

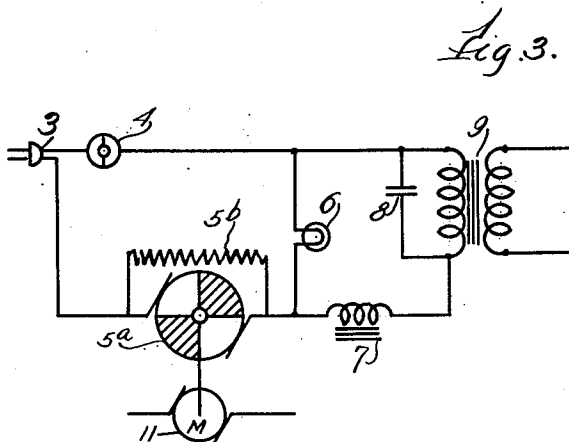
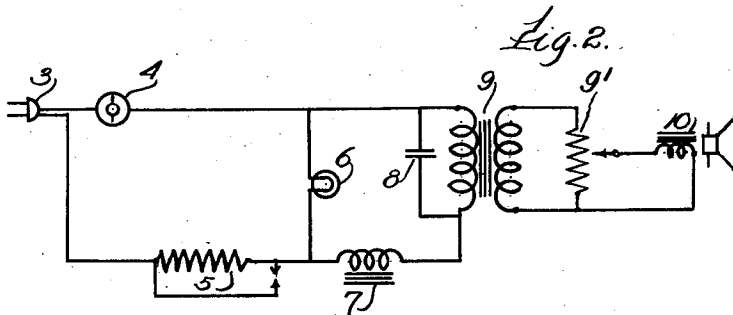
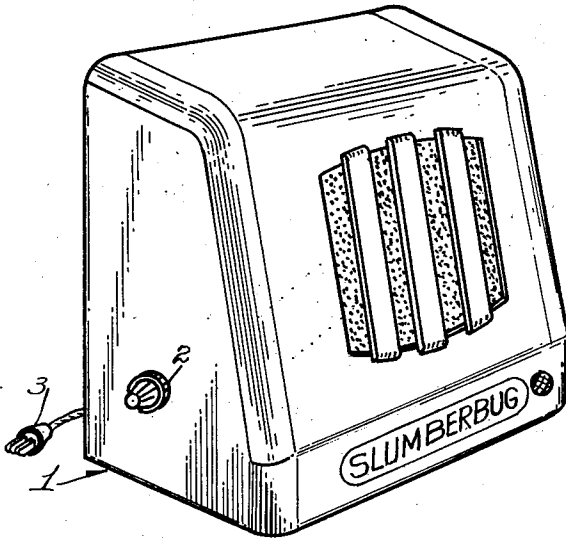
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ACOUSTIC SLEEP INDUCING APPARATUS

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ACOUSTIC SLEEP-INDUCING APPARATUS

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3 Claims. (Cl. 340—384)

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This invention relates to audible sound producers which I have termed the "Slumberbug" and which is an electrically energized sound producing device designed to aid insomnia sufferers in overcoming their difficulty. The sound producer of the present invention employs no electronic tubes, the sound being produced purely by means of the normal sinusoidal voltage wave of the usual commercial alternating current supply, which ordinarily has an appreciable harmonic content. Two levels of sound are produced. One is what may be termed a continuous unbroken background hum of about 120 cycles which is periodically overridden at regular intervals of approximately four seconds duration by a second and louder hum which lasts approximately another four seconds and then cuts off to background hum again. This cycle of four seconds loud and four seconds soft repeats itself throughout the period of operation of the device. It is this regular volume change, accompanied by a tone change which accompanies the voltage change, that effects the desired result.

Other features and advantages of the invention will become apparent upon reading the following specification, together with the accompanying drawing forming a part thereof, wherein corresponding reference numerals denote similar parts throughout the several figures.

Referring to the drawing:

Figure 1 is a perspective external view of sleep inducing apparatus in accordance with the invention;

Fig. 2 is a schematic electrical circuit diagram of an embodiment of the invention;

Fig. 3 is a schematic electrical circuit diagram illustrating a modified form of the embodiment shown in Fig. 2.

