(No Model.)

G. CORNELL.

ELECTRIC TIME SIGNAL FOR RAILWAYS.

No. 332,496. Patented Dec. 15, 1885.

Fig. 1

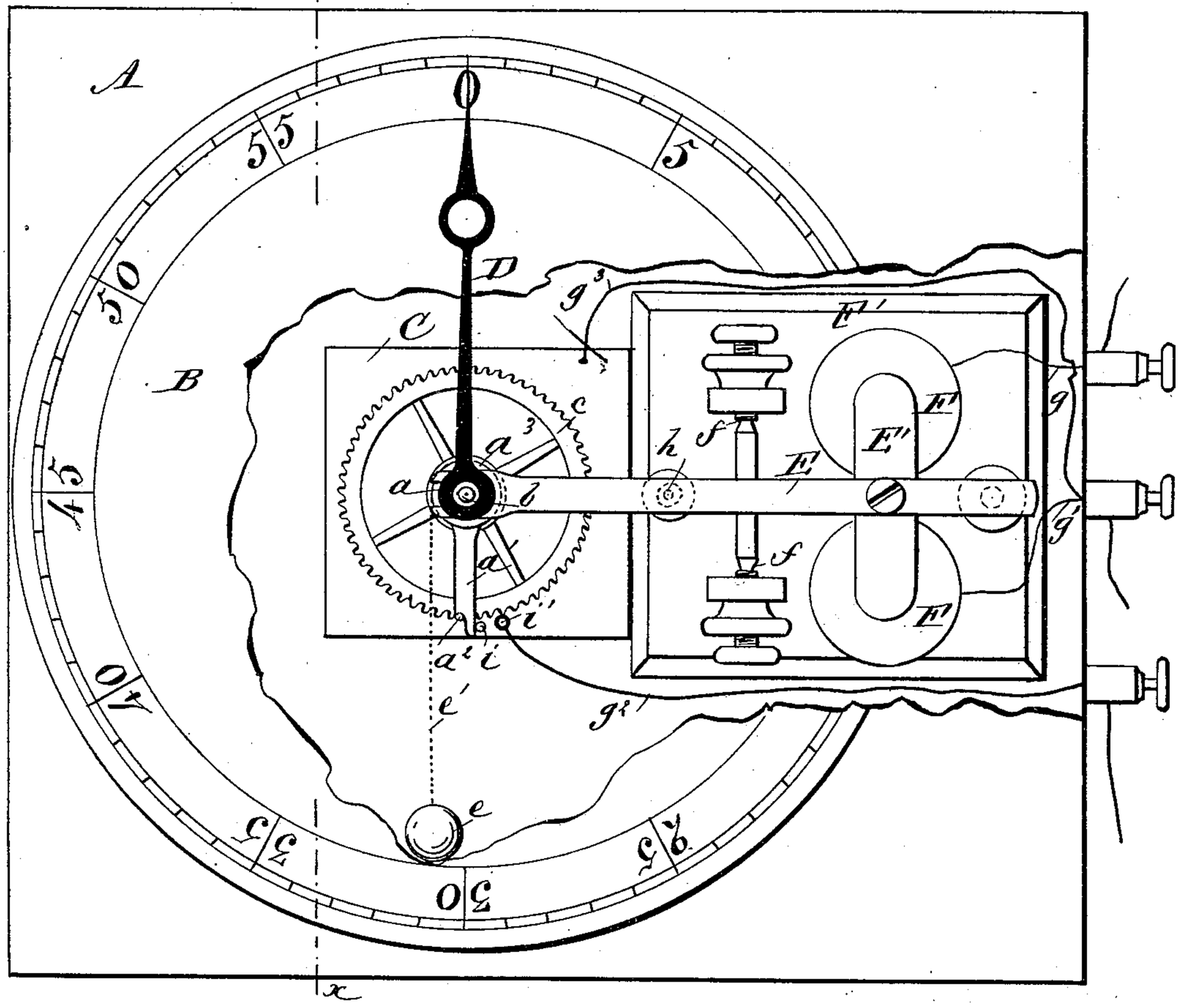
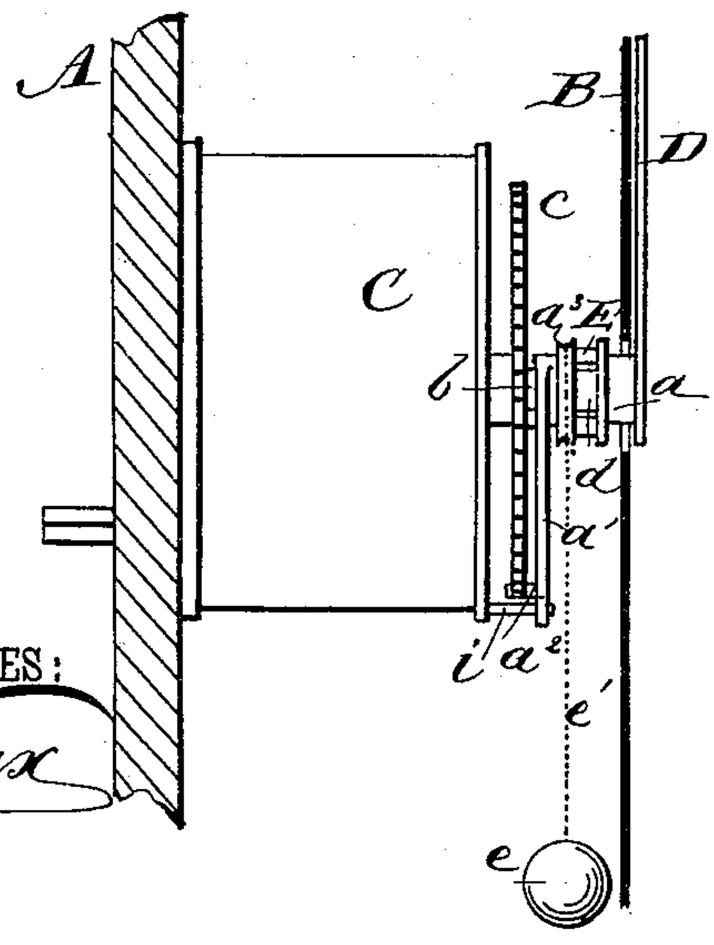


