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SINGLE HAND ELECTRIC ALARM CLOCK

Filed Dec. 22, 1950

3 Sheets-Sheet 1

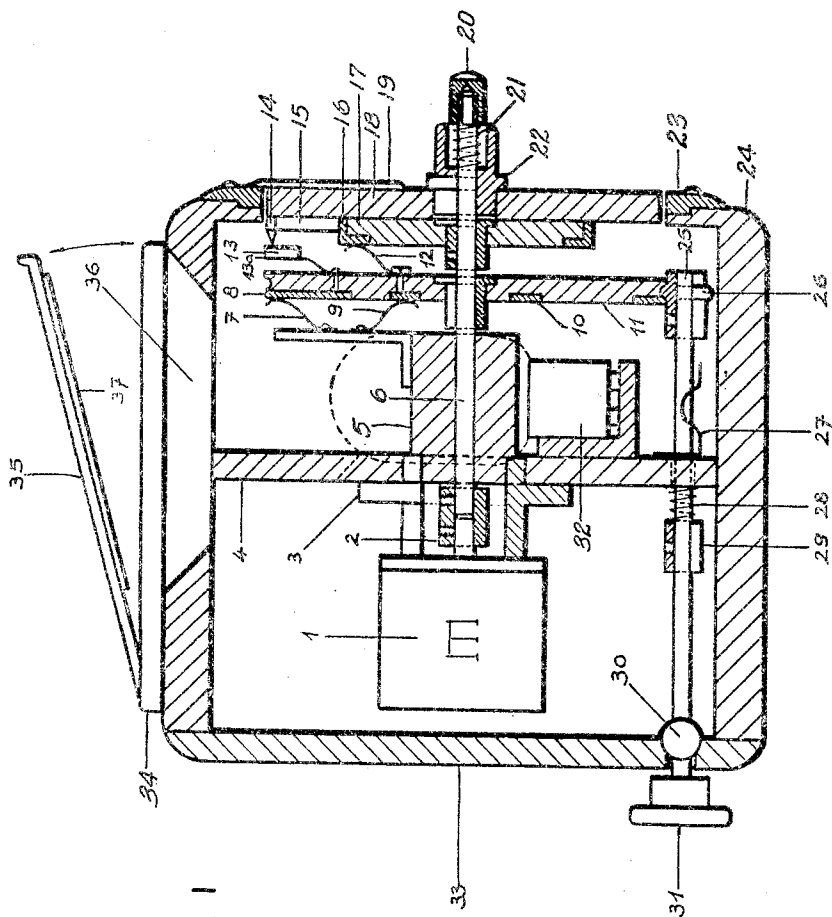


FIG. 1

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3 Sheets-Sheet 2

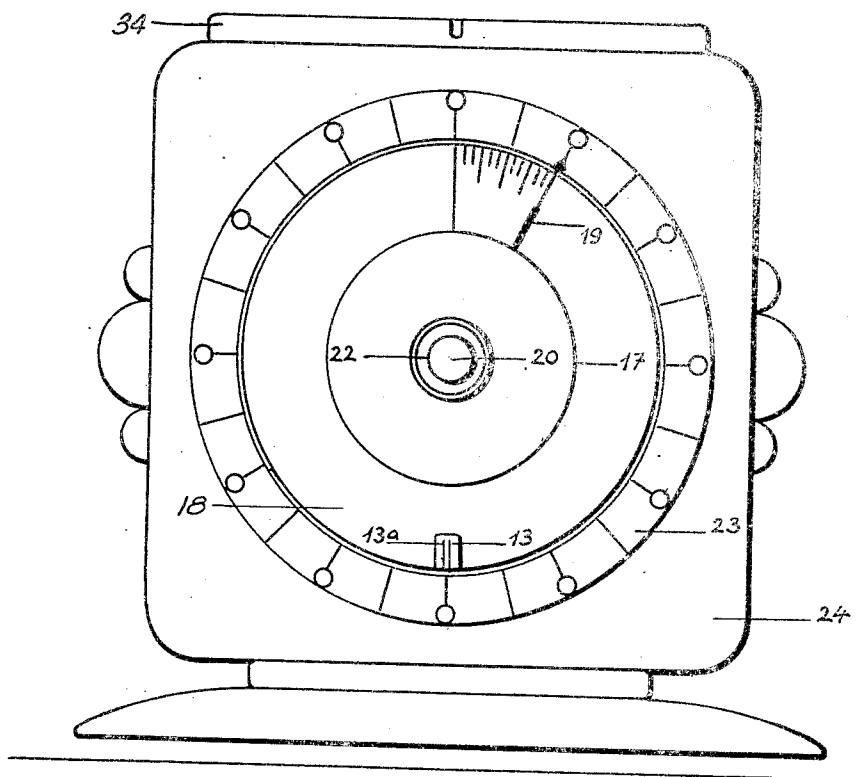


