(No Model.)

B. DE WITT.

ELECTRICAL STRIKING AND ALARM ATTACHMENT FOR CLOCKS.

No. 582,273. Patented May 11, 1897.

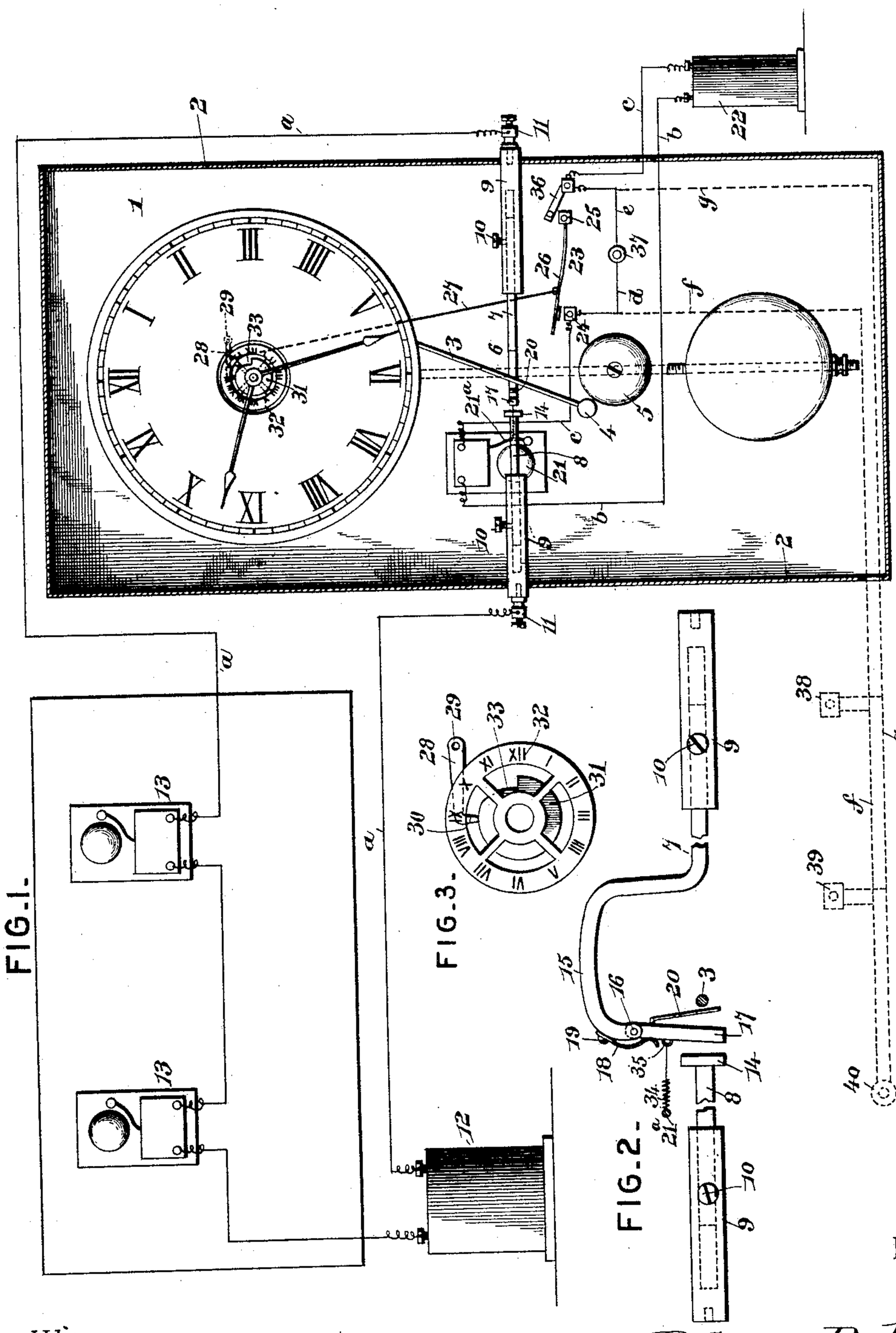

FIG. 1.

FIG. 3.

FIG. 2.

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ELECTRICAL STRIKING AND ALARM ATTACHMENT FOR CLOCKS.

SPECIFICATION forming part of Letters Patent No. 582,273, dated May 11, 1897.

Application filed April 20, 1896. Serial No. 588,329. (No model.)

To all whom it may concern:

Be it known that I, BALTUS DE WITT, a citizen of the United States, residing at Terra Alta, in the county of Preston and State of West Virginia, have invented a new and useful Electrical Striking and Alarm Attachment for Clocks, of which the following is a specification.

This invention relates to electrical striking and alarm attachments for clocks; and it has for its object to provide a new and useful attachment of this character adapted for use in connection with ordinary striking house or office clocks to provide means for striking the hours and half-hours on as many electrical bells and at as many different places remote from the clock as desired.

