United States Patent

Wall

[15] **3,696,377**

[45] **Oct. 3, 1972**

[54] **ANTISNORING DEVICE**

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[22] Filed: **July 15, 1970**

[21] Appl. No.: **55,011**

[52] **U.S. Cl.**.....**340/279,** 340/221, 179/1 VC

[51] **Int. Cl.**.....**G08b 23/00**

[58] **Field of Search**.....340/279, 221; 179/1, 1 VC, 179/100.1 C, 100.1 VC; 116/114 D

[56] **References Cited**

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[57] **ABSTRACT**

Vocal sounds of a sleeper above predetermined level sensed by a transducer initiate operation of a record player device for delivery of audible antisnoring or equivalent instructions to the sleeper at a level below that sufficient to reactuate the record player device through the transducer means, and a holding means maintains the record player device operative for a predetermined period following initial actuation and thereupon terminates such operation preparatory to succeeding reactuation by the same means.

4 Claims, 2 Drawing Figures

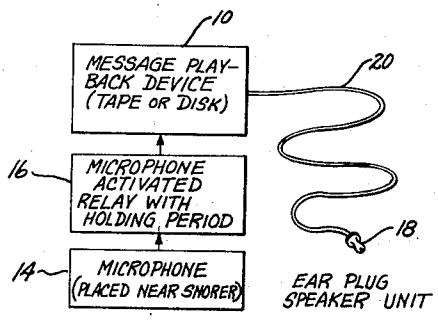
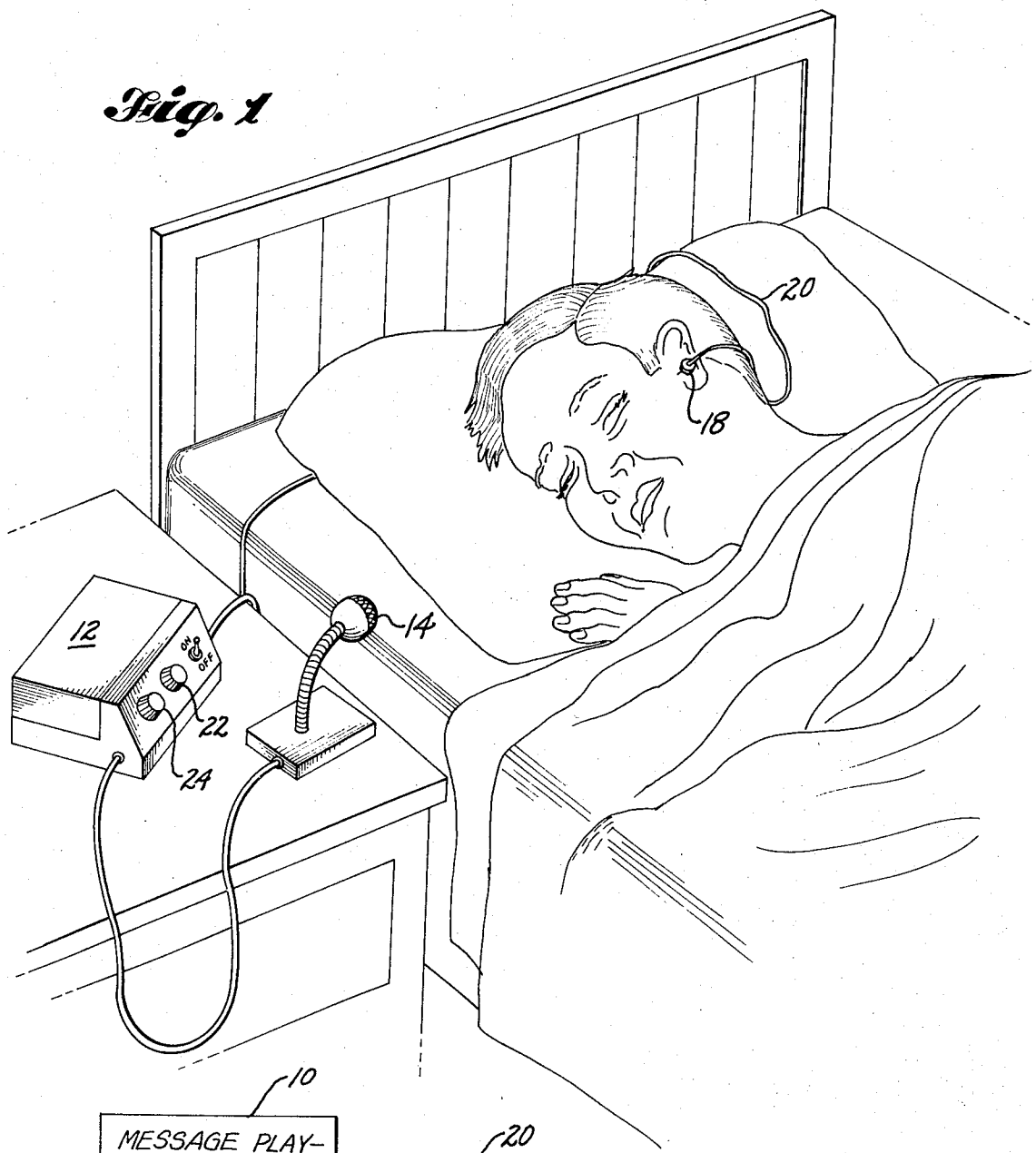


