

(No Model.)

2 Sheets—Sheet 1.

W. M. FOWLER.
ELECTRIC ALARM CLOCK.

No. 498,468.

Patented May 30, 1893.

Fig. 1.

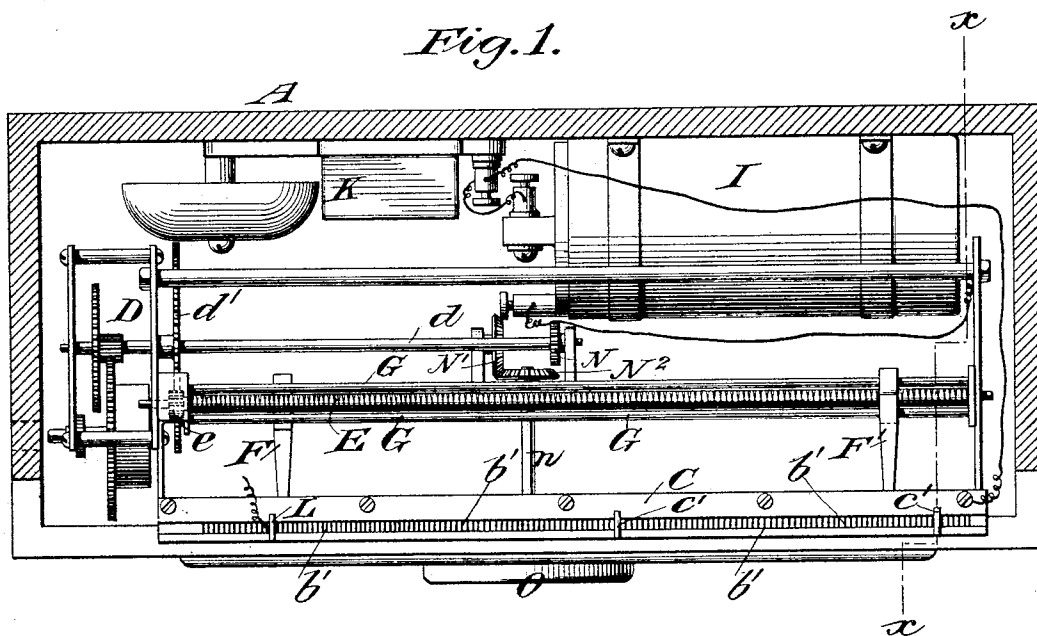
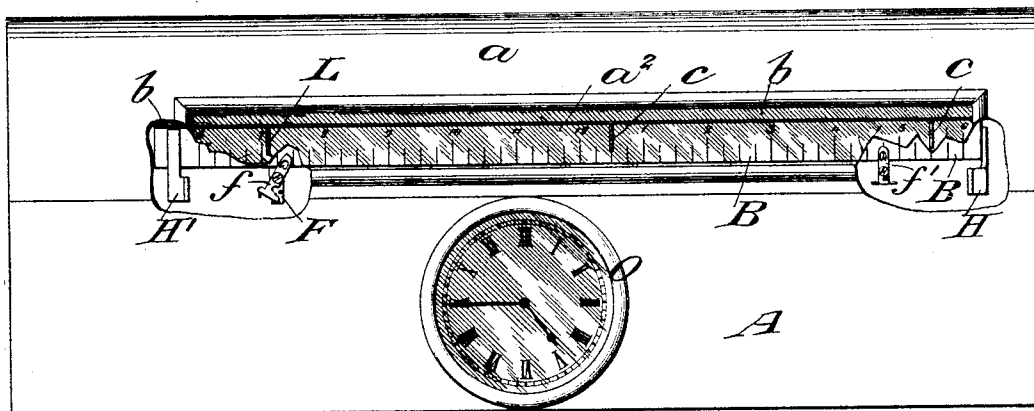


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

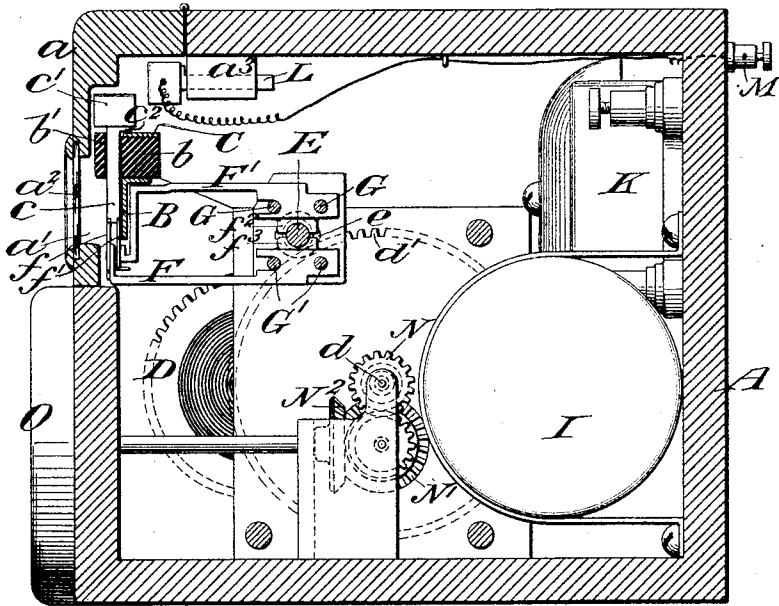


Fig. 4.

