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(12) **United States Design Patent**  
**Johnson et al.**

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(54) **FILTERING FACE-PIECE RESPIRATOR  
SUPPORT STRUCTURE**

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(52) **U.S. Cl.** ..... **D24/110.1**

(58) **Field of Classification Search** ..... D24/108-110.5;  
128/206.12, 206.19, 206.27, 205.25, 206.15,  
128/206.18, 206.21

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,502,450	A	7/1924	Wood
2,382,364	A	8/1945	Yant
3,757,777	A	9/1973	Kaufman
D247,332	S	2/1978	Quan
4,248,220	A	2/1981	White
D267,985	S	2/1983	Huber
D282,117	S	1/1986	Gronborg et al.
D285,374	S	8/1986	Huber et al.
4,630,604	A	12/1986	Montesi
4,641,645	A	2/1987	Tayebi
D288,980	S	3/1987	Pernicka
4,739,755	A	4/1988	White et al.
4,807,619	A	2/1989	Dyruud et al.
4,827,924	A	5/1989	Japuntich
4,850,347	A	7/1989	Skov
4,951,664	A	8/1990	Niemeyer
5,050,594	A	9/1991	Babb
D344,608	S	2/1994	Goryachy et al.
D373,224	S	8/1996	Pernicka et al.
5,673,690	A	10/1997	Tayebi et al.

5,717,991	A *	2/1998	Nozaki et al.	.....	2/9
6,173,712	B1 *	1/2001	Brunson	.....	128/206.19
6,257,235	B1 *	7/2001	Bowen	.....	128/206.21
D449,377	S *	10/2001	Henderson et al.	.....	D24/110.1
D449,902	S	10/2001	Pernicka		
6,394,090	B1	5/2002	Chen et al.		
D458,364	S *	6/2002	Curran et al.	.....	D24/110.1
D459,471	S *	6/2002	Curran et al.	.....	D24/110
6,474,336	B1	11/2002	Wolfe		
6,584,976	B2 *	7/2003	Japuntich et al.	.....	128/206.15
7,086,400	B2	8/2006	Shigematsu et al.		
7,121,279	B2	10/2006	Dennis		
7,178,528	B2 *	2/2007	Lau et al.	.....	128/207.18
D575,390	S *	8/2008	Scott et al.	.....	D24/110.6
D613,850	S *	4/2010	Holmquist-Brown et al.	.....	D24/110.1

(Continued)

**FOREIGN PATENT DOCUMENTS**

GB	2059782	A	4/1981
JP	2546834		9/1997
JP	2000-140139	A	5/2000

(Continued)

