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J. R. MARKLE & J. B. WAYNE.

MECHANISM FOR DRIVING DYNAMO ELECTRIC MACHINES.

No. 293,482. Patented Feb. 12, 1884.

Fig. 1.

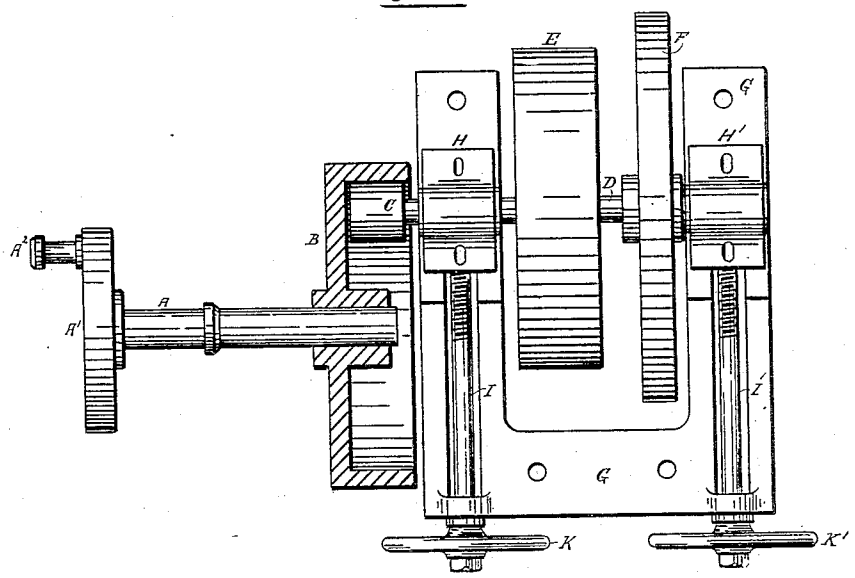
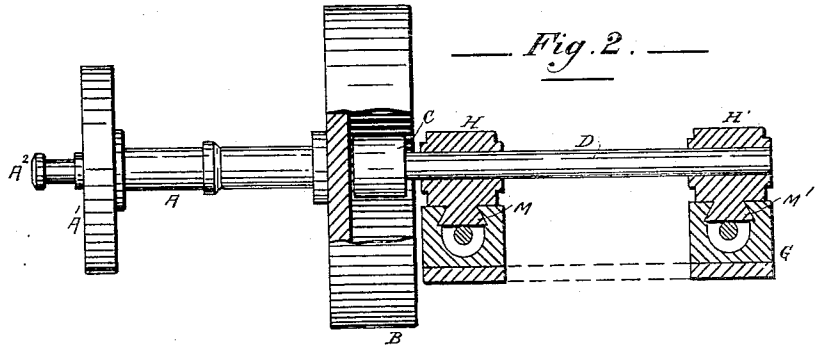


Fig. 2.



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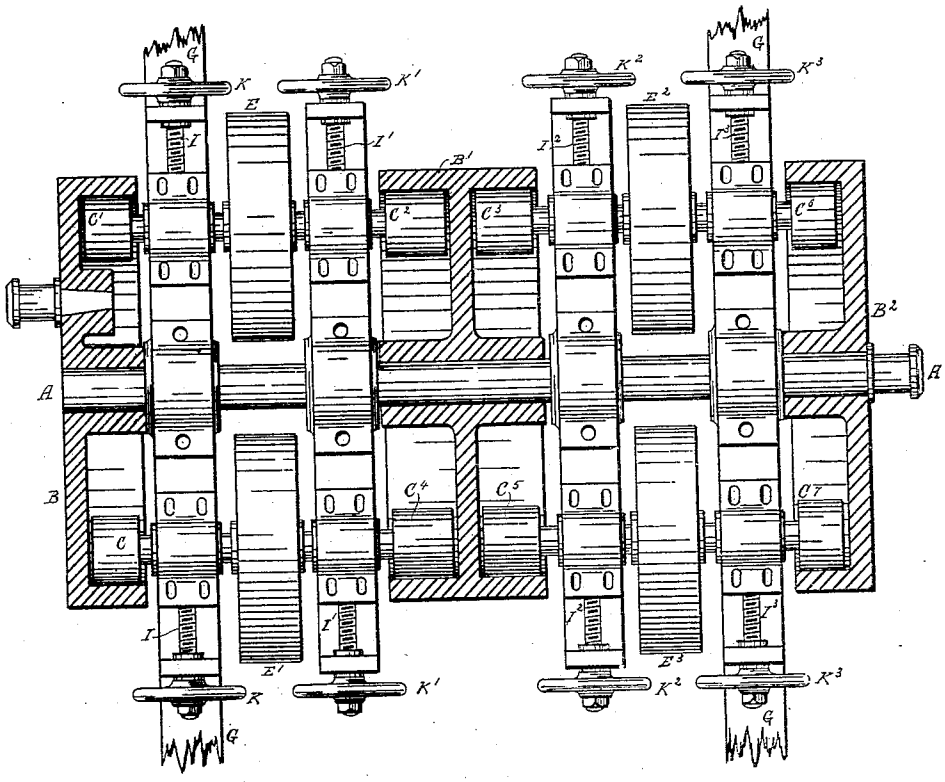
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Fig. 3.