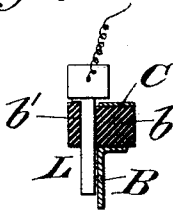
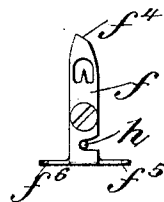


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM M. FOWLER, OF MILFORD, CONNECTICUT.

ELECTRIC ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 498,468, dated May 30, 1893.

Application filed May 6, 1892. Serial No. 432,059. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. FOWLER, of Milford, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Memoranda Signaling Apparatus, of which the following is a specification.

My invention relates to an improvement in memoranda signaling apparatus in which provision is made for calling a person's attention to one or more items which need attention during working hours or any other predetermined length of time.

The invention comprises in general one or more index hands or pointers arranged to travel along a scale denoting sub-divisions of time, a signal device and means for placing in the path of the pointer or pointers contact pieces at such points of the scale as correspond to the times at which the signal is to be operated and so constructed that the engagement of the pointer or pointers with such contact pieces shall operate the signal at the several times desired.

A practical embodiment of my invention is represented in the accompanying drawings in which—

Figure 1 is a top plan view of the operating mechanism, the top of the casing being removed to expose the parts to view. Fig. 2 is a front view showing the casing closed and partly broken away at different places to show the positions of the traveling pointers. Fig. 3 is a transverse vertical section through line *x, x* of Fig. 1. Fig. 4 is a view in detail of one of the special contact pieces showing it reversed for the purpose of operating the signal at a distance and other than that forming a part of the apparatus itself, and Fig. 5 is an enlarged view in detail of one of the pointers.

In the form of apparatus which I have chosen to illustrate my invention the signal consists of an electric bell and the travel of the hands or pointers is in a right line back and forth along a scale denoting divisions of time, and the divisions of time which I have chosen extend from six o'clock to six o'clock—twelve hours—and these hours are subdivided, as represented in the drawings, into quarter hours. The sub-division into minutes or groups of minutes less than fifteen is

omitted as the sub-division into quarter hours will be sufficient to illustrate fully the operation of the apparatus.

A represents a casing of a general oblong rectangular form, provided at its front upper corner with a hinged door *a* which may be raised and swung over on to the top of the casing at pleasure to gain access to the parts within the casing. The door *a* is provided with an elongated opening *a'* in front of which I prefer to place a transparent film, as for example glass, *a''*. Within the casing and in position to be readily seen through the transparent film *a''* there is located a scale *B* denoting the hours from six o'clock until six o'clock and subdivided as before stated into quarter hours. The scale *B* is arranged in a right line and is fixed in its position within the casing. Along the upper portion of the scale *B* there is located an insulating piece *b*, as for example of hard rubber, and through the said insulating piece there are formed a series of slots *b'* at intervals apart corresponding to the smallest sub-divisions of time upon the scale *B* and so arranged that a contact piece may be slid through any one of said slots *b'* down into position in front of the scale *B*. Along the top of the insulating piece *b* there is located an electric conductor consisting in the present instance of a flat metallic plate *C*.

The contact pieces are shown in the present instance as narrow flat pins, the shanks *c* of which are adapted to extend downwardly through the slots *b'* in the insulating piece and the heads *c'* of which are made sufficiently heavy to hold the pin in depressed adjustment. The said contact pieces are provided at the upper ends of their shanks with off-sets *c''* adapted, when the pin is depressed with its off-set to the rear, to rest on the conducting plate *C*.

The clock work, represented as a whole by *D*, is fixed within the end of the casing and carries upon its hand spindle *d* a toothed wheel *d'* which intermeshes with a pinion *e* upon the shaft of a reversible screw *E*. The screw *E* is located longitudinally of the casing and to the rear of the scale *B* and with it engage arms *F* and *F'* carrying the pointers *f* and *f'*. The arms *F* and *F'* are mounted so as to slide along guide rods or bars *G* and *G'* upon opposite sides of the screw *E* and jaws

f^2, f^3 extend from the arms F and F' respectively toward the reversible screw E and serve to engage its reversible threads and thereby carry the arms longitudinally along the screw as the screw is rotated by the clock work. The arms F and F' are arranged, the former to engage the screw on its under side and the latter to engage the screw on its upper side, and their forward ends are so located with respect to the scale B that the pointers f and f' carried thereby will travel along in proximity to the front of the scale, the pointer carried by the one, viz. F, being located far enough to the front of the pointer f' carried by the other to permit the pointers to pass each other in front of the scale B, as clearly indicated in Fig. 3. The pointers f and f' are pivotally secured to the ends of the arms F and F', their movements on their pivots being sufficiently hindered by friction to cause them to retain the position into which they may be swung until again positively operated in the opposite direction.

