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[33] **Japan**
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[54] **LOUDSPEAKER**
1 Claim, 4 Drawing Figs.
[52] U.S. Cl. **181/31,**
181/32
[51] Int. Cl. **G10k 13/00;**
H04r 7/00
[50] Field of Search **181/31,**
31.1, 32

ABSTRACT: In a loudspeaker including a diaphragm, a driver unit for driving said diaphragm and a frame for supporting said diaphragm and driver unit, said frame including arms for supporting said driver unit and a flange portion integrally formed with said arms, said flange portion being formed at its inner periphery in such shape as to conform to the outer periphery of the diaphragm and at its outer periphery in such dimension and shape as to substantially fit in a cabinet to which said frame is to be fixed, whereby the loudspeaker can be mounted in the cabinet without using a baffle board.

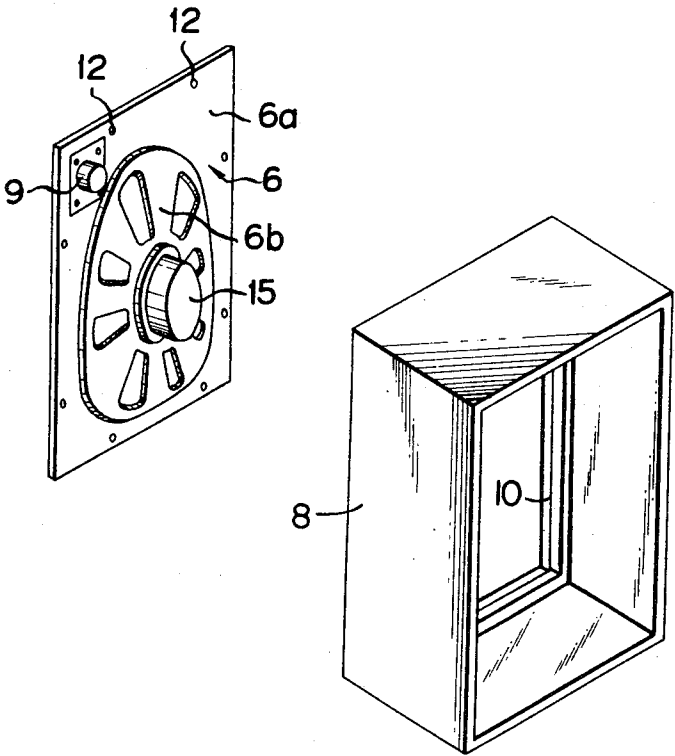


FIG. 1

PRIOR ART

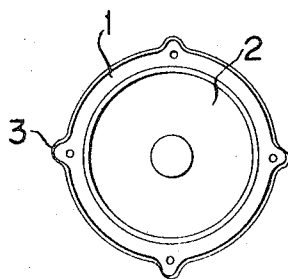


FIG. 3

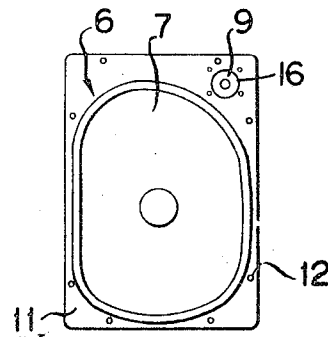
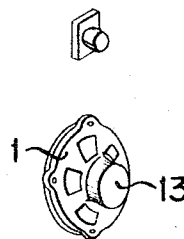
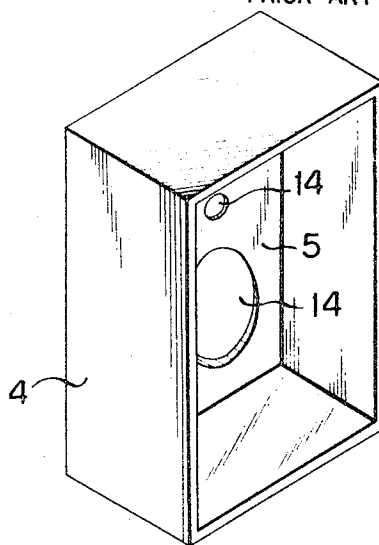


FIG. 2

PRIOR ART



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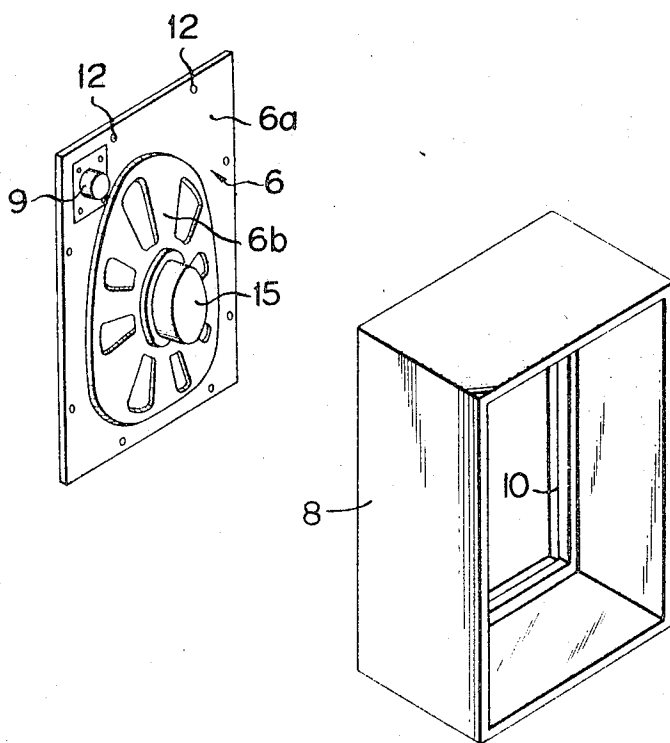
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FIG. 4



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LOUDSPEAKER

BACKGROUND OF THE INVENTION

The present invention relates to a loudspeaker for electronic musical instruments or the like.

