

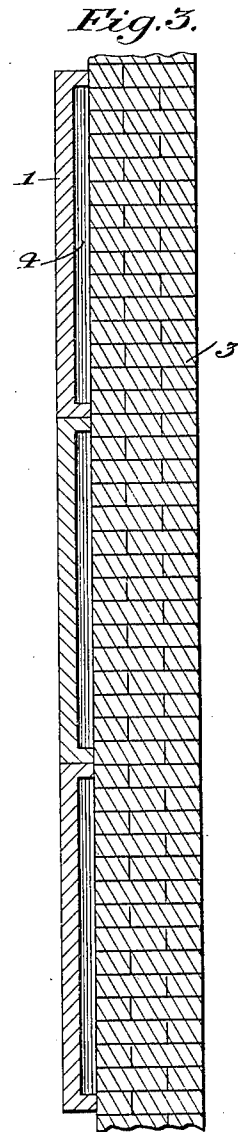
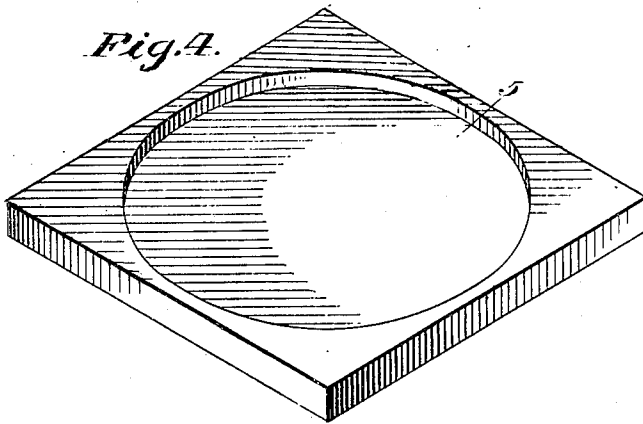
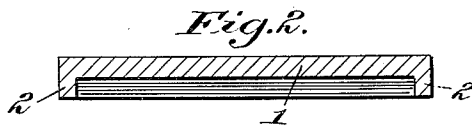
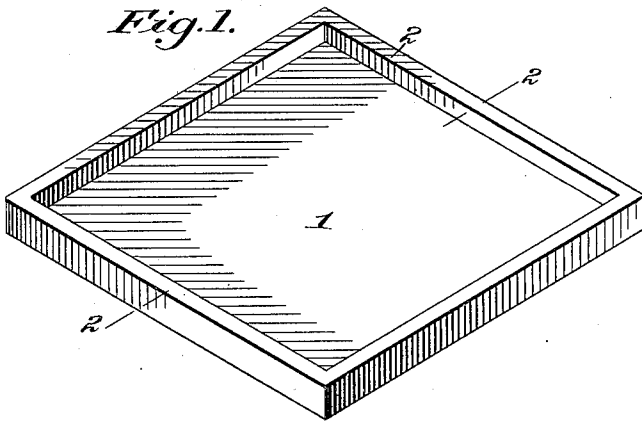
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E. BERLINER

AUDITORIUM WALL AND THE LIKE

Filed August 13, 1925



Inventor:
Emile Berliner,

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UNITED STATES PATENT OFFICE.

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AUDITORIUM WALL AND THE LIKE.

Application filed August 13, 1925. Serial No. 59,125.

To all whom it may concern:

Be it known that I, EMILE BERLINER, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Auditorium Walls and the like, of which the following is a specification.

This invention relates to auditorium walls and the like, and more specifically to a wall faced with a plurality of so-called acoustic tiles which are so constructed that when they are affixed to the surface of the wall a slight space or pocket is formed between the body of the tile and the wall surface, thereby imparting to the tile the characteristics of a diaphragm, possessing marked qualities of resonance and reflection of sound, yet counteracting reverberation.

My invention is particularly applicable to the walls of auditoriums, theaters, concert halls, churches and the like, where it is important to have good acoustics.

After many years of study and experiment I have ascertained that in order to obtain a proper acoustical effect such walls should possess a certain degree of elasticity, this serving not only to counteract reverberation, but also properly reflecting sounds produced by voices or instruments emanating from a platform, stage, or pulpit.

