

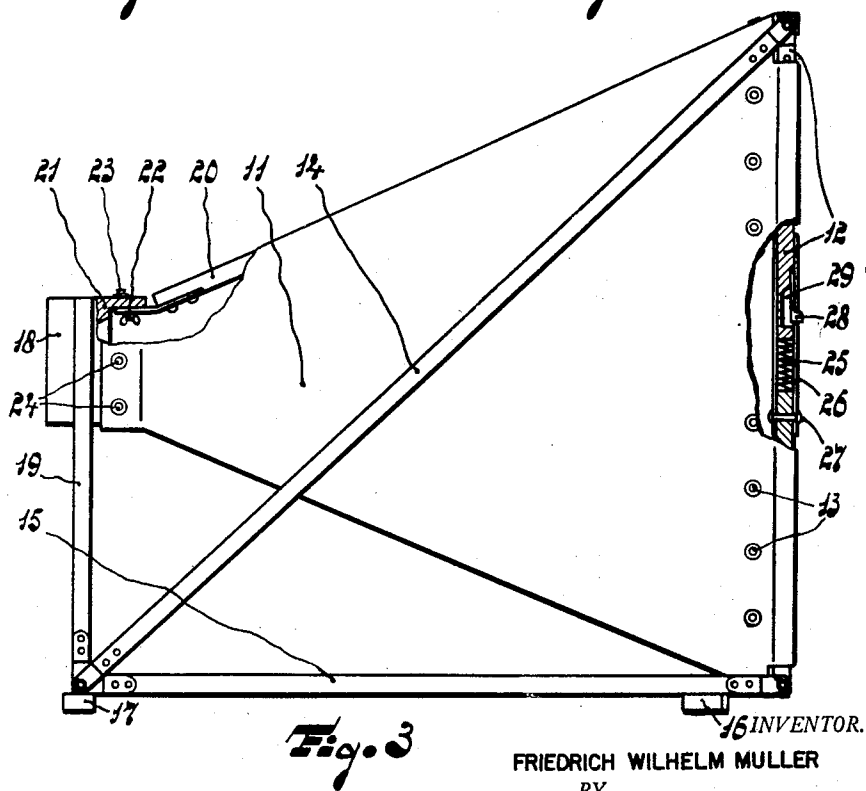
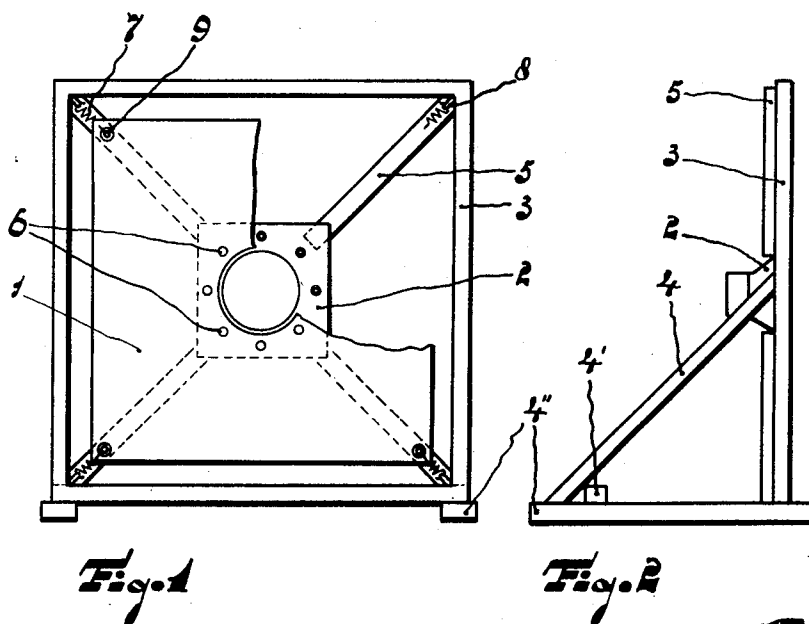
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SOUND RADIATOR

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SOUND RADIATOR

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To obviate acoustic short-circuit in loudspeakers it is necessary, particularly for satisfactory reproduction of the low frequencies, to provide them with a sound board, which may have the shape of a funnel so as to obtain a characteristic curve of direction.

Such sound boards used to be made from stiff or rigid material, such as for example wood, plastic or metal. Particularly in portable systems comprising a high capacity loudspeaker, assembling and dismantling as well as packing the parts of such a rigid sound board are difficult because such parts are cumbersome, bulky, and often heavy.

These disadvantages are obviated, if according to the invention the sound-guiding surface acting to prevent acoustic short-circuit and/or to beam (sound board, funnel or the like) is made wholly or in part from soundproof material being sound reflecting and is foldable or collapsible. Such a loudspeaker takes up comparatively little space in transit.

With loudspeakers housed in a closed case it has been proposed to make at least part of the case wall from semi-rigid material to prevent considerable deterioration of reproduction, particularly at the low frequencies, in spite of a small volume of the case. In contradistinction thereto the present invention relates to loudspeakers comprising open sound-guiding bodies made from canvas-like material particularly to simplify transport.

Sound-guiding surfaces according to the invention are preferably fastened to a frame so as to be kept in the shape required for operation. In order to avoid the need for transporting the separate bars or the like of such a frame at their full length they may be composed of several parts which are preferably interconnected by means of a sleeve or other tubular member, and are provided if required with a locking device such as a bayonet joint, the bars being secured together in known manner by means of winged-nut screws or the like.

In order that the invention may be more clearly understood and readily carried into effect, it will now be described in detail with reference to the accompanying drawing in which two practical embodiments of the invention are given by way of example.

