Sept. 15, 1959 D. A. LYONS 2,904,124

LOUD SPEAKER SYSTEMS

Filed Jan. 8, 1958

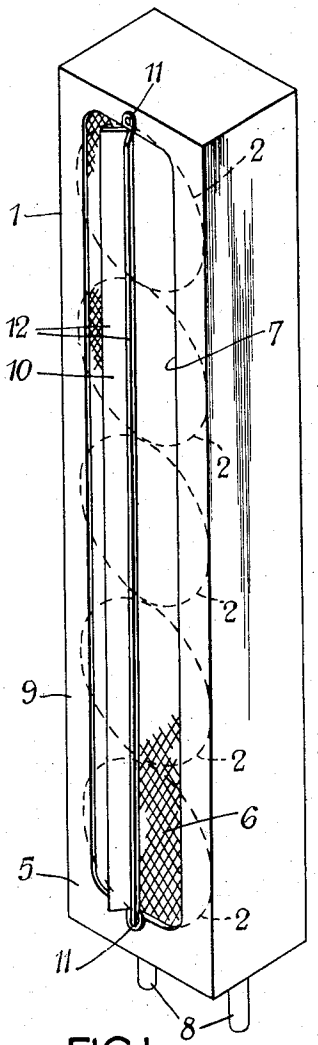


FIG.1

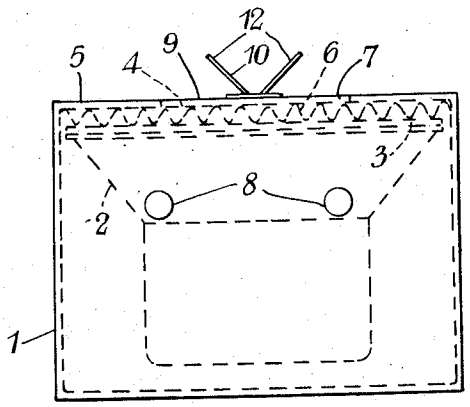


FIG.2

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United States Patent Office 2,904,124 Patented Sept. 15, 1959

2,904,124

LOUD SPEAKER SYSTEMS

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Application January 8, 1958, Serial No. 707,728

Claims priority, application Great Britain January 11, 1957

2 Claims. (Cl. 181—31)

This invention relates to loud speaker systems and more particularly to a loud speaker system of the kind comprising a bank of speaker elements respectively having speaker cones arranged rectilinearly with their axes parallel or substantially parallel. When a loud speaker system of the kind described is vertically disposed the resultant omitted beam of sound spreads horizontally rather than vertically and sound can be adequately received at points comparatively widely spaced horizontally with respect to the speaker bank. However, the beam of sound emitted from such a bank of speaker elements suffers from two main disadvantages. On the one hand the intensity of the sound falls away as one moves from the centre to either side of the beam and on the other hand the high frequency sound content at the sides of the beam is appreciably lower than that at the centre of the beam.

It is an object of the invention to provide an improved loud speaker system. A further object of the invention as applied to a loud speaker system of the kind specified is to provide a beam of sound in which the distribution of frequencies and intensity is of improved uniformity.

According to the present invention a loud speaker system comprises a bank of speaker elements respectively having speaker cones arranged rectilinearly with the axes thereof substantially parallel, an elongated casing within which the speaker cones are mounted, a baffle in the form of a channel-shaped strip which is V-shaped and of uniform depth in cross-section and is mounted at opposite ends thereof on the casing forwardly of and symmetrically with respect to the speaker cones so as to extend diametrically across each speaker cone of the bank, the baffle being of such depth that it is adapted to deflect a central section only of a beam of sound emitted from the bank outwardly towards opposite sides of the beam.

Speaker systems of the kind described are particularly useful for beaming sound to specific locations where difficulties in hearing are experienced by virtue of the presence of extraneous noises. For example such systems are finding increasing use in passenger aircraft and railway carriages. It has been found that by placing vertically disposed speaker banks each provided with a baffle according to the invention at opposite ends of a railway carriage or passenger compartment of an aircraft, adequate sound reception can be obtained at all points in the carriage or compartment.

The invention will now be described, by way of example, with reference to the accompanying, diagrammatic drawings, in which:

Fig. 1 is a perspective view of one form of the invention, and

Fig. 2 is a view as seen looking from below Fig. 1.

Referring to the drawings, within an elongated rectangular frame or casing **1** are disposed speaker elements each having a speaker cone **2** mounted on an apertured rectangular plate **3** which is suitably secured by means (not shown) to a rear face **4** of a front wall **5** of the casing **1**. Between the wall **5** and the plates **3** of the speaker elements is provided a grill **6** of expanded metal or other suitable material and the grill **6** is arranged to cover an elongated aperture **7** formed in the front wall **5** of the casing.

The speaker elements are connected in parallel electrical relationship with terminals **8** so that the speaker bank can be connected to a power amplifier.

On a forward face **9** of the casing front wall **5** is mounted a V-shaped baffle **10** which extends centrally along the aperture **7** and is appropriately secured at opposite ends thereof, for example, by rivets **11** to the wall **5**. The baffle **10** which is of uniform cross section thus extends diametrically across the front of and normal to the axis of each speaker cone **2**. Side walls **12** of the baffle **10** are equally inclined to the axis of each speaker cone **2** and the angle between the side walls **11** is 90 degrees or less so that sound reflected by the baffle is not directed rearwardly into the speakers.

In operation, a central part of the beam of sound emitted by the speaker bank is deflected outwardly by the baffle side walls **12** and the overall effect is to produce a beam of sound the lateral intensity of which is of improved uniformity whilst the quality of sound at the sides of the beam is also improved.

I claim:

1. A loud speaker system comprising a bank of speaker elements respectively having speaker cones arranged rectilinearly with the axes thereof substantially parallel, an elongated casing within which the speaker cones are mounted, a baffle extending diametrically across each speaker cone and longitudinally of said bank, said baffle being V-shaped and uniform in cross-section, the apex of said V being directed toward said speaker cones and the distance between the remote ends of said V-shaped baffle being substantially less than the diameter of said speaker cones, the baffle being of such depth that it is adapted to deflect a central section only of a beam of sound emitted from the bank outwardly towards opposite sides of the beam.

2. A loud speaker system as set forth in claim 1 in which the angle between the sides of the V-shaped baffle is not greater than 90°.

References Cited in the file of this patent

UNITED STATES PATENTS

2,020,166 Swinyard ---------- Nov. 5, 1935

FOREIGN PATENTS

695,239 France ---------- Sept. 29, 1930
870,882 France ---------- Jan. 3, 1942
538,458 Italy ---------- Jan. 25, 1956