A loudspeaker radiates sonic waves at its front and rear sides in opposite phases with each other, and, therefore, it is necessary to provide a baffle board in order to prevent the sonic waves at the front and rear sides from interfering with each other when reproducing sounds having long wavelength or low frequency.

FIGS. 1 and 2 show a conventional loudspeaker and a cabinet, respectively. As shown in FIGS. 1 and 2, the conventional loudspeaker comprises a diaphragm 2, a driver unit 13 for driving said diaphragm and a frame 1 which is formed at its outer periphery in such a shape as to substantially conform to the peripheral shape of said diaphragm, except flange portions 3 for mounting the frame in a cabinet. The loudspeaker is mounted in a cabinet 4, as shown in FIG. 2, through a baffle board 5 fixed to the cabinet. In a loudspeaker system having a woofer and a tweeter or more loudspeakers, those loudspeakers are mounted in apertures 14 formed in the baffle board 5, respectively.

It will be understood from the above explanation that in a conventional construction of a loudspeaker an outer periphery of a frame does not conform to the inside of a cabinet to which said frame is to be attached, and consequently it is necessary to provide a baffle board for mounting the frame of the loudspeaker.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a loudspeaker which can be mounted on a cabinet without using a baffle board.

It is another object of the present invention to provide a loudspeaker which can be easily fabricated into a loudspeaker system.

It is a further object of the present invention to provide a loudspeaker system which can be manufactured economically.

In accordance with the present invention there is provided a loudspeaker including a diaphragm, a driver unit for driving said diaphragm and a frame for supporting said diaphragm and driver unit, said frame including arms for supporting said driver unit and a flange portion integrally formed with said arms, said flange portion being formed at its inner periphery in such shape as to conform to the outer periphery of the diaphragm and at its outer periphery in such dimension and shape as to substantially fit in a cabinet to which said frame is to be attached, whereby the loudspeaker can be mounted in the cabinet without using a baffle board.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1 and 2 show a construction of the conventional loudspeaker, in which:

FIG. 1 is a front view of the loudspeaker; and

FIG. 2 is a perspective view of a cabinet and loudspeakers before mounting.

FIGS. 3 and 4 show an embodiment of the loudspeaker according to the present invention, in which:

FIG. 3 is a front view of the loudspeaker; and

FIG. 4 is a perspective view of a cabinet and the loudspeaker as shown in FIG. 3, before mounting.

PREFERRED EMBODIMENT OF THE INVENTION

Referring to FIGS. 3 and 4 illustrating an embodiment of the present invention, the loudspeaker 11 comprises a frame 6, a diaphragm 7 and a driver unit 15 for driving said diaphragm. The diaphragm is preferably made of polystyrene foam sheet. The frame 6 is made of cast aluminum or pressed iron plate or the like and it includes a flange 6a and arms 6b integrally formed therewith. The driver unit 15 is supported by the arms 6b on the frame 6. The flange portion 6a of the frame 6 is formed at its inner periphery in such shape as to conform to the outer periphery of the diaphragm 7, and is formed at its outer periphery in such dimension and shape as to conform to the inside of a cabinet 8 to which the frame is to be mounted.

In the embodiment shown in FIGS. 3 and 4, a tweeter 9 is mounted in an opening 16 in the frame 6, and forms a two-way speaker system.

The cabinet 8 has a rim 10 attached around the inside surface thereof and the loudspeaker 11 is mounted and fixed in the cabinet 8 by means of screws threaded into said rim 10 through holes 12 formed in the frame.

Thus, the flange portion 6a of the frame 6 serves as a baffle board like the baffle board 5 shown in FIG. 2.

It will be understood that in accordance with the present invention it is not necessary to provide a baffle board in a cabinet, and consequently the loudspeaker system can be manufactured economically. That is, the flange portion of the frame acts as a baffle board, which prevents the occurrence of interference of sounds. Moreover, in accordance with the present invention, a tweeter can be assembled on a main loudspeaker before it is mounted in a cabinet, and therefore the speaker system can be easily manufactured. Also, a network can be previously assembled and wired on a loudspeaker before it is mounted in a cabinet, which simplifies and facilitates assemblage.

I claim:

1. A loudspeaker system including a speaker housing having a rectangular opening therein, a diaphragm, a driver unit for driving said diaphragm, a tweeter, and a metal frame for supporting said diaphragm, said driver unit, and said tweeter, and mounting them in said housing, said frame having a metal flange portion of rectangular shape with a diaphragm opening therein the periphery of which is shaped to conform to the outer periphery of the diaphragm, arms for supporting said driver unit integrally formed on said flange portion about said diaphragm opening, a tweeter opening in said flange portion between said diaphragm opening and the outer edge of the frame, and the outer periphery of said flange portion having such dimensions to fit closely into said housing opening in which said frame is to be fixed to serve as a baffle board.