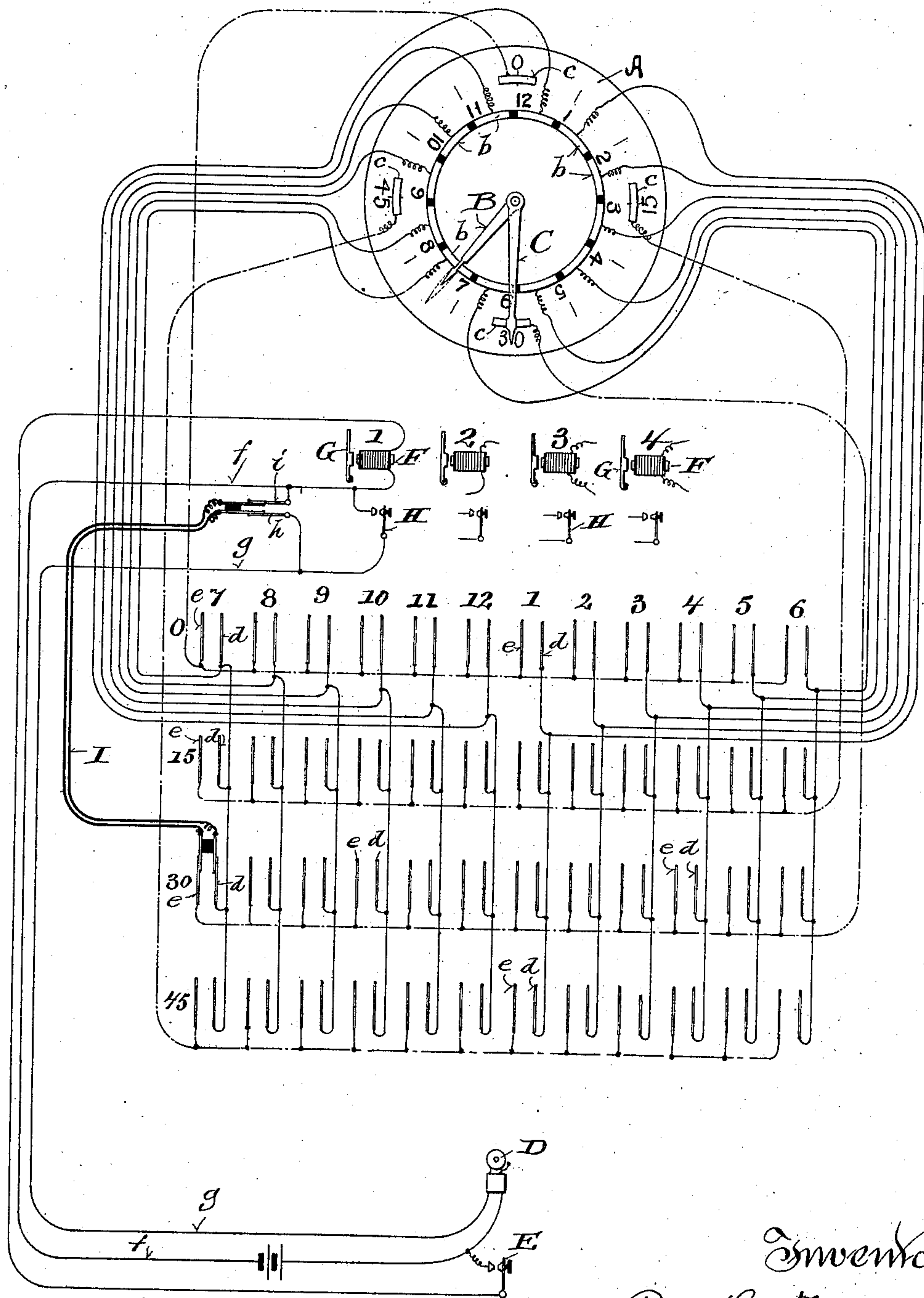


(No Model.)

P. G. FEUERSTEIN.
SIGNAL.

No. 577,128.

Patented Feb. 16, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

PAUL G. FEUERSTEIN, OF MILWAUKEE, WISCONSIN.

SIGNAL.

SPECIFICATION forming part of Letters Patent No. 577,128, dated February 16, 1897.

Application filed October 26, 1896. Serial No. 610,112. (No model.)

To all whom it may concern:

Be it known that I, PAUL G. FEUERSTEIN, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Signals; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention primarily consists of an apparatus embodying a clock having its dial provided with contacts constituting terminals of at least one electric signal-circuit and one or both of the clock-hands made from electric-conductor material operative to automatically close the circuit, the object of the invention being to provide for automatic predetermined actuation of the signal.

The apparatus may embody a switchboard, and a series of ordinary electric split plugs as adjuncts to the circuit-closing clock, and the whole may be adjunctive to an annunciator, as herein set forth with reference to the accompanying drawing, this being the preferred application of my invention.

