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J. MARCK

2,214,232

CONTACT MECHANISM FOR ELECTRIC ALARMS AND THE LIKE

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Fig. 1

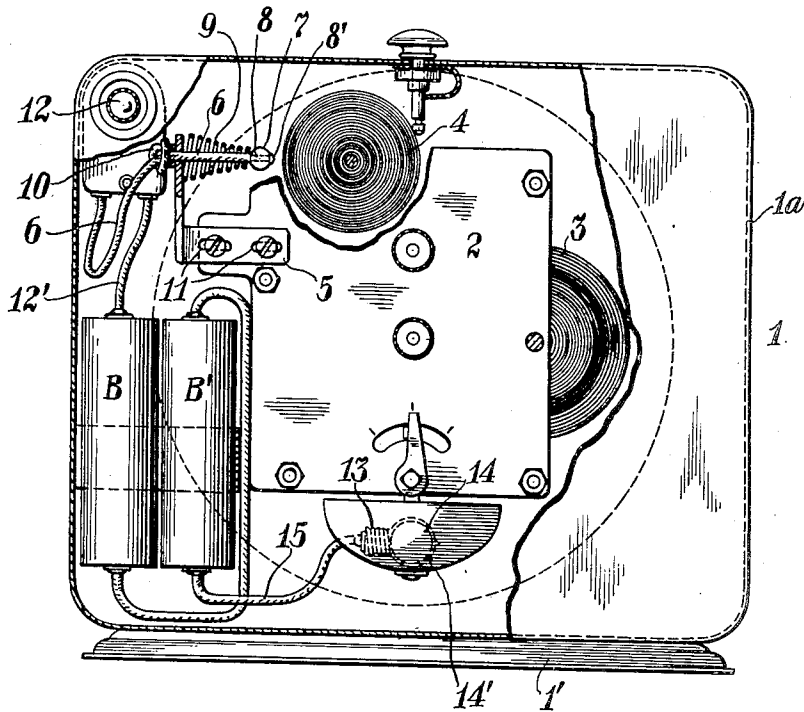


Fig. 2

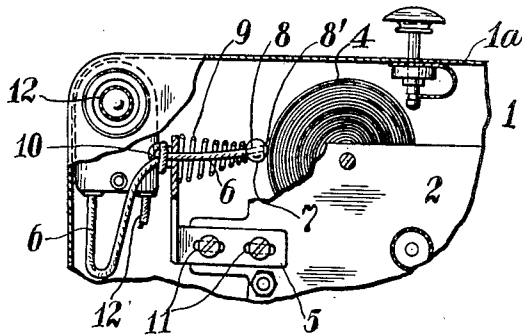


Fig. 3

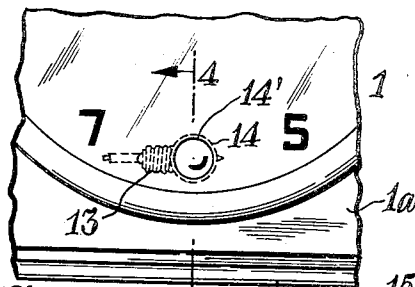


Fig. 4

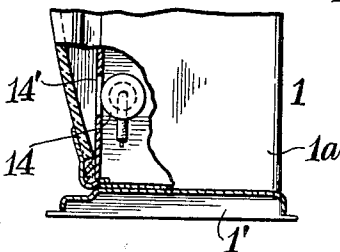
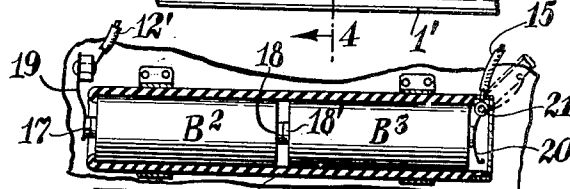


Fig. 5



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CONTACT MECHANISM FOR ELECTRIC
ALARMS AND THE LIKE

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2 Claims. (Cl. 200—166)

This invention relates to improvements in contact mechanisms for electric alarms and the like.

One of the objects of this invention is to provide a simple and efficient contact mechanism for electric alarms or indicators which can be arranged to make electrical contact for the lighting of an indicator bulb or the giving of other signals immediately upon expansion of a clock spring and which will continue such electrical contact during further expansion of the spring in order to provide a continuous signal contemporaneously with such further expansion.

Another object of my invention is to provide a device which may be placed at any adjusted position so as to produce contact at a predetermined time or given degree of expansion and which, in any position, will enable an indication and preferably a visible indication to be given that the spring has been expanded and requires re-winding.

Another object of my invention is to provide a contact mechanism which will not only make contact upon expansion of the spring but will maintain contact during such expansion movement.

Another object of my invention is, in a contact-mechanism of the type specified, to provide a movable contact member adapted, during movement, to maintain efficient electrical contact.

Still another object of my invention is, in a contact-mechanism of the type specified, to provide a contact member which is adapted to be resiliently held in electric contact position with a clock spring or similar expanding device as the other member of the contact mechanism, whereby one of the movable contacting surfaces will resiliently compensate for the movement of the other and will maintain electrical contact during such movement.

Another object of my invention is to provide an electric contact mechanism comprising, in combination, an insulated wire having, at its end, a bared contacting portion passing axially through an insulating and shielding glass bead to provide on the outer side of said bead a metallic contact surface, a conical spring having at its outer end a seat for said glass-ball contact member, and a bracket for supporting said spring.

Another object of my invention is to provide on the frame of the clock or the like, a bracket adapted to adjustably support a contacting mechanism of the type hereinabove specified.

