

July 20, 1965

Filed Sept. 1, 1960

W. E. KOCK
TRANSISTORIZED DOOR ANNUNCIATOR UTILIZING
CAPACITOR DISCHARGE

3,196,432

2 Sheets-Sheet 1

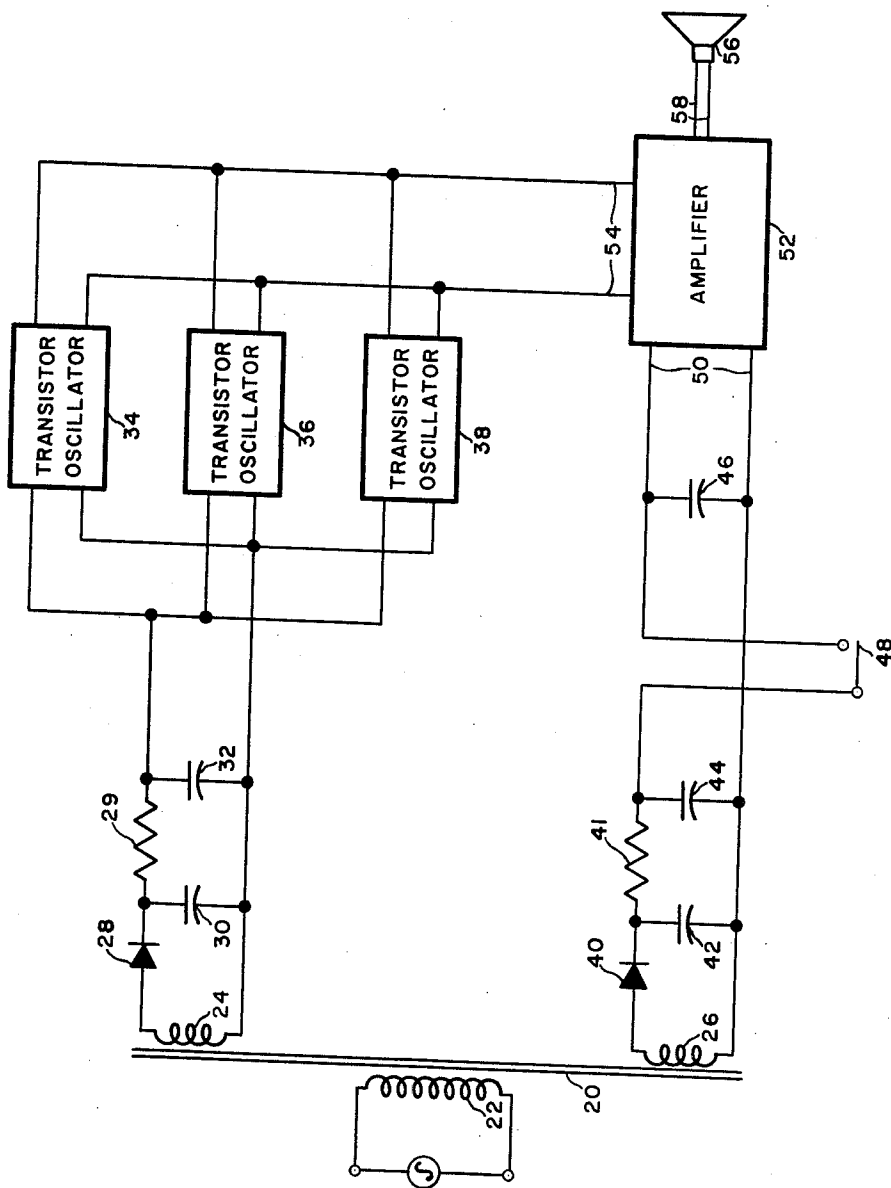


FIG. 1

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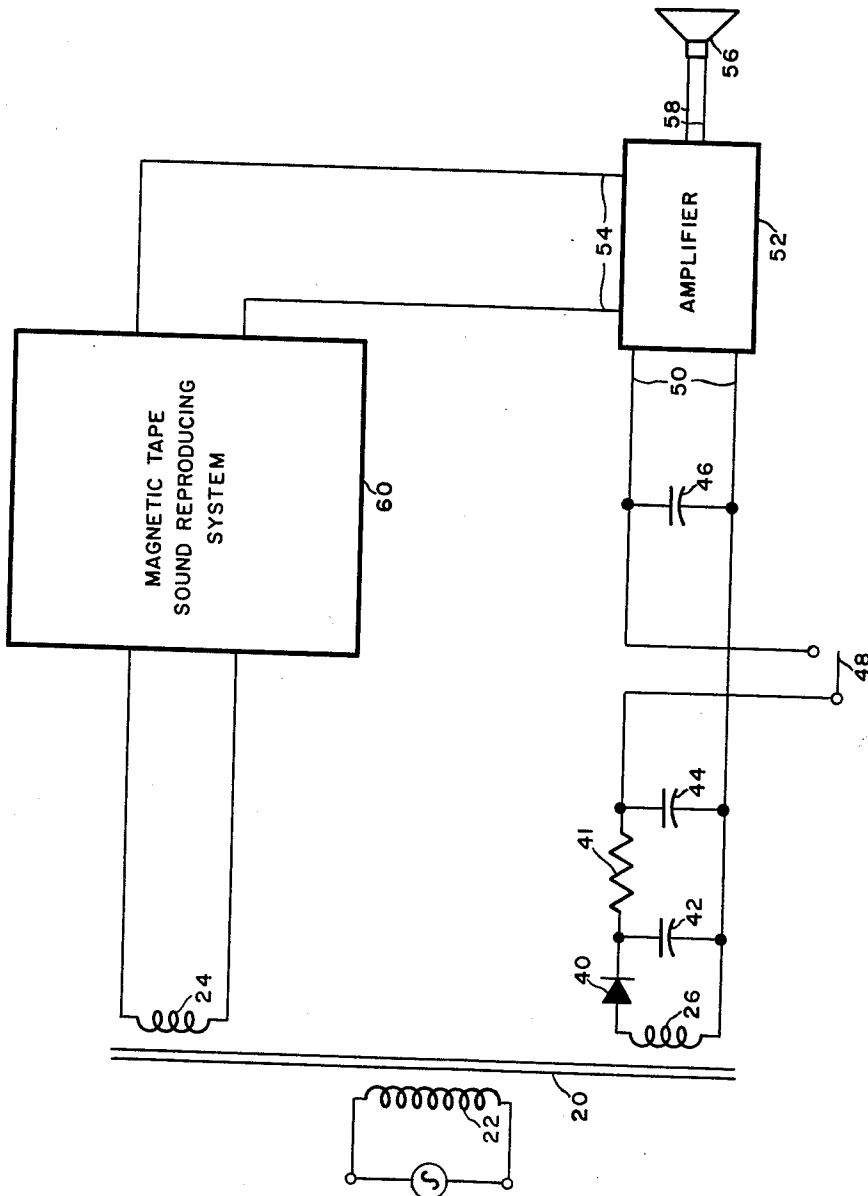


FIG. 2

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3,196,432 TRANSISTORIZED DOOR ANNUNCIATOR UTILIZING CAPACITOR DISCHARGE

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1 Claim. (Cl. 340—384)

This invention pertains to a door annunciator and, more particularly, to an annunciator which produces a musical chord or sound of minimum duration which is inexpensive to manufacture and has low operating costs.

It is an object of this invention to provide a door annunciator having a plurality of transistor oscillators which oscillate at frequencies which, when combined, produce a musical chord. The outputs of the oscillators are connected to a transistorized amplifier having connected at its output a speaker and at its power input a shunt capacitor which is connected through a door switch to a power supply. When the switch is closed, the shunt capacitor charges and the amplifier is energized causing the speaker to reproduce a combination of the three frequencies from the oscillators. When the switch is opened, the shunt capacitor will discharge into the amplifier to continue the sound for a predetermined time so that even a momentary closing of the door switch will result in an output of minimum duration from the amplifier and speaker.

It is an object to provide instead of the oscillators in the above annunciator, a recording, such as a magnetic recording, which is moved past a pick up member by a low power motor, such as the motor used in electric clocks.

