

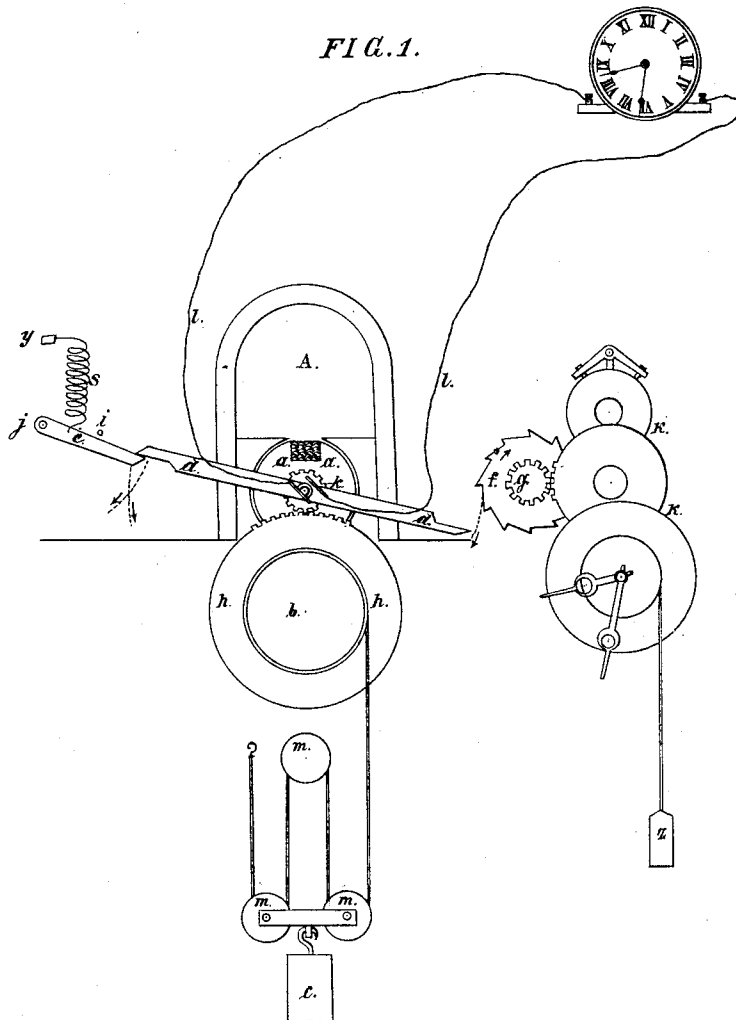
(No Model.)

4 Sheets—Sheet 1.

N. PROKHOROFF.
ELECTRIC CENTRAL CLOCK.

No. 481,916.

Patented Aug. 30, 1892.



Witnesses

H. A. Lundy

Geo. H. Whitney

Inventor

By NICOLAUS PROKHOROFF

[Signature]
Atty.

