June 20, 1950 A. P. HORNOR 2,511,917

SELECTABLE LOUDSPEAKER-EARPHONE SOUND SYSTEM

Filed Oct. 31, 1946

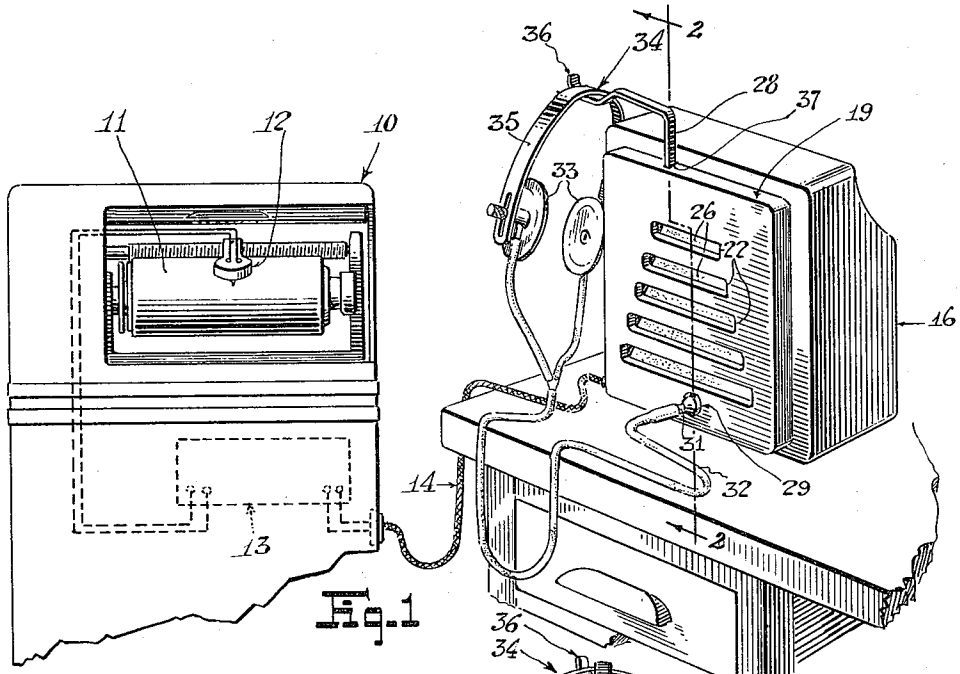


Fig. 1

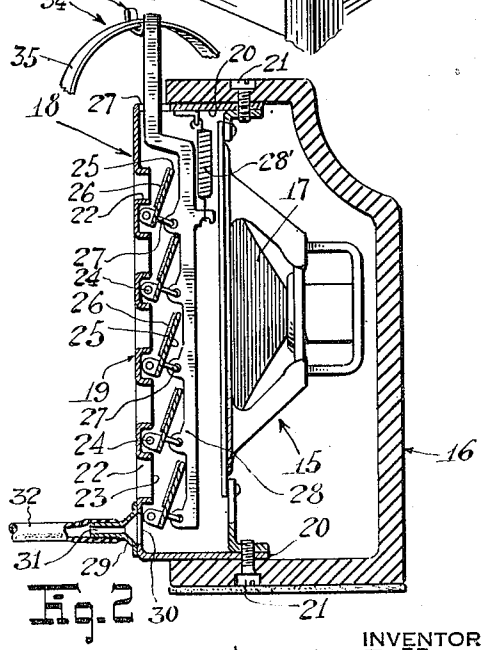


Fig. 2

INVENTOR
Aurelius P. Hornor
By Henry Lamahan
ATTORNEY

Patented June 20, 1950 2,511,917

UNITED STATES PATENT OFFICE

2,511,917

SELECTABLE LOUDSPEAKER-EARPHONE SOUND SYSTEM

Aurelius P. Hornor, Montclair, N. J., assignor to Thomas A. Edison, Incorporated, West Orange, N. J., a corporation of New Jersey

Application October 31, 1946, Serial No. 706,868

6 Claims. (Cl. 181—18)

1

This invention relates to a sound-receiving system wherein the sounds may be received directly from a loudspeaker or in private from an acoustical-type earphone, and it relates especially to such acoustical receiving system wherein the speaker is shut off automatically while the earphone is in use.

