

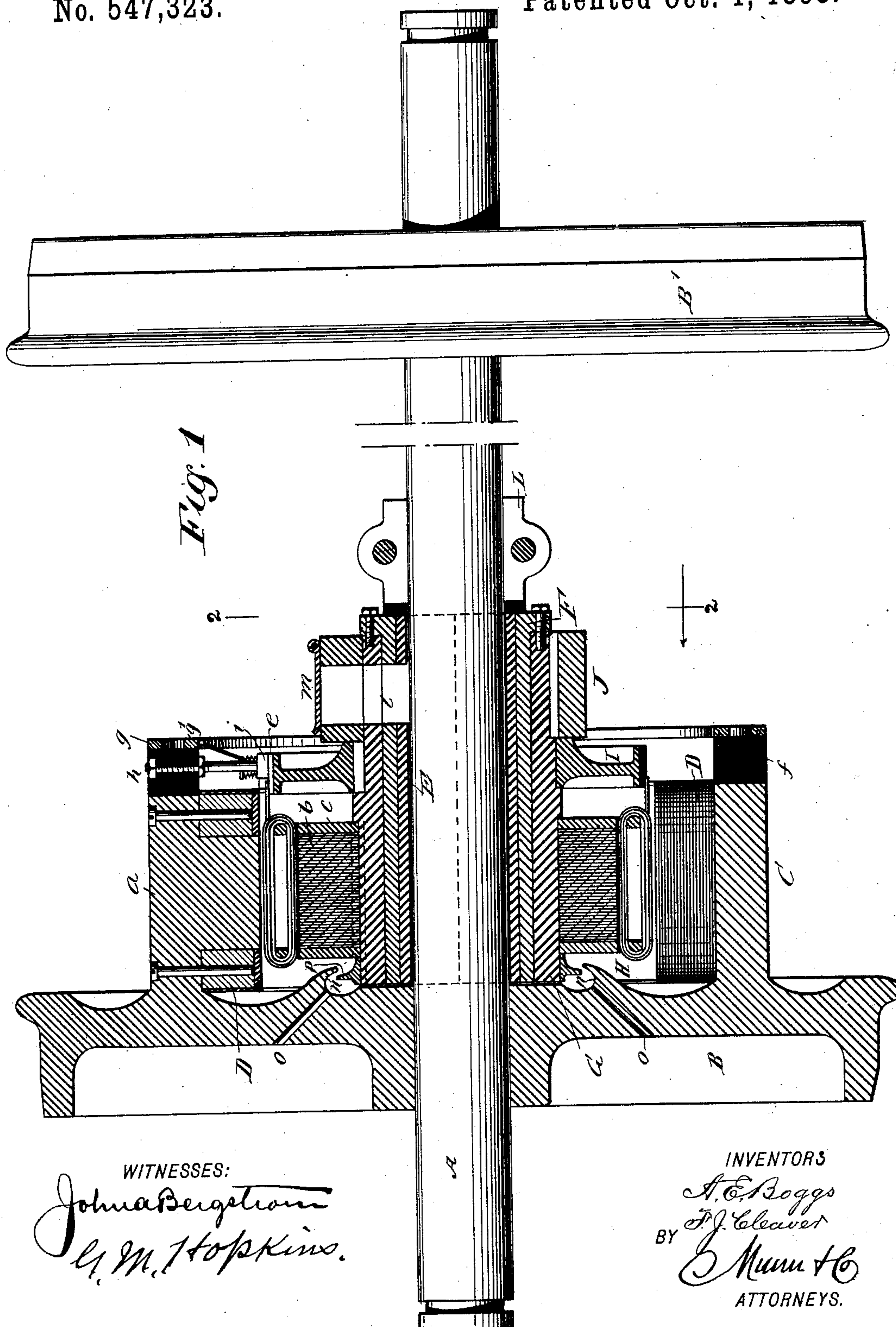
(No Model.)

2 Sheets—Sheet 1.

A. E. BOGGS & F. J. CLEAVER.
ELECTRIC MOTOR.

No. 547,323.

Patented Oct. 1, 1895.



WITNESSES:

John Bergstrom
L. M. Hopkins.