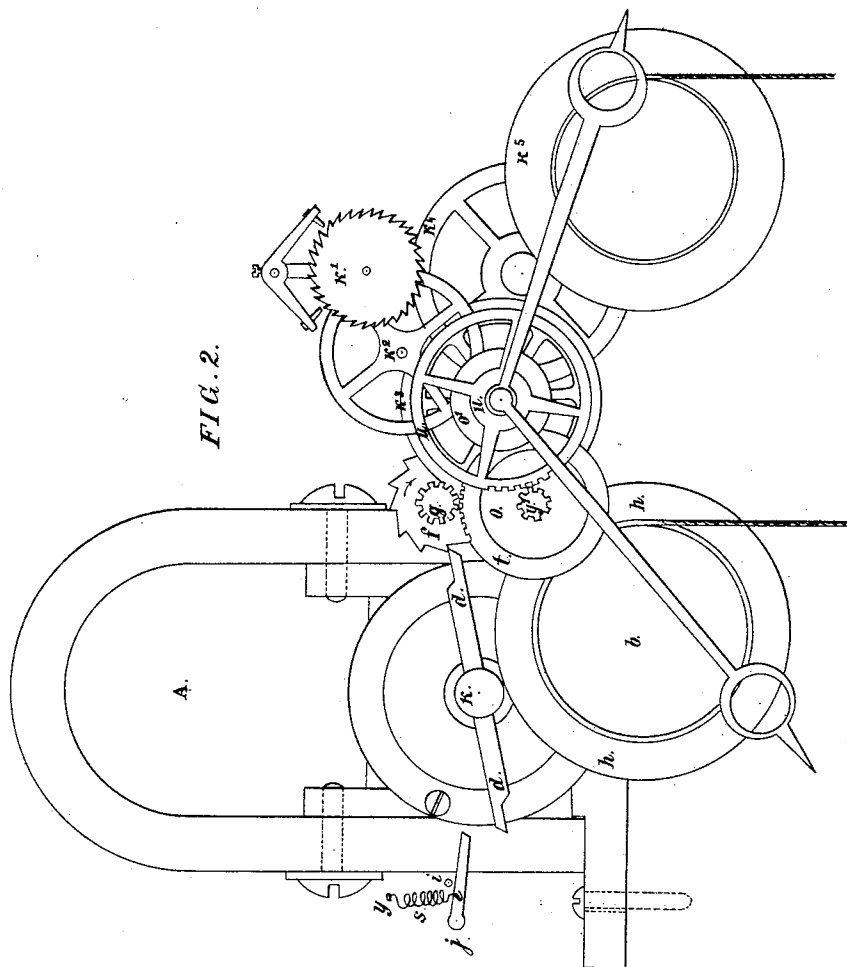
(No Model.)

4 Sheets—Sheet 2.

N. PROKHOROFF.
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Patented Aug. 30, 1892.



Witnesses
H. F. Lamm
Geo. W. Whitney

Inventor
By *NICOLAUS PROKHOROFF*

M. L. Ewing
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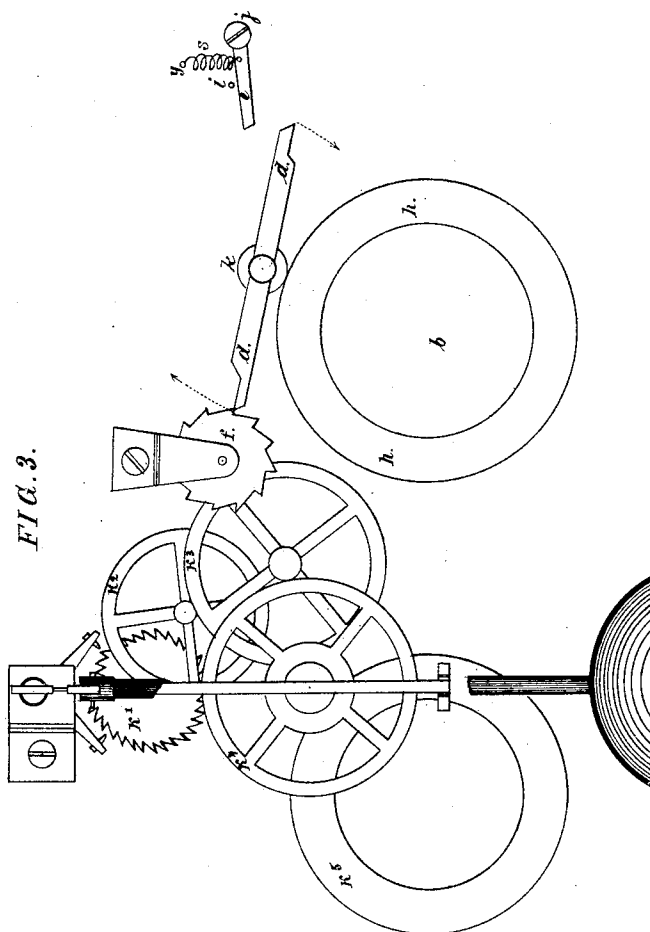
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4 Sheets—Sheet 3.

