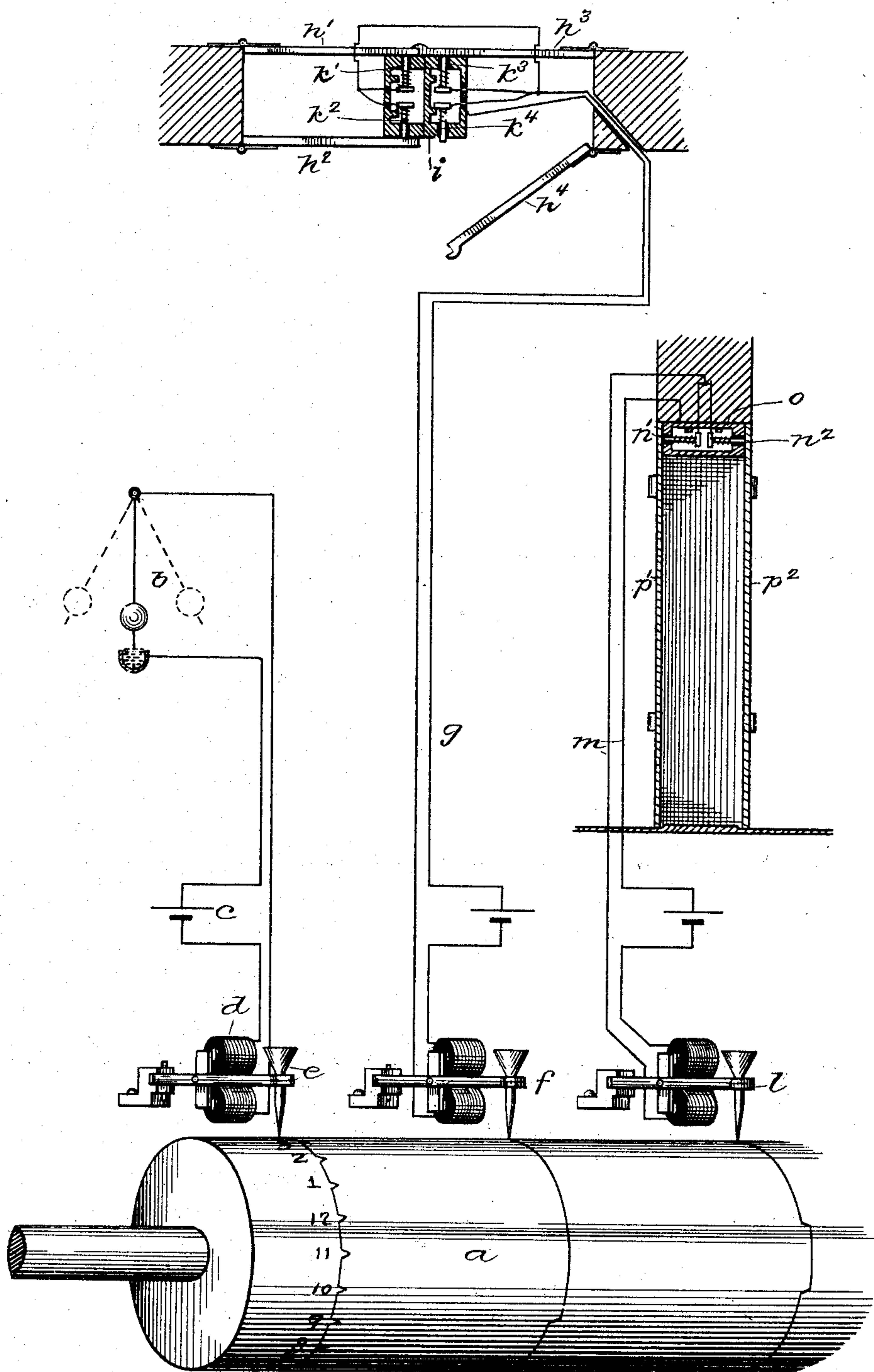


(No Model.)

W. R. PATTERSON.  
ELECTRIC DOOR REGISTER FOR WATCHMEN.

No. 504,741.

Patented Sept. 12, 1893.



Witnesses:

Chas. G. Hawley.  
Geo. R. Parker.

Inventor:

William R. Patterson  
By *George R. Barton*  
Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM R. PATTERSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

## ELECTRIC DOOR-REGISTER FOR WATCHMEN.

SPECIFICATION forming part of Letters Patent No. 504,741, dated September 12, 1893.

Application filed January 31, 1889. Serial No. 298,227. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. PATTERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electric Door-Registers for Watchmen, (Case No. 78,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

The object of my invention is to provide means for indicating whether doors, as fire doors, have been opened, and if so, for making a record of the time during which each door may have remained open. In this manner the movements of the watchman about a building may be recorded and in case he should negligently leave a door open at any time during his rounds the fact of such negligence will be indicated. In case he should neglect any part of his route which requires the opening of a door, such negligence would also be indicated by the absence of the usual record made by opening and closing the particular door.