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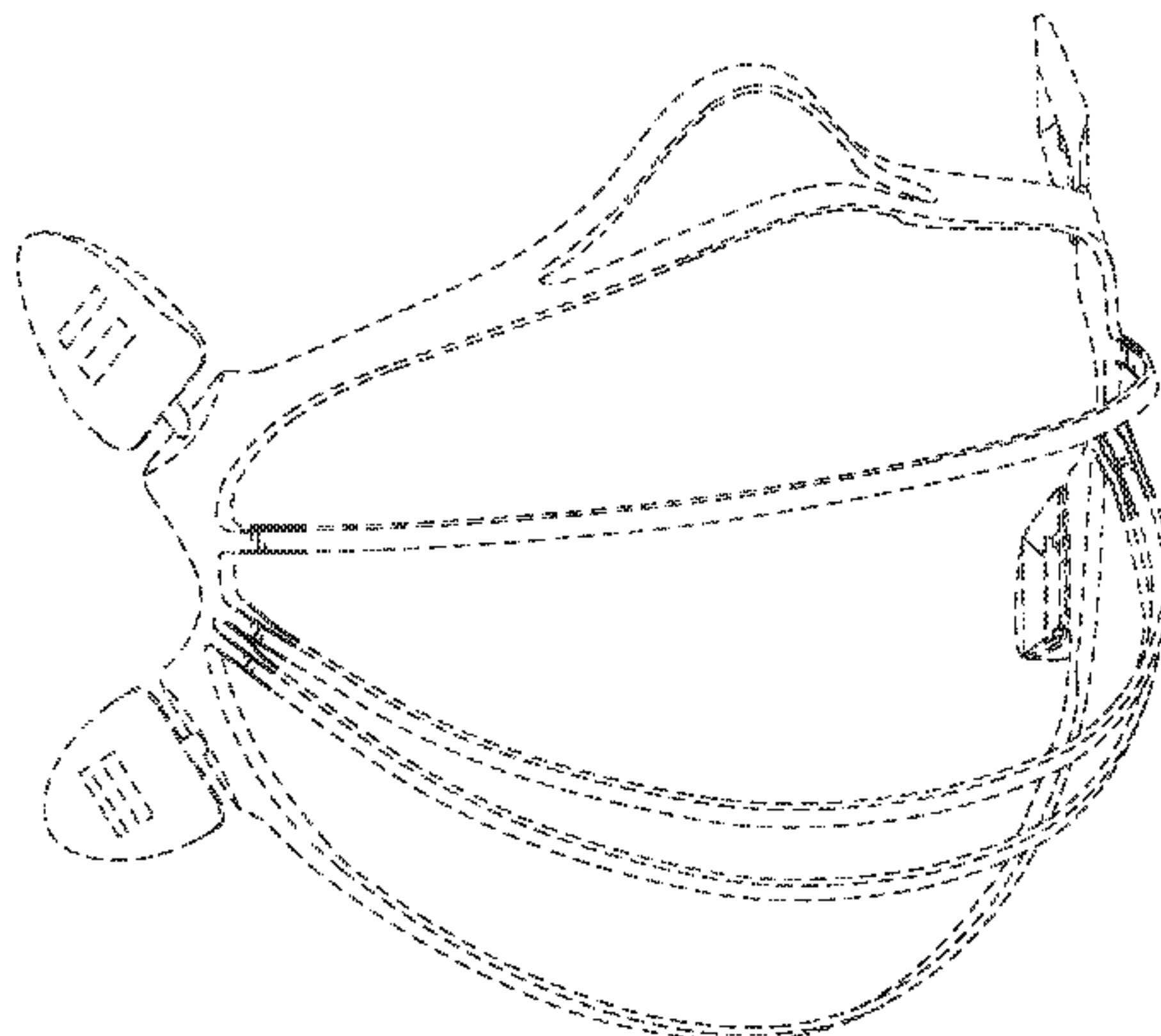
(57) **CLAIM**

The ornamental design for a filtering face-piece respirator support structure, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view, showing the new design for a filtering face-piece respirator support structure;  
FIG. 2 is a front view thereof;  
FIG. 3 is a rear view thereof;  
FIG. 4 is a left side view, the right side view being a mirror image thereof;  
FIG. 5 is a top view thereof; and,  
FIG. 6 is a bottom view thereof.  
The broken line showing forms no part of the claimed design.

