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B. P. BLASKI

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PUBLIC ADDRESS ARRANGEMENT

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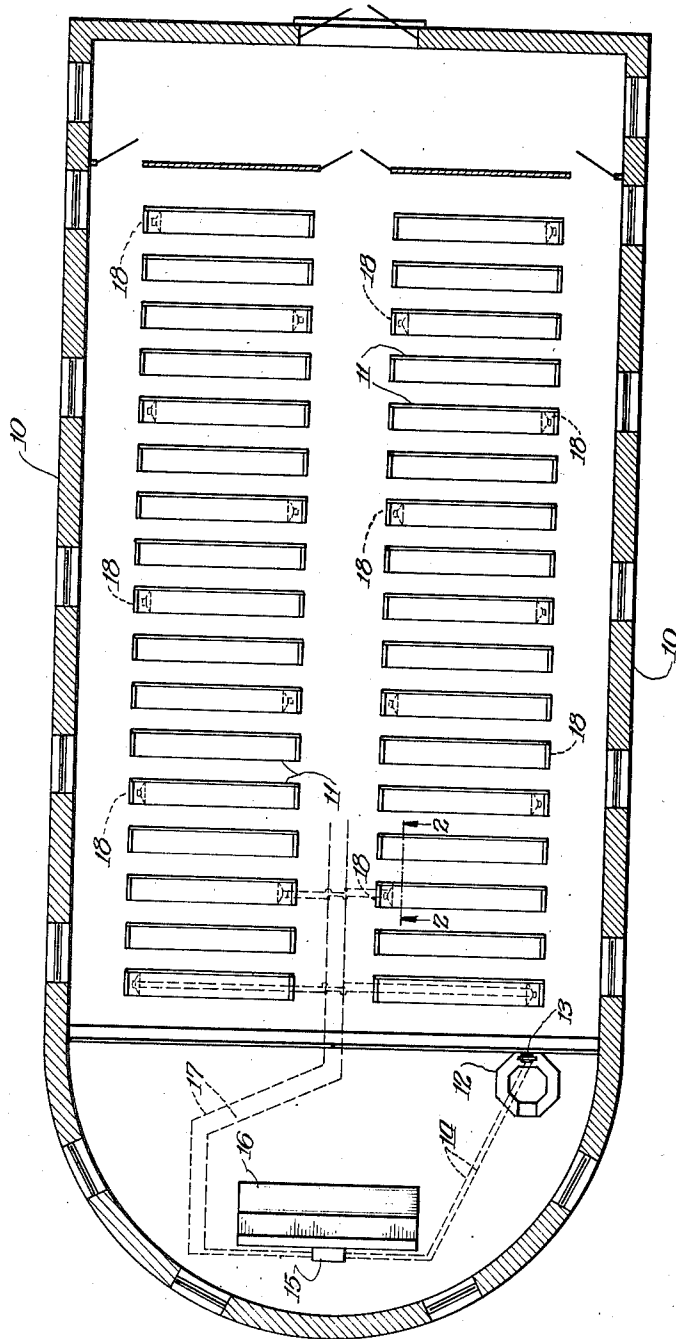
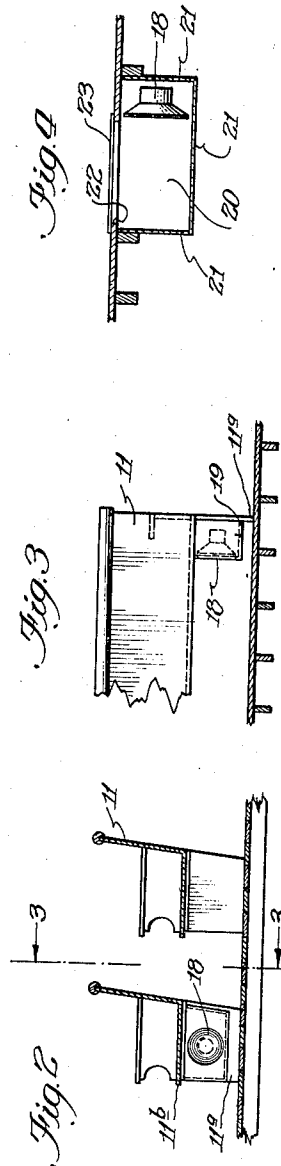


Fig. 1



Inventor:
Benjamin P. Blaski
By: Leslie W. Friess
Attorney.

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PUBLIC ADDRESS ARRANGEMENT

Benjamin P. Blaski, Chicago, Ill.

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4 Claims. (Cl. 179-1)

My invention relates to an improved public address arrangement for a church auditorium or the like.

In the ordinary public address arrangement, it is often difficult or impossible, due to reverberation effects, for an audience to understand a speaker. The walls and ceilings of church auditoriums are usually finished in materials which reflect a considerable portion of the sound impinging thereon. The sound reproducers of ordinary public address arrangements for auditoriums of this type are usually installed on the walls and are above the uppermost portions of the seats or pews. The sound from the reproducers travels in divergent directions and strikes portions of the ceilings and opposite walls. It is reflected from those hard and smooth surfaces again and again and thus reverberates in the auditorium for a substantial time after it has been emitted from the reproducers. This reverberation effect causes words of a speaker to be echoed or heard repeatedly by an audience simultaneously with other words and thus with an installation of this type a speaker's voice is often partially or entirely unintelligible.

It is possible to materially reduce the reverberation effect by the application of sound absorbent materials to the reflecting surfaces, as is the usual practice in theatre auditoriums. In church auditoriums, however, it is usually undesirable to follow this practice, since the beauty of these auditoriums depends to a large extent on the type of finishing materials employed and, in some cases, on the paintings on the walls and ceilings.