N. PROKHOROFF.
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Patented Aug. 30, 1892.



Witnesses

H. A. Lamb,
Geo. W. Whitney.

Inventor

By NICOLAUS PROKHOROFF

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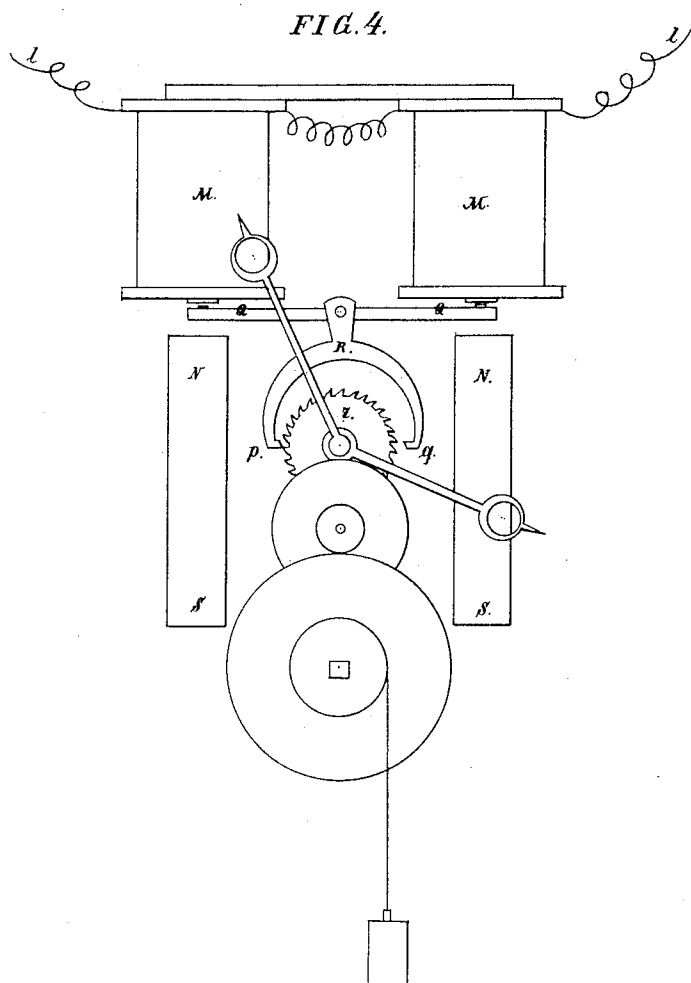
(No Model.)

4 Sheets—Sheet 4.

N. PROKHOROFF.
ELECTRIC CENTRAL CLOCK.

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Witnesses

H. A. Lamb

Geo. W. Whitney

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UNITED STATES PATENT OFFICE.

NICOLAUS PROKHOROFF, OF KIEV, RUSSIA, ASSIGNOR OF ONE-HALF TO
NICOLAUS FAHLBERG, OF SAME PLACE.

ELECTRIC CENTRAL CLOCK.

SPECIFICATION forming part of Letters Patent No. 481,916, dated August 30, 1892.

Application filed September 4, 1891. Serial No. 404,756. (No model.) Patented in Germany March 27, 1890, No. 56,652; in Belgium October 28, 1890, No. 92,510; in France November 3, 1890, No. 209,254, and in England November 22, 1890, No. 18,993.

To all whom it may concern:

Be it known that I, NICOLAUS PROKHOROFF, a subject of the Emperor of Russia, residing at Kiev, in the Empire of Russia, have invented Improvements in Electric Central Clocks, (patented in Great Britain, No. 18,993, dated November 22, 1890; in Belgium, No. 92,510, dated October 28, 1890; in Germany, No. 56,652, dated March 27, 1890, and in France, No. 209,254, dated November 3, 1890,) of which the following is a specification.

My invention relates to electric clocks in which a primary clock controls the secondary clocks through the medium of an induction-current.

In order that my invention may be the better understood, I will now describe it in relation to the drawings hereunto annexed, reference being had to the letters marked thereon.