It is intended that when the pointers f and f' are upright and advancing along the scale, their upper ends or points will be in position to slightly overlap and engage the lower ends of the contact pieces c when the latter are in depressed adjustment. The arrangement is such that after the pointer has engaged one of the contact pieces, it will pass it without materially disturbing the advance movement of the pointer so that the same pointer may successively engage as many of the contact pieces as may lie in its path during its advance movement. I prefer to make the top of the pointer with a short bevel as shown at f^4 , Fig. 5, so that after it has firmly engaged the lower end of the contact piece, it will gradually lift the latter and pass beneath it. Just before the pointer reaches the limit of its advance movement, a projection f^5 on its lower end engages an abutment H at the end of the scale and tilts it, as shown at f , Fig. 2. In this position it returns along the scale B without interfering with any of the contact pieces which may have been inserted in their positions. Just before it reaches the limit of its return movement, a projection f^6 on the opposite side of its lower end engages the abutment H' at the beginning of the scale and tilts it back into an upright position ready for its advance movement. The stop h on the arm F or F' serves to limit the swinging movement of the pointer into its upright position. The return movement of the pointer after reaching the limit of its advance movement is made automatic in a well known manner by shifting its engaging jaws f^2 or f^3 into the reverse thread on the screw E.

A galvanic battery I is secured within the casing and has its poles electrically connected, the one with the electric bell K and through it with the conducting plate C, and the other with the pointers f, f' through their operating screw E. It follows therefore, that when-

ever the conducting plate C is brought into electrical contact with either of the pointers f or f' , the circuit through the electric bell will be complete and the signal will be sounded. Such a closing of the circuit is effected whenever the pointer comes in contact with one of the contact pieces c adjusted in position with its off-set resting on the plate C.

In practice, the different times during the day at which appointments have been made or at which items of business or other matters are to receive attention, having been determined from a memoranda book or from a specially prepared memoranda card, the contact pieces c may be placed in position in the slots b' along the scale corresponding to those times at which appointments, &c., have been made. Without further attention the apparatus will sound the signal at each of these successive times as the advancing pointer comes into engagement with the successive contact pieces and the attention of the person interested will be thereby called to the matter relieving him of any care or anxiety in trying to remember or keep watch of the advancing time.

For the purpose of sounding the signal at a distance from the instrument at predetermined times, a set of suitable contact pieces L may be provided, the heads of which are electrically connected with a binding post M for receiving a wire in connection with the signal located at a distance and the contact piece L when inserted in the insulating piece b may be inserted with its off-set c^2 toward the front or away from the conducting plate C so that when the connection is made between the contact piece and the pointer it will close the circuit through the signal at a distance without affecting the home signal in the apparatus. These special contact pieces L as well as the contact pieces c may be conveniently kept in a rack a^3 secured to the top of the casing, as shown in Fig. 3. The reverse position of the special contact piece L is shown in Fig. 4.

As a matter of convenience I may extend the hand spindle d of the clock work and connect it by gear N, N' and N² with a spindle n leading to an ordinary clock face O at the front of the casing and operating the hands of said clock face in the ordinary manner.

What I claim is—

1. The combination with a signal, a time indicating device and means for moving the time indicating device along a right line, of a plurality of contact pieces and a fixed support for holding them along the path of the time indicating device, the connection between the contact pieces and signal being such that the engagement of the time indicating device with the contact pieces will operate the signal, substantially as set forth.

2. The combination with a signal a time indicating device and means for moving it back and forth along a scale, of a contact piece under the control of the time indicating

device to operate the signal, and a fixed support for holding the contact piece in the path of the time indicating device, substantially as set forth.

5 3. In combination, a clock work, a scale indicating sub-divisions of time, a tilting hand or pointer under the control of the clock work to move back and forth along the scale, a contact piece adapted to form part of an electric
10 signal circuit, means for supporting the contact piece in the path of the tilting hand or pointer and abutments at the ends of the path along which the hand or pointer travels adapted to engage and tilt the hand, substantially
15 as set forth.

4. In combination, a clock work, a scale indicating time, a hand or pointer under the control of the clock work to travel along the

scale, an electric conductor located along the scale and insulated from surrounding objects, 20 an electric alarm circuit including said conductor, seats along the conductor and scale for retaining a contact piece, and a reversible contact piece adapted to rest in one of the seats in the path of the hand or pointer and 25 in or out of contact with the conductor as may be desired, substantially as set forth.

5. In combination, a fixed scale, time indicating devices and means for moving the time indicating devices simultaneously in opposite 30 directions along the scale, substantially as set forth.

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Witnesses:

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