

No. 832,928.

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C. E. SPALDING.
CLOCK.

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Fig. 1.

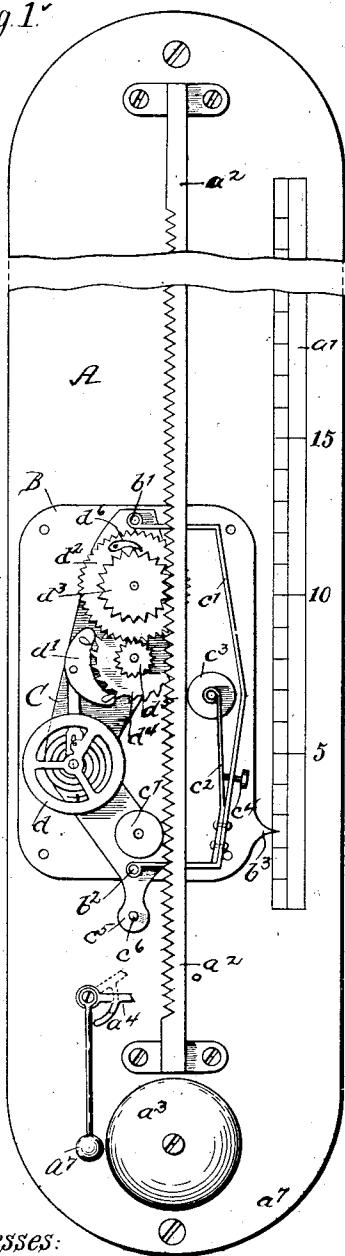
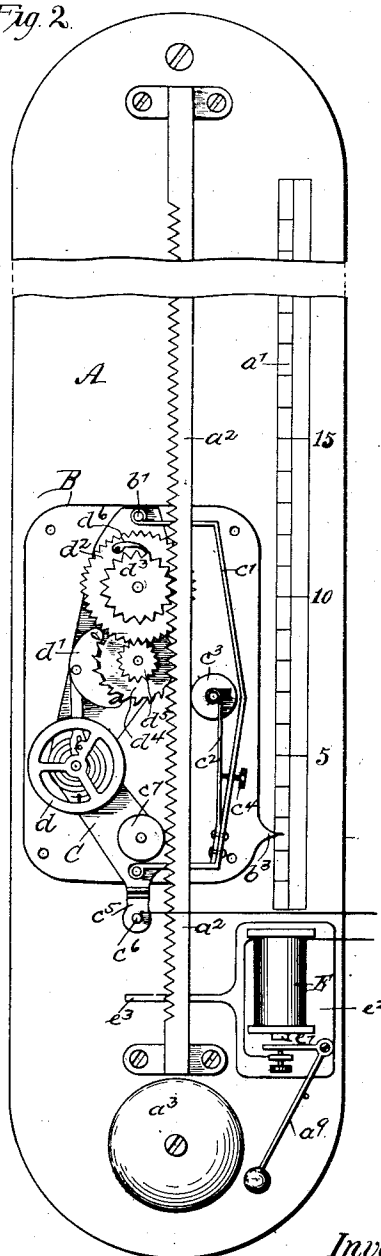


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

CLARENCE E. SPALDING, OF MADISON, WISCONSIN.

CLOCK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLARENCE E. SPALDING, a citizen of the United States, residing at 1132 Drake street, Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Time-Indicators, of which the following is a specification.

This invention relates to means for marking or indicating the lapse of periods of time or for making mechanical or electromechanical connections at certain intervals.

The device which forms the subject-matter of this application may be adapted to various uses, among which have occurred to me the following: as an indicator in a school-room to mark study or recitation periods by sounding a bell at the intervals to which the device is set or adjusted; as an indicator for use in a sick-room to show by sounding a bell when medicine should be given; for use in a kitchen to indicate the times for removing articles from the oven, &c.; as means for effecting contact, whereby an electric circuit is completed. I therefore do not wish to be limited to any particular use for my said invention, but desire to cover it in its broadest application.

In the accompanying drawings, which form a part of this application for patent, I have shown two methods of applying the principles of my invention—in one a bell being sounded by mechanical means solely and in the other electromechanical means being employed.

In said drawings, Figure 1 is a view in elevation showing my invention as adapted to ring a bell mechanically. Fig. 2 is a similar view showing the use of an electromagnet for sounding the bell.

