Sept. 29, 1931. M. J. MacDONALD 1,825,465

SOUND CONTROLLING MEANS

Filed July 10, 1929

Fig. 1.

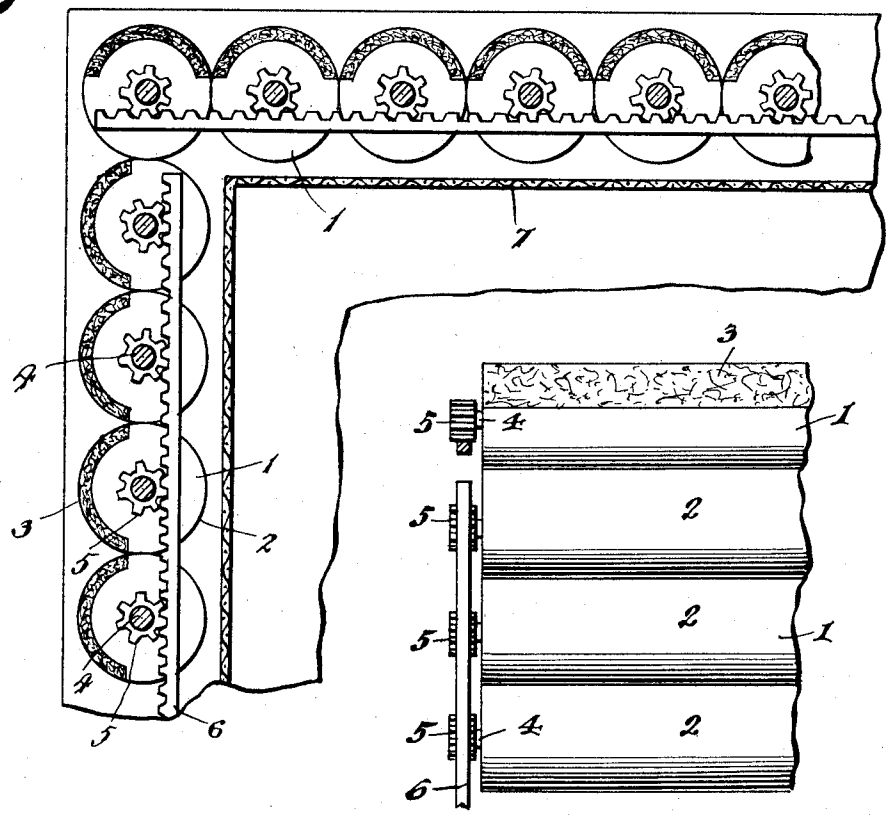


Fig. 2.

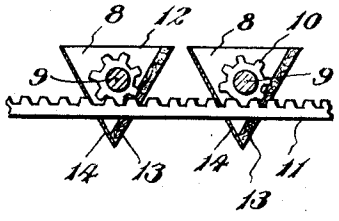


Fig. 4.

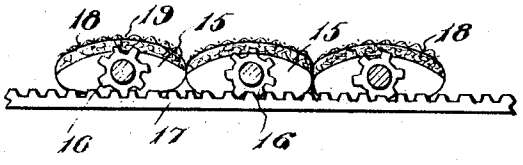


Fig. 3.

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UNITED STATES PATENT OFFICE

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SOUND-CONTROLLING MEANS

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This invention has for its object the provision of means whereby the volume of sound permitted to pass from a radio broadcasting station or other compartment or place may be controlled so that harshness will be eliminated and distinctness attained. The invention provides a member or series of members having sound reflecting portions and also sound absorbing portions, and also includes means whereby these members may be adjusted to present a greater or less area of the sound absorbing or deadening portions to the source of the sound so that it may be readily controlled. The invention is illustrated in the accompanying drawings and will be hereinafter fully set forth.

In the drawings:

Figure 1 is a sectional elevation of one form of the invention showing the same schematically as it will be applied to the ceiling and wall of a room,

Fig. 2 is a view showing a second embodiment of the invention,

Fig. 3 is a view similar to Fig. 2 showing another embodiment of the invention,

Fig. 4 is a face view.

