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Ging et al.

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(54) **ERGONOMIC AND ADJUSTABLE
RESPIRATORY MASK ASSEMBLY WITH
HEADGEAR ASSEMBLY**

3,056,402 A 10/1962 Dickinson

(Continued)

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(30) **Foreign Application Priority Data**

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(52) **U.S. Cl.** **128/207.11**; 128/202.27

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581.1

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,081,745 A 12/1913 Johnston et al.
1,192,186 A 7/1916 Greene
1,610,793 A 12/1926 Kaufman
2,837,090 A * 6/1958 Bloom et al 128/206.24
2,931,356 A 4/1960 Schwarz

FOREIGN PATENT DOCUMENTS

DE	199 62 515	7/2001
EP	1258266	11/2002
FR	2618340	1/1989
FR	2735030	12/1996
GB	880942	10/1961
GB	2264646	9/1993
GB	2379886	3/2003
WO	WO 87/01950	4/1987
WO	WO 98/04310	2/1998
WO	WO 98/12965	4/1998
WO	WO 96/61088	12/1999
WO	WO 00/69521	11/2000
WO	WO 00/78383	12/2000
WO	WO 00/78384	12/2000
WO	WO 01/32250	5/2001
WO	WO 01/62326	8/2001
WO	WO 02/11804	2/2002

OTHER PUBLICATIONS

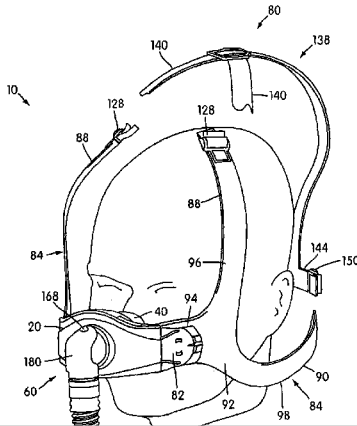
European Search Report for EP 03252555.2, dated Jan. 13,
2004, 5 pages.

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(57) **ABSTRACT**

A respiratory mask assembly for delivering breathable gas to a patient includes a frame having a main body and a side frame member provided on each lateral side of the main body. Each side frame member includes an integrally formed first connector portion. A headgear assembly is removably attachable to the frame. The headgear assembly has a second connector portion adapted to be removably coupled with the first connector portion provided on the frame. The second connector portion is manually movable to a releasing position to detach the headgear assembly from the frame. The headgear assembly is rotationally adjustable with respect to the frame.

26 Claims, 56 Drawing Sheets



U.S. PATENT DOCUMENTS

3,234,940	A	*	2/1966	Morton, Jr.	128/206.27	6,119,694	A	9/2000	Correa et al.	
4,414,973	A		11/1983	Matheson et al.		6,192,886	B1	2/2001	Rudolph	
4,454,880	A		6/1984	Muto et al.		6,269,814	B1	*	8/2001	Blaszczykiewicz et al.
4,944,310	A		7/1990	Sullivan						128/207.17
4,960,121	A	*	10/1990	Nelson et al.	128/206.24	6,357,441	B1	3/2002	Kwok et al.	
5,069,205	A	*	12/1991	Urso	128/201.24	6,374,826	B1	*	4/2002	Gunaratnam et al. ..
5,243,971	A		9/1993	Sullivan et al.		6,412,487	B1	7/2002	Gunaratnam et al.	128/206.27
5,245,995	A		9/1993	Sullivan et al.		6,422,238	B1	*	7/2002	Lithgow
5,349,949	A		9/1994	Schegerin		6,516,802	B2	2/2003	Hansen et al.	128/207.11
5,441,046	A	*	8/1995	Starr et al.	128/207.11	6,550,070	B2	4/2003	Wiegand	
5,481,763	A	*	1/1996	Brostrom et al.	2/452	D486,907	S	*	2/2004	Guney et al.
5,535,739	A		7/1996	Rapoport et al.		6,691,314	B1	*	2/2004	Grilliot et al.
5,697,363	A		12/1997	Hart		2001/0020474	A1	9/2001	Hecker et al.	D24/110.1
5,704,345	A		1/1998	Berthon-Jones		2002/0056457	A1	5/2002	Demers et al.	2/5
5,724,965	A		3/1998	Handke et al.		2002/0108613	A1	8/2002	Gunaratnam et al.	
5,921,239	A	*	7/1999	McCall et al.	128/205.25	2002/0144684	A1	10/2002	Moone	
6,112,746	A		9/2000	Kwok et al.		2004/0045551	A1	*	3/2004	Eaton et al.
6,119,693	A		9/2000	Kwok et al.						128/206.21