**1 Claim, 3 Drawing Sheets**



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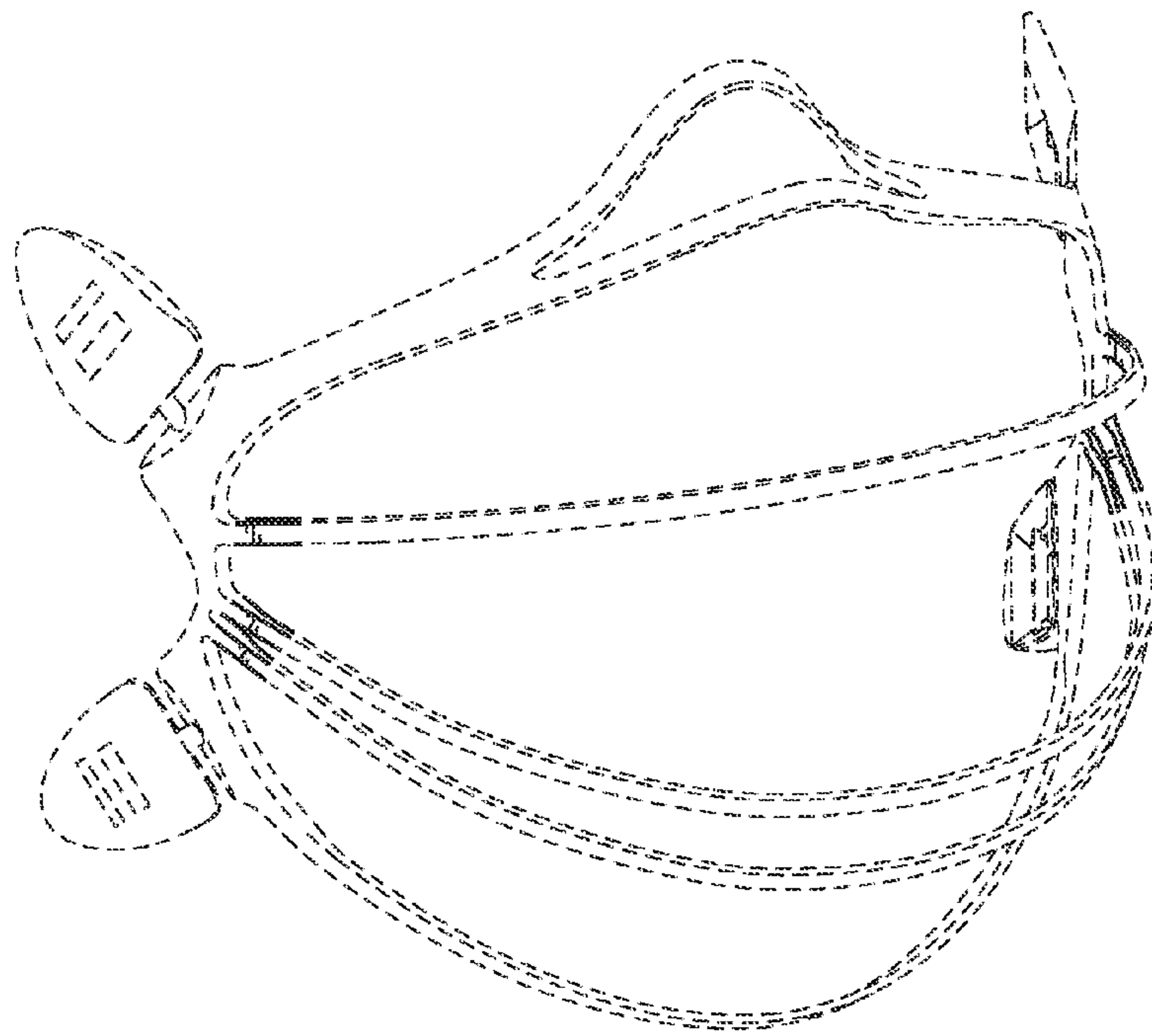
## U.S. PATENT DOCUMENTS

D620,104	S	*	7/2010	Curran et al. ....	D24/110.1
2003/0205231	A1		11/2003	Shigematsu et al.	
2006/0130841	A1		6/2006	Spence et al.	
2006/0219246	A1		10/2006	Dennis	
2009/0078262	A1		3/2009	Gebrewold et al.	
2009/0078266	A1		3/2009	Stepan et al.	