The reference numeral 1 denotes a conventional loudspeaker housing in which the sound producer is enclosed and which is provided with the conventional control knobs 2 and adapted to be plugged into an A.-C. house circuit or the like. The line plug 3 is connected to a 60 cycle approximately 117 volt alternating current source and with the line switch 4 closed, current will flow through the entire circuit.

Serially connected in the circuit is the thermostatic switch 5 with contacts normally open providing a periodically operating flasher of the type used in window display sign flashers and with the components here used in the circuit, the resistance of the flasher is approximately 1500 ohms and the complete on and off cycle about eight seconds. Also arranged in the circuit is

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the pilot light 6 which serves as an off and on indicator light and also as additional load on the thermostatic switch as otherwise the load would be rather light and insufficient to cause the desired periodic operation of switch 5. An iron core choke 7 in the circuit serves to reduce ripple level and smooth out the output tone by removing undesired harmonics therefrom and, further, it greatly reduces contact click of the flasher unit.

A paper tubular condenser 8 rated .5 mfd. 600 volts and an audio output transformer 9 are provided, the condenser being used to bypass the higher audio frequencies or harmonics of the power supply and keep them out of the primary winding of the output transformer thus giving a lower tone. It also reduces click by contact sparks in the flasher and gives a smoother note and less ripple than would be otherwise had. A wire wound long life volume control 3' of one hundred ohms or less is provided and together with a permanent magnet dynamic loud speaker 10 completes the apparatus. The series choke or inductor 7, in combination with the shunt capacitor 8, constitute a low pass filter.

In operation the volume change is produced by the thermostatic switch of the type shown and it is this use of a thermostatic switch to maintain and to produce a change in volume of sound which is important as it will almost invariably induce sleep. The same result is attained by the motor driven circuit breaker shown in Fig. 3 and which includes a speed reduction drive to produce different sound level periods recurring regularly at the desired intervals.

Referring now to Fig. 3 a motor driven sound timing mechanism is shown. The disc 5a is a circuit breaker driven by the motor 11 and geared down to produce the desired speed of operation. The shunting resistor 5b reduces the current flow to produce soft background hum when contacts are open.

When current flows through the entire circuit a soft 120 cycle hum will be heard from the loud speaker. The 120 cycle hum from a 60 cycle source is due to the fact that both alternations of each cycle affect the speaker. This soft hum is the condition existing with reduced current when the thermostatic switch contacts are in open position. The volume under such circuit conditions is low on account of the 1500 ohms additional circuit resistance introduced by the thermostatic switch. When the resistance wire of the thermostatic switch 5 has heated sufficiently to close the bi-metallically operated contacts, this additional resistance is shunted out of the circuit allowing

more current to flow accompanied by a corresponding increase in volume and some change in timbre of the tone caused by saturation effects in the iron core of the choke 7. When the contacts are closed the resistance wire cools and the contacts again separate.

What is claimed is:

1. An acoustic sleep inducing device of the class described, comprising: an alternating current circuit of low and substantially constant frequency, said alternating current having a fundamental sinusoidal wave shape accompanied by incidental harmonics; sound producing means connected to said circuit for energization therefrom; said sound producing means emitting a low humming sound; an inductor serially included in said energizing connection for reducing the flow of said harmonics therethrough; a resistor serially included in said energizing connection; and periodically operative circuit making and breaking means connected across said resistor, whereby the energy level of said sound emitted by said producing means varies periodically between two predetermined values.

2. A sleep inducing device according to claim 1,

wherein said inductor is an iron core choke, and in which a change in the timbre of the sound emitted by said sound producing means accompanies said changes in the energy level of said emitted sound, said changes in timbre being caused, at least in part, by saturation effects in said iron core.

3. A sleep inducing device according to claim 1, further comprising a shunt capacitor connected to said sound producing means, said capacitor connecting reducing clicks caused by said circuit making and breaking means, and further reducing the effects of said harmonics.

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