The usual watchman's detector now in use in factories consists of circuits, with keys distributed at different points throughout the building so arranged that upon operating the keys in succession a record will be made upon a register sheet moved by clock work. In this form of apparatus, for reasons well understood, it is necessary that some little time shall elapse in passing from one key or station to the next. This system is therefore defective in that two stations cannot be placed close to one another.

The operation of my watchman's detector system is such that the record is made automatically and is not dependent upon any particular sequence in the opening and closing of the doors. It, however, records the time in each instance and the sequence will therefore be indicated. Thus it will be seen that the route of the watchman as he goes his rounds will thus be delineated upon the chronograph sheet in all cases. The authorized openings of the doors as well as the unauthorized are thus recorded.

My invention briefly stated consists in circuits extending from the different doors to different chronograph pens so arranged that when the door is open the position of the pen corresponding to the particular door, will be moved from its normal position upon the chronograph sheet.

As illustrative of my invention I have shown a diagram in which two sets of double doors are connected by different circuits with a chronograph.

It will be understood that the chronograph cylinder *a* is provided with the usual clock work mechanism for driving the same at any desired uniform rate of speed. The length of the cylinder should be sufficient to afford room for as many pens as there are sets of doors. In practice the space required for one pen would be from a half an inch to an inch. The circumference of the cylinder should be sufficient to afford room for making the record for the desired number of hours, for example, a roller thirty-six inches in circumference would allow a record for twelve hours at the rate of three inches per hour or a quarter of an inch for each five minutes so that a sheet of paper thirty six inches long by twenty inches wide would hold the record of from twenty to forty doors for a time of twelve hours. It is evident, however, that the rate of speed and the size of the roller may be varied according to the service required. As a matter of convenience one pen of the chronograph may be connected with a clock arranged to close the circuit successively at predetermined intervals. I have shown the pendulum *b* arranged to close the circuit of battery *c* through the electro magnet *d* of pen *e* at each oscillation of the pendulum. For this purpose a cup of mercury is placed in the usual manner below the pendulum bob. If the paper is to be moved however, only at the rate of three inches an hour I should arrange the clock mechanism to close the circuit only once in five minutes in a well known way.

The pen *f* is shown connected with a circuit *g* extending to four doors *h'* *h*<sup>2</sup> *h*<sup>3</sup> *h*<sup>4</sup>; one side of this circuit is connected with the box *i* and the other side with the movable contacts *k'* *k*<sup>2</sup> *k*<sup>3</sup> *k*<sup>4</sup>, these contacts being held open



respectively by the doors when closed. On opening either door the particular contact of that door is moved by a retractile spring or otherwise to close the circuit of the battery 5 included in circuit *g*. The pen *f* is thus moved from its normal position as indicated and thus a record is made of the particular time during which the door *h*<sup>4</sup> or whatever the door may be is left open. The pen *l* is connected in a 10 similar manner by circuit *m* with contacts *n'* *n*<sup>2</sup> and contact *o*; contacts *n'* *n*<sup>2</sup> are held separated from contact *o* when the doors *p'* *p*<sup>2</sup> are closed. On opening either of these doors *p'* *p*<sup>2</sup> the circuit *m* will be closed through pen 15 *l* in the manner heretofore described with respect to circuit *g*. Suppose the records 6, 7, 8, 9, 10, 11, 12, 1, 2, 3, to indicate the corresponding hours, it would then appear that one of the doors of circuit *g* was opened at 20 about eight o'clock and was still open at three o'clock and that one of the doors of circuit *m* was opened at about nine o'clock and closed at about eleven.

I have shown a metallic circuit between 25 each pen and its corresponding door or doors. It is evident that grounded circuits might be used or that a common return wire might be employed in the manner well understood.

It is evident that my invention admits of 30 various other modifications that would readily suggest themselves to those skilled in the art and I therefore do not limit myself to the details of construction shown.

Having thus described my invention, I

claim as new and desire to secure by Letters 35 Patent—

1. The combination with a driven chrono- graph sheet, of a periodically actuated elec- tro-magnetic pen resting thereon and adapt- 40 ed to make indications thereon, of a second electro-magnetic pen resting thereon, the coil thereof extending to contacts operated by a door on opening and closing the same, to hold the contact closed when the door is open and to hold the contact open when the door is 45 closed continuously; whereby the circuit is closed to move the position of the pen to register the time during which the door is left open, substantially as and for the purpose specified. 50

2. The combination with a driven chrono- graph sheet, of a periodically actuated elec- tro-magnetic pen resting thereon and adapted to make indications thereon, electro-magnetic 55 pens resting thereon, each of said latter pens being connected in a circuit extending to contact points of different doors, each door, when closed, holding its contact continuously open; whereby the position of said doors as open or 60 shut and the time of change from one position to the other are registered, substantially as described.

In witness whereof I hereunto subscribe my name this 22d day of January, A. D. 1889.

WILLIAM R. PATTERSON.

Witnesses:

ELLA EDLER,

GEORGE P. BARTON.