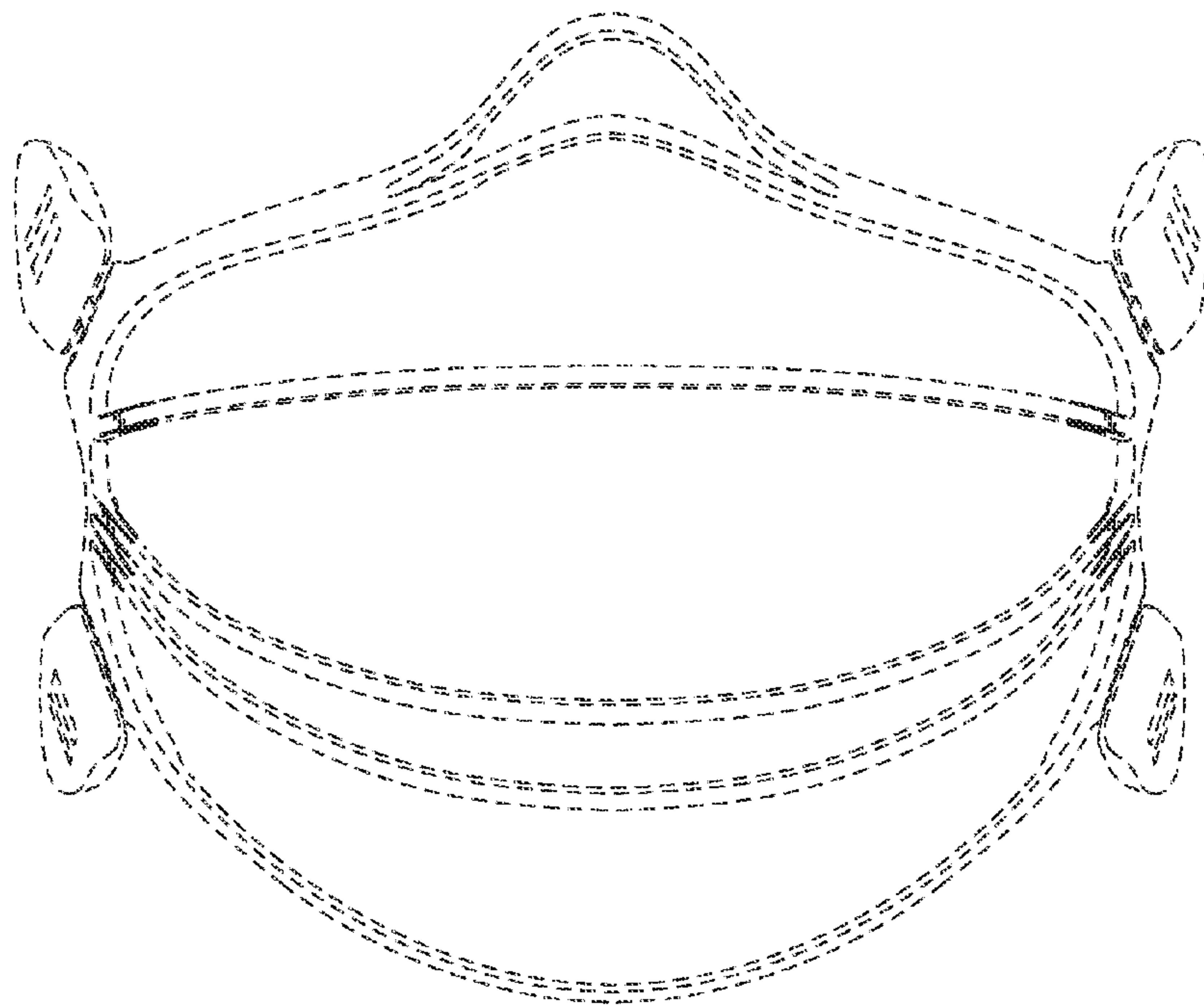
## FOREIGN PATENT DOCUMENTS

JP	2003-093528	4/2003
