A. JABS.

ELECTRIC PENDULUM CLOCK.

APPLICATION FILED OCT. 16, 1912.

1,132,012. Patented Mar. 16, 1915.

Fig. 1

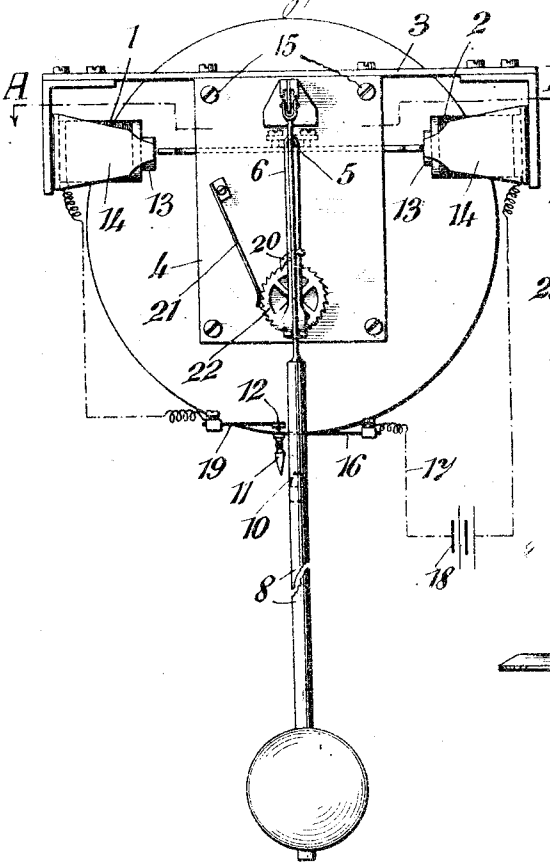
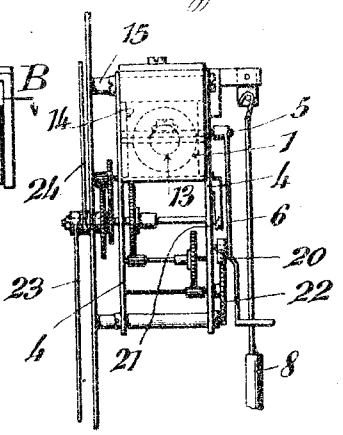


Fig. 2



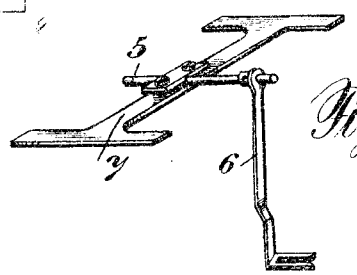


Fig. 4

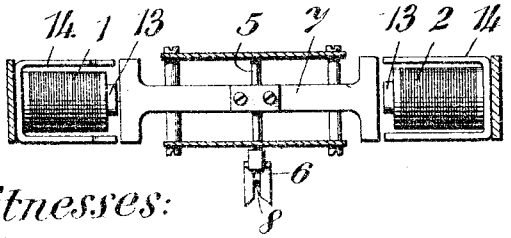


Fig. 3

Witnesses:

F. Dommers

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UNITED STATES PATENT OFFICE.

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ELECTRIC PENDULUM CLOCK.

1,132,012. Specification of Letters Patent. **Patented Mar. 16, 1915.**

Application filed October 16, 1912. Serial No. 726,154.

To all whom it may concern:

Be it known that I, ASMUS JABS, a subject of the Emperor of Germany, and a resident of Zurich, Switzerland, have invented new and useful Improvements in Electric Pendulum Clocks; 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 or figures of reference marked thereon, which form a part of this specification.

It has hitherto been proposed to regulate by magnetism the deflection of the pendulums of electric pendulum-clocks. This is performed by means of the known so called Hipp's contact, which at too short oscillations of the pendulum places electromagnets in circuit, whereby an armature is moved which by its motion imparts a new impulse to the pendulum.

In the improved device according to this invention the armature is fixedly connected to the forked pendulum crutch and the electromagnets are disposed so that the armature passes by its oscillation the front sides of the electromagnets so that the axes of the electromagnet cores coincide with the longitudinal central plane of the armature when the latter is in its position of rest. By this construction a reliable arrangement of the armature is obtained with regard to the electromagnets and there is made use of the electromagnetic force at the most suitable point, because the end surfaces of the armature oscillate in the most intensive magnetic field. In consequence thereof thin and light armatures can be used so that a more sensible regulation results.

In the accompanying drawing the invention is illustrated by way of example.

Figure 1 is a rear elevation of the device. Fig. 2 is a side elevation of the same. Fig. 3 is a section on line A—B of Fig. 1. Fig. 4 is a perspective view showing the armature and the forked pendulum crutch.

1 and 2 designate two electromagnets, the cores 13 and pole-shoes 14 of which are connected to each other by a frame 3. The frame 3 is screwed on bolts 15 which connect the plates 4 to each other. The forked pendulum crutch 6 is secured to the axle 5 which is mounted to turn in the plates 4 (Fig. 4). On the axle 5 there is also rigidly mounted an armature 7 formed as a double-armed lever. By this means the armature 7 is rigidly connected to the crutch 6. By the oscillation of the crutch 6 by the pendulum 8 the armature oscillates in front of the electromagnet cores 13. The axes of the electromagnet cores 13 are disposed in the longitudinal central plane of the armature 7 if the latter is in its position of rest shown in Fig. 1. The armature 7 is stamped from thin sheet-iron. To the rod of the pendulum 8 there is secured the known block 10 which is provided with a groove on the top. The pin 11 is pivotally connected to the spring 16 and forms one contact of the leads 17, which contain the battery 18 and conduct to the electromagnet winding.

19 designates the other contact spring which carries the contact 12.

The parts 19, 16, 11 and 10 form the known so called Hipp's contact. In consequence of too small a deflection of the pendulum the pin 11 suspended free to turn rests in the groove of block 10 the circuit is closed between both springs 16 and 19. By this means the electromagnets are excited, by the magnetism an impulse is imparted to the armature and thus the pendulum 8 is impelled once again. The crutch 6 carries a pawl 20 which intermittingly turns a ratchet wheel 22 stopped by a spring 21, from which ratchet wheel the hands 23 and 24 are turned by means of toothed wheels and pinions.

I claim:

1. In electric pendulum clocks, two electromagnets in axial alinement, an armature arranged to swing between said magnets with its longitudinal axis substantially in a plane passing through the longitudinal axes of the magnets.

2. In electric pendulum clocks, two electromagnets in substantially axial alinement, an armature arranged to swing between said magnets with its longitudinal axis in a plane substantially through the longitudinal axes of the magnets, and a fixed pendulum crutch rigidly connected to the armature.

3. In electric pendulum clocks, two electromagnets in axial alinement, an armature arranged to swing between them with its longitudinal axis in a plane passing through the axes of the magnets, a pendulum in oper-

ative reaction to said armature, and means to energize the magnets when the pendulum deflection becomes small.

4. In electric pendulum clocks, two axially alined horizontal magnets, an armature to swing between them whose longitudinal axis moves in a plane substantially through the longitudinal axes of the magnets, an axle rigidly secured to the armature, and a forked pendulum crutch rigidly secured to said axle, substantially as described.

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

ASMUS JABS.

Witnesses:
JOH. KNOBEL,
CARL GUBLER.