Fig. 1



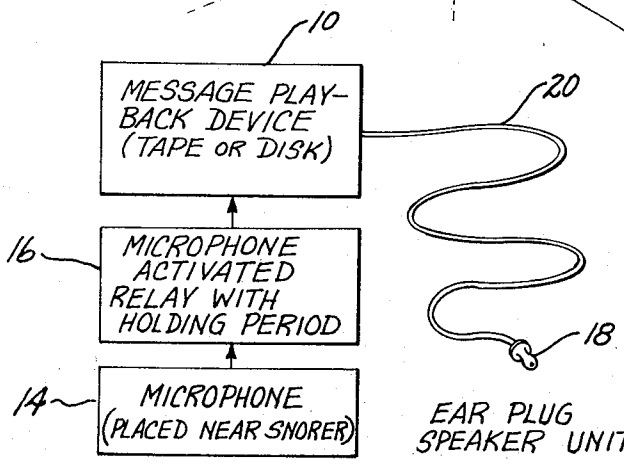


Fig. 2

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ANTISNORING DEVICE

DESCRIPTION

This invention relates to a new and improved means for helping persons break the habit of snoring or sleep-talking and has for its general object the provision of a simple and reliable system employing readily available components and following a method having an acceptable psychological basis with reference to effectiveness without subconscious traumatic effect. The invention is herein illustratively described by reference to the presently preferred embodiment; however, it will be recognized that certain modifications and changes therein with respect to details may be made without departing from the essential features involved.

A further object of the invention is to provide a device and method which does not necessarily awaken, arouse or unduly disturb the sleeper, nor does it disturb the sleep of other persons in the room. A related object is to utilize a technique which gradually and eventually conditions the sleeper against snoring or making other disturbing vocal sounds while sleeping without inducing fear or apprehension or otherwise disturbing the subconscious mind of the person to an extent that sleep becomes difficult or restless as a result.

In accordance with this invention a tape recorder or other record player device is utilized as a means to carry and reproduce instructional material in the form of intelligent speech messages which are delivered privately and at a low audible level to the sleeping person in response to detected snoring sounds or the like above a predetermined audible level picked up by a microphone or similar transducer which operates the record player device. Furthermore, the invention contemplates a holding means or equivalent which becomes operative each time the transducer means initiates operation of the record player and thereupon causes the record player to deliver the recorded message to the sleeper lasting or repeated over a predetermined period and to automatically terminate delivery of such message at the end of such period. Any desired kind of instruction or message deemed persuasive and effective but nontraumatic may be recorded and utilized in this manner, such as "stop snoring," "- stop snoring," - - -, etc. If desired, an endless tape or endless record may be employed and the "holding" or predetermined instruction period automatically terminated by completion of a playback cycle of the record. In such event the automatic switch-off function is performed in the record player itself by completion of a repeatable playback cycle and this constitutes the "holding means" which when actuated remains actuated for a predetermined period and thereupon automatically deactuates to terminate the message. In another embodiment (that disclosed) the record player is operated under control of a holding switch or time-delay holding relay which upon actuation automatically locks in the actuated condition and which after predetermined time lapse thereafter automatically drops out of the actuated state so as to maintain the record player operative during the predetermined holding period.