FIG. 2

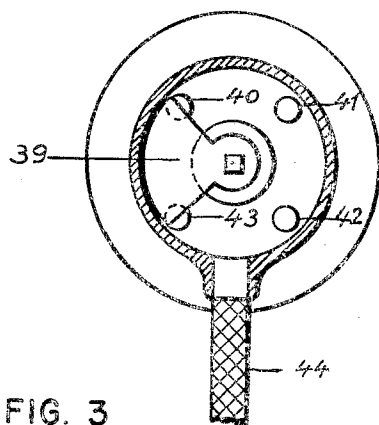


FIG. 3

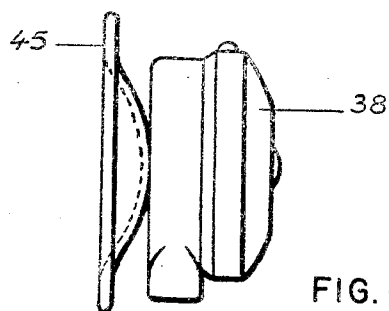


FIG. 4

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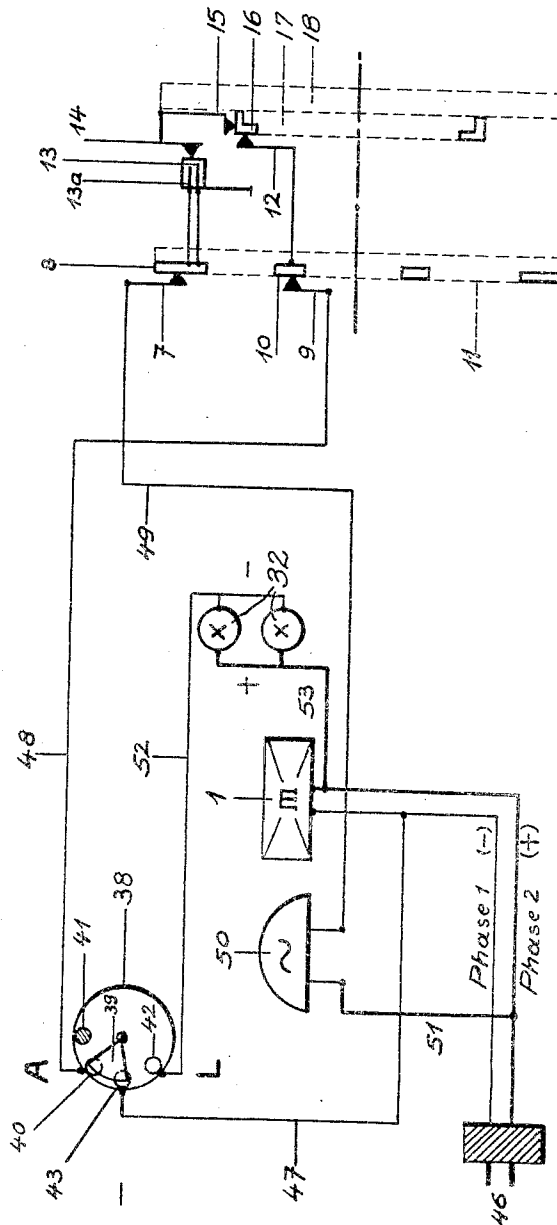
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3 Sheets-Sheet 3