JP	2003-320043 A	11/2003
KR	20-1997-0000011	1/1997
KR	10-2006-0083536	7/2006

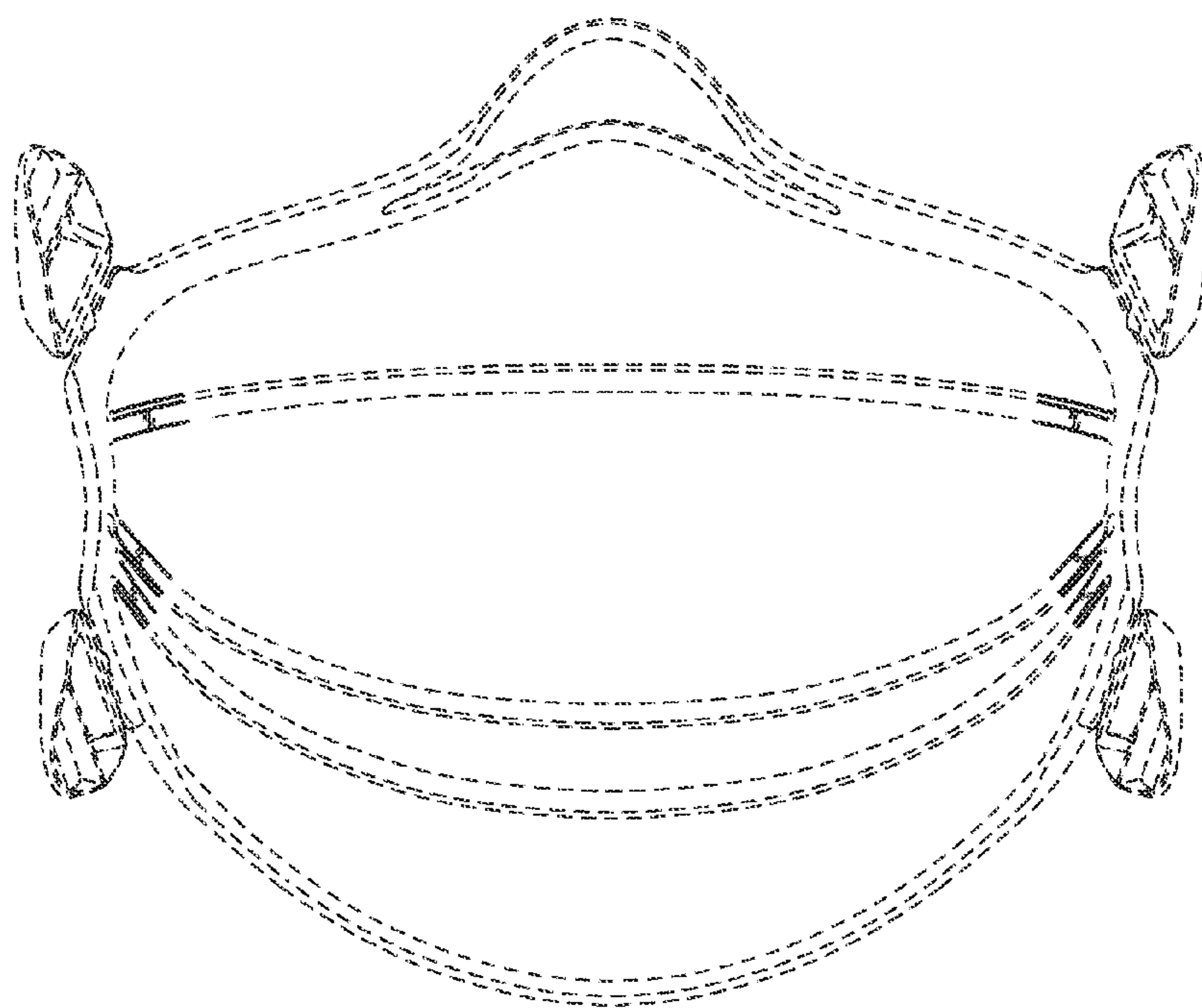
\* cited by examiner



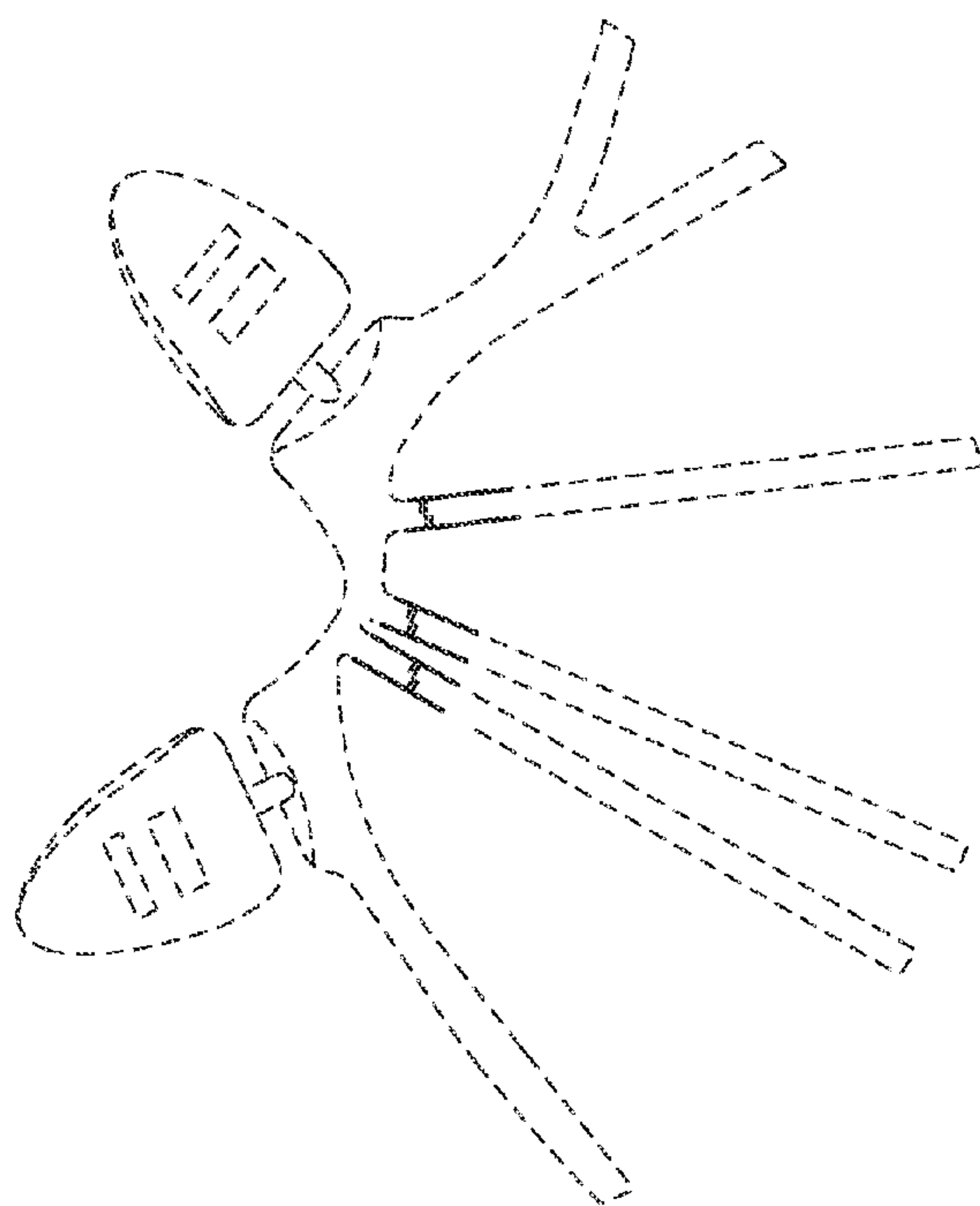