With these and other objects in view, the in-

vention comprises the combination of members and arrangement of parts so combined as to co-act and co-operate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawing, in which:

Fig. 1 is a view of my electric contact mechanism positioned adjacent to an expansion spring of any alarm clock and adapted, upon contact with the spring, to immediately provide a visible signal or indication;

Fig. 2 is a fragmentary elevation, partly in section, showing the contact mechanism in contacting position;

Fig. 3 is a fragmentary view of the lower portion of the dial of the clock showing the indicating bulb exposed through an aperture in the dial;

Fig. 4 is a section on the line 4—4 of Fig. 3, looking in the direction of the arrows;

Fig. 5 is a modified form of my invention showing, in side elevation, a method of mounting batteries on the outside of a clock.

Referring now to the drawing, which illustrates a preferred embodiment of my invention, 1 indicates an alarm clock of any suitable type having a base 1' and a casing 1^a within which is encased conventional clock mechanism mounted upon one or more mounting plates 2 within which are mounted the usual clock spring 3 and alarm spring 4 which are entirely conventional and per se form no part of my invention.

In accordance with my invention, I mount on plate 2, at any suitable position in relation to an expansion spring, such as the spring 4, my improved contact mechanism which comprises a conventional insulated flexible wire 6 having, at its free end a bared portion 8 which extends axially through a glass ball 7 and is riveted on the periphery thereof so as to provide, at the axial periphery of said glass ball a metallic contact surface or portion 8'. The ball-shielded contact 8' is supported and held in extended position by a conical spring 9 having on its outer flattened end a seat into which the glass ball 7 is adapted to fit and to be held in extended position, so that the contact portion 8' may be positioned at any given or pre-determined position in relation to the periphery of the expansion spring 4 and the spring 9 is itself suitably supported, as for example, by the bracket 5.

Any suitable means may be employed to pre-

vent the ball from accidentally dropping downwardly away from its seat and as indicated, I place a knot 10 in the insulated wire 6 at a position which will, in seated position, retain the ball firmly on its seat.

Obviously, the contact may be placed closely adjacent to the periphery of the spring 4 or may be suitably spaced therefrom, and it will be obvious that upon the expansion of the spring 4, a contact will be made and that the conical spring 9 will hold the contact 8' and ball 7 in extended position so as to continuously maintain contact during the expansion of the spring. In Fig. 2, I have shown the spring 4 slightly expanded to make contact and the spring 9 slightly contracted. Obviously, the spring 4 and spring 9 will compensate one another for the purpose of maintaining contact and, the position of contact making may be varied and adjusted either by providing smaller springs 9 or by providing slots 11 in the bracket 5 so as to permit adjustment thereof.

In the embodiment of my invention shown, I have included a conventional switch 12 in the circuit. As illustrated, the circuit extends from the batteries B, B' through wire 12' through the switch 12 to the wire 6 and the contact portion or surface 8' and in closed condition, when the spring 4 expands the circuit extends through said spring 4 which is grounded on plate 2 and to the socket 13 of the lamp 14 which socket is also grounded on the plate 2 and thence by wire 15 back to the batteries B, B'.

The switch 12, of course, may or may not be employed, as desired, but is closed when the device is being set to provide a visible signal. If desired, however, the switch can be moved to open the circuit and extinguish the signal light. Under the circumstances where it is desired to use the lamp as a visible signal, the switch should be moved to closed position. The device may be used as a night light by permitting partial unwinding of the alarm spring to enable contact and in such case, the switch may be utilized to turn on and off the light. Under ordinary conditions of use, however, the switch is retained in closed position to enable a visible signal to be given conjointly with the ringing of the alarm because such a visible signal is not only desirable in the case of persons who are hard of hearing but in the case of persons with normal hearing, the contemporaneous visible signal has an awakening effect on a sleeper, particularly on dark mornings, and compels him to do an additional conscious act in order to cut off the light. The visible signal will also provide a definite indication that the sound-alarm-spring has been used and should be re-set, and a person who

awakes sufficiently to again wind the clock and thus cut off the light will be fully awake.

In Fig. 5 I have illustrated a method of mounting the batteries on the outside of the clock casing to enable ready and easy removal and replacement of the batteries. In this figure I have shown a tubular casing member 16 which may, in all respects, be similar to the casing of a flash light battery. Within this battery I position a pair of batteries B², B³, which have conventional contact members 17 and 18 adapted to contact with spring contact members 19 and 20 at opposite ends of the casing, one of said ends of the casing being openable on a hinge 21 as shown at the right hand side of Fig. 5. Each of these contact members 19 and 20 are connected with wires 12' and 15, shown in Fig. 1. Obviously, both batteries will be placed in the circuit and the casing 16 may be positioned at any suitable place outside or beneath the casing 1.

Having described my invention, I claim:

1. An electric contact mechanism comprising, in combination, a bracket, an insulated wire provided with a projecting portion mounted in said bracket, said projecting portion having, at its inner end, an abutment engaging said bracket to limit extension of said wire relatively to said bracket and provided, at its terminal end, with a bared portion, an insulating and shielding bead mounted on the outer end of said wire and through which said bared portion passes to provide on the outer side of said bead a metallic contact surface, and a spring of greater length than said projecting wire portion adapted to resiliently engage said bead to hold the contact in extended position, said spring having at its outer free end a retaining portion for said shielded contact member.

2. An electric contact mechanism comprising, in combination, a bracket, an insulated wire provided with a projecting portion mounted in said bracket, said projecting portion having, at its inner end an abutment engaging said bracket to limit extension of said wire relatively to said bracket and provided, at its terminal end, with a bared portion, an insulating and shielding bead mounted on the outer end of said wire and through which said bared portion passes to provide on the outer side of said bead a metallic contact surface, and a conical spring of greater length than said projecting wire portion adapted to resiliently engage said bead to hold the wire in extended position, said spring having at its outer free end a seat for said shielded contact member.

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