Figs. 1 and 2 show the front and side view respectively of a sound board.

Fig. 3 shows an enlarged, partially sectional sound funnel according to another embodiment of the invention.

In Fig. 1 a sound board 1 according to the invention is made from fabric or foil-like and preferably resilient material such as canvas and is arranged in front of a loudspeaker 2. A frame 3 supported at the back by props or stays 4, 4' and 4'' carries the loudspeaker 2 by means of props 5. The frame 3 and the props 4, 4', 4'' and 5 are formed in known fashion (not shown) so as to enable them to be assembled in a simple manner, for example by means of winged-nut screws. The sound board 1 has a central aperture which registers with the loudspeaker aperture and is fastened to the edge of the loudspeaker by means of press-buttons 6. The sound board 1 is kept taut

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by springs 7 suspended from hooks 8 of the frame and eyelets 9 provided at the corners of the sound board 1. The press-buttons 6 may be dispensed with, though it is preferable to make sure that the sound board 1 bears on the front wall of the loudspeaker 2 unit slight pressure. This may be achieved by arranging the front surface of the loudspeaker 2 slightly in front of the plane passing through the hooks 8, the corners and sides of the front wall of the loudspeaker being if possible slightly rounded to prevent damage to the sound board.

Fig. 3 shows a funnel-shaped loudspeaker 11 according to another embodiment of the invention having an approximately square cross-section. The sides of the front aperture are formed by props 12 around which the canvas 11 constituting the sound-guiding surface is put and buttoned by means of press-buttons 13. The associated parts of the press-buttons 13, with which, in the embodiment shown, the canvas 11 is provided, may be fastened alternatively, on the one hand, to the canvas 11 and on the other, directly to the prop 12.

The props 12 are supported by means of diagonal props 14 and base props 15 having feet 16 and 17. As the approximately square section of the sound funnel tapers off towards the back, the props 14 and 15 also get nearer each other towards the back. The loudspeaker, the electric connections of which are not shown, is housed in an approximately square casing 18 which is supported by props 19 upon the base props 15 and the feet 17. In order to keep the canvas 11 in the shape required and to relieve the props 19 from the tensile stress working in the direction of the sound funnel axis, supporting props 20 are fastened, preferably under the upper surface of the funnel only, being on the one hand secured to the corners of the props 12 and on the other to an upright edge 21 of the loudspeaker casing 18 by means of winged-nut screws 22. The canvas 11 is fastened by means of press-buttons 23 and 24 respectively to the edge 21 of the loudspeaker casing 18.

In order to keep taut the canvas 11 used as a sound-guiding surface in accordance with the invention it may be desirable for at least some of the props (12, 14, 15, 20) to be resilient, particularly longitudinally. Such a device is shown in a cross-sectional view given by way of example, part of the canvas having been removed to that end.

Centrally of the prop 12 a part has been replaced by a helical spring 25, the two parts of the prop 12 being embraced and guided by a common sleeve 26 adjacent the point of separation, the sleeve being fastened to the lower part of the prop 12 by a rivet 27 so that the upper part is adapted to slide resiliently. It is preferable to provide a click mechanism by means of which, in assembling the prop, it may be held at a reduced length and not subjected to the action of the spring.

The click mechanism is constituted, for example, by a nose or catch 28 fastened in a recess 29 in the upper part of the prop 12 by means of a laminated spring. The sleeve 26 has an aperture in which the nose 28 is adapted to enter, as shown in the Fig. 3 of the drawing. In this position the prop 12 is comparatively short and rigid and can be readily assembled with the other props so as to form a unitary piece.

When assembling is completed and the canvas 11 has been buttoned round the frame, the catch 28 which protrudes slightly under the canvas is depressed, so that it is released and the parts of the prop 12 and hence the canvas 11 are subjected to spring action.

What I claim is:

1. A loudspeaker construction comprising a frame, a plurality of props supporting said frame, a collapsible, apertured baffle arranged in front of said loudspeaker, means for removably connecting said baffle to said loud-

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speaker whereby in the assembled condition thereof said aperture is aligned with said loudspeaker, said baffle being made of a relatively resilient fabric, and means biasing said baffle toward said frame to thereby maintain said baffle in a taut condition in said frame.

2. A loudspeaker construction comprising a collapsible frame, a plurality of props supporting said frame, a collapsible, apertured baffle arranged in front of said loudspeaker, means for removably connecting said baffle to said loudspeaker whereby in the assembled condition thereof said aperture is aligned with said loudspeaker, said baffle being made of a relatively resilient fabric, and a plurality of springs each secured at one end to said baffle and at the other end to said frame thereby biasing said baffle toward said frame and maintaining said baffle in a taut condition.

3. A loudspeaker construction comprising a collapsible frame, a plurality of props supporting said frame, a relatively resilient fabric embracing at least two of said props and detachably secured thereto, said fabric being provided with an aperture defined by said fabric, said fabric surrounding and engaging the front of the loudspeaker, and resilient means in at least one of said props for making said props yieldable longitudinally.

4. A loudspeaker construction comprising a collapsible frame, a plurality of props supporting said frame, a relatively resilient fabric embracing at least two of said props

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and detachably secured thereto, said fabric being provided with an aperture defined by said fabric, said fabric surrounding and engaging the front of the loudspeaker, at least one of said props including two sections positioned in end to end relationship, a spring positioned between adjacent ends of said sections, a sleeve provided with an aperture surrounding the adjacent ends of said two sections and said spring, said sleeve being fixed to one end of one of said sections, a detent secured to the adjacent end of the other of said sections and receivable in said aperture in one of the relative positions of said sections to thereby removably secure said sections together, and said sections being resilient relative to each other when said detent is in another position.

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