In the form of the invention illustrated in Fig. 1, there are provided a plurality of rollers or cylindrical members 1 which are arranged adjacent the side walls and the ceiling or adjacent either a wall or a ceiling as may be deemed most desirable under any given conditions, and each of these cylindrical or circular members has one portion 2 constructed to provide a sound reflecting surface and its diametrically opposite portion 3 constructed to absorb or deaden sound as by being coated with felt or some similar material. The several rollers or cylinders are mounted upon axles 4 which are arranged in alinement parallel with the wall or ceiling of the room, and upon one end of each axle is a pinion 5 which meshes with a rack 6 supported in any convenient manner so as to normally mesh with all of the pinions. Obviously, if the rack be shifted endwise, the pinions will be rotated and the respective cylinders will be likewise rotated so that either the sound-reflecting surface or the sound-deadening surface may be presented toward the center of the room. Of course, the rack may be set at an intermediate position so that a portion of each sound-reflecting surface will be presented to the source of sound and a portion of each sound-deadening surface will be presented to said source so that the volume and quality of the sound permitted to pass from the room may be readily controlled. If desired, a curtain or shield 7 of porous cloth, netting or perforated plates may be disposed below the ceiling and in front of the side walls so as to hide the sound-controlling elements from view.

In Fig. 2, the sound-controlling or deadening elements are shown as triangular blocks 8 each mounted upon an axle or rock shaft 9 and adjusted by pinions 10 and a rack bar 11 as described in connection with the form shown in Fig. 1. The triangular blocks have one face 12 constructed to reflect the sound and one face 13 constructed to absorb sound to a large degree while the remaining face 14 is covered lightly with sound-absorbing or deadening material so that reverberation may be reduced more or less and the purity and volume of the sound sent out may be controlled by presenting the proper faces of the blocks to the source of the sound.

In Fig. 3 is shown a form of the invention in which the sound-controlling elements take the form of louvers 15 which are operated by pinions 16 and a rack 17. The louvers are of elliptical or oblong cross section, and upon one side are equipped with sound-absorbing or deadening material, as shown at 18, while on the opposite side they are constructed to reflect the sound. These louvers obviously will operate and may be adjusted in the same manner as the cylinders shown in Fig. 1. The pivots or rock shafts which carry the several louvers may be disposed midway the edges thereof or nearer one edge, as will be understood. It is to be understood also that in all forms of the invention the pinions may have some play in a direction at a right angle to the length of the rack so that, if desired, a single sound-controlling element may be adjusted without requiring a shifting of the entire series of elements.

In Fig. 3, I have also shown the reticulated

membrane 19 applied directly to the sound-deadening surface. This arrangement may, of course, be used in all forms of the invention.

My device is exceedingly simple and may be readily installed in any studio. The device is very effective for the purpose for which it is designed and may be very easily and quickly adjusted so as to obtain the desired effects. While the device is intended primarily for use in broadcasting radio stations, its use is not confined to such studios but it may be advantageously installed in concert halls or lecture rooms, theaters and other places.

Having thus described the invention, I claim:

1. Apparatus for the purpose set forth comprising a plurality of rotatably mounted elements each having a portion of its surface constituting a sound-reflecting member and the remaining portion of its surface covered with sound-deadening material, and means for simultaneously rotating said elements.

2. Apparatus for the purpose set forth comprising a plurality of members mounted for rocking movement and having portions of their surfaces covered with sound-deadening material, said material being of different degrees of efficiency on different portions of the surfaces.

3. In apparatus for the purpose set forth, the combination with the wall and ceiling of a room, of a plurality of rotatable members mounted adjacent the wall and the ceiling with their axes parallel and arranged in planes parallel with the wall and the ceiling respectively, means for rotating said members simultaneously, and sound-deadening material covering a portion of the surface of each member.

In testimony whereof I affix my signature.

MARY J. MacDONALD. [L. S.]