Fig. 2



WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR:

G. Cornell

BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE CORNELL, OF CRYSTAL RUN, NEW YORK.

ELECTRIC TIME-SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 332,493, dated December 15, 1885.

Application filed June 20, 1885. Serial No. 169,321. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CORNELL, of Crystal Run, in the county of Orange and State of New York, have invented a new and Improved Electric Time-Signal for Railways, &c., of which the following is a full, clear, and exact description.

My new signal is designed more especially for use in railway-stations and at dangerous points to indicate the time elapsed between trains passing the station; and the invention consists of the construction, arrangement, and combination of parts, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a broken front elevation of my new time-signal, and Fig. 2 is a detailed sectional elevation of the same on the line *x x* of Fig. 1.

A represents an inclosure, to the front of which is formed or secured a stationary indicator, B, having minute-graduations marked in a circle thereon, similar to the dial of a clock. Within the inclosure A is secured another inclosure, C, or suitable frame-work, containing ordinary clock mechanism, that serves to turn the hand or pointer D in front of the dial or stationary indicator B. The pointer D is provided with the sleeve *a*, which fits loosely upon the hand-arbor *b* of the clock mechanism, and the arbor *b* is made of considerable length in front of the cog-wheel *c*, secured upon the arbor, to permit the pointer D and sleeve *a* to slide outwardly upon the arbor, for the purposes hereinafter described.