*Fig. 1*



*Fig. 2*

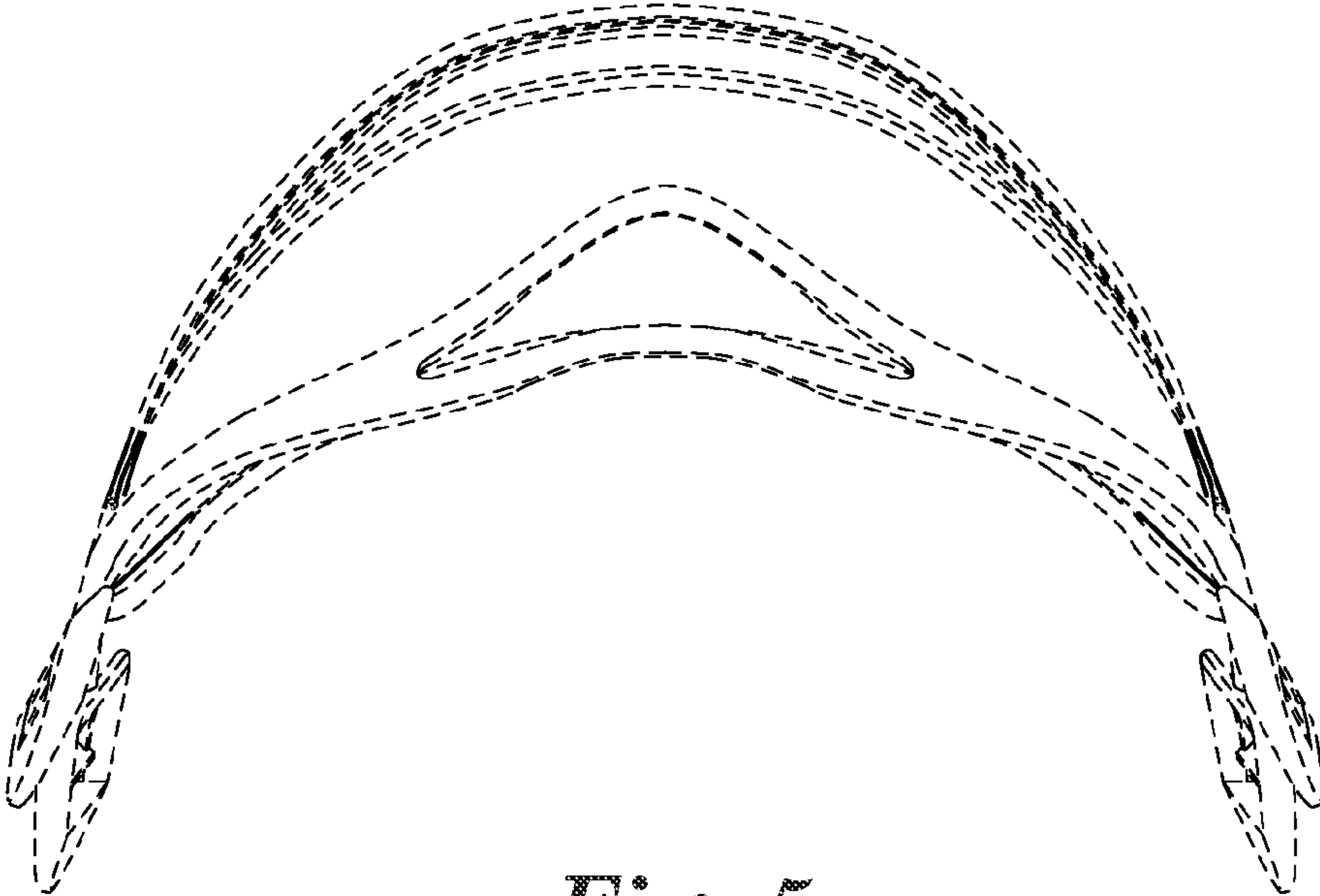


