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TRANSISTORIZED ANNUNCIATOR WITH A RECORDED MESSAGE

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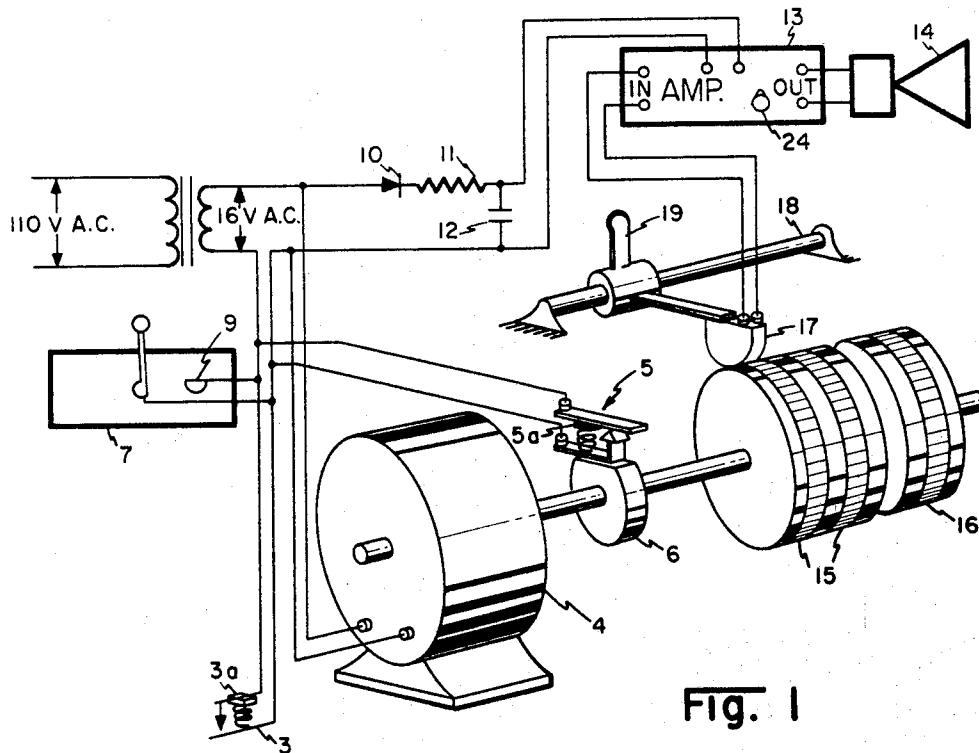


Fig. 1

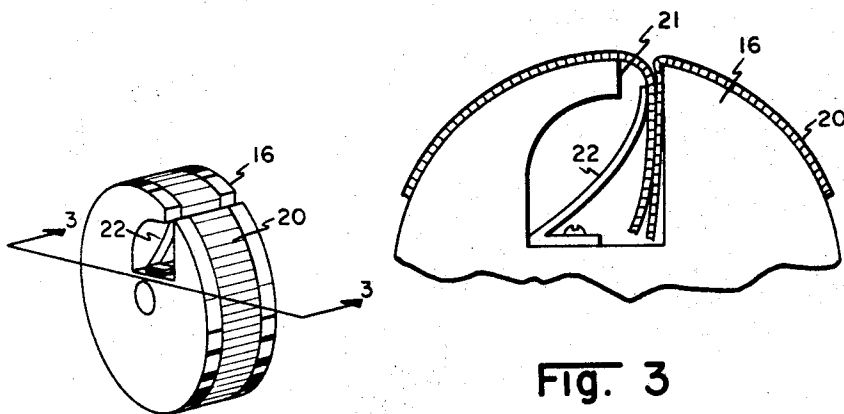


Fig. 3

Fig. 2

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TRANSISTORIZED ANNUNCIATOR WITH A RECORDED MESSAGE

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Continuation-in-part of application Ser. No. 53,395,
Sept. 1, 1960. This application Mar. 22, 1962, Ser.
No. 181,570

8 Claims. (Cl. 179—100.2)

This invention relates to a novel combination of an electronic annunciator and an electrical musical device. This application is a continuation-in-part of my application for Transistorized Door Annunciator Utilizing Capacitor Discharge, U.S. Ser. No. 53,395, filed Sept. 1, 1960, now Patent No. 3,196,432.