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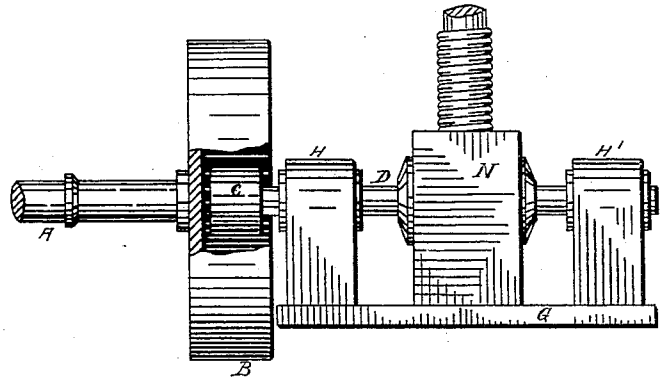
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Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN R. MARKLE, OF CHICAGO, ILLINOIS, AND JAMES B. WAYNE, OF DETROIT, MICHIGAN.

MECHANISM FOR DRIVING DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 293,482, dated February 12, 1884.

Application filed February 10, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. MARKLE, of the city of Chicago, in the county of Cook and State of Illinois, and JAMES B. WAYNE, of the city of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in the Method of Driving Dynamo-Electric Machines, of which the following is a specification.

Figure 1 is a plan view with the friction-pulley in section. Fig. 2 is a front elevation with part of the friction-pulley broken away, the bearings of the counter-shaft in section, and the pulley on the counter-shaft omitted. Fig. 3 is a plan view with the friction-pulleys in section, showing a modification of our invention for use when it is desired to run several counter-shafts or dynamos from one driving-shaft. Fig. 4 is a side elevation of our invention as applied directly to the armature-shaft of a dynamo.

In driving dynamo-electric machines by a reciprocating engine having a fly-wheel on the crank-shaft, the speed of the shaft varies, decreasing as the shaft approaches the dead-centers, and this causes fluctuations in the speed of the armature of the dynamo and variations in the electric current.

Our invention aims to equalize the speed of the armature; and it consists in attaching to the crank-shaft a friction-pulley, which engages with a friction-pinion placed on the armature-shaft, or on a counter-shaft provided with a heavy belt-pulley, when more speed is required than can be obtained by direct connection with the armature-shaft.

A represents the crank-shaft of a reciprocating steam-engine, A′ being the crank, and A^2 a wrist-pin thereon.

B represents a friction-pulley, fastened on shaft A.

D represents a shaft journaled in bearings H H′, which may be a counter-shaft, Figs. 1, 2, 3, or the armature-shaft of a dynamo, Fig. 4, on which is fastened a friction-pinion, C, engaging with friction-pulley B. When shaft D is used as a counter-shaft to obtain speed, we secure on it a belt-pulley, E, from which a belt runs to a smaller pulley on the armature-shaft, and usually a fly-wheel, F, though this may be dispensed with by making the rim of pulley E heavy enough to act as a fly-wheel. When shaft D is the armature-shaft, the armature is generally heavy enough to act as a fly-wheel. Bearings H H′ are set by a dovetail joint, M M′, in a suitable frame, G, and lugs on the lower surface thereof engage with the threaded ends of rods I I′, set rotatably in frame G, and provided with hand-wheels K K′, by which said rods can be rotated, and the position of bearings H H′ changed to regulate the pressure between pulley B and pinion C.

In Fig. 3 is shown an arrangement by which our invention can be arranged to drive four dynamos from a single shaft. The various parts are mere reduplications of the similarly-lettered parts in Figs. 1 and 2, and the operation is too obvious to need description.

By transmitting the power through friction mechanism from the engine to the dynamo, either directly or through the medium of a counter-shaft, and weighting a wheel or pulley on the driven shaft to act as a fly-wheel, we prevent, in a large measure, any variation in speed of the armature, and thus produce a steady current.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination, with the crank-shaft of a reciprocating steam-engine, of a counter-shaft driven from the crank-shaft, and having thereon a fly-wheel, substantially as and for the purposes set forth.

JOHN R. MARKLE.
JAMES B. WAYNE.

Witnesses:
SUMNER COLLINS,
GEO. H. LOTHROP.