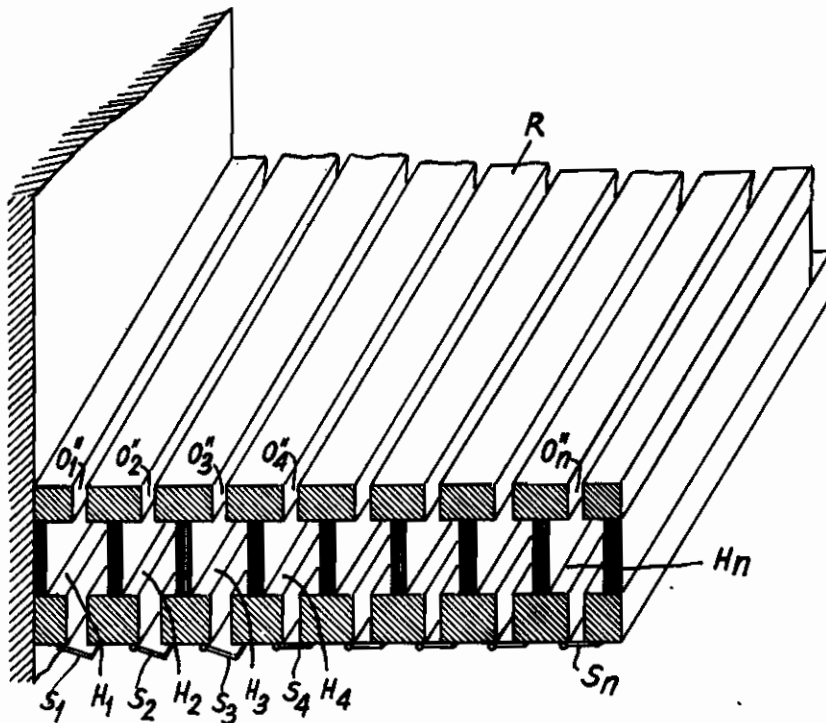


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SOUND ABSORBING OR ATTENUANT ARRANGEMENT
FOR REVERBERANT ROOMS
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SOUND ABSORBING OR ATTENUANT ARRANGEMENT FOR REVERBERANT ROOMS

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Rooms or spaces which are non-absorbent for sound often offer the difficulty that such treatment of the surfaces and other parts of the room as is required for acoustic reasons conflicts with the demands concerning the arrangement of the interior of the room from an architectonic, illuminating and other angles. In fact, the architect or the illuminating engineer often refuses to permit the use of sound absorbent or attenuating bodies or materials for mechanical reasons on the ground that the architectonic impression of the room may be impaired.

In the majority of large spaces such as churches, congress halls, auditoria, etc., reverberation mostly in the lower frequency ranges is particularly long because the major part of the sound deadening or attenuation is caused by the persons present, the sound absorption increasing markedly in the direction towards higher frequencies.

It is known in the prior art to use air resonators for attenuation, especially inside the range of low frequencies. In arrangements known in the art, a perforated or apertured plate which may consist of wood, structural plates, apertured brick or the like, is placed anteriorly of a fixed and firm wall spaced a certain air distance apart therefrom. The natural period and the attenuation of such resonators must be so chosen that the desired attenuation in the bass ranges is secured.

In numerous instances, however, it is not feasible to so design the walls of the room in a way as just outlined or to build in addition anteriorly of the wall as just stated. In such cases, a makeshift according to the invention is to resort to the floor to an extent more than has heretofore been usual for the purpose of insuring sound deadening. To be more precise, the floor according to

the invention is in the form of a grate capable of carrying load, the apertures in the flooring leading particularly to attenuated cavities or spaces so that as in the known arrangement an air resonator attenuation is produced. The under surface of these cavities is preferably hard and smooth in order to allow cleaning either from above after removal of the grating or from below by way of closable openings. The grates may be covered by carpeting inasmuch as such carpets practically represent no obstacle for sound in the lower range. In other words, the operation of air resonators would not be substantially impaired as a result. The dimensions of the resonators should suitably be made slightly different in order that a frequency band rather than any definite or select frequencies may be attenuated.

One appreciable advantage of the new arrangement is that the sound absorbent floor is particularly active when the interior is only partly filled, while when there is a full audience the effect is naturally diminished. The consequence is that the reverberation period is independent of the filling of the auditorium and is practically constant and stable, a fact which is of great importance for the mounting of the loudspeaker equipment.

The drawing illustrates an exemplified embodiment of the object of the invention. Provided in the floor are cavities $H_1, H_2 \dots H_n$ which communicate with the space or room through slots $O_1, O_2, \dots O_n$. The lower surface of the cavities is hard and smooth in order that cleaning may be facilitated. If desired, and as shown in the drawing, closable cleaning ports $S_1, S_2 \dots S_n$ could be provided. The grating containing openings $O_1, O_2 \dots O_n$ may be removable.

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