Figure 1 shows diagrammatically the arrangement of the primary clock and an induction mechanism serving to connect the same with the secondary clocks. Fig. 2 shows the primary clock and the induction-regulator in greater detail. Fig. 3 is a rear view with the inductor omitted. Fig. 4 is a view of one of the secondary clocks, showing the device connecting it with the primary clock.

An induction-coil *a a*, mounted between the poles of a steel magnet *A*, is set in rotation by a weight *c*, through the medium of pulleys *m m m*, a drum *b*, and cog-wheels *h k*, so as to generate an induction-current in the circuit *ll*, wherein these secondary clocks are included, the direction of the current being changed every half-revolution of the said coil.

Upon the axis of the induction-coil is fixed a double-armed lever *d d*, recessed at its ends, which participates in the rotary movement of the induction-coil. One end of this lever is turned toward a wheel *f*, which is provided with triangular teeth and belongs to the wheelwork of the primary clock *z K K g*. The aforesaid wheel *f* has twelve teeth and is supposed to make five revolutions an hour, thus advancing one tooth every minute. The lever *d d* is arrested in its rotary movement by one of its ends engaging with the wheel *f*. As

the latter advances one tooth it releases this lever and allows the same to recommence its rotary movement, whereupon the other end of the lever engages with the said wheel. Accordingly the induction-current changes its direction every minute.

In Figs. 2 and 3 the lever *d d* is shown in the position in which it is arrested by the wheel *f*. When the lever *d d*, liberated from the wheel *f*, performs a rotary movement and before half the revolution has been made, the end of the lever leaving the wheel strikes, as in Fig. 1, against a lever *e*, which has its fulcrum at *j* and is suspended from a fixed point *y* by a spiral spring *s*, by which it is normally drawn toward a stop *i*, as in Figs. 2 and 3. Thus an obstacle is presented to the continued rotary movement of the lever *d d* which insures that the extremities of the latter engage with the wheel *f* without any jar or shock. The pin *i* limits the upward throw of the lever *e*.

In Figs. 2 and 3, *k' k² k³ k⁴ k⁵* and *o'o y'* and *u* designate wheels of the clockwork, the wheels last mentioned serving to transmit the movement of the minute-wheel to the hour-wheel in the well-known manner. The wheel *t* makes one revolution an hour, which, by means of the wheel *g*, is transmitted to the wheel *f*, so that the latter performs five revolutions an hour.

Fig. 4 shows a diagram of the device employed in the secondary clocks for establishing their connection with the primary clock. In the circuit *ll* is included an electro-magnet *M M*, opposite which are arranged two magnets *N S*, which polarize the armature *Q*, connected with the pallet *R p q*. By the current changing its direction every minute the two extremities of the armature *Q* are alternately attracted, so that the end *p* and the end *q* of the pallet *R* are caused to engage alternately with the escapement-wheel *r*. It will therefore be seen that the escapement *Q R p q* operates similarly to a pendulum.

In the induction mechanism a spring or other special motor can be employed in lieu of a weight for turning the induction-coil *a a*.

The details of the secondary clocks form no part of this invention, and, apart from said wheel *f* and a suitable electro-magnet escapement, the respective clocks proper may be of any approved make.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with primary and secondary clocks having, respectively, a toothed wheel *f* and a suitable electro-magnetic escapement, of an induction mechanism comprising an intermittingly-revolving induction-coil and a double-armed lever, the latter revolving in unison with said coil and coacting with said toothed wheel, and an electric circuit connecting said induction-coil and said electro-magnetic escapement, substantially as hereinbefore specified.

2. In combination with the intermittingly-revolving double-armed lever *d* and toothed wheel *f*, the spring-suspended lever *e*, which coacts with and arrests or partially arrests said lever *d* before it has performed half a revolution for the purpose of causing the respective ends of said lever *d* to engage alternately with said toothed wheel *f* without any jar or shock, substantially as hereinbefore specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NICOLAUS PROKHOROFF.

Witnesses:

M. W. RHODE,

Clerk.

PAUL PROKHOROFF.