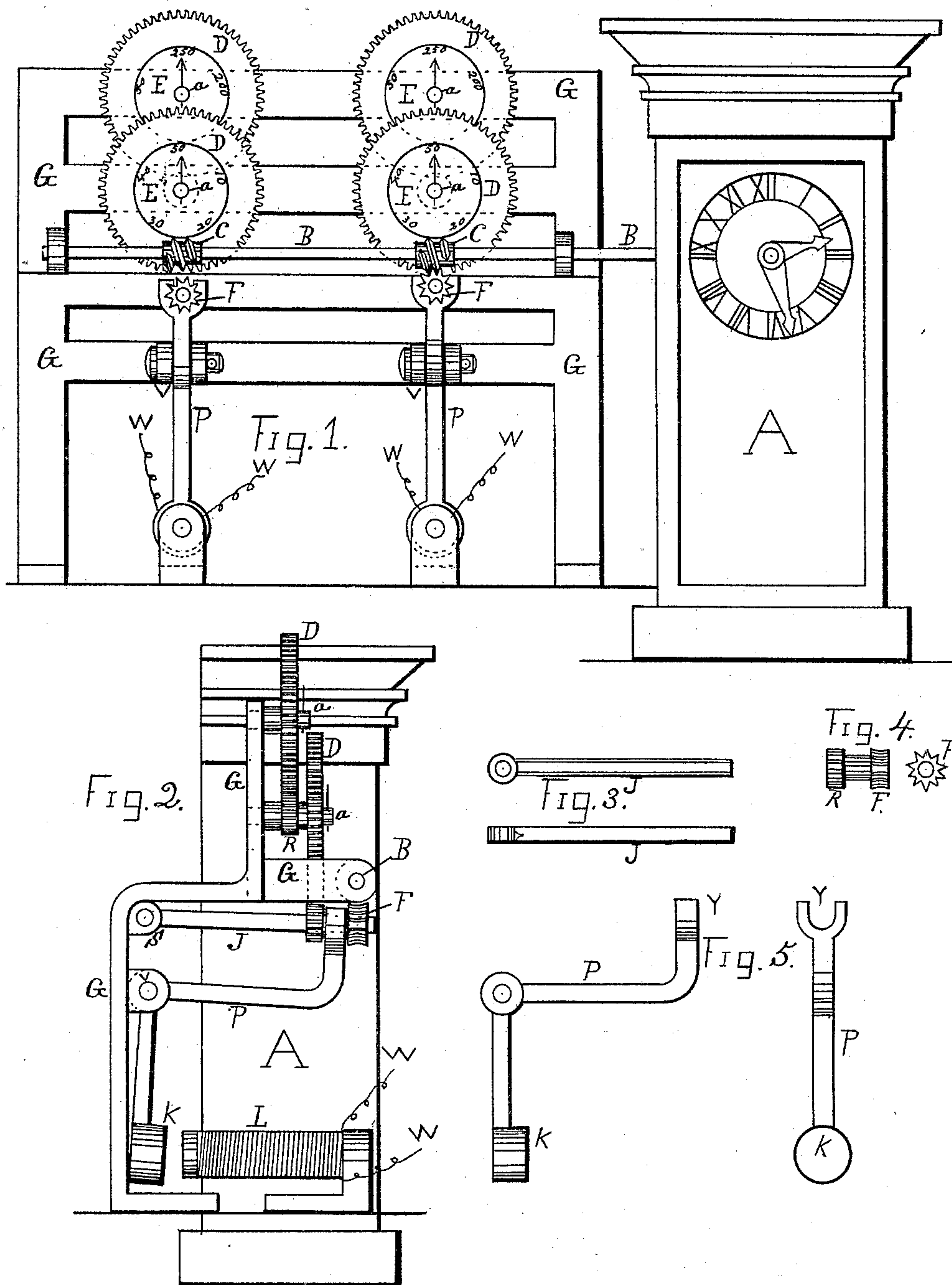


(No Model.)

W. McKINNEY.
ELECTRIC METER.

No. 424,338.

Patented Mar. 25, 1890.



WITNESSES.
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UNITED STATES PATENT OFFICE.

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ELECTRIC METER.

SPECIFICATION forming part of Letters Patent No. 424,338, dated March 25, 1890.

Application filed August 19, 1889. Serial No. 321,285. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MCKINNEY, a citizen of the United States, residing at Philadelphia, (Schuylkill Falls,) in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Meters, of which the following is a specification.

My improvement consists in the combination of a clock-work movement with an automatic and electrically operated stop and starting device for operating one or more registering-dials to record the time a current of electricity is flowing over the wire that controls the registering device, as is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of my improvement. Fig. 2 is an end view. Fig. 3 is a side and plan view of the pivoted stud. Fig. 4 is a side and front view of the worm-wheel and small pinion. Fig. 5 is a side and front view of the right-angle lever and armature.

Similar letters of reference refer to similar parts.

The construction and operation of my invention are as follows:

A represents a clock, which may have a pendulum and weight movement; or it may have a lever and spring movement.

B is a shaft in line and at right angle to the clock-hand spindle. This shaft B is operated by means of a pair of miter-wheels. One is placed on the hour-spindle of the clock and one on the shaft B.

C C are worms fixed on the shaft B.

G is a metallic frame supporting the shaft B, registering-dials, studs J, and levers P.

The registering-dials E are stamped on the plate-wheel D. These wheels and dials are mounted on studs *a a*, riveted in the frame G. J is a stud pivoted in the jaw S. (See Fig. 2.)

P is a right-angle lever. One of the arms has a jaw Y. To the other arm is an armature K. This lever is pivoted in the jaw V.

F is a small worm-wheel, to which is fixed a small pinion R. This worm-wheel and pinion are fitted loosely on the end of stud J. The sleeve between the wheel and pinion fits loose in the jaw Y of lever P.

L is an electro-magnet.

W W are the electric wires.

The operation is as follows: The clock A is supposed to be kept continually running, which gives one revolution each hour to the shaft B and worms C. The wires W W are a part of the circuit the electricity is passing, which is to be registered; or the wires W W may form a "shunt" of that circuit. When the wires W W are charged by the flowing electricity the magnet L will draw the armature K, and by the right-angle lever P the worm-wheel F will be geared into the worm C, and the pinion R will be geared into the wheel D and move the dial which is stamped on the face of the wheel D. The pointer is fixed in the stud *a*. The dial revolves and the pointer is stationary. Two or more wheels D with dials may be operated by one worm and worm-wheel. When the current is cut off, the magnet and armature will separate, and the worm C and wheel F will be ungeared and the dials E stop registering, and as the current is turned on the dials will register again and as long as the current flows.

The drawings show one shaft, two worms, and two sets of registering-dials; but it is obvious that more wheels and registering-dials may be operated from one shaft; and it is also obvious that one clock may operate more than one shaft, thus making one clock furnish the movements for such number of registering-dials as may be desired for one place or station, using a number of lights, and furnishing a registering device for each light to register the time each light is in use.

What I claim as my invention, and desire to secure by Letters Patent, is—

In an electric meter, the combination of a clock-work movement, an operating-shaft, a series of worms, a series of worm-wheels, registering-dials, and right-angle levers, and a series of armatures and electro-magnets so arranged that when the circuit of any magnet is closed or opened the worm and worm-wheels connected therewith will be geared or ungeared, so as to register the time a current of electricity has been flowing, as shown and described.

WM. MCKINNEY.

Witnesses:

JOHN SHINN,

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