My invention contemplates and has for one of its objects the provision of an improved public address arrangement for a church auditorium or the like, by means of which the reverberation effects in the auditorium, tending to make speech unintelligible, are substantially reduced.

It is also an object of my invention to provide a public address arrangement by means of which the sound output is largely localized below the highest portions of the seats and is damped by impinging on the seats and the members of the audience.

It is still another object to provide an arrangement of this type which may be installed with a minimum of defacement of the existing structure.

The invention consists of the novel constructions, arrangements, and devices to be hereinafter described and claimed for carrying out the above stated objects and such other objects as will appear from the following description of certain

preferred embodiments of the invention illustrated in the accompanying drawing, wherein:

Fig. 1 is a top plan sectional view of a church auditorium showing one embodiment of my invention, the section being immediately below the lowest portions of the roof;

Fig. 2 is an elevational sectional view of two adjacent pews taken on line 2-2 of Fig. 1 in the direction indicated;

Fig. 3 is a rear view of one of the pews taken at line 3-3 of Fig. 2; and

Fig. 4 is an elevational view of a floor cavity in a church auditorium illustrating another embodiment of my invention.

Referring now to the several figures in the drawing, in which corresponding parts are indicated by the same reference characters, 10 indicates the walls of a church auditorium which in this case are constructed of a masonry material such as brick or the like. The interiors of such auditoriums are usually smooth, dense and hard and reflect a great portion of the sound impinging thereon. As is usual in a building of this type, the seats or pews 11 are positioned one behind the other, facing the front of the auditorium or toward the rostrum or pulpit 12, on which is positioned a microphone 13. The microphone 13 is electrically connected by means of a plurality of leads 14 with an amplifier 15 which in the arrangement shown is positioned behind the altar 16.

By means of a plurality of leads 17, the amplifier 15 is electrically and operatively connected with a plurality of electric sound reproducers or loud speakers 18, which in the embodiment illustrated are mounted on the vertical legs 11a of the seats or pews 11 and underneath the seat portions 11b thereof. The reproducers are positioned such that the sound therefrom travels transversely along underneath the seat portions 11b and approximately parallel thereto. Protective grills 19 which offer little or no impedance to the passage of sound therethrough encase the reproducers 18 and protect them from injury.

In Fig. 4, I have illustrated another embodiment of my invention in which the microphone and amplifier are arranged as above described, but in which each of the reproducers 18 is positioned in floor cavities 20 adjacent the pews 11 and below the seat portions 11b thereof. The cavities 20 which are bounded by sides 21 communicate with the interior of the auditorium by means of openings 22 having gratings 23 thereover. These gratings, like the grills 19, offer little or no impedance to the passage of sound there-

through and are of sufficient rigidity and strength to support a person's weight. The reproducers 18 are set off to one side of the opening 22, as shown, in order that any dirt or refuse which may fall through the gratings 23 will not come to rest on the reproducers 18. It is contemplated that the gratings 23 shall be removable in order that the cavities 20 may be cleaned when necessary.

The reverberation time in any enclosure is of course shortened by causing a greater portion of the sound to be absorbed per unit of time. Since all materials absorb a portion of the sound impinging thereon, the absorption per unit of time may be increased by causing the sound to strike bodies of material at a greater frequency. This I accomplish with my improved arrangement by causing the sound output of the reproducers to be localized in a region in which the absorbing surfaces are comparatively close together, namely, in a church auditorium, in the region of the pews.

Localizing the output sound in this region also reduces the reverberation due to the fact that curved surfaces, such as portions of the pews from which the sound is reflected in different directions, causes its comparatively quick dissipation. The people in the audience, due to the above facts and to the fact that clothing is a good sound absorbent, cause reverberation to be lessened if the output sound is localized as above described.

With my improved public address arrangement I have provided a means by which reverberation effects in a church auditorium or the like may be substantially reduced. I have also provided an arrangement which may be installed with substantially no defacement of existing structures and with no detracting from the beauty thereof, since the reproducers which may themselves be of unsightly appearance, are installed not on the walls but beneath the seats or pews.

I do not intend to limit the invention to the details of construction shown and described, except only in so far as certain of the appended claims are specifically so limited, as it will be

obvious that modifications may be made without departing from the principles of the invention.

I claim:

1. In a public address arrangement for a church auditorium or the like, the combination with a plurality of seats located inside the auditorium, of a microphone, a plurality of loud speakers, and means electrically and operatively connecting said microphone and said loud speakers, said speakers being positioned in the auditorium adjacent said seats and below the highest portions thereof whereby the sound output of the speakers is damped by impinging on the seats.

2. In a public address arrangement for a church auditorium or the like, the combination with a plurality of seats located inside the auditorium, of a microphone, a plurality of loud speakers, and means electrically and operatively connecting said microphone and said loud speakers, said speakers being positioned in the auditorium adjacent said seats and below the seating portions thereof whereby the sound output of the speakers is damped by impinging on the seats.

3. In a public address arrangement for a church auditorium or the like, the combination with a plurality of seats located inside the auditorium, of a microphone, a plurality of loud speakers, and means electrically and operatively connecting said microphone and said loud speakers, said speakers being mounted on certain of the vertical end leg portions and underneath the seating portions of certain of said seats whereby the sound output of the speakers is directed under the seating portions and is damped by impinging on the seats.

4. In a public address arrangement for a church auditorium or the like, the combination with a plurality of seats located inside the auditorium, of a microphone, a plurality of loud speakers, and means electrically and operatively connecting said microphone and said loud speakers, said speakers being positioned in floor cavities of the auditorium adjacent said seats whereby the sound output of the speakers is damped by impinging on the seats.

BENJAMIN P. BLASKI.