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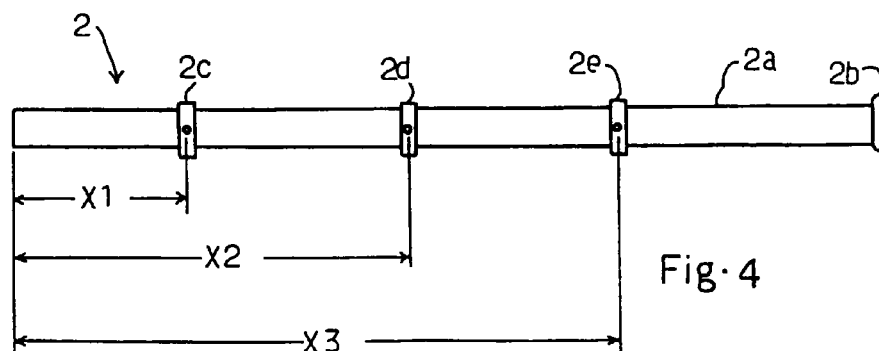
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(54) **Tubular bells with weights attached to nodes of fourth overtone for adjusting overtones to target frequency ratio**

(57) Chimes or tubular bells generate sounds through vibrations of metallic tubes (2), and weight members (2c-2e) are attached to nodal points on each metallic tube where the nodes of the fourth overtone (f₄) take place; the weight members (2c-2e) decrease the

frequencies of the third and fifth overtones (f₃/f₅) without an influence on the fourth overtone so as to regulate the first overtone, the fourth overtone and the third overtone to a target frequency ratio of 2 : 3 : 4.



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EUROPEAN SEARCH REPORT

Application Number
EP 96 11 5552

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.6)
A	US 2 273 333 A (H.J. SCHLUTER) 17 February 1942 (1942-02-17) * page 2, line 28 - line 50 *	1	G10D13/08 G10K1/10
A	FR 1 497 494 A (A. TENENBAUM) 2 January 1968 (1968-01-02) * column 2, line 16 - line 21 *	1	
A	ORDUNA-BUSTAMANTE F: "NONUNIFORM BEAMS WITH HARMONICALLY RELATED OVERTONES FOR USE IN PERCUSSION INSTRUMENTS" JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, vol. 90, no. 6, 1 December 1991 (1991-12-01), pages 2935-2941, XP000244647 ISSN: 0001-4966 * page 2935 - page 2936, line 5 *	1	
A	US 1 838 502 A (H.J. SCHLUTER) 29 December 1931 (1931-12-29)		TECHNICAL FIELDS SEARCHED (Int.Cl.6) G10D G10K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 July 1999	Examiner Swartjes, H
CATEGORY OF CITED DOCUMENTS 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 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	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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23-07-1999

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2273333	A	17-02-1942	NONE	
FR 1497494	A	02-01-1968	NONE	
US 1838502	A	29-12-1931	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82