The necessary elasticity may easily be obtained by facing the walls with wood, but the use of wood in large assembly chambers is highly objectionable by reason of its inflammability, and its use is further avoided because of the lack of dignity in its appearance. Stone, marble, stucco, or cement imitations of stone or marble, on the other hand, impress the mind with a sense of permanence and, in view of the durability and dignity of such materials, they are used extensively notwithstanding their relatively poor acoustic properties.

An object of my invention is to provide auditorium or like walls which are permanent and non-inflammable and which, at the same time, possess the desirable acoustic properties of wood walls, being of vibratory character and good reflectors of sound.

A further object is to produce a facing for walls which comprises a plurality of vibratory diaphragms.

Other and further objects will be apparent from the following description, with refer-

ence to the accompanying drawing, in which

Figure 1 is a perspective view of one of the tiles with which a wall is faced.

Figure 2 is a view in section of a tile made in accordance with the present invention.

Figure 3 is a vertical sectional view showing the tiles applied to a wall as a facing.

Figure 4 is a perspective view of a modified form of tile.

Referring more particularly to the drawing:

The tiles comprising the present invention are formed with a body portion or face 1 and a flange 2 extending around the edge of the body portion in such manner that when a plurality of tiles are affixed to the surface of a wall 3, as shown in Figure 3, spaces 4 will be formed between the surface of the wall and the inner surfaces of the tiles 1.

The vibratory diaphragms need not be of rectangular shape as shown in Figure 1, but may be formed as at 5 in Figure 4 wherein a diaphragm tile of rectangular contour is so molded that the body or diaphragm portion is circular. In fact, the tiles may be of any desired shape or size.

In order to obtain a non-inflammable tile possessing sufficient elasticity to be resonant and to reflect sound I first admix cement or plaster with sawdust or other porous material, and then form this mixture into vibratory diaphragms which, when they are hard and dry, are affixed to the walls by cement, glue, varnish, or any other suitable adhesive.

When a number of such acoustic tiles are applied to the surfaces of auditorium walls they reflect the sounds produced on the stage, platform, or pulpit. By modifying the dimensions or composition of the tiles the proposed acoustic properties can be graduated and determined at will.

Such treatment of the walls also prevents the usual reverberation of sound which is so appreciable in halls having rigid stone, brick, or similar hard interior surfaces.

This invention is not restricted to the use of cement or plaster and sawdust in the manufacture of the tiles herein described. It is entirely feasible to produce a fireproof diaphragm of the desired elasticity by substituting for the sawdust some other porous materials, such as for example asbestos or

pumice. Sawdust, however, is preferred because it is light, cheap, and has reinforcing properties which permit the tiles to be made thicker and stronger than without it.

5 The invention is intended to include any initially plastic composition which, when it is properly formed into tiles and subsequently hardened, imparts the characteristics of a diaphragm to each of the tiles so formed.

10 Having described my invention, what I claim is:

1. A fireproof vibratory tile comprising a diaphragm of initially plastic composition and spacing means permitting the dia-
15 phragm to freely vibrate when affixed to a wall.

2. A wall comprising a backing and a facing comprising a series of tiles of the character set forth in claim 1.

20 3. A fireproof vibratory tile comprising a diaphragm composed of an initially plastic composition and a rim which permits the

diaphragm to freely vibrate when fixed on a wall.

4. A fireproof vibratory tile comprising a diaphragm composed of a mixture of cement and sawdust, and a rim which permits the diaphragm to freely vibrate when fixed on a wall.

5. A fireproof vibratory tile comprising a diaphragm composed of a mixture of porous material and a cementitious binder, and a rim which permits the diaphragm to freely vibrate when the tile is affixed to a wall.

6. In combination with a wall of an auditorium a plurality of tiles affixed thereto at points as a facing but spaced therefrom by integral rims to permit of independent vibration, the said tiles being composed of a mixture of comminuted porous material and a binder.

In testimony whereof I affix my signature.

EMILE BERLINER.