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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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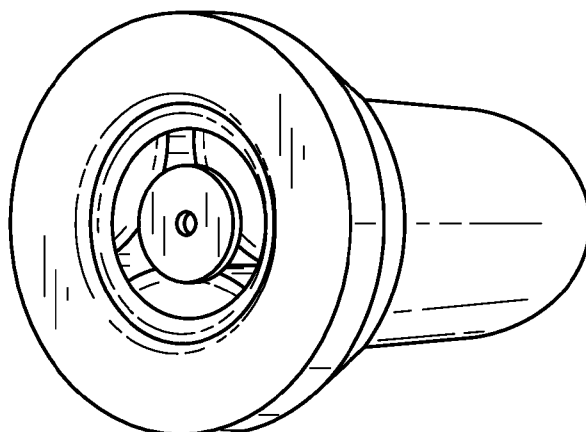


FIG. 12A

(57) Abstract: Embodiments disclose a non-roll foam EarTip that may provide for fingertip press-in insertion, improved comfort, simplicity of use, flatter attenuation and/or improved hygienic properties, by way of non-exclusive example. A hollow foam body typically encompasses a shorter stem of more rigid material, and in some embodiments the foam body has a tighter skin on the inner and outer surfaces. In some embodiment, the EarTip is an earplug formed of polyurethane foam with a dense skin on the inner and outer surfaces of the hollow body, and having a plurality of splines in the cavity.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/037284**A. CLASSIFICATION OF SUBJECT MATTER***A61F 11/06(2006.01)i, A61F 11/14(2006.01)i, C08J 9/22(2006.01)i, C08L 75/04(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61F 11/06; A61F 5/37; A61F 11/00; A61F; H04R 25/02; A61B 7/02; A61F 11/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: earplug, eartip, hollow body, flexible stem

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2005-0056289 A1 (JENKINS, JR. et al.) 17 March 2005 See the whole document	1-26
A	US 6006857 A (LEIGHT et al.) 28 December 1999 See the whole document	1-26
A	US 5799658 A (FALCO) 01 September 1998 See the whole document	1-26
A	WO 03-013390 A2 (BACOU-DALLOZ USA SAFETY, INC.) 20 February 2003 See the whole document	1-26
A	US 4053051 A (BRINKHOFF) 11 October 1977 See the whole document	1-26
A	US 6695093 B1 (FALCO) 24 February 2004 See the whole document	1-26

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005-0056289 A1	17.03.2005	EP 1680041 A2	19.07.2006
		EP 1680041 A4	23.05.2007
		US 2007-0119464 A1	31.05.2007
		US 7192544 B2	20.03.2007
		WO 2005-027776 A2	31.03.2005
		WO 2005-027776 A3	28.09.2006
		WO 2005-027776 A3	31.03.2005
US 6006857 A	28.12.1999	EP 0955026 A1	10.11.1999
		EP 0955026 B1	19.03.2003
US 5799658 A	01.09.1998	CA 2234163 C	10.04.2007
		EP 0862397 A1	09.09.1998
		EP 0862397 A1	13.02.2002
		EP 0862397 A4	11.04.2001
		EP 0862397 B1	22.12.2004
		JP 11-514560 A	14.12.1999
		WO 98-06362 A1	19.02.1998
WO 03-013390 A2	20.02.2003	AU 2002-319802 B2	20.01.2005
		AU 2002-323097 B2	28.09.2006
		AU 2002-324660 A1	24.02.2003
		AU 2002-324660 A8	24.02.2003
		CN 1541083 A	27.10.2004
		CN 1541083 C0	27.10.2004
		CN 1610530 A	27.04.2005
		CN 1610530 C0	22.11.2006
		EP 1420734 A2	26.05.2004
		EP 1420734 A4	11.06.2008
		EP 1420735 A2	26.05.2004
		EP 1420735 A4	11.06.2008
		EP 1420736 A2	26.05.2004
		EP 1420736 A4	28.05.2008
		JP 03-973627 B2	12.09.2007
		JP 2005-508674 A	07.04.2005
		JP 2005-522234 A	28.07.2005
		US 2003-0029458 A1	13.02.2003
		US 2003-0029459 A1	13.02.2003
		US 2003-0029460 A1	13.02.2003
		US 6568395 B2	27.05.2003
		US 6659103 B2	09.12.2003
		WO 03-013389 A2	20.02.2003
		WO 03-013389 A3	20.02.2003
		WO 03-013390 A3	20.02.2003
		WO 03-013391 A2	20.02.2003
		WO 03-013391 A3	20.02.2003
WO 0301-3390A2	20.02.2003		
WO 0301-3390A3	10.07.2003		

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/037284

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4053051 A	11. 10. 1977	None	
US 6695093 B1	24. 02. 2004	AR027511A1	02. 04. 2003
		AU 2001-27916 A1	24. 07. 2001
		BR 0107784 A	01. 10. 2002
		DE 60118557 D1	18. 05. 2006
		DE 60118557 T2	12. 10. 2006
		EP 1294331 A1	26. 03. 2003
		EP 1294331 B1	05. 04. 2006
		TW 477691 A	01. 03. 2002
		TW 477691 B	01. 03. 2002
		WO 01-50993 A1	19. 07. 2001