The invention also contemplates means for ringing a continuous alarm on an alarm-bell and also on the striking-bells at any hour at which the clock may be set to sound an alarm.

In the accomplishment of these important objects the invention further contemplates an attachment that shall be simple in construction and operation and which can be quickly and easily applied to an ordinary striking-clock without disturbing the clock mechanism or impairing its time-keeping qualities.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is an elevation of an ordinary clock equipped with the herein-described improvements. Fig. 2 is a detail plan view of the adjustable circuit-closing device for the striking-circuit. Fig. 3 is an enlarged detail elevation of the alarm-setting dial and the connections therewith for operating the alarm-circuit.

Referring to the accompanying drawings, the numeral 1 designates an ordinary striking-clock, arranged within its case 2 and having the usual mechanism for mechanically vibrating the hammer-rod 3, which carries at its free vibrating end the strike-hammer 4, adapted to work against the ordinary striking-bell 5 of the clock, which is secured within the case thereof, and it is of course understood that this mechanical striking device is intended to operate at every hour and half-hour, as usual.

In the present invention the strike-hammer 3 of the clock is adapted to operate in conjunction with a circuit-closing device 6, used in connection with an electrical striking-circuit for operating electric bells at any desired points remote from the clock.

The circuit-closing device 6 is arranged within the clock-case below the clock mechanism, and essentially comprises a pair of oppositely-located contact-rods 7 and 8, adjustably fitted at their outer ends in the supporting-sleeves 9, and secured at any adjusted position within said sleeves by means of the set-screws 10, mounted in one side of the sleeves and impinging on the contact-rods fitting therein.

The supporting-sleeves 9 for the opposite contact-rods 7 and 8 of the circuit-closing device are fitted in diametrically opposite sides of the clock-case 2 and have secured at their outer ends the binding-posts 11, to which binding-posts are connected the wire terminals of the electrical striking-circuit *a*, including therein a battery 12 and the electrical single stroke striking-bells 13, arranged in any desired number in the circuit and at any desired points remote from the clock for the purpose of repeating the strike of the clock simultaneously with the striking of the bell 5 within the clock-case, as will be readily understood by those skilled in the art.

The contact-rod 8 of the circuit-closing device 6 is provided at its inner end with a contact-plate 14, and the opposite contact-rod 7 is provided with a lateral arched portion 15, which is bent so as to pass in rear of the hammer-rod 3, so that the same will have a free and unimpeded vibration. At its end adjacent to the inner end of the rod 8 the contact-rod 7 has hinged or pivoted thereto, as at 16, one end of the pivotal contact-foot 17, which plays directly opposite and against the contact-plate 14 of the rod 8, and said pivotal contact-foot 17 is normally held out of contact with the plate 14 by means of the spring 18, secured at one end to the rod 7, as at 19, and having its other free end bearing against one side of the foot 17 adjacent to its pivotal connection 16. At the side opposite

the plate 14 the pivotal contact-foot 17 is provided with an offstanding spring-arm 20, against which the hammer-rod 3 vibrates during the striking of the bell 5. During the operation or vibration of the hammer-rod 3 the movement thereof against the spring-arm 20 intermittently throws the contact-foot 17 against the plate 14, and thereby closes the circuit *a* as many times as the bell 5 strikes, whereby the striking of the clock will be simultaneously and accurately repeated by the striking-bells 13 at points remote from the clock.

In combination with the striking mechanism or attachment just described is employed an electrical alarm-bell 21, preferably arranged within the clock-case and having connected therewith the terminals of the circuit-wires *b c* of a separate alarm-circuit, said circuit-wires *b c* having their terminals opposite the bell 21 connected with a suitably-arranged battery 22. One of the circuit-wires *c* of the alarm-circuit includes in the circuit thereof a circuit-closer 23, consisting of the separated contact-points 24 and 25 and a contact-spring 26, secured fast at one end to the point 25 and adapted to have its other free end normally spring in contact with the point 24 to close the alarm-circuit *b c*. The spring 26 of the circuit-closer 23 is normally held away from the contact-point 24 by a connecting-wire 27, connected at one end to said spring and at its other end to a trip-dog 28, pivotally mounted on movement frame or plate at one end, as at 29, under or in the rear of the dial of the clock 1.

The trip-dog 28 is provided at its free end with a finger 30, riding on the periphery of the notched disk 31 of an ordinary alarm-setting dial 32. The disk 31 is provided in its periphery with the single notch 33, and the said alarm-setting dial 32 is the ordinary setting device for controlling mechanical alarms, similar to the device for setting off the mechanical alarm on ordinary eight-day striking-clocks, and the said dial 32 is arranged to revolve with the hour-hand of the clock, so that it may be set to trip the alarm at any desired hour.