* cited by examiner

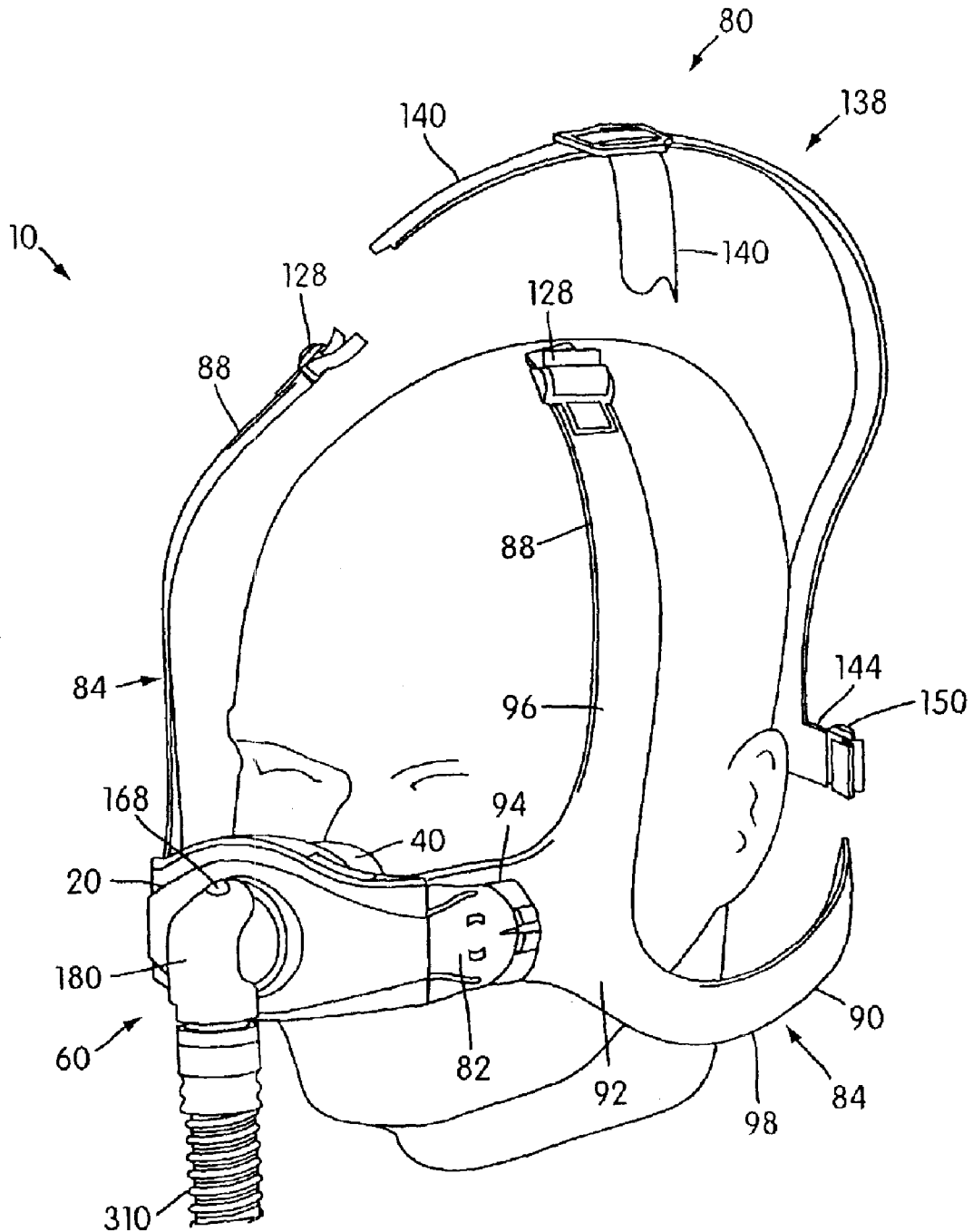


FIG. 1

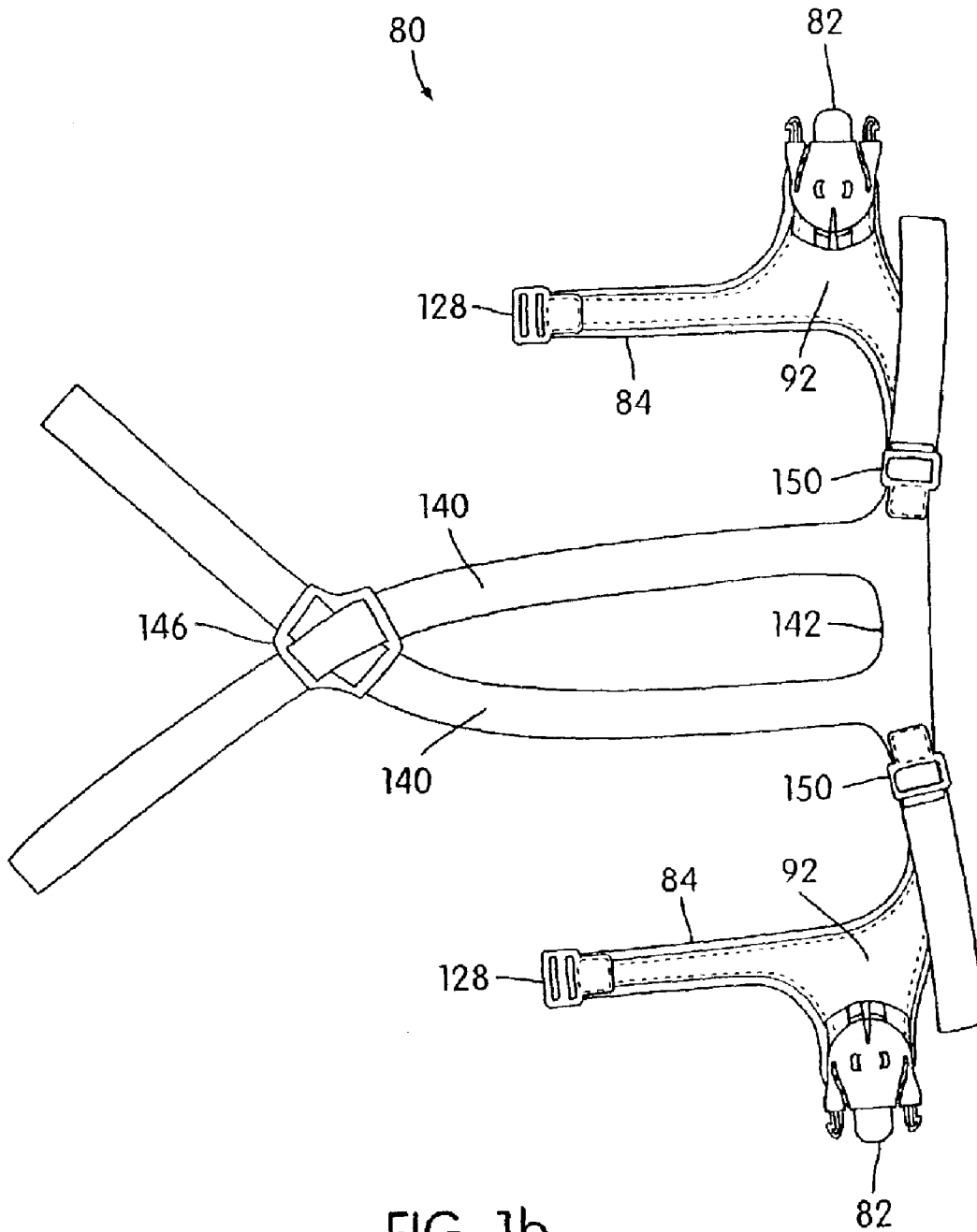