*Fig. 3*

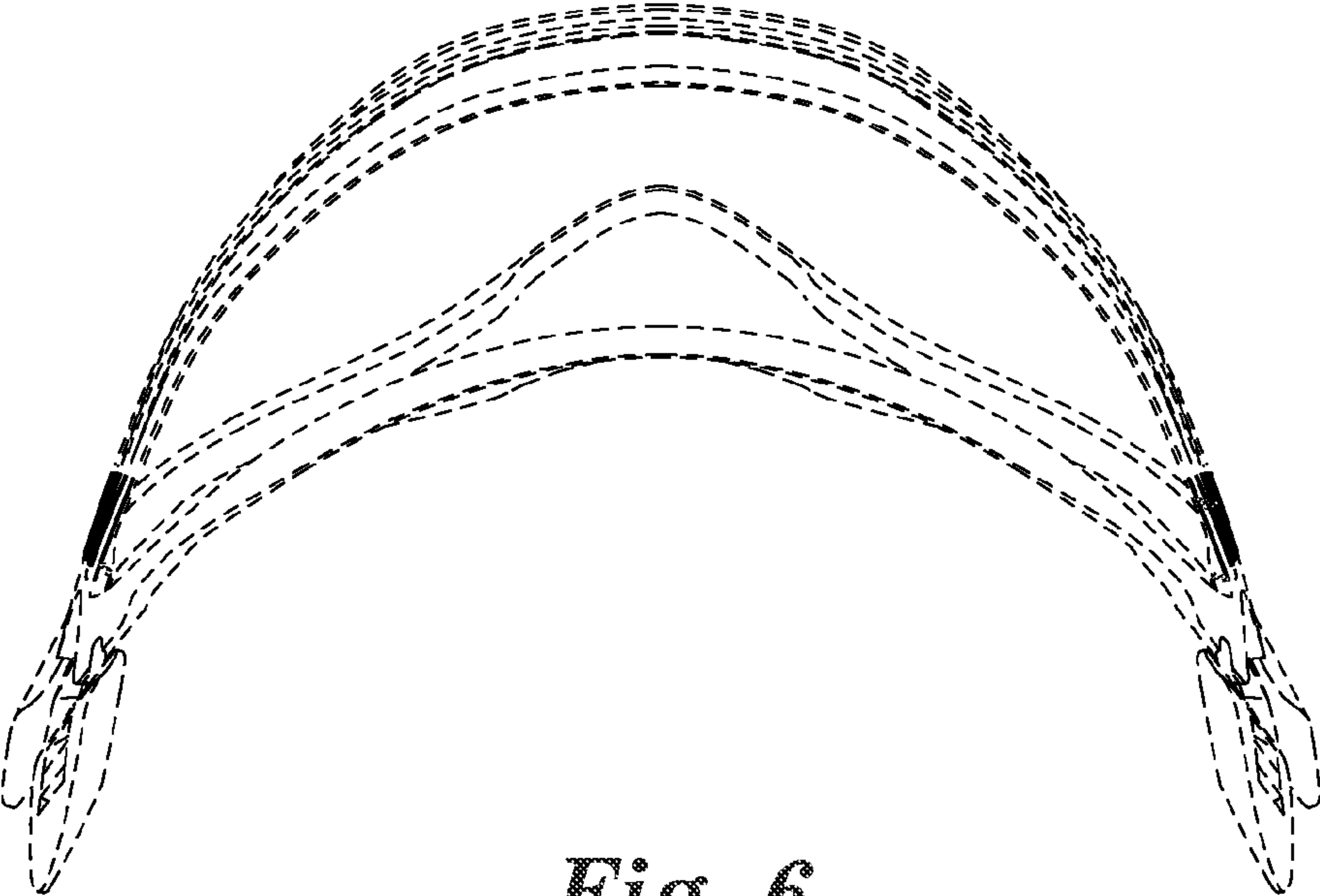


*Fig. 4*





*Fig. 5*



*Fig. 6*