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E. E. REYNOLDS

2,832,829

ELECTRO-MAGNETIC ATTENUATOR

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Fig. 1

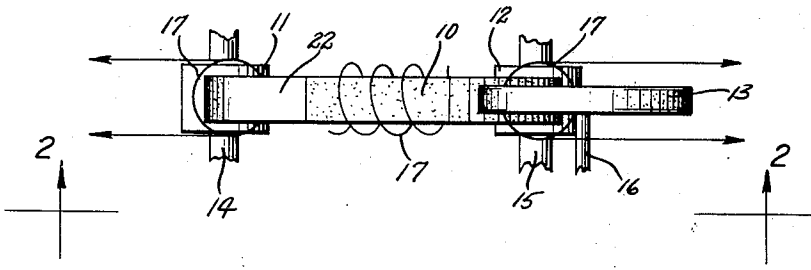
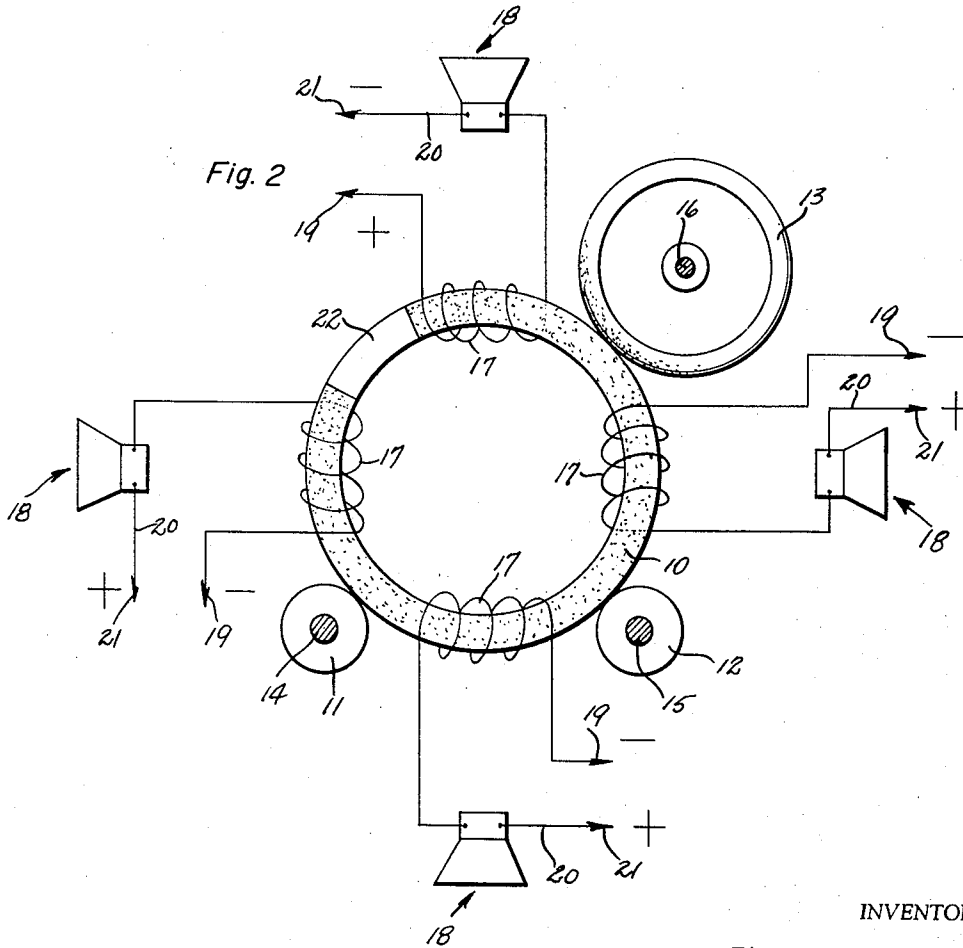


Fig. 2



INVENTOR

Elmer E. Reynolds

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2,832,829

ELECTRO-MAGNETIC ATTENUATOR

Elmer E. Reynolds, Glendale, Calif.