These and other features, objects and advantages of the invention will become more fully evident from the following description thereof by reference to the accompanying drawings.

FIG. 1 is a perspective view of a typical installation of mechanism incorporating the invention.

FIG. 2 is a block diagram of a preferred embodiment of the invention.

With reference to the drawings, a tape recorder or other message playback device **10** is incorporated in a suitable case or package **12** to which is connected a microphone **14** responsive to audible vocal sounds from the sleeping person (such as the sounds of snoring or the other throat or nasal sounds of a noisy sleeper). When these sounds occur at a level above a predetermined threshold they become effective to actuate a relay **16** of the self-latching, delayed drop-out type which is connected to the message playback device **10** so as to render the same operative in response to actuation of the relay. Holding relays of the delayed self-deactuating type are well known as are various equivalent electronic or solid-state switching circuits to produce a similar result; hence they require no separate or detailed description herein. If desired the circuit arrangements employed may, as intended in the disclosed embodiment, permit immediate reactuation of the relay means after drop-out thereof, or alternatively may interpose a delay in responsiveness of the relay means to reactuation signals.

The playback device preferably feeds an earphone **18** connected to it through a light and flexible cord **20** of the type commonly used to energize earphones in many small transistor radios and portable record players.

As shown, a volume control knob **22** and associated means are provided in the unit capable of varying the output level of the playback device as it affects the level of message sound produced in the earphone. A second volume control knob **24** and associated means are also provided for the relay means so as to permit adjusting the threshold point of sound level at which the microphone signal is capable of actuating the relay. Circuits and relay devices of varying well-known types are available with these capabilities and require no specific description herein, nor does the playback device itself of which there are a variety of types including tape recorders, disk recorders, and other devices capable of recording and reproducing audible speech sounds.

As previously indicated, the microphone-activated relay with automatic holding provision represents the preferred technique for rendering the playback device operative for a predetermined period following each actuation thereof. It will be recognized, however, that various other holding devices may be incorporated as equivalent means to maintain the playback device operative for a predetermined period following each actuation thereof, and thereupon conditioning the same for reoperation in one or more recurring cycles as conditions demand.

These and other aspects of the invention will be evident to those skilled in the art and it will therefore be seen that the inventive concepts are not considered to reside in the specific details of implementation but in the technique and in the apparatus combinations as disclosed, and as set forth in the appended claims.

What is claimed is:

1. An antisnoring device comprising transducer means adapted to be positioned and operated near a

sleeping person to convert vocal sounds into electric signals, electrically actuatable delayed-deactuation switch means responsively connected to said transducer means to be actuated thereby in response to vocal sounds above predetermined level and thereafter to remain actuated for automatic deactuation after a predetermined period, a sound record playback mechanism connected to be rendered operable by actuation of said switch means and to remain operable while the switch means remains actuated so as to reproduce prerecorded antisnoring message signals while said switch means is actuated, and speaker means responsively connected to the playback mechanism so as to deliver said message at a level which is audible privately to the sleeper but which at the transducer means is below the level necessary to reactuate the switch device.

2. An instruction device for sleepers comprising record player means including a record of instruction and including speaker means operable to deliver the recorded instruction audibly and privately to a sleeper, means operable in response to vocal sounds from the sleeper for turning on the record player so as to initiate delivery of such instruction to the sleeper, and means automatically operable for turning off the record player at a predetermined point thereafter and thereby for automatically conditioning the same to be turned on again thereafter in response to recurrence of such vocal sounds.

3. The device defined in claim 2, wherein the last-named means comprises a time-delay holding relay means which automatically deactuates itself at a predetermined time after actuation.

4. The method of curing sleeping persons of the snoring or sleep-talking habit comprising the steps of detecting the vocal sounds of a sleeper above predetermined level and utilizing such detected sounds to initiate delivery of audible instruction to the sleeper lasting for a predetermined duration and then terminating so as to end one cycle of self-instruction, and thereafter repeating such cycle recurringly for as long as the sleeper persists in emitting such vocal sounds.

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