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C. L. SCHROEDER

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ALARM

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Fig. 1

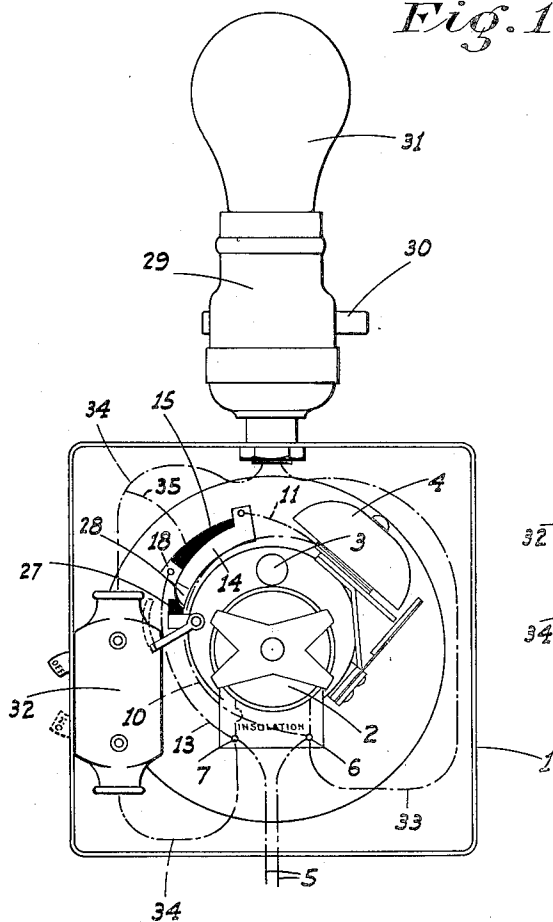


Fig. 3

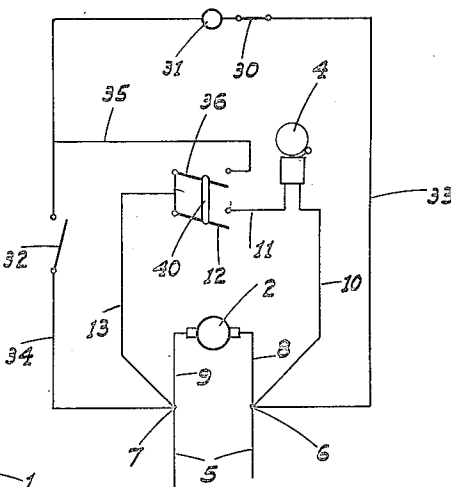
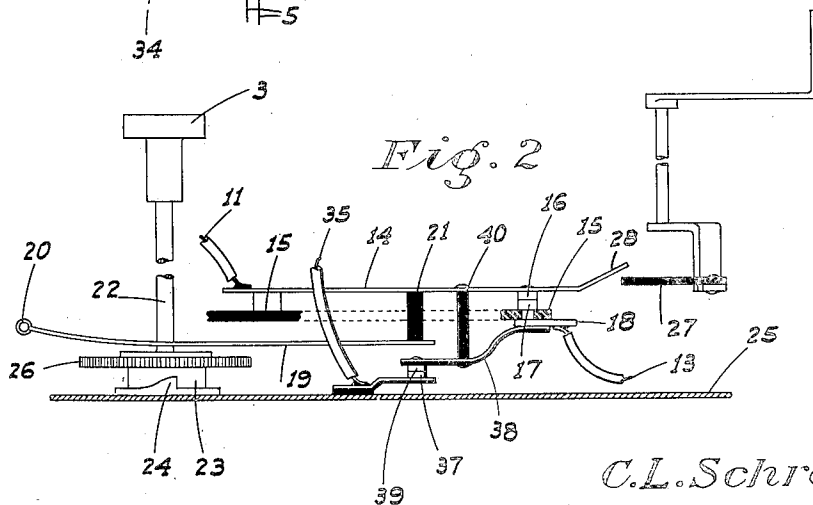


Fig. 2



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ALARM

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1 Claim. (Cl. 200—38)

This invention relates generally to alarm clocks, the invention being directed in particular to an electric clock having an audible electric alarm.

5 The principal object of my invention is to provide an alarm clock constructed so that an electric light will be turned on concurrently with the ringing of the alarm bell or other audible alarm device so that both audible and visual alarms are
10 given.

A further object of my invention is to provide a device, in combination with a particular electric circuit, which will extinguish the electric light when the audible alarm device is shut off.

15 As an additional object, it is my purpose to provide an electric circuit for the electric light which will permit selective use of the light at any time as well as selective use of the light with the audible alarm device.

20 A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

25 These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawing similar characters of reference indicate corresponding parts in the several
30 views:

Figure 1 is an outline of the back of an electric clock provided with my electric light visual alarm; the dotted lines indicating the electrical connections.

35 Figure 2 is an enlarged diagrammatic side elevation of the particular switch structure I employ in the electrical circuits.

Figure 3 is a diagrammatic illustration of the electrical circuits of the alarm devices.

40 Referring now more particularly to the characters of reference on the drawing, the numeral 1 denotes the case of a clock having mounted therein a synchronous electric motor 2 which drives the clock mechanism (not shown).

45 An alarm setting knob 3 extends rearwardly of the clock case and is connected into the clock mechanism as usual. Mounted adjacent the electric motor 2 within the case 1 is the electric alarm bell 4.

