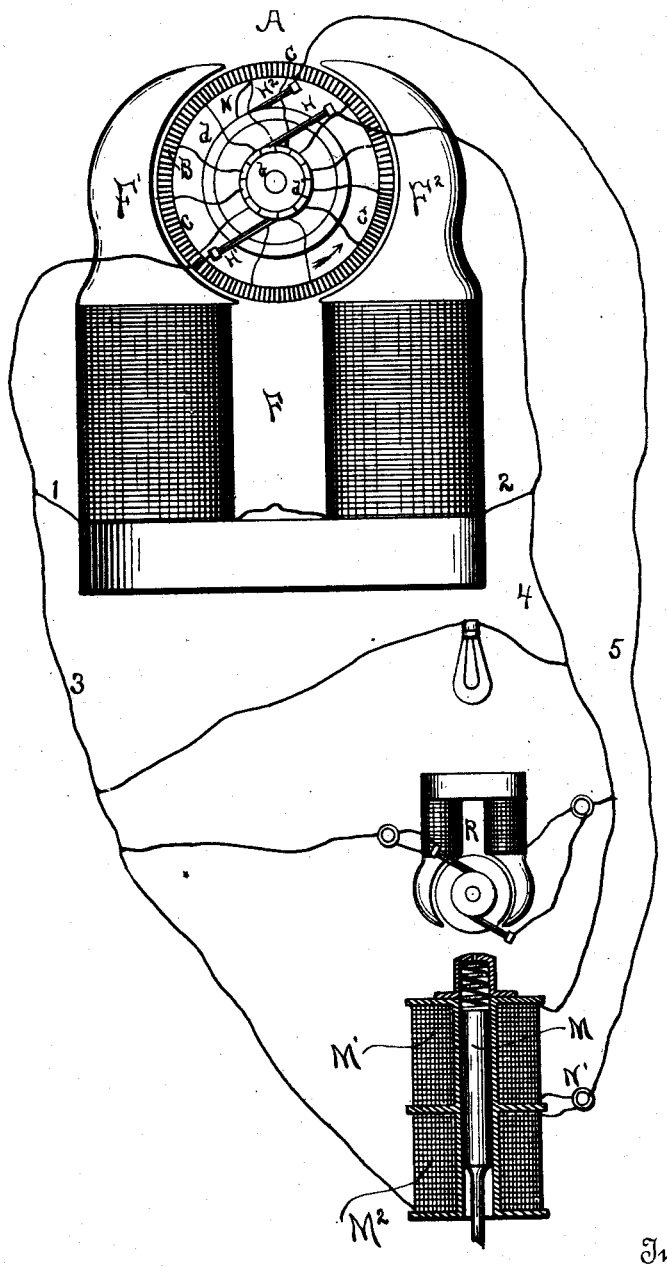
(No Model.)

# H. N. MARVIN.

## ELECTRIC RECIPROCATING TOOL.

No. 420,079. Patented Jan. 28, 1890.




Witnesses
C E Lipe
E. D. Brown

Inventor
H. N. Marvin

# UNITED STATES PATENT OFFICE.

HARRY N. MARVIN, OF SYRACUSE, NEW YORK.

## ELECTRIC RECIPROCATING TOOL.

SPECIFICATION forming part of Letters Patent No. 420,079, dated January 28, 1890.

Application filed April 29, 1889. Serial No. 309,130. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY N. MARVIN, a citizen of the United States, residing in Syracuse, in the county of Onondaga, in the State of New York, have invented certain new and useful Improvements in Electric Reciprocating Tools, of which the following is a specification.

My invention relates to the organization and construction of apparatus for producing reciprocating movements by means of electricity.

The object of my invention is to provide a system for operating a reciprocating engine that shall be simple in construction and operation and adapted to operate on the same set of wires apparatus requiring a continuous current and apparatus requiring pulsatory currents.

My invention is described in detail in connection with the accompanying drawing, which is a diagram showing an end view of the generator and a section of a reciprocating engine operated by pulsatory currents from the generator and an end view of a motor and a section of a lamp operated by continuous current from the generator.

Referring to the figure, A represents a generator of electric currents. This generator here represented consists of a field-magnet F, provided with two poles F′ and F². The armature B is carried on the shaft *b* and is driven in any suitable well-known manner. The armature is shown here as a Gramme ring wound in the usual manner; but any similar closed-coil armature might be used. The sections of the coil C of the armature are connected to a commutator *d*′, made up of insulated sections in the usual well-known manner and provided, as usual, with two brushes H and H′. The connecting-wire of one section, as N, is also connected to a continuous contact-ring *d*, provided with a brush H², at all times in contact with it. Conductors lead from all three brushes. A reciprocating engine, to be operated by this generator, is shown, consisting of a movable core M, traveling within two solenoids M′ and M². The brush H′ is connected by conductor 3, through the coil M², to the bending-post N′. The brush H is connected by conductor 4, through the coil M′, to the post N′. The brush H² is connected, through the conductor 5, to the post N′.

The action is as follows: Suppose the armature to be revolving in the direction shown by the arrow, and suppose it to be in the position shown with the section with which the contact-ring *d* is connected under the brush H. Then it is obvious that a current of maximum intensity will flow from the brush H′, through the coil M², to the post N′, and then by conductors 4 and 5 to the section now opposite to the section in connection with brush H′. Thus core M is drawn down into the coil M². As the armature revolves and the section N travels around, the current in coil M² diminishes, while an increasing current is developed in coil M′, and when section N has come into immediate connection with brush H′ a maximum current flows through coil M′, while an unappreciable current flows through coil M², and core M is drawn up into M′, &c.

It is evident that if a continuous current-motor R or a lamp L be connected to the conductors 3 and 4 they will be supplied with a continuous current from the brushes H and H′.

I do not claim in this application the method of or apparatus for operating a reciprocating tool by pulsations of current, however directed through or developed in the coil or coils of such tool, the invention herein being limited to the specific combination or arrangement set forth in the claims.

I claim as my invention—

1. A generator of electric currents, consisting of a field-magnet and an armature revolving in the field of said magnet and carrying a continuous coil of wire wound in sections, a commutator consisting of insulated sections severally connected to the respective sections of the armature-coil, two contact-brushes making contact with said commutator, a collector consisting of a continuous ring connected to one section of the armature-coil, and a brush at all times in contact with said collector, independent circuits connecting the last-named brush with the two first-named brushes, respectively.

2. A generator of electric currents, consisting of a field-magnet and an armature re-

volving in the field of said magnet and carrying a continnous coil of wire wound in sections, a commutator consisting of insulated sections severally connected to the respective sections of the armature-coil, two contact-brushes making contact with said commutator, a collector consisting of a continuous ring connected to one section of the armature-coil, and a brush at all times in contact with said collector, conducting-wires leading from the two first-named brushes, two solenoids or electro-magnets respectively connected in said conductors, and a conductor leading therefrom to the last-named contact-brush.

3. The combination, in a system of distribution comprising three line or working conductors, of a source of current of constant difference of potential in the circuit formed by two of said conductors, a source of pulsating or currents of variable difference of potential, and means for directing alternately the pulsations of current therefrom through the circuits formed by the third conductor and each of the other two, as herein set forth.

HARRY N. MARVIN.

Witnesses:
G. N. TACKABURY,
G. W. TACKABURY.