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SINGLE HAND ELECTRIC ALARM CLOCK

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1 Claim. (Cl. 58—19)

The invention relates to a single hand electric alarm clock comprising a time indicating member which consists of a disc with a graduated section, the angle at the center of which amounts to 30°, this disc being arranged in the same plane as the time dividing ring which is surrounding it. An adjustable hand may also be provided on this disc to extend over the time dividing ring. At least one ring section of the time indicating disc is transparent so that the position of the alarm clock setting contacts located behind the time indicating disc may easily be recognized.

The drawings show the execution of an electric alarm clock according to the invention.

Fig. 1 is a longitudinal section through a single hand electric alarm clock embodying the invention.

Fig. 2 is a front view of the alarm clock of Fig. 1.

Fig. 3 is a front view, partially in section, of the control switch.

Fig. 4 is a side view of the control switch of Fig. 3.

Fig. 5 is an electric circuit employable for the alarm bell.

Referring to Fig. 1, a synchronous motor 1 is used as driving means for the clock work and is connected to the light net by means of an electric cord 44 and an electric plug 46 (Figs. 3 and 5). The synchronous motor 1 is mounted on a flange 3 which is concentrically arranged to the motor axle 6 and is connected to the latter by means of a rigid coupling. The flange has an extension inserted into and fastened within a recess disposed in the center of vertical plate 4. A bearing 5 also is concentrically connected to the flange 3. A knob 20 is mounted at the front on the axle 6 and exerts by means of a spring 21 pressure on the wall of the slidable hub 22, the time indicating disc 18 which is fastened to the hub being pressed against the friction disc 17; the latter one is rigidly connected to the driving axis 6. The rotation of the axle 6 is transmitted to the time indicating disc 18 by means of the friction disc 17. Any rotation of the knob 20 to the left or to the right decreases or increases, respectively, the tension of the spring 21; for the purpose of setting the time indicating disc 18, it is necessary to turn the knob 20 that far to the left that the friction between the friction disc 17 and the time indicating disc 18 will sufficiently be reduced to allow the latter to be turned.

Referring to Fig. 2 which shows a front view of the alarm clock, the casing 24 comprises a time dividing ring 23 with twenty-four radially directed time dividing marks, indicating the hours as well as the half hours. The transparent time indicating disc 18 comprises a graduated section or sector, the angle at the center of which amounts to 30°, the leading radially directed edge of the section forming a hand 19 which is not transparent; the interval between two dividing marks of the graduated section amounts to five minutes, while single minutes are to be estimated. The play between the time indicating disc 18 and the inner edge of the time indicating ring 23 amounts to about 2 mm., thus preventing any friction between disc

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and ring. The double contact member consisting of the two single alarm bell setting contacts 13 and 13a which are insulated from each other, can be recognized through the transparent time indicating disc 18. Disc 18 carries on the inner side thereof a contact pin 14 (Fig. 1) which is located behind the hand 19 and exactly in line with same; this contact pin 14 on the one hand is connected to a sliding contact 15 and on the other hand passes over the alarm bell setting contacts 13 and 13a in the moment the hand 19 of the time indicating disc 18 reaches that position; provided that the control switch is in the "alarm bell" position, this contact pin 14 will close the alarm bell circuit as will be later described. The knob 31 by means of a setting axle 25 as well as by means of the rubber member 26 being mounted on it, serves to set the alarm bell contact disc 11 as well as the alarm bell setting contacts 13 and 13a which are provided on it.

Spring 28 seated on setting axle 25 and abutting with one end against the vertical plate 4 and with its other end against an abutment sleeve 20 which is mounted on the axle 25, is pressed through ball member 30 against a ball socket of the end plate 33. The axle 25 is also secured against lateral displacement by means of a leaf spring 27, the pressure thereof being exerted on the axle whereby the rubber member 26 is pressed toward the alarm bell contact disc 11.