INVENTORS

A. E. Boggs
F. J. Cleaver
BY *E. Munn & Co.*
ATTORNEYS.

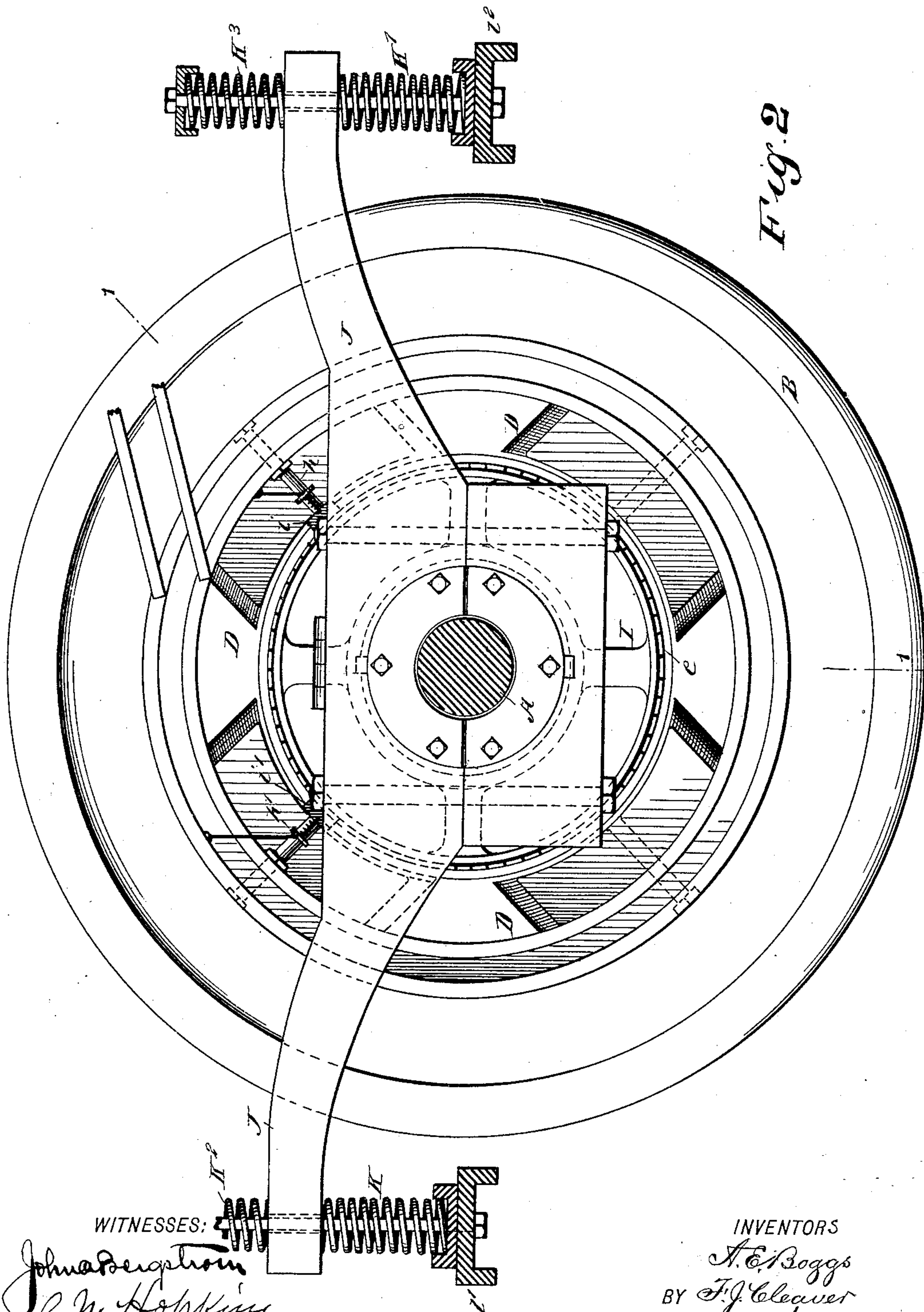
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UNITED STATES PATENT OFFICE.

ADDISON E. BOGGS, OF ALLEGHENY, AND FREMONT J. CLEAVER, OF BELTZ-HOOVER, PENNSYLVANIA.

ELECTRIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 547,323, dated October 1, 1895.

Application filed January 4, 1895. Serial No. 533,828. (No model.)