FIG. 1b

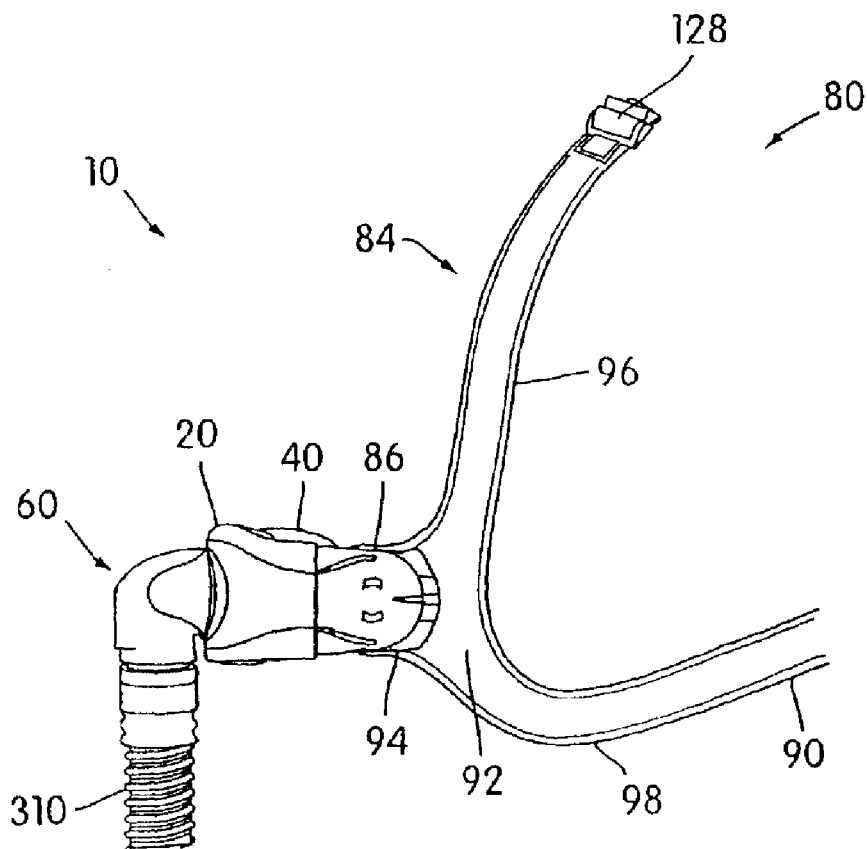


FIG. 2

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