50 Electric supply devices 5 extend from the source of supply to terminals 6 and 7 within the clock case. Wires 8 and 9 lead from these terminals to the motor and supply electric current therefor. Another wire 10 connects directly between the terminal 6 and one terminal of the

bell 4 while the other terminal of the bell is connected by a wire 11 to one side of a switch 12. Completing the bell circuit is a wire 13 connecting the other side of the switch 11 with supply terminal 7.

5 This switch, indicated generally at 12, comprises (as illustrated in Figure 2) a flexible switch arm 14 rigidly secured at one end to a strip of insulating material 15 which is secured to the clock frame. This arm is provided adjacent its other end with a contact point 16
10 mounted for engagement with another contact point 17, secured to a terminal finger 18 secured on the under side of the strip 15. The wire 11 leading from the bell connects to the switch arm 14 while the wire 13 leads from the terminal finger 18 to the supply terminal 7.

15 The contact points 16 and 17 are automatically brought into contact to actuate the bell by means of an actuating arm 19 rigidly secured at one end as at 20 and projecting beneath the arm 14 and connected thereto by a connecting element 21 of insulating material.

20 A shaft 22 on the outer end of which is secured the alarm setting knob 3 cooperates with and controls the position of a rotatable female cam element 23 relative to a male cam element 24 fixed to the clock frame 25, all as is common in clock construction. The cam element 23 is rotated by a gear 26 connected thereto and driven one full revolution every twelve hours from the clock mechanism. Thus, at all hours except the hour when the cams are in full engagement, the cam 23 and gear 26 are raised
25 sufficient to contact the arm 19 and raise the same as well as connected arm 14 enough to break the contact points 16 and 17 of the bell circuit and therefore prevent the alarm from ringing. But at the predetermined hour, the cams fall into complete engagement, the arms drop and allow the contacts 16 and 17 to close the bell ringing circuit.

30 To prevent continued operation of the bell while the cam elements remain in complete engagement, an insulated finger 27, suitably mounted for movement toward the free end of switch arm 14, is moved until it engages beneath an upturned portion 28 on said end of the arm 14 to raise said arm and thereby separate contact points 16 and 17.

35 The structure hereinbefore described is usual in electric clock construction and has been set out in order to form a structural basis for the novel features of my invention which will now be described.

55

Mounted on top of the clock case 1 is an electric socket 29 having a built-in switch 30 and provided with an electric globe 31. Supported within the clock case 1 but operable exteriorly 5 thereof is a snap switch 32.

The electric circuit for this light comprises a wire 33 leading from the supply terminal 6 directly to one terminal of the electric socket 29. The snap switch 30 is interposed in this wire 33. 10 Another wire 34 leads from the other socket terminal to the supply terminal 7 to complete the circuit; the snap switch 32 being interposed in wire 34 to selectively break the circuit at that point.

15 Another wire 35 connects into wire 34 between the socket 29 and switch 32 and leads to one terminal of another switch 36 actuated by and in unison with the switch 12 already described. The other terminal of switch 36 is connected directly 20 with wire 13 which connects with supply terminal 7. In effect, switches 32 and 36 are connected in parallel in the electric light circuit.

The switch 36 is constructed in unity with switch 12 and comprises a fixed contact point 25 37 to which wire 35 connects. A flexible metal strip 38 is secured at one end to the terminal finger 18 and carries the other contact point 39 on the outer end adjacent the contact point 37. A coupling element 40 of insulating material 30 connects arm 14 with strip 38 whereby when arm 14 moves up, due to the cam actuating the connected arm 19, and breaks contacts 16 and 17 apart, strip 38 also moves up and separates contacts 37 and 39.

35 *Operation*

When my novel alarm device is to be used, the switch 30 is closed and switch 32 opened and the alarm set for a particular hour by turning knob 40 3. In this position the cams 23 and 24 are in such position as to have moved arm 19 upward causing both sets of contacts 16 and 17, and 37 and 39 to open which breaks both the bell circuit and the light circuit. At the selected hour, 45 the cams 23 and 24 snap into complete engagement and both sets of contacts, above referred to, are at once closed causing the bell to ring

and the light to be illuminated thus giving an audible and visual alarm. Then, by moving the insulated finger 27 into engagement with the upturned tip of arm 14, the arm is raised breaking 5 contacts 16—17 apart as well as contacts 37—39 which turns off both the bell and light.

If desired to use the light separately from the bell, the switches 30 and 32 are closed which completes the circuit and illuminates the electric globe 31. 10

Also, if it is desired that only the alarm bell ring and the light remain unlighted when the bell and light switches are closed by the clock mechanism, the switches 30 and 32 are both 15 opened when the alarm is set.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein. 20

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the 25 appended claim.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

An electric light signal switch for an alarm clock, said clock having a time-closed normally 30 open audible-alarm switch which comprises a flexible switch arm fixed at one end, a contact on its opposite end and a fixed contact cooperating with said arm contact; said signal switch comprising a flexible switch strip extending in a general 35 direction parallel to and spaced from the flexible arm and secured at one end in electrical connection with the fixed contact of the other switch, a contact on the free end of said strip, a relatively fixed cooperating contact positioned 40 to be spaced from the strip contact when the alarm switch contacts are spaced, and an element of insulation material connecting the arm and strip whereby the strip will be moved simultaneously with the moving of the flexible switch 45 arm.

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