



(12) **EUROPEAN PATENT APPLICATION**

(21) Application number: **91200574.1**

(51) Int. Cl.⁵: **H04R 1/34, H04R 1/40**

(22) Date of filing: **18.03.91**

(30) Priority: **22.03.90 NL 9000670**

(43) Date of publication of application:
09.10.91 Bulletin 91/41

(84) Designated Contracting States:
DE FR GB IT NL

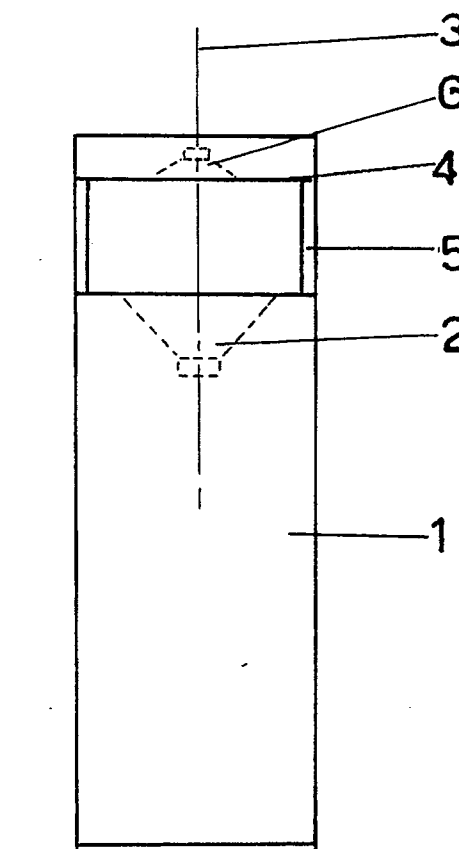
(71) Applicant: **Vastenhoud, Hendrik**
Schelphorst 66
Wieringerwerf(NL)

(72) Inventor: **Vastenhoud, Hendrik**
Schelphorst 66
Wieringerwerf(NL)

(74) Representative: **Koomen, Jan, Ir.**
Kennemerstraatweg 35
NL-1814 GB Alkmaar(NL)

(54) **Apparatus for sound reproduction.**

(57) Apparatus for sound reproduction comprising an acoustic box which at its upper side is provided with a loudspeaker, the loudspeaker-opening of which is directed upwards, while coaxially above this loudspeaker a second loudspeaker is arranged, the loudspeaker-opening of which is directed downwards.



The invention relates to an apparatus for sound reproduction, comprising a support with at least one loudspeaker.

Such an apparatus is well known in the shape of acoustic boxes, in which in one of the side walls a loudspeaker is arranged.

Such an apparatus has the drawback of the directed effect of the sound generated by the apparatus.

This directed effect influences unfavourably the quality of the produced sound and more in particular the reproduced music.

The invention aims to obviate this drawback of the known apparatus.

The apparatus according to the invention there- to is characterized, in that the central line of the loudspeaker extends vertically.

By this measure the drawback of the directed effect of the known apparatus is obviated completely, because by the apparatus according to the invention the sound is sent out in all directions.

In a favourable embodiment of the apparatus according to the invention the loudspeaker-opening is directed upwards.

In a further working out of the apparatus according to the invention a sounding-board is arranged at a distance from the loudspeaker.

This sounding-board preferably extends parallel with the plane through the periphery of the loudspeaker-opening.

In a further working out of the apparatus according to the invention a second loudspeaker is arranged coaxially with the loudspeaker in the sounding-board.

Thereby both the loudspeakers may be directed towards one another in a favourable way.

It has appeared that with the apparatus according to the invention a better sound quality may be obtained, especially concerning a reproduction of music, than such being the case with the known apparatuses.

In order to be able to adjust the apparatus according to the invention to the acoustics of the room in which the apparatus is arranged and in which the sound has to be generated, the distance between the sounding-board and the loudspeaker may be adjusted.

By adjusting this distance the sound generated by the apparatus may be affected and thus may be adapted to the acoustics of the room in which the apparatus is placed.

In a favourable embodiment of the apparatus according to the invention the support has the shape of an acoustic box which at its upper side is provided with a loudspeaker.