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4 Claims. (Cl. 179—1)

This invention relates to electro-magnetic attenuators for sound distribution.

It is an object of the present invention to provide an electro-magnetic attenuator for sound distribution which will create an effect reducing the listener's ability to locate the sound source and thereby add a space illusion.

It is another object of the present invention to provide an electro-magnetic attenuator of the above type which will improve acoustical quality in most applications and wherein several speakers are used in a given area and attenuated by the present invention.

Other objects of the invention are to provide an electro-magnetic attenuator bearing the above objects in mind which is of simple construction, has a minimum number of parts, is inexpensive to manufacture and effective in use.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a top plan view shown partly schematically and

Fig. 2 is a side elevational view thereof taken along the line 2—2 of Fig. 1 and shown partly schematically.

Referring now more in detail to the drawings, 10 represents an O-ring which is supported on the idler pulleys 11 and 12 and which is driven by the friction drive pulley 13, the pulleys 11 and 12 being mounted on the shafts 14 and 15 respectively, while the drive pulley 13 is mounted on the shaft 16.

Four equi-angularly spaced coils 17 surround the O-ring 10, one end of each of the coils 17 being connected to one terminal of the speaker indicated generally at 18 while the other end of each of the coils 17 is connected to the negative terminal of the amplifier, not shown, as at 19. The other terminal of each of the speakers 18 is connected to the positive terminal of the amplifier by the conductor 20, as at 21. Thus, four coils 17 are provided, each having their own speaker 18 and amplifier. The circuits of each of the coils are identical.

A portion of the O-ring 10 is made up of an iron slug 22 adapted to move through the coil 17 of each of the circuits upon rotation of the drive pulley 13.

The O-ring 10 is formed of a dielectric material.

Thus, the O-ring 10 rotates through the helix type coil

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17 and is supported and driven by the pulleys 11, 12 and 13. The speaker attenuation is attained as the iron slug passes through the center of the respective coils 17. One attenuating coil is wired in series with each speaker 18 and the cycling of the speaker attenuation is chosen as required. Coil impedance is chosen in accordance with the amplifier and speakers used in order to attain maximum efficiency. The combination or number of speakers used will be determined by each application and the invention will not be limited to the exact number of coils and speakers shown in the drawing, as will be readily apparent to those skilled in the art. It will also be noted that the attenuator may be gear driven externally or internally, as desired, without departing from the spirit and scope of the invention.

It will be noted that one lead from each of the coils goes to the speaker and the other to the amplifier output. It will also be noted that the speakers are wired in parallel.

The iron slug 22 may be of various lengths in order to attenuate more than one speaker simultaneously, if the application requires such.

While various changes may be made in the detail, construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. An electro-magnetic attenuator for sound distribution comprising an O-ring of dielectric material, a segment of said ring being cut away, an arcuate iron body mounted within the cut away portion of said O-ring, means rotatably mounting said O-ring for rotational movement about its center, means for driving said O-ring, a plurality of angularly spaced separable coils surrounding said O-ring and receiving the same therethrough, a loud speaker for each of said coils, one terminal of said loud speaker being connected to one end of said coils, the other terminal of said speaker being connected to the negative terminal of an amplifier, the other end of each of said coils being connected to the positive terminal of said amplifier whereby to selectively attenuate said speakers as said iron slug moves within its respective coil upon rotation of said O-ring.

2. An electro-magnetic attenuator according to claim 1, said means for mounting said dielectric O-ring comprising a pair of supporting idler pulleys bearing on the bottom of said O-ring at opposite sides thereof.

3. An electro-magnetic attenuator according to claim 2, said means for driving said O-ring comprising a friction pulley bearing on the periphery of said O-ring at the top thereof intermediate said coils, and means for driving said friction pulley.

4. An electro-magnetic attenuator according to claim 1, four coils equi-spaced being provided, each connected in series with its respective amplifier and loud speaker, said speakers being connected in parallel with each other.

No references cited.