An object of the present invention is to provide a simple and economical means whereby a transcriber of dictation or other recorded matter may receive the reproduced sounds selectively from a loudspeaker or from an earphone, and wherein one of the receiving units is disabled automatically as an incident of using the other.

It is a further object to provide a selective sound-receiving system of the character mentioned which includes a support for holding the earphone while the latter is not in use and means whereby the loudspeaker is automatically shut off and opened to the outside air as the earphone is removed from and placed on its support.

These and other objects and features of my invention will be apparent from the following description and the appended claims.

In the description of my invention reference is had to the accompanying drawings, of which:

Figure 1 is a diagrammatic view illustrating my invention; and

Figure 2 is a fractional sectional view, taken substantially in a plane on the line 2—2 of Figure 1, showing details of my invention.

While my invention has general application in acoustical systems for receiving sounds either from a loudspeaker or privately from an earphone, it has particular utility in connection with the transcription of recorded dictation and other recorded matter and is therefore herein illustrated and described in connection with a phonographic transcribing machine 10 fractionally shown in Figure 1. This machine is well known in the art and is sufficiently described for the present purposes by the statement that it comprises a rotating record 11 bearing the recorded matter to be transcribed, an electrical-type record-cooperating translating device 12 and an electrical amplifier 13 for amplifying the sound-representing electrical currents generated by the translating device. From this amplifier these currents are fed by a cord 14 to the sound-receiving system of my invention.

This sound-receiving system comprises a loudspeaker 15 connected to the amplifier 13 by way of the cord just mentioned. This speaker is mounted in a cabinet 16 which is closed at all sides except at the front of the horn 17 of the

2

speaker. At this front side there is mounted a shutter 18 which is adapted for enclosing the speaker so that it cannot radiate sound to the outside air. This shutter comprises a vertical grill 19 having rearwardly-bent border portions 20 that fit into the cabinet and are secured thereto as by screws 21. The grill is provided with a series of horizontal vertically-spaced openings 22 each of which is surrounded by a rearwardly-projecting rim 23 formed integrally with the grill. Pivoted to the grill at a point 24 below each opening is a closure plate 25 for the respective opening. These plates have linings 26, such as of felt, provided on their faces which confront the openings so that when the plates are swung forwardly they will engage the rims 23 and tightly close the respective openings against the escape of any sound from the speaker to the outside air.

All of the closure plates 25 are intercoupled so that they will operate in unison between their open and closed positions. To this end each closure plate is provided with a rearwardly-extending lever arm 27 which is pivoted at its rearward end to a vertical control member 28. This control member is urged upwardly by a tension spring 28' so as normally to hold the shutter closed to prevent radiation of sound from the speaker to the outside air.

Mounted on the grill at, for example, the bottom portion thereof there is a sound-receiving cap 29 for picking up sound from the horn of the speaker by way of an opening 30 in the grill. This cap has a nipple 31 connected to a flexible sound-transmitting tube 32 which leads to two acoustical-type earphones 33 of a headset 34. This headset includes a flexible band 35 which interconnects the earphones to hold them in place on the head of the user. This is a standard form of acoustical-type headset commonly used by transcribers in reproducing recorded dictation. This type of headset has an advantage over electrical-type headsets in that it is very small and light and not so much annoyance to the user.

When the shutter is closed, the sounds radiated from the speaker are picked up by the receiving cap 29 and transmitted efficiently by the tube 32 to the earphones of the headset 34. The transcriber will use this headset when she desires to listen to the reproduced sounds in private. However, when privacy of sound reception is not required she will prefer to listen directly to the speaker as she will then not have to wear the headset and will have a greater freedom of movement. My invention is arranged so that the shut-

ter is closed automatically when the headset is in use and is opened to enable direct reception from the speaker when the headset is not in use. To meet this objective I provide a hook-shaped support **36** for holding the headset when the same is not in use, which is an integral part of the control member **28**, the control member having for example an upward portion extending through an opening **37** in the top wall of the grill and then extending laterally to form the support. When the headset is removed from this support, the spring **28'** just holds the shutter suitably closed. When the headset is mounted on the support, however, the weight thereof is sufficient to overcome the force of the spring **28'** and to move the shutter open. Since it is a normal unconscious act on the part of the transcriber to mount the headset on this support when it is not to be used, and to pick up the headset from the support when it is to be used, it will be understood that the present sound-receiving system is controlled automatically for the selective reception of the reproduced sound from the speaker or headset without requiring any special manipulation on the part of the user.