The drawing is a diagram illustrating an apparatus in accordance with my invention, and referring thereto by letter, A represents the dial of an ordinary clock, this dial being herein shown as provided with two series of electric contacts *b c*, that constitute the terminals of electric circuits hereinafter explained. The contacts *b* correspond in number with the hours indicated on the clock-dial, and the contacts *c* correspond with arbitrarily-selected divisions of one hour, the divisions herein shown being at quarters of said hour.

The hour-hand B and minute-hand C of the clock are electric conductors, and are herein shown as being operative in their travel against the contacts *b c* on dial A to automatically close one or more electric circuits, hereinafter set forth. However, it is practical to lengthen the hour-hand, as shown by dotted lines, in order that it may have travel against hour and minute contacts to serve as the sole means for closing a circuit.

Each hour-contact *b* on the dial is shown wired to a series of switchboard-contacts *d*, and each minute-contact *c* is shown in like connection with another series of switchboard-contacts *e*, the switchboard-contacts *d e* be-

ing arranged in pairs. The wiring of contacts *b d* is indicated by full lines and that of the contacts *c e* by dotted lines.

The contacts *d* of the switchboard may be indexed in series by numerals corresponding to those on the clock-dial indexing the hours, as herein shown, and the contacts *e* of said switchboard are shown as being indexed in series by numerals representing divisions of one hour in minutes, but as this indexing is a mere matter of convenience any arbitrarily-selected system may be as readily employed.

In the application of my invention an electric signal is put in circuit with at least one hour-contact *b* and one minute-contact *c* of the clock-dial, the circuit being automatically closed in the manner aforesaid and the duration of closed circuit is proportionate to the length of said minute-contact. By the employment of a clock having its dial provided with a proper number and arrangement of the aforesaid contacts as terminals of one or more electric circuits to be made and broken in the manner described one signal may be automatically actuated at predetermined intervals, or a plurality of signals may be likewise actuated at the same or different intervals, according to the wiring.

The employment of a switchboard in electric connection with the clock-dial contacts and the utilization of an ordinary electric split plug or plugs for connecting said switchboard with electric signal-wires enables me to operate one signal or several at various times within the number of hours indexed on the clock-dial.

The switchboard is herein represented as an adjunct to an annunciator and return-call system commonly employed in hotels, but it has not been deemed necessary to illustrate more than one call-circuit, the latter being of the three-wire variety, embracing a guest-room call-bell D and push-button E, an electromagnet F for the attraction of an indicator-armature G, and a push-button H in proximity to the magnet. By operating the push-button E the circuit is closed to operate the annunciator and by operating the other push-button, H, said circuit is closed to operate the call-bell.

The wires *f g* in the bell-and-annunciator circuit are tapped to form a loop having con-

tacts *h i*, that may be connected by an electric split plug I with any pair of switchboard-contacts *d e* to thereby provide for automatic ringing of bell D incidental to automatic close
5 of circuit, and yet not interfere with manual closing of said circuit for the same purpose or to energize the magnet by which the indicator-armature is operated.

From the diagram and foregoing explanation it will be readily understood that if the
10 loop-contacts *h i* of the bell-and-annunciator circuit be connected by the electric switch-plug I with the switchboard-contacts *d e* corresponding to half-past seven o'clock said circuit will be temporarily closed so far as the
15 bell is concerned at the time stated, and hence there will be an automatic ringing of said bell until said circuit is automatically opened.

According to the arrangement herein shown
20 it will be observed that the dial-contacts *b* are slowly traveled by the hour-hand B, the space between these contacts being short, and therefore said hand is always against some one of said contacts for the greater portion of
25 every hour, but the movement of the minute-hand being much more rapid than the one aforesaid its duration of travel against any one of the dial-contacts *c* is proportionally limited.

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

1. A clock having its dial provided with hour and minute contacts, the clock-hands as
35 electric conductors that travel against the contacts on the dial, a switchboard having contacts wired to those aforesaid, electric signal-wires, and an electric split plug for connecting switchboard-contacts with signal-
40 wires.

2. A clock having its dial provided with hour and minute contacts, the clock-hands as

electric conductors that travel against the contacts on the dial, a switchboard having a series of contacts in electric connection with
45 each hour-contact of said dial and another series of contacts in like connection with each minute-contact of the aforesaid dial, these switchboard-contacts being arranged in series of pairs, together with an electric signal
50 system, and an electric split plug for the connection of a pair of said switchboard-contacts with a circuit of the signal system.

3. A clock having its dial provided with hour and minute contacts, the clock-hands as
55 electric conductors that travel against the contacts on the dial, a switchboard having a series of contacts in electric connection with each hour-contact of said dial and another series of contacts in like connection with each
60 minute-contact of the aforesaid dial, these switchboard-contacts being arranged in series of pairs, an annunciator and return-call system, and an electric split plug for connection of a pair of said switchboard-contacts
65 with a circuit of the annunciator and return-call system.

4. A clock having the dial thereof provided with hour and minute contacts, at least one of the clock-hands operative as a circuit-closer
70 against a contact in each series, a switchboard having contacts wired to those aforesaid, electric signal-wires, and an electric split plug for connecting the switchboard-contacts with signal-wires.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

PAUL G. FEUERSTEIN.

Witnesses:

N. E. OLIPHANT,
B. C. ROLOFF.