To all whom it may concern:

Be it known that we, ADDISON E. BOGGS, of Allegheny, and FREMONT J. CLEAVER, of Beltz-hoover, county of Allegheny, State of Penn-sylvania, have invented a new and Improved Electric Motor, of which the following is a full, clear, and exact description.

The object of our invention is to construct an electric motor especially adapted for direct connection with the machine to be driven or with line-shafts or car-axles, or for use in connection with gearing or pulleys and belts for diminishing or increasing the speed.

The invention consists in the particular construction and combination of parts, as hereinafter fully described, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both views.

Figure 1 is a side sectional elevation taken on line 1 1 in Fig. 2, and Fig. 2 is a front elevation.

In the present case we shall describe our improved motor as applied to car-driving. The car-axle A is provided with car-wheels B B' of the usual description, except the adaptation of the car-wheel B to receive the movable parts of the motor. In the present case the field-magnet C of the motor is formed integrally with the car-wheel B; but it may with equal advantage be attached to the car-wheel by means of bolts. The field-magnet consists of a cylindrical ring with inwardly-projecting pole-pieces a, upon which are placed magnetizing-coils D. The field-magnet may be wound according to any of the well-known systems, so as to use the motor as a shunt or a series machine.

Upon the car-axle A is placed a metallic sleeve E, which is loosely fitted to the axle, so as to permit the axle to revolve therein. Upon the metallic sleeve E is placed a sleeve F, and upon the sleeve F is mounted the boss G of the armature H. On the boss G are placed annular soft-iron plates b, which are clamped between insulating plates c. The iron plates of insulating material are perforated to permit of passing the winding of the armature H through them, the armature be-

ing by preference constructed according to the Gramme system.

On the boss G is mounted a wheel I, provided with an insulating rim d, on which are mounted commutator-bars e. To each commutator-bar e are attached the terminals of adjacent coils in the usual manner.

To the side of the annular part of the field-magnet C is attached a ring f, of insulating material, to the face of which are secured two metallic rings g g', and in the insulating-ring f are inserted studs h h', carrying spring-pressed commutator-brushes i i', which bear upon the commutator-bars e. The stud h is connected with the ring g' and the stud h' is connected with the ring g. The terminals of the field-magnet are also connected with the rings g g', and the said rings receive current through contact-springs j j', connected with the circuit-wires according to any of the well-known systems.

On the boss G of the armature is clamped and keyed a lever J, the ends of which extend in opposite directions and rest upon spiral springs K K', supported by cross-bars l' l'', belonging to the truck which carries the motor. Springs K² K³ are placed above the ends of the lever J, and a bolt at each end of the lever passes through the springs, the lever, and through the cross-bar to the car-truck. It will thus be seen that each end of the lever J is held between buffer-springs, which allow the armature to turn slightly against a yielding pressure, thus preventing shocks to the armature when the motor is started or stopped. While the armature remains stationary, the field-magnet may revolve and cause the car-wheel to be propelled forward. The sleeve F and parts carried thereby is prevented from slipping on the axle A by a split-collar L. In the sleeves E F in the boss of the armature and in the lever J is formed an opening l for receiving a lubricant, which is retained by the cover m, arranged to shut tightly over the opening l. It is obvious that in some applications it would be preferable to hold the field-magnet and allow the armature to revolve. The car-wheel is provided with a concave rim n with radial passages o leading therefrom for receiving used oil discharged by centrifugal

force from the flange *p* carried by the armature.

Our improved motor is designed to be attached directly to lathes, planers, wood-working machines, line-shafts, blowers, &c., thereby avoiding the necessity of pulleys and belts.

It is obvious that our improvements apply to both motors and dynamos.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

In an electric motor, the combination with a wheel and its axle, of a field magnet secured to one side of the wheel, an armature mounted upon the axle, a commutator wheel mounted

upon the boss of the armature, and having an insulated rim upon which are placed commutator bars, an insulated ring secured to the pole pieces of the field magnet, inwardly extending studs secured to the insulated ring and carrying brushes, and metallic rings secured to the face of the insulated ring and connected with the said studs, substantially as described.

ADDISON E. BOGGS.
FREMONT J. CLEAVER.

Witnesses:

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OLIVER R. MINNEMEYER.