Heretofore, annunciators using electronic amplifiers were severely limited in their application. The warm-up time needed for conventional amplifiers required that the amplifier continually be turned on if the annunciator were to be continually available for operation, and the accompanying large amount of standby power, caused it to be not economically feasible to employ such an annunciator in an environment wherein the annunciator was actuated for relatively short periods of time.

Accordingly, it would be most desirable if there were available an annunciator which was instantaneously operative upon the activation of a single switch means and which consumed no standby power during periods of non-use. The foregoing is achieved by the present invention by the combination of a single switch means and system, thereby providing an annunciator which is now suitable for countless uses among one of which is a door annunciator.

A principal object of this invention is to provide a door annunciator which utilizes an electronic loudspeaker as the sound source, operates instantaneously, and yet requires no standby power for the electronic amplifier. A further object of the present invention is to provide an annunciator having a playback mechanism and an amplifier which is capable of being operatively coupled, by a single switch means, to a power supply. Another object is to provide a means for easily adjusting the loudness of the annunciator signal. Another object of the invention is to provide a selection of annunciator sound patterns heretofore unavailable, and the ability to change readily to a particular pattern that is considered most appropriate at the time. In this connection, another object of the invention is to provide means whereby the user can readily replace the patterns and substitute one of his own choice. Another object is to provide, in the same instrument, a continuously repeated selection made by musical instruments or by rhythm instruments alone, thus providing continuous background music or rhythm as an accompaniment to home musical performances.

Other and further objects will become apparent during the course of the following description of a preferred illustrative embodiment of the invention and appended claims.

FIGURE 1 shows a schematic block diagram of a preferred embodiment of the invention;

FIGURE 2 shows a view in perspective of a magnetic tape rotor used in the embodiment of FIGURE 1; and

FIGURE 3 is a partial, elevational view of the rotor of FIGURE 2.

In more detail, FIGURE 1 shows a house current source 1, for example, the 110 volt A.C. source furnished to most U.S. homes. To provide the low voltage source acceptable to the underwriters for door bell wiring use, a 110 volt to 16 volt transformer 2 is employed. This is a standard door bell transformer which consumes negligible 110 volt power when its secondary circuit is open. One side of the transformer secondary is connected to a door bell push

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button 3, biased to the open position by spring means operating against insulating block 3a. The secondary circuit includes an electric clock type synchronous A.C. motor 4 operating at 16 volts.

A second switch 5, which parallels switch 3, is also biased to an open position by spring means operating against insulating block 5a and is in juxtaposition with a cam disk 6 on the motor shaft which has a flattened portion on its periphery on which the lower arm of switch 5 rides. When the flat portion of cam 6 is in contact with the lower arm of switch 5, the switch is open, as indicated in FIGURE 1. However, when switch 3 is closed for even a very brief period, the motor 4 is energized from the 16 volt transformer and the shaft commences to rotate, closing switch 5. Even though switch 3 is subsequently released, switch 5 remains closed maintaining the energy supply to the motor for one complete revolution, that is, until the flattened portion of cam 6 allows switch 5 to open again. Switch 7, the use of which will be described later, also parallels switch 3 and can be made to energize the motor 4. Switch 7 is located inside the house and if closed, the motor 4 will run continuously.

In addition to energizing the motor 4, the closing of the door bell button 3 closes the circuit through the rectifier 10, smoothing resistor 11 and smoothing condenser 12. This supplies power to a multi-stage transistor amplifier 13, whose output is connected to loudspeaker 14. Since the rectifier 10 is a solid state rather than a vacuum tube rectifier, and since the multi-stage amplifier 13 uses transistors rather than vacuum tubes, closing of switch 3 immediately results in reproduction from loudspeaker 14. This is because solid state rectifiers and transistors do not require the warm-up time needed by vacuum tubes.

The input of amplifier 13 is fed by a tape recorder playback head 17 which rests on one of the recordings on the drum 15. The drum is affixed to the motor shaft and hence the rotation of the motor causes the drum's recording to be picked up by playback head 17 and amplified by amplifier 13. The motor speed is selected to produce one revolution in a preselected time period so a recording of this length is automatically played over the loudspeaker each time the door bell button is pushed.

