel and also automatically separated from the auxiliary plate owing to the elasticity of the arms M'' of this latter, if the pedal is permitted to return, the driving-plate, owing to the spring U, will come into contact with the lips of the fly-wheel, and at this moment the auxiliary plate will have followed it in its travel, while still leaving between the two the interval of one-half millimeter or such other interval as may be considered most suitable. The continuation of the retrograde movement of the pedal will close the circuit with all the resistances of the rheostat interposed. At this moment, owing to the small strength of the field established and to the insufficient section of the driving-plate, starting will be effected with a large amount of slipping, and consequently very gradually. The continuation of the retrograde movement of the pedal will correspond with the successive short-circuiting of the resistances still interposed. In the course of this short-circuiting and at the moment at which the field attains a sufficient value for overcoming the elasticity of the arms of the auxiliary plate J'' this latter will by attraction become applied against the driving-plate J', and will thus complete the magnetic section indispensable for the total driving. It then only remains to permit the pedal acted upon by the spring V to complete its retrograde movement, thus causing the short-circuiting of all the resistances, and consequently complete engagement.

In the case of a change of speed the driver will begin by pressing upon the pedal to interrupt the current. At this moment the auxiliary plate J'' under the influence of the elasticity of its arms will separate from the driving-plate J' by the amount provided for at the time of mounting the mechanism, and owing to the fact that it is independent upon the sleeve M its inertia will no longer exercise any effect upon the driving-plate, and

owing to the extreme lightness of this latter the change of speed will be produced under the most favorable conditions.

Having now particularly described and as-
5 certain the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a magnetic clutch a magnetic fly-wheel provided with a friction-surface con-
10 stituted by the combination of antifriction metal and steel for preventing gripping of the plates during sliding action and heating of the parts in frictional contact.

2. In a magnetic clutch, a driving-plate hol-
15 lowed out to the fullest extent and of which the circularly solid or continuous portions are superposed upon the steel lips of the magnetic fly-wheel, the driving-plate being rigid with the clutch-sleeve and consequently with
20 the speed-change shaft or any other transmission part of a vehicle or of a mechanism of any kind.

3. In a magnetic clutch an auxiliary plate,

adapted to complete the magnetic section of the driving-plate, supported by arms elastic 25 longitudinally, which are themselves fixed to a hub capable of rotating freely upon the clutch-sleeve, upon which sleeve the longitudinal position of the hub of the auxiliary plate is determined by stops, the said plate when 30 released remaining automatically, owing to the elasticity of its arm, at a given distance so that the *vis viva* of the auxiliary plate no longer affects the driving-plate.

4. In a magnetic clutch, an auxiliary plate 35 automatically separable from the driving-plate, whereby the latter is freed from the influences of the *vis viva* of said auxiliary plate during the disengaging operation.

In testimony that I claim the foregoing as 40 my invention I have signed my name in presence of two subscribing witnesses.

CAMILLE JENATZY, FILS.

Witnesses:

GREGORY PHELAN,

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