These and other objects will become more apparent when a preferred embodiment of this invention is considered in connection with the drawings in which:

FIGURE 1 shows a schematic wiring diagram of a first embodiment using oscillators to produce the sound; and

FIGURE 2 shows a circuit using a magnetic tape recording to produce the sound.

In the drawing transformer 20 has a primary 22 connected to an alternating current supply which is present in the home or other building in which the door annunciator is utilized. Primary 22 energizes secondaries 24, 26. Connected in series with secondary 24 is a diode 28 and a resistance 29 and connected in parallel therewith are capacitors 30, 32, which combination transforms the alternating current supply to a steady direct current supply to oscillators 34, 36, 38, which oscillate at frequencies forming a musical chord of desired characteristics.

Secondary 26 is connected in series with a diode 40 and a resistance 41 and connected in parallel to capacitances 42, 44. Capacitance 44 is relatively large so that it can quickly charge a shunt capacitor 46 when switch 48, which is mounted near a door, is closed or actuated. Shunt capacitor 46 is connected across the power input leads 50 of an amplifier 52 which has its signal input leads 54 connected to each of the outputs of oscillators 34, 36, and 38. Loudspeaker 56 is connected to the output leads 58 of amplifier 52. By avoiding extremely low frequency tones in the chord produced by the combination of frequencies of oscillators 34, 36, 38, a relatively inexpensive speaker 56 can be used. The power requirements for the oscillators and the amplifier in this device may be sufficiently low to permit dry cell batteries to be used as the power supply, if desirable.

In this embodiment, the oscillators 34, 36, 38 are continuously in oscillation but their outputs are not amplified by amplifier 52 until switch 48 is closed, at which time the charge from condenser 44 charges shunt capacitor 46 and a steady direct current signal is supplied by secondary 26 through rectifier 40 and resistance 41 to operate amplifier 52 and speaker 56. The speaker 56 will remain vibrating until the switch or button 48 is released and condenser 46 is discharged. Even if switch 48 is only momentarily closed, the sound from speaker 56 will continue until capacitor 46 is discharged. Also, as capacitor 46 discharges it will provide a signal gradually diminishing in volume for a pleasing effect.

The power drain for operating oscillators 34, 36 and 38 is very low, but if desired, of course, switch 48 could also open the oscillator power circuit as well as the amplifier circuit. In addition, if desired, oscillators 34, 36 and 38 could take the form of a single oscillator with three tuned circuits or other type of oscillator for producing desired tonal qualities.

A further modification is shown in FIGURE 2 wherein the amplifier components are similar to those used in FIGURE 1 but the oscillators are replaced by a magnetic recording. The transformer secondary 24 output is fed to a reproducing unit 60 having a motor such as the type employed in electric clocks which requires very low power, for driving a magnetic tape past a magnetic reproducing head. The tape may be endless and move continuously past the reproducing head. The output of the magnetic playback head used in conjunction with the recording would be applied to amplifier input leads 54. Amplification of the recorded signal would be made by amplifier 52 upon closure of switch 48 as described heretofore.

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 claim.

Having thus described my invention, I claim:

An electronic annunciator for buildings of the type wherein a notice is given to the interior of the building of persons exterior of the building, comprising switch means for causing annunciation when closed, said switch means being located exteriorly of the building, a transformer having a primary and secondary, rectifier means connected to the secondary of said transformer, transistor amplifier means being connected to said secondary through said switch means so that said amplifier means is connected to said secondary only during closure of said switch means thereby minimizing power used, a sound generating means for generating a musical sound having its output connected directly to said transistor amplifier means, loud speaker means being connected to the output of said amplifier means, so that when said primary of said transformer is energized a predetermined musical sound will be produced through said loud speaker means immediately upon closure of said switch means, capacitor means connected directly across said amplifier means so as to be charged when said switch means is closed and having sufficient capacity to energize said amplifier means for a predetermined time after said switch means is opened, said secondary being additionally connected to said sound generating means whereby said secondary

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has first and second functions, said first secondary function being to energize said sound generating means, said second secondary function being to energize said amplifier means through said switch means.

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