Since any desired pattern of music or sounds can be recorded on the drum, a tremendous wealth of sound patterns is available, the only limitation being the time length of the selection. Thus, bell sounds can be had, chime sounds, orchestral cadences, brief vocal or orchestral sections of popular tunes, drum or percussion sequences, piano excerpts, etc. For particular occasions, certain typical selections can be used: for example, at Christmas, at special receptions, etc. The home owner may even record two or three seconds of his own voice to be sounded when the door bell is pushed.

FIGURE 1 indicates how a choice of selections can be made. Drum 15 contains two recorded strips. By means of moving handle 19, the playback head 17 can be made to slide along rod 18 so as to ride on either one of the two tracks. Drum 16 also has a recorded strip that can be contacted by the head. Drum 16 is removable, and the user can replace the tape recording by mechanism, as shown in FIGURES 2 and 3. Drum 16 uses pre-recorded tape which is slipped into place by passing the ends of the tape 20 through the slot adjacent wall 21 and allowing them to be held in place by the flat spring 22. The standard recording speed (3¾" per second) is employed so that any tape can be used which matches head 17 in width.

In FIGURE 1, amplifier 13 has a volume control adjustment 24, permitting the owner to reduce or increase the loudness of the annunciator to fit the needs of the moment.

It was pointed out that the sound pattern employed

could equally well be a rhythm sequence produced for example by a combination of drums, castenets and other rhythm or percussion instruments. In this invention, if switch 7 in FIGURE 1 is thrown to the closed position 9, the motor continues running until switch 7 is manually opened and the amplifier is also continuously energized. If now, a rhythm recording with an integral number of beats is on the drum, the continuous operation provides an electronic "rhythm section" which can be used in the home for orchestra or chorus practice or for accompanying a person playing the piano or organ. The same device is thus capable of providing two functions, that of an annunciator, and when desired, that of a rhythm instrument for musical use. In addition, by utilizing means well known in the art of tape recording and playback, a tape of any length can be made to pass before head 17 while switch 7 is closed.

Although this invention has been disclosed and illustrated with reference to particular applications, the principles involved are susceptible of numerous other applications which will be apparent to persons skilled in the art. The invention is, therefore, to be limited only as indicated by the scope of the appended claims.

I claim:

1. An annunciator comprising an instantaneously responsive amplifier, loudspeaker means connected to output of said amplifier, a power supply circuit, a source of electronically generated signals connected to the input of said amplifier, and a single actuating switch for simultaneously activating instantaneously both said amplifier and said signal source by connecting said amplifier and said signal source to said power supply whereby said signals issue immediately as sound from said loudspeaker.

2. An annunciator, as in claim 1, in which said signals are magnetically recorded.

3. An annunciator as in claim 1 in which said switch is biased to the open position.

4. An annunciator comprising a recording playback device for reproducing a recorded selection which is instantaneously activated by closure of a single switch, said

5 playback device comprising a power supply, an instantaneously responsive electronic amplifier, a loudspeaker means connected to output of said amplifier, and a recording playback means connected to input of said amplifier, instantaneous activation of said device by said single switch being accomplished through the simultaneous closure by said switch of both the electric circuit between said power supply and said amplifier and the electric circuit between said power supply and said playback means, thereby causing said recorded selection to issue immediately as sound from said loudspeaker.

5. An annunciator as in claim 4 in which said recording is a magnetic recording.

15 6. An annunciator as in claim 4 in which said power supply circuit is a battery.

7. An annunciator as in claim 4 in which said switch is biased to the open position.

8. An annunciator comprising an instantaneously responsive amplifier, loudspeaker means connected to the output of said amplifier, a power supply circuit, a recording, a pick-up member connected to the input of said amplifier, a motor for causing said recording to move past said pick-up member, and a single actuating switch biased to the open position for causing power from said power supply to be supplied simultaneously to said amplifier and to said motor thereby causing said recording to issue immediately as sound from said loudspeaker.

References Cited

UNITED STATES PATENTS

2,653,819	9/1953	Roberts	179—100.2 X
2,507,385	5/1950	Shrader	179—100.2
2,517,181	8/1950	Davis	179—100.1 X
2,571,973	10/1951	Walker	179—100.2 X
2,821,576	1/1958	Gaubert	179—100.2
2,910,689	10/1959	Grace	340—388
2,977,418	3/1961	Haas	340—388
3,002,187	9/1961	Spear	340—392

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