It will of course be understood that as the setting-dial 32 rotates the free end of the dog 28 rides on the periphery of the disk 31, and when the finger of the dog drops into the notch 33 it allows the contact-spring 26 to rebound to its normal position in contact with the point 24 and thereby close the alarm-circuit *b c*, which causes the alarm-bell 21 to ring continuously, and the vibrating armature-hammer 21^a of the alarm-bell 21 has connected thereto a light spring-coil 34, which is also connected at 35 with one side of the pivotal contact-foot 17. By reason of the connection between the hammer 21^a and the foot 17 at each vibration of the said hammer 21^a it automatically closes and opens the circuit between the contacts 14 and 17, thus causing the striking-bells 13 to also ring continuously until the alarm-setting dial has turned around sufficiently to draw the spring 26 away from the point 24, or until the switch 36 is opened. The switch 36 is an ordinary one-point switch and is included in the line of the circuit-wire *c*, and is intended to be left open when it is not desired to have the clock sound an alarm at a given hour.

A push-button circuit *d e* is arranged to bridge the circuit-closer 23 and the switch 36 and includes therein an ordinary push-button 37, by means of which an alarm may be rung without disturbing the clock mechanism at times when it may be necessary to ring an alarm on the bells 13 in large buildings to warn the inmates of each room of fire or other danger, and the alarm-circuit can also be utilized in connection with a burglar-alarm circuit *f g*, including therein suitable window, door, and floor circuit-closing devices 38, 39, and 40 and having wire connections, preferably, with the wires *d e* of the push-button circuit, as plainly illustrated in Fig. 1 of the drawings.

In view of the above it is thought that the construction and operation of the herein-described electrical striking and alarm attachment for clocks will be readily understood by those skilled in the art without further description; but at this point it will be noted that the adjustable support of the rods 7 and 8 provide simple and efficient means for properly adjusting the relative positions of the contacts 14 and 17, so that the circuit-closing device may be made to operate under all conditions in connection with the particular clock with which the attachment is used.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, and at this point it will be noted that while the striking and alarm attachments are described and illustrated as used conjointly it will be obvious that the striking device and the alarm attachment may be used separately and independently of each other, if desired; but it will of course be understood that the strike-bells 13 13 will not ring continuously as an alarm without the alarm-circuit *b c*, and it may be further observed in connection with slight modifications of the attachment that, if desired, any number of alarm-bells may be operated on the alarm-circuit *b c* at points remote from the clock.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In an electrical attachment for clocks, the combination with the vibratory hammer of a striking-clock; of a circuit-closing device comprising oppositely-arranged contact-rods disposed in lineal alinement, one of said rods being provided with an arched portion spanning the vibratory hammer-rod, a spring-pressed contact-foot pivotally mounted on one end of the arched rod and normally disposed

in a position out of contact with the adjacent end of the other rod, and in the path of the movement of said hammer-rod, suitably-arranged supports for the contact-rods to permit of their longitudinal adjustment, electric bells arranged at points remote from the circuit-closing device, and an electric circuit having wire connections with the bells and said contact-rods, substantially as set forth.

2. In an electrical attachment for clocks, the combination with the vibratory hammer of a striking-clock, of a circuit-closing device comprising oppositely-arranged supporting-sleeves, contact-rods adjustably fitted at one end in said sleeves, one of said rods being provided at one end with a contact-plate, and the other rod being provided with an arched portion spanning the hammer-rod, a contact-foot pivoted at one end to the arched rod and provided at one side with a spring-arm engaged by the hammer-rod to move the foot against the contact-plate, a spring arranged at the pivot of the foot and bearing thereagainst to normally hold the same out of contact with said contact-plate, remotely-arranged electric bells, and circuit connections between the bells and circuit-closing device, substantially as set forth.

3. In an electrical attachment for clocks, the combination with the vibratory hammer of a striking-clock and alarm-setting mechanism; of a circuit-closing device having a movable contact engaged by the hammer-rod, an electrical circuit including therein striking-bells and having wire connections with the circuit-closing device, an electrical alarm-bell, a light spring connection between the armature-hammer of said alarm-bell and the movable contact of said circuit-closing device, a separate alarm-circuit having wire connections with the alarm-bell, and a normally-closed circuit-closer included in the alarm-circuit having a contact-spring provided with a trip connection with said alarm-setting mechanism, substantially as set forth.

4. In an electrical attachment for clocks, the combination with the clock and the alarm-setting mechanism; of an electric alarm-bell, an alarm-circuit having wire connections with the bell, a normally-closed circuit-closer included in said alarm-circuit and having a contact-spring provided with a trip connection with said alarm-setting mechanism, a switch included in said alarm-circuit, and a push-button circuit bridging the circuit-closer and the switch, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BALTUS DE WITT.

Witnesses:
C. A. MILLER,
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