Referring to Fig. 1 of the drawings in detail, A represents a suitable board or tablet on which the operative parts of my device are mounted and which may be attached to a wall or suspended from a suitable support in any manner desired. Attached to the face of the tablet and so as to be raised above same is a rack-bar a^2 , having teeth along one edge. This bar may be of any length, depending on the maximum period of time it is desired to measure or indicate with the device. Below the lower end of the rack-bar a bell a^3 is secured to the tablet by a screw, as shown. Pivoted on the tablet near the lower end of the rack-bar is a two-arm lever a^4 , one arm of which extends horizontally and the other arm of which extends downwardly and acts

as a bell-hammer. B represents one of two metal plates made exactly alike (only one being shown) and secured together with a space therebetween. Mounted between said plates on suitable pins b^1 b^2 is a plate C, which is formed with an extension c^5 at its lower end, from which projects at right angles a pin c^6 . A flat metal bar c^7 , bent, as shown, has its ends secured to the pins b^1 and b^2 , and secured to this bar is a spring-arm c^2 , in the outer end of which is rotatably mounted a wheel c^3 , which is adapted to have its periphery frictionally engage the rear edge of the rack-bar. The pressure of the wheel c^3 against the bar a^2 is regulated by a set-screw c^4 , which has a threaded engagement with an opening in the bar c^7 . Rotatably mounted on the plate C near its lower end is a wheel c^7 , the edge of which contacts with the toothed edge of the bar a^2 , thus serving, with the wheel c^3 , as a guide for the parts mounted on the plate B. Mounted on the plate C are the elements which compose the escapement mechanism of a common clock-movement, the same consisting of a balance-wheel d , escapement-balance d' , escapement-wheel d^4 , intermeshing pinions d^2 d^5 , all of which are arranged in the usual manner, as clearly shown. Mounted on a sleeve around the pintle which carries the wheel d^2 is a pinion d^3 , the teeth of which mesh with the teeth of the rack-bar a^2 . A pawl d^6 , pivoted on the wheel d^2 , engages the teeth of pinion d^3 , and thereby communicates the motion in one direction from the latter to the former, but permits the wheel d^3 to move in the other direction without affecting said pinion d^2 , as will be readily understood. The plates B are formed with a pointer, as b^3 , projecting from one edge and preferably at or near the lower corner. Secured to the face of the tablet is a scale a' , on which numbers are indicated marking off equal divisions.

In Fig. 2 in place of the lever a^4 I have shown an electromagnet E of well-known form, which is provided with a core e' and is mounted on a plate e^2 , fixed on the tablet and having an arm e^3 projecting therefrom in the path of the pin c^6 , which projects from the extension c^5 , which in this case is insulated from the plate C. This pin is connected with one wire of an electric circuit and the plate e^2 with the other wire. Below the electromagnet is pivoted a two-arm bell-hammer a^8 , one arm of which is arranged just below the core e' and is adapted to be drawn upwardly when the latter is energized by the completion of

the electric circuit, thus throwing the hammer against the bell and when the pin c^5 passes the arm e^3 permitting the hammer to fall back in its normal position.

- 5 The operation of my device is as follows: Assuming that the space between the bottom of the scale and "10" on the scale a' represents ten minutes, the plates B, with their attached parts, will be raised until the pointer is at "10," when it will be released, and gravity will cause it to drop. The escapement mechanism, however, serves as a retarding element and also regulates the downward movement irrespective of gravity.
- 15 When the pin a^6 reaches the lever-arm a^4 , it will trip same, thereby causing the other arm to strike against the bell upon its recoil, thereby-sounding the latter. The part B is then returned to the upper part of the tablet
- 20 for a repetition of its operation.

Various arrangements may be made for sounding the bell through the downward movement of the element B, and that shown is only one of many. Hence I do not wish to be limited to the particular construction or operation shown.

The screw c^4 is used to regulate the pressure of the wheel c^3 against the bar a^2 , thus enabling the device to run accurately.

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

1. In an indicating device, a tablet comprising a scale and having an alarm device secured thereto, a rack-bar secured to the tablet, an element mounted on said rack-bar and comprising a spring-operated escapement mechanism including a gear engaging said rack-bar teeth, means for frictionally engaging said rack-bar, and a pointer cooperating with said scale said element adapted to move downwardly by gravity, and means on said element and tablet whereby the downward movement of said element will operate said alarm device.

2. In an indicating device, a tablet comprising a scale, and having an alarm device connected therewith, a rack-bar mounted on the tablet, an element slidably mounted on said rack-bar and adapted to move downwardly on same by gravity, said element comprising a spring-operated escapement mechanism for retarding its gravity movement, frictional means cooperating with said escapement mechanism and electromechanical means on said element and tablet whereby the downward movement of said element will operate said alarm device.

In testimony whereof I affix my signature in presence of two witnesses.

CLARENCE E. SPALDING.

Witnesses:

HOWARD J. BARRY,
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