One or eventually two light bulbs 32 which suitably are elongated illuminate the time indicating disc 18 as well as the outer side of the alarm clock casing 24. For the purpose of also using the alarm clock as a reading lamp, the pivotally mounted cover 35 comprises on its inner side a mirror 37, which thus provides an indirect illumination. The light rays thereby pass from the bulb 32 through the opening 36 in the uppermost part of the alarm clock casing 24.

The switch 38 (Figs. 3, 4) serves as a control member for the alarm clock and comprises four contacts 40, 41, 42 and 43 (Figs. 3 and 5) as well as a rotating member 39 which alternately connects the contacts 42—43 and 40—43, corresponding to the two positions "light" and "alarm bell" respectively. When turned to the "light" position, the switch 38 closes a circuit which is set up as follows: Phase 1 of the power line 47, switch contact 43, rotating member 39, switch contact 42, line 52, light bulbs 32, phase 2 of the power line.

When turned to the "alarm bell" position, the switch 38 closes a circuit which is set up as follows: Phase 1 of the power line 47, switch contact 43, rotating member 39, switch contact 40, line 48, sliding contact 9, contact ring 10, sliding contact 12, contact ring 16, sliding contact 15, contact pin 14, alarm bell contact 13 or 13a, contact ring 8, sliding contact 7, line 49, transformer 50, phase 2 of the power line. The switch is connected to the alarm clock by means of a flexible three conductor cord 44, and furthermore is provided with a suction member 45 by means of which it can be attached to any desired object, and also easily removed again.

In order to actuate the alarm bell, the described circuit must be adjusted by switch 38, whereupon the contact pin 14 (Fig. 1) which is mounted on the time indicating disc 18 behind the hand 19 and in line with same, will contact with one of the two alarm bell setting contacts 13 or 13a. These two contacts are insulated from each other, providing thus two separated alarm signals which will sound with an interval of about five minutes between them; the duration of this interruption naturally can easily be varied by suitably choosing the width of the insulation. Assuming that the switch 38 may now be in the "alarm bell" position and the hand 19 of the time indicating disc 18 will pass over the alarm bell setting contact 13, the alarm bell will ring for about 45 seconds, corresponding to the time the contact pin 14 requires to pass over this contact 13;

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after the said interruption has taken place, the contact pin 14 then will pass over the contact 13a and the alarm bell will ring a second time. The second alarm signal naturally will not sound in case the switch 38 has in the meantime been turned to the "light" position or even been turned off to rest on contacts 41—40. It should furthermore be recognized that the time indicating device will not be affected by either of these different switch positions as the driving motor is directly connected to the two phases of the power line.

The execution of the invention shows an alarm clock with a time indicating disc 12, comprising at the center of the graduated section an angle of 30° which corresponds to the angle between two marks, indicating the hours on the time dividing ring 23. It is possible in this case to accurately read the time. This accuracy as a rule meets the requirements claimed for alarm- and various other clocks. In case of clocks to be suspended from walls it might be advisable to provide the time indicating ring 23 with a twenty-four hours division, while the angle at the center of the graduated section of the time indicating disc 12 amounts to 15°. The accuracy of reading the time may also be improved by further subdividing the angle of 30° at the center of the graduated section.

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

A single-hand electric alarm clock comprising a time indicating disc including a sector graduated to correspond with predetermined time intervals, a time dividing ring surrounding said time indicating disc and arranged in the

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same plane as the latter, one edge of said graduated sector of said time indicating disc carrying a hand partially projecting over said time dividing ring for convenient visual inspection of time readings, said time indicating disc including a hub portion rotatable therewith, a driving axle supporting said hub portion of said time indicating disc, a manually operable control knob disposed on said driving axle on one side of said time indicating disc, a friction disc fixedly mounted on said driving axle on the opposite side of said indicating disc, and spring means interposed between said knob and said hub portion of said time indicating disc for normally maintaining operative frictional driving contact between said friction disc and said time indicating disc, said knob being adjustable for overcoming the operative frictional driving contact between said friction disc and said time indicating disc for selective adjustment of said time indicating disc.

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