Above this loudspeaker the sounding-board may then be arranged in a fairly simple way by means of small columns, and with possibly a sec-

ond loudspeaker arranged within it and which then extends coaxially with the first loudspeaker.

The invention will now be explained further with reference to the accompanying drawing by way of example.

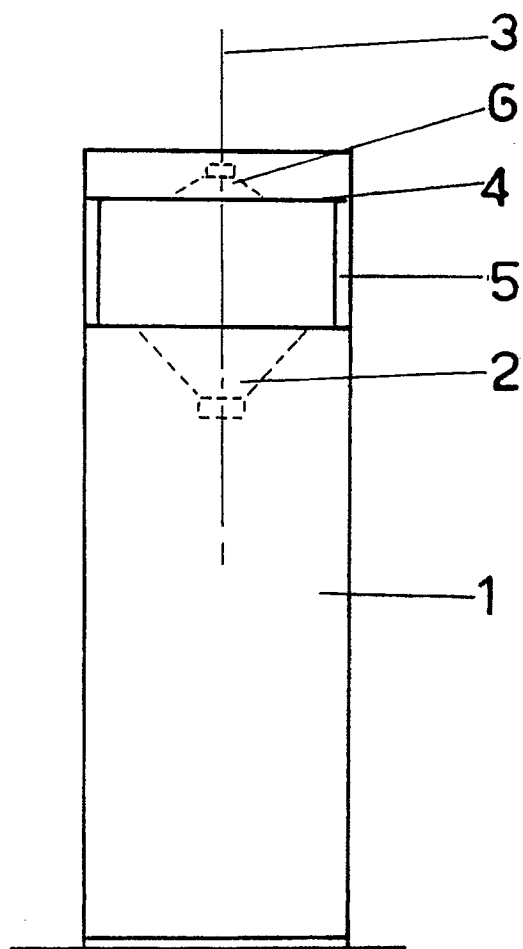
As shown in the drawing the acoustic box 1 is provided at its upper side with a loudspeaker 2 of which the central axis of the cone 3 extends vertically.

At distance from the loudspeaker 2 a sound board 4 is supported by vertical columns 5 and this sound board is provided with a second loudspeaker 6 which is placed coaxially with the first loudspeaker 2.

As shown in the drawing both the loudspeaker-openings are directed towards one another.

Claims

1. Apparatus for sound reproduction, formed by a support with at least one loudspeaker, characterized in that the central line of the loudspeaker extends vertically.
2. Apparatus according to claim 1, characterized in that the loudspeaker-opening is directed upwards.
3. Apparatus according to claim 1 or 2, characterized in that a sounding-board is provided at a distance from the loudspeaker.
4. Apparatus according to claim 3, characterized in that in the sounding-board a second loudspeaker is arranged coaxially with the loudspeaker.
5. Apparatus according to claim 4, characterized in that both the loudspeakers are directed towards one another.
6. Apparatus according to claim 3 or 4, characterized in that the distance between the sounding-board and the loudspeaker is adjustable.
7. Apparatus according to any of the preceding claims, characterized in that the support has the shape of an acoustic box which at its upper side is provided with a loudspeaker.





European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 20 0574

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-3 371 742 (D.H. NORTON) * Column 1, line 61 - column 2, line 61; figures 1,2 * -- --	1,2	H 04 R 1/34 H 04 R 1/40
X	GB-A-2 184 323 (MIDLEN TRADING CORP.) * Page 2, lines 17-30; figure 1 * -- --	1,3	
X	FR-A-2 632 801 (S.E.F. VOISE) * Abstract; figure 2 * -- --	1,3,4	
X	GB-A-2 188 811 (CANON) * Abstract; figure 1a * A	1 6	
X	DE-A-2 041 906 (K.O. POENSGEN) * Claim 1; figure * A	1 7	
	-- -- -- --		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5) H 04 R
Place of search The Hague		Date of completion of search 28 June 91	Examiner GASTALDI G.L.
<div>CATEGORY OF CITED DOCUMENTS</div> <div>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention</div> <div>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons ----- &: member of the same patent family, corresponding document</div>			