The particular embodiment of my invention hereinabove shown and described is intended to be illustrative and not necessarily limitative of my invention, since the same is subject to changes and modifications without departure from the scope of my invention, which I endeavor to express according to the following claims.

I claim:

1. A system for receiving sounds directly from a loudspeaker or privately from an acoustical type of earphone, comprising means for enclosing said speaker, a support for holding said earphone when the same is not in use, a sound transmitting tube connecting said earphone to said enclosing means to couple the earphone acoustically to said speaker, and means associated with said support and operatively coupled to said enclosing means for causing said speaker to be enclosed while said earphone is removed from said support and to be open to the outside air when said earphone is on said support.

2. A sound-receiving system comprising a loudspeaker, a sound closure connected to said speaker and including a movable shutter for closing off radiation of sound from the speaker to the outside air, an acoustical-type earphone, a sound-transmitting tube connecting said earphone to said closure to couple the earphone acoustically to said speaker, a support for holding said earphone when the latter is not in use, and means biasing said shutter closed and responsive to said earphone as the same is placed onto said support for opening said shutter.

3. A system for receiving sounds directly from a loudspeaker or privately from an acoustical-type earphone, comprising a cabinet for said speaker, a movable shutter on said cabinet for closing off said speaker from the outside air, a sound transmitting tube connecting said earphone to said cabinet to couple the earphone acoustically to said speaker, a movable support on said cabinet for said earphone, mechanical means coupling said support to said shutter, and spring means for holding said shutter closed and said support in a raised position when said earphone is removed from the support, said spring means being adapted to be overcome by the weight of said earphone on said support to cause said shutter to be opened as the earphone is placed onto the support.

4. In a system for receiving sounds in public from a loudspeaker or in private from an acoustical-type earphone: the combination of a sound closure connected to said speaker to form a closed air chamber therewith and to prevent radiation of sound to the outside air, said closure including an openable shutter; a sound-transmitting tube connecting said earphone to said chamber; a support for said earphone mounted for vertical movement and biased into a raised position, the biasing force exerted on said support being overcome by the weight of said earphone when the latter is placed thereon; and means coupling said shutter to said support for holding said shutter open to enable said speaker to radiate sound to the outside air when said earphone is on said support.

5. In a sound-receiving system adapted to enable the reception of sound in public from a speaker or in private from an acoustical-type earphone: the combination of a sound closure connected to said speaker to form a sound chamber therewith; a sound-transmitting tube coupling said earphone to said sound chamber; a shutter on said sound closure openable to permit radiation of sound by said speaker to the outside air; a movably mounted support for said earphone moved in one direction as said earphone is mounted thereon and in the other direction as said earphone is removed therefrom; and means coupling said shutter to said support for causing the shutter to be opened and closed respectively as said earphone is placed on and removed from said support.

6. A sound receiving system comprising a loudspeaker, closure means including a movable shutter for acoustically shutting off said speaker from the outside air, an acoustical-type earphone, a sound-transmitting tube connecting said earphone to said closure means to couple the earphone acoustically to said speaker, a support mounted for up-and-down movement and adapted for holding said earphone when the latter is not in use, means coupling said shutter to said support, and a spring yieldably holding said shutter closed and said support raised when said earphone is removed from the support, said spring being adapted to be overcome by the weight of said earphone on said support to open said shutter automatically as the earphone is placed on the support.

AURELIUS P. HORNOR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,235,695	Johnson	Aug. 7, 1917
1,283,510	Heck	Nov. 5, 1918
2,035,473	Harrison	Mar. 31, 1936