

PATENT SPECIFICATION

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(54) AN ALARM CLOCK FOR PROVIDING A WAKE-UP ALARM SIGNAL

(71) I, ALEXANDER W. HUGHES, JR. a citizen of the United States of America, of 19 Wardell Circle, Oceanport, New Jersey 07757, United States of America, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to an alarm clock for providing a wake-up alarm signal.

Prior art alarm clocks are usually of the type which provide an annoying audible or visual alarm signal in response to the occurrence of a preset time. Such a signal is normally purposely disturbing so as to arouse the user from sleep. In order to avoid this initial disturbing awakening from sleep, alarms have been utilised in what is commonly termed clock radios which are turned on at the preset time so as to gradually wake-up the user. Normally, in such clock radios, an additional disturbing audible alarm signal will be sounded at a preset time interval after the initial activation of the radio portion of the alarm.

The invention provides an alarm clock for providing a wake-up alarm signal comprising a housing including an alarm clock mechanism mounted in the housing and having a face and time display means for indicating time on the face, a representation of a predetermined character adjacent the time display means, playback means mounted within the housing and including as the wake-up alarm signal a pre-recorded wake-up message in a corresponding predetermined voice, an alarm circuit comprising armable means for enabling the message providing means at a preset time corresponding to a predetermined time display on the clock face, the armable means being presettable to any selected time and trippable at the preset time to provide the wake-up message.

In a preferred embodiment the armable means comprises a first switch presettable to arm the alarm circuit, the presettable first switch having a first position in which the alarm circuit is armed whereby the message providing means may be enabled and a second position in which the alarm circuit is disabled, the wake-up message only being provided when the first switch is in the first position, and a second trippable switch connected in series with the first switch, the second switch having a first position in which the alarm circuit is disabled and a second position in which the alarm circuit is enabled to provide the wake-up message, the second switch being operatively connected to the alarm clock mechanism and being trippable from the first position to the second position by the alarm clock mechanism at a position thereof corresponding to the preset time.

Preferably in all the embodiments the predetermined character represented on the face is one having a characteristic voice which is the corresponding predetermined voice identifiable with the character and associated therewith.

The invention will now be described, by way of example, with reference to the accompanying diagrammatic drawing, in which:

Figure 1 is a pictorial illustration of the front face of a wake-up alarm clock in accordance with the present invention.

Figure 2 is a side elevation in section of the embodiment illustrated in Figure 1, partly in block, with conventional elements being omitted for purposes of clarity.

Figure 3 is a fragmentary sectional plan view taken along line 3-3 in Figure 2, and

Figure 4 is a diagram, partially in block, of the alarm circuit of the alarm clock illustrated in Figures 1 to 3.

Referring now the drawings in detail and initially to Figures 1 and 2 thereof, a

preferred embodiment of the wake-up alarm clock, generally referred to by the reference numeral 10, of the present invention is shown. Preferably, the alarm clock 10 comprises a conventional wind-up alarm clock mechanism 12, having a clock face 14, a cyclically movable hour hand 16, a cyclically movable minute hand 18, a conventional array of time indicia 20 consisting of the numerals 1 to 12 disposed about the clock face 14 to provide, in cooperation with the hour and minute hands 16 and 18, an instantaneous display of the time and a window display 22 of the preset alarm time, such as 2 p.m. in the Figure 1 illustration.

The alarm clock mechanism 12 is preferably contained in a housing 24 which may have a three dimensional figure 26 of an identifiable character, such as Bugs Bunny, which character may also be graphically reproduced on the clock face 14 as illustrated by 28. If desired, the three dimensional figure 26 may be omitted and only the graphic reproduction 28 may be utilised or vice versa. Furthermore, if desired a photograph may be utilised as the graphic representation 28.

The housing 24 also preferably contains within the interior thereof a conventional talking device, hereinafter referred to as talking box, such as the type commercially utilised for talking dolls or for the device known as "Laughing box" and manufactured by Ozen Sound Devices of Japan, for instance a talking box model No. DT 9 which device is conventional and need not be described in greater detail hereinafter. This talking box is generally referred to by the reference numeral 30. Although the preferred alarm clock 10 is illustrated as a conventional analog clock having an hour hand display, if desired it may be one of the type providing a digital display as long as a graphic representation and/or figure of an identifiable character is provided adjacent the time indicia display.

Referring now to Figure 4, a typical diagram of the preferred alarm circuit is shown. The alarm circuit includes the wind-up alarm clock mechanism 12, a switch 32 connected to the timing mechanism of the clock 10 so as to be triggered at the selected wake-up time from an open condition shown in full lines, to a closed position, shown in dotted lines (Figure 4). A second switch 34, which can be manually preset or actuated is connected in series with the switch 32. When the switch 34 is closed, i.e. in the position shown by the dotted lines in Figure 4, the alarm circuit is enabled, and when it is in the position shown by the solid lines the alarm circuit is disabled, as will be described in greater detail hereinafter. The switches 32

and 34 are connected in series to a conventional record drive motor 36 of the talking box 30 which motor is in turn connected in series to an energising source such as a conventional dry cell battery 38. Thus, when both the switches 32 and 34 are closed, the circuit is completed between the battery 38 and the drive motor 36 and the talking box 30 is energised so as to reproduce the prerecorded wake-up message.

This prerecorded wake-up message corresponds to and is identifiable with the character 26 and/or 28 appearing adjacent the time display on the clock face 14. For example, if the character is "Bugs Bunny", the wake-up message could be as follows: "This is Bugs Bunny; time to get up". No other type of alarm signal is preferably provided and, preferably, this message is repetitively provided until the alarm is turned off. Although the message is described as that of a cartoon character, if desired any prerecorded message, such as one recorded by the user in his own voice, with his picture appearing as a graphic representation 28, or the voice of a loved one with the loved one's graphic representation 28 appearing on the clock face 14, may be utilised.

Referring now to Figures 2 and 3, the talking box 30 is shown in greater detail. The talking box 30 preferably comprises the record drive motor 36, a record driven thereby upon which the prerecorded message is contained, a pick-up including a transducer and a needle 42 engageable in the grooves of the record for picking up the message in conventional fashion, and a diaphragm 44 which reproduces the prerecorded message when in contact with the needle 42. In addition, the talking box 30 conventionally includes needle reset means 46 for raising the diaphragm and the needle 42 to permit the needle 42 to return to the start of the message. This is conventionally accomplished by the needle 42 being spring biased towards this initial position the return only being prevented by the contact of the diaphragm 44. This needle reset means 46 is commercially available in the Ozen talking box previously described.

The switch 34 which enables or disables the alarm circuit is illustrated in greater detail in Figure 3 which is a sectional plan view, and is further shown in side elevation in Figure 2. Preferably the switch 34 includes an extension member 50 a preferred embodiment of which is illustrated in Figure 2. The extension member 50 contacts the diaphragm 44 when the switch 34 is pushed in to disable the alarm circuit, this contact preventing the contact of the diaphragm 44 with the needle 42 by raising

the diaphragm 44 above the normal contact position. The diaphragm 44 is held in this position as long as the switch 34 is in the pushed-in position which is the alarm disabling position. As previously mentioned, the needle 42 is spring-biased towards an initial position at the start of the message. Therefore, when the switch 34 is pushed in to disable the alarm, the diaphragm 44 is raised and the needle 42 returned to the initial position. This may occur at any time during the message, so that if the alarm is turned off in the middle of the message, the next time the alarm is utilised it will be at the start of the message, as opposed to the needle reset means 46 which only operates at the end or completion of the message in conventional fashion to return the needle 42 to the starting position at the completion of the message. The needle reset means 46 allows the message to be repetitively reproduced so that each time the message is completed, and the needle 42 contacts the needle reset means 46, this causes the diaphragm 44 to be temporarily raised to permit the return of the needle 42 to the starting position. Thereafter, since needle 42 no longer contacts the needle reset means 46, contacting engagement between the diaphragm 44 and the needle 42 is re-established in this initial position so that the message may once again be reproduced. However, as was previously mentioned, with respect to the switch 34, no such contact engagement is re-established until the user mechanically pulls the switch 34 out again to enable the alarm circuit.

Referring now to Figure 3, the switch 34 comprises a linearly movable plunger element 52 and a pair of electrical contact elements 54 and 56. The electrical contact element 54 also functions as a conductive spring to hold the switch 34 in the out or enabled position, as illustrated in Figure 3 when the user places the switch in this position. When the switch 34 is pushed in to disable the alarm circuit, the element 54 enters a groove 58 in the plunger element 52 in which element 54 freely rides to avoid putting pressure on the diaphragm 44 while breaking the electrical contact between elements 54 and 56 so as to open or disable the alarm circuit of Figure 4.

Thus, summarising the operation of the device, to enable the alarm, the switch 34 is pulled out to the position illustrated in Figure 3 in full lines, i.e. to the dotted line position illustrated in Figure 4. In this position, the diaphragm 44 is in contact engagement with the needle 42. However, the record drive motor 36 has not yet been energised so no message is provided. The wind-up alarm clock mechanism 12 is con-

ventionally set to operate at a preset time, such a 2 p.m. When the hour and minute hands 16 and 18 display 2 p.m. on the face of the clock, this causes switch 32 to be tripped which completes the series circuit between the record drive motor 36 and the battery 38. This energises the record drive motor 36 and causes the prerecorded message on record 40 to be reproduced through the diaphragm 44. This message is repetitively reproduced, the needle 42 returning to the starting position each time the message is completed as it contacts the needle reset means 46 as previously described, until the user is awakened and turns off the alarm by pushing in the switch 34 so as to disable the alarm circuit.

The rest of the structural arrangement illustrated in Figure 2 is conventional and need not be described in greater detail hereinafter, such as the conventional wind-up device 60 for the alarm clock 10 or the conventional device 62 for moving the hour and minute hands 16 and 18 on the clock face as well as the conventional mechanism for setting the alarm (not shown).

Thus, utilising the present invention, a wake-up alarm signal consisting of a prerecorded spoken wake-up message corresponding to and identifiable with the character appearing on or adjacent to the face of the alarm clock to simulate the voice of this character as a wake-up alarm message at a preset time in response to the enabling of an alarm circuit may be provided.

It is to be understood that the above described embodiment of the invention is merely illustrative and that numerous modifications and embodiments of the invention are possible within the scope of the claims.

WHAT I CLAIM IS:—

1. An alarm clock for providing a wake-up alarm signal comprising a housing including an alarm clock mechanism mounted in the housing and having a face and time display means for indicating time on the face, a representation of a predetermined character adjacent the time display means, playback means mounted within the housing and including as the wake-up alarm signal a prerecorded wake-up message in a corresponding predetermined voice, an alarm circuit comprising armable means for enabling the message providing means at a preset time corresponding to a predetermined time display on the clock face, the armable means being presettable to any selected time and trippable at the preset time to provide the wake-up message.

2. An alarm clock according to Claim 1 wherein the armable means comprises a

the diaphragm 44 above the normal contact position. The diaphragm 44 is held in this position as long as the switch 34 is in the pushed-in position which is the alarm disabling position. As previously mentioned, the needle 42 is spring-biased towards an initial position at the start of the message. Therefore, when the switch 34 is pushed in to disable the alarm, the diaphragm 44 is raised and the needle 42 returned to the initial position. This may occur at any time during the message, so that if the alarm is turned off in the middle of the message, the next time the alarm is utilised it will be at the start of the message, as opposed to the needle reset means 46 which only operates at the end or completion of the message in conventional fashion to return the needle 42 to the starting position at the completion of the message. The needle reset means 46 allows the message to be repetitively reproduced so that each time the message is completed, and the needle 42 contacts the needle reset means 46, this causes the diaphragm 44 to be temporarily raised to permit the return of the needle 42 to the starting position. Thereafter, since needle 42 no longer contacts the needle reset means 46, contacting engagement between the diaphragm 44 and the needle 42 is re-established in this initial position so that the message may once again be reproduced. However, as was previously mentioned, with respect to the switch 34, no such contact engagement is re-established until the user mechanically pulls the switch 34 out again to enable the alarm circuit.

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Thus, summarising the operation of the device, to enable the alarm, the switch 34 is pulled out to the position illustrated in Figure 3 in full lines, i.e. to the dotted line position illustrated in Figure 4. In this position, the diaphragm 44 is in contact engagement with the needle 42. However, the record drive motor 36 has not yet been energised so no message is provided. The wind-up alarm clock mechanism 12 is con-

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The rest of the structural arrangement illustrated in Figure 2 is conventional and need not be described in greater detail hereinafter, such as the conventional wind-up device 60 for the alarm clock 10 or the conventional device 62 for moving the hour and minute hands 16 and 18 on the clock face as well as the conventional mechanism for setting the alarm (not shown).

Thus, utilising the present invention, a wake-up alarm signal consisting of a prerecorded spoken wake-up message corresponding to and identifiable with the character appearing on or adjacent to the face of the alarm clock to simulate the voice of this character as a wake-up alarm message at a preset time in response to the enabling of an alarm circuit may be provided.

It is to be understood that the above described embodiment of the invention is merely illustrative and that numerous modifications and embodiments of the invention are possible within the scope of the claims.

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1. An alarm clock for providing a wake-up alarm signal comprising a housing including an alarm clock mechanism mounted in the housing and having a face and time display means for indicating time on the face, a representation of a predetermined character adjacent the time display means, playback means mounted within the housing and including as the wake-up alarm signal a prerecorded wake-up message in a corresponding predetermined voice, an alarm circuit comprising armable means for enabling the message providing means at a preset time corresponding to a predetermined time display on the clock face, the armable means being presettable to any selected time and trippable at the preset time to provide the wake-up message.

2. An alarm clock according to Claim 1 wherein the armable means comprises a





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first switch presettable to arm the alarm circuit, the presettable first switch having a first portion in which the alarm circuit is armed whereby the message providing means may be enabled and a second position in which the alarm circuit is disabled, the wake-up message only being provided when the first switch is in the first position, and a second trippable switch connected in series with the first switch, the second switch having a first position in which the alarm circuit is disabled and a second position in which the alarm circuit is enabled to provide the wake-up message, the second switch being operatively connected to the alarm clock mechanism and being trippable from the first position to the second position by the alarm clock mechanism at a position thereof corresponding to the preset time.

3. An alarm clock according to Claim 2 wherein the playback means comprises a record having the prerecorded message thereon, a transducer means engageable with the record for picking up the message therefrom, and a diaphragm engageable with the transducer means for reproducing the message picked up thereby, the first switch further comprising first means engageable with the diaphragm in the second position of the first switch for engaging the diaphragm from the transducer means to disable the reproduction of the prerecorded message.

4. An alarm clock according to Claim 3 wherein the transducer means is engageable with the record in an initial position at the beginning of the message and advances to a final position at the completion of the message, the playback means further including resilient means for

biasing the transducer means toward the initial position, the diaphragm engagement preventing the return of the transducer means to the initial position, the first means engageable with the diaphragm enabling return to the initial position whenever the first switch is in the second position.

5. An alarm clock according to Claim 4 wherein the playback means further comprises second means engageable with the diaphragm at the completion of the message for temporarily disengaging the diaphragm from the transducer means for enabling return to the initial position, the second means engageable with the diaphragm enabling the diaphragm to re-engage the transducer means and again reproduce the message upon return thereof to the initial position whereby the message may be repetitively reproduced.

6. An alarm clock according to any one of Claims 1 to 5 wherein the predetermined character represented on the face is one having a characteristic voice which is the correct predetermined voice identifiable by the character and associated therewith.

7. An alarm clock for providing a wake-up alarm signal substantially as herein described with reference to and as shown in the accompanying drawing.

8. An alarm clock for providing a wake-up alarm signal substantially as herein described.

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SPECIFICATION NO 1469250

By a direction given under Section 30 of the Patents Act 1977 this application proceeded in the name of ELGIN NATIONAL INDUSTRIES, INC., a Corporation organized under the laws of the State of Delaware, United States of America, with its principal place of business at 120 South Riverside Plaza, Chicago, Illinois 60606, United States of America.

THE PATENT OFFICE

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