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**Chang**

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(54) **HEADREST-MOUNTED MONITOR**

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(51) **Int. Cl.**

*A47C 7/62* (2006.01)  
*H04N 5/64* (2006.01)

(52) **U.S. Cl.** ..... 297/217.3; 348/837

(58) **Field of Classification Search** ..... 297/217.1, 297/217.3, 410; 312/7.2; 248/917, 919, 248/920, 923; 348/837  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,019,050 A 1/1962 Spielman  
3,284,041 A 11/1966 Tjaden  
3,737,184 A 6/1973 Swartz  
3,773,378 A 11/1973 Lewis  
3,944,020 A 3/1976 Brown  
D246,037 S 10/1977 Kelly

D247,234 S 2/1978 Stewart  
4,079,987 A 3/1978 Bumgardner  
4,100,372 A 7/1978 Hypolite  
4,101,159 A 7/1978 Stewart

(Continued)

FOREIGN PATENT DOCUMENTS

DE 4118711 A1 10/1992

(Continued)

OTHER PUBLICATIONS

Request for Inter Partes Reexamination of U.S. Patent No. 6,871,356, filed Jul. 28, 2005 by Frank Chau on behalf of Audiovox Corp.

(Continued)

*Primary Examiner*—Peter M. Cuomo

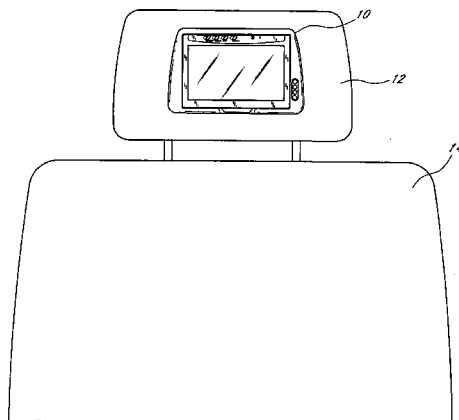
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(57) **ABSTRACT**

A monitor adapted for mounting in an automobile headrest is provided. A screen structure of the monitor is pivotable about an upper edge thereof, such that the monitor occupies little volume within the headrest. A viewing angle of the screen structure is independently adjustable by a viewer, such that the viewer can continuously select the optimum viewing angle with changing conditions inside the automobile. The screen structure automatically retracts into a housing when struck. Thus, the monitor poses little risk of injury to passengers. The housing of the monitor is attachable to the headrest with screws, which provides a very sturdy connection and reduces the chances of the housing becoming detached from the headrest during a vehicle collision. The hinged connection between the screen structure and the housing is preferably constructed of interconnected components made from sturdy materials, such as metals. Hinge components are optionally secured with metal fastening members and fastening apertures made of metal and strong plastics. The hinges are thus unlikely to break during a vehicle collision.

**15 Claims, 11 Drawing Sheets**



U.S. PATENT DOCUMENTS			FOREIGN PATENT DOCUMENTS		
4,241,870	A	12/1980 Marcus	5,996,954	A	12/1999 Rosen et al.
D260,507	S	9/1981 Kosugi et al.	5,997,091	A	12/1999 Rech et al.
4,352,200	A	9/1982 Oxman	6,007,036	A	12/1999 Rosen
4,440,443	A	4/1984 Nordskog	6,055,478	A	4/2000 Heron
D280,312	S	8/1985 Simeri et al.	6,059,255	A *	5/2000 Rosen et al. .... 292/140
D282,251	S	1/1986 Isham et al.	6,092,705	A	7/2000 Meritt
D282,733	S	2/1986 Giavazzi et al.	6,097,448	A	8/2000 Perkins
4,584,603	A	4/1986 Harrison	6,115,086	A	9/2000 Rosen
D285,684	S	9/1986 Akita et al.	6,124,902	A	9/2000 Rosen
4,630,821	A	12/1986 Greenwald	6,125,030	A	9/2000 Mola et al.
4,635,110	A	1/1987 Weinblatt	6,157,418	A	12/2000 Rosen
4,647,980	A	3/1987 Steventon et al.	6,179,263	B1	1/2001 Rosen et al.
4,669,694	A *	6/1987 Malick ..... 248/397	6,181,387	B1	1/2001 Rosen
4,681,366	A	7/1987 Lobanoff	D437,837	S	2/2001 Harrison et al.
4,758,047	A	7/1988 Hennington	6,186,459	B1	2/2001 Ma
4,792,183	A	12/1988 Townsend, II	6,199,810	B1	3/2001 Wu et al.
4,797,934	A	1/1989 Hufnagel	6,216,927	B1	4/2001 Meritt
4,818,010	A	4/1989 Dillon	6,246,449	B1	6/2001 Rosen
4,824,159	A	4/1989 Fluharty et al.	6,250,967	B1	6/2001 Chu
4,843,477	A	6/1989 Mizutani et al.	6,256,837	B1	7/2001 Lan et al.
4,867,498	A	9/1989 Delphia et al.	6,267,428	B1	7/2001 Baldas et al.
4,870,676	A	9/1989 Lewo	D446,507	S	8/2001 Rosen et al.
RE33,423	E	11/1990 Lobanoff	6,292,236	B1	9/2001 Rosen
4,982,996	A	1/1991 Vottero-Fin et al.	6,304,173	B1	10/2001 Pala et al.
4,983,951	A	1/1991 Igarashi et al.	D450,667	S	11/2001 Scribner
5,040,990	A	8/1991 Suman et al.	6,339,455	B1	1/2002 Allan et al.
D320,587	S	10/1991 Kapp et al.	6,339,696	B1	1/2002 Chan et al.
5,061,996	A	10/1991 Schiffman	6,361,012	B1	3/2002 Chang
5,096,271	A	3/1992 Portman	D456,371	S	4/2002 Lavelle et al.
5,109,572	A	5/1992 Park	6,364,390	B1	4/2002 Finneman
5,145,128	A	9/1992 Umeda	6,394,551	B1	5/2002 Beukema
5,177,616	A	1/1993 Riday	6,409,242	B1 *	6/2002 Chang ..... 296/37.7
5,188,421	A	2/1993 Arseneault	6,412,848	B1	7/2002 Ceccanese et al.
D338,003	S	8/1993 Nakayama	6,446,925	B1 *	9/2002 Wada ..... 248/286.1
D340,016	S	10/1993 Falcoff	6,466,278	B1	10/2002 Harrison et al.
5,267,775	A	12/1993 Nguyen	D465,492	S	11/2002 Scribner
5,303,970	A	4/1994 Young et al.	D467,234	S	12/2002 Scribner
5,311,302	A	5/1994 Berry et al.	6,510,049	B1	1/2003 Rosen
5,338,081	A	8/1994 Young et al.	6,532,592	B1	3/2003 Shintani et al.
5,359,349	A	10/1994 Jambor et al.	6,669,285	B1	12/2003 Park et al.
5,467,106	A	11/1995 Salomon	6,678,892	B1	1/2004 Lavelle et al.
5,469,298	A	11/1995 Suman et al.	6,695,376	B1	2/2004 Hirano
5,507,556	A	4/1996 Dixon	6,739,654	B1 *	5/2004 Shen et al. .... 297/188.04
5,522,638	A	6/1996 Falcoff et al.	D502,152	S	2/2005 Peng
5,529,265	A	6/1996 Sakurai	6,871,356	B1	3/2005 Hashimoto
D371,357	S	7/1996 Nakamura	2002/0005917	A1	1/2002 Rosen
5,547,248	A	8/1996 Marechal	2002/0105507	A1	8/2002 Tranchina et al.
5,555,466	A	9/1996 Scribner et al.	2002/0149708	A1	10/2002 Nagata et al.
5,583,735	A	12/1996 Pease et al.	2003/0020840	A1	1/2003 Hays et al.
5,636,891	A	6/1997 Van Order et al.	2003/0036357	A1	2/2003 McGowan
5,705,860	A	1/1998 Ninh et al.	2003/0137584	A1	7/2003 Norvell et al.
5,709,360	A	1/1998 Rosen	2004/0007906	A1	1/2004 Park et al.
D390,219	S *	2/1998 Rosen ..... D14/132	2004/0032543	A1	2/2004 Chang
5,713,633	A	2/1998 Lu	2004/0083491	A1	4/2004 Chang
D394,432	S *	5/1998 Rosen ..... D14/132	2004/0085485	A1	5/2004 Schedivy
5,775,762	A	7/1998 Vitito	2004/0085718	A1 *	5/2004 Imsand ..... 361/681
5,811,791	A	9/1998 Portman	2004/0086259	A1	5/2004 Schedivy
D399,200	S	10/1998 Rosen	2004/0125549	A1 *	7/2004 Iredale ..... 361/681
5,822,023	A	10/1998 Suman et al.	2004/0227372	A1	11/2004 Lavelle et al.
5,823,599	A	10/1998 Gray	2004/0227695	A1	11/2004 Schedivy
5,842,715	A	12/1998 Jones	2004/0227696	A1	11/2004 Schedivy
5,847,685	A	12/1998 Otsuki	2004/0227861	A1 *	11/2004 Schedivy ..... 348/837
D410,458	S	6/1999 Rosen	2005/0052046	A1	3/2005 Lavelle et al.
D410,464	S	6/1999 Hakoda	2005/0098593	A1	5/2005 Schedivy
5,910,882	A	6/1999 Burrell	2005/0099548	A1 *	5/2005 Vitito ..... 348/837
5,927,784	A	7/1999 Vitito	2005/0110313	A1	5/2005 Vitito et al.
5,940,120	A	8/1999 Frankhouse et al.			
5,946,055	A	8/1999 Rosen			
D413,856	S	9/1999 Scribner			

FOREIGN PATENT DOCUMENTS

GB	2276059 A	3/1994
JP	1-94048	4/1989
JP	2-158437	6/1990
JP	3-189620	8/1991
JP	4-201639	7/1992
JP	5-50883	3/1993
JP	9-224202	8/1997
JP	2001-047921	2/2001
JP	2001-354074	12/2001
SE	63872	6/1999
SE	63912	6/1999
SE	63913	6/1999
WO	WO 02/074577	9/2002

OTHER PUBLICATIONS

Office Action mailed Aug. 7, 2003 for U.S. Appl. No. 10/361,897, now U.S. Patent No. 6,871,356.  
Office Action mailed Feb. 26, 2004 for U.S. Appl. No. 10/361,897, now U.S. Patent No. 6,871,356.  
Office Action mailed Aug. 23, 2004 for U.S. Appl. No. 10/361,897, now U.S. Patent No. 6,871,356.  
Order Granting Request for Inter Partes Reexamination U.S. Patent No. 6,871,356, mailed Sep. 29, 2005.  
Action Closing Prosecution for Inter Partes Reexamination U.S. Patent No. 6,871,356, mailed Sep. 29, 2005.

\* cited by examiner

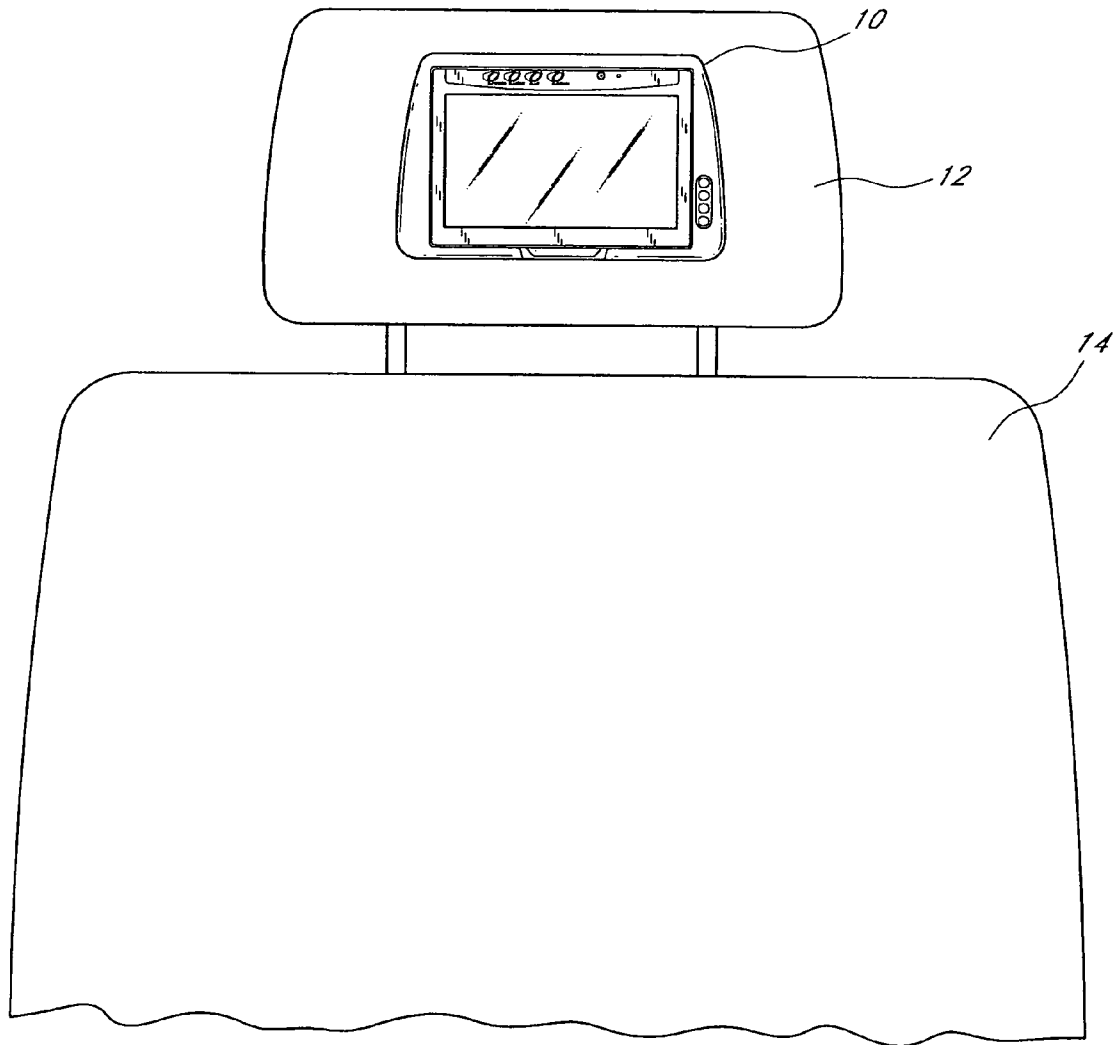


FIG. 1