The sleeve *a* is formed with an annular groove, *d*, to receive the forward end of the lever E. It is also provided with the arm *a'*, which is provided with a pin or stud, a^2, for connection with the cogs of the wheel *c*, for causing the sleeve *a* and pointer D to be revolved by the clock mechanism. The sleeve *a* is also provided with the small pulley a^3, to which the weight *e* is attached by a cord, *e'*, so that when the sleeve *a* and pointer D are revolved by the clock mechanism the weight *e* will be elevated to return the sleeve and pointer to the "naught" point, when the sleeve is disconnected from the clock mechanism. The lever E is pivoted between the points *f f*, and is provided with the armature-plate E', held in front of the poles of the electro-magnets F, which are held in the inclosure A on base F', and are connected by wires *g g'* to a battery and to a device to be operated by trains of cars passing the signal, for opening and closing the electric circuit through the magnets F. When the circuit is open, the forward end of the lever E is drawn toward the clock mechanism C by a spring, *h*, which movement of the lever causes the sleeve *a* to be set back by the lever toward the cog-wheel *c*, so that the pin a^2 of the arm *a'* on the sleeve will engage with one or the other of the teeth of the cog-wheel *c*, thus connecting the hand D with the said cog-wheel, so that the hand will be moved around in front of the dial B by the clock mechanism like the minute-hand of a clock.

The revolution of the sleeve *a* will wind up the cord *e'* and elevate the weight *e*. A passing train, as above mentioned, will close the circuit to the magnets F, which will operate the lever E and cause it to force the sleeve *a*, the hand D, and the arm *a'* outward away from the clock mechanism C, which movement will disengage the stud a^2 from the teeth of the cog-wheel *c* and permit the weight *e* to suddenly reverse or return the hand D, which will be returned to the naught-point and there stopped by a pin, *i*, against which the arm *a'* strikes, as shown in Fig. 1. The arm *a'* is made exactly opposite to the hand D, to act as a counterbalance-weight to the hand, so that a light weight, *e*, may be used to return the hand. The distance the hand D travels from the naught-point around the dial toward the 55-point before being released indicates the time elapsed since the last interruption of the forward movement of the hand, so that an engineer of a train of cars approaching the signal may know how long since the preceding train passed. The hand D is stopped at the 55-point by the stop-pin *i'*, so that confusion will not arise by the hand D making more than a complete revolution over the dial.

The stop-pin *i'* is insulated from the clock-frame, and is connected by a wire, g^2, with one pole of the battery. The clock-frame is connected with the other pole by the wire g^3, so that the contact of the arm *a'* with the stop *i'*

closes the electric circuit to the magnets F, which operates the lever E and detaches the hand from the gear *c*. The weight *e* instantly resets the hand D, and as the circuit is so quickly broken the hand will go back but one cog. This will continue without stopping the clock until a train passes, when the hand will be set back to naught.

Instead of an open I may use a closed circuit for operating the lever E, with like results.

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

1. The combination, with clock mechanism, stationary magnets F, and armature-lever E E′, of the sliding hand D, weight *e*, and studded arm *a′*, for connecting the hand D with the wheel *c* of the clock mechanism, substantially as and for the purposes described.

2. The sleeve *a*, placed loosely upon the arbor *b* of the clock mechanism, the hand D, arm *a′*, weight *e*, and lever E E′, attached to the arbor, in combination with the clock mechanism, the wheel *c*, and the magnets F F, arranged to operate the lever E, substantially as and for the purposes set forth.

3. The sleeve *a*, provided with the arm *a′*, having the stud a^2 at its outer end, and provided also with the hand D, opposite to the arm *a′*, so the latter will counterbalance the hand and also connect it with the cog-wheel *c*, substantially as described.

4. The sleeve *a*, hand D, pulley a^3, arm *a′*, and pin a^2, all supported loosely upon the arbor of the clock mechanism, in combination with the clock mechanism, the arbor *b* thereof, weight *e*, dial B, stop-pins *i i′*, magnets F, and the armature-lever E E′, attached to the sleeve *a* and arranged to be operated by the magnets, substantially as and for the purposes set forth.

5. The clock mechanism C and casing thereof, the latter having insulated stop-pin *i′* and wire g^2, connected therewith, in combination with the arm *a′* and wire g^3, so that when arm *a′* comes in contact with the pin *i′* the circuit of the magnets will be closed and the hand set back one cog of the wheel *c* of said mechanism, substantially as described.

GEORGE CORNELL.

Witnesses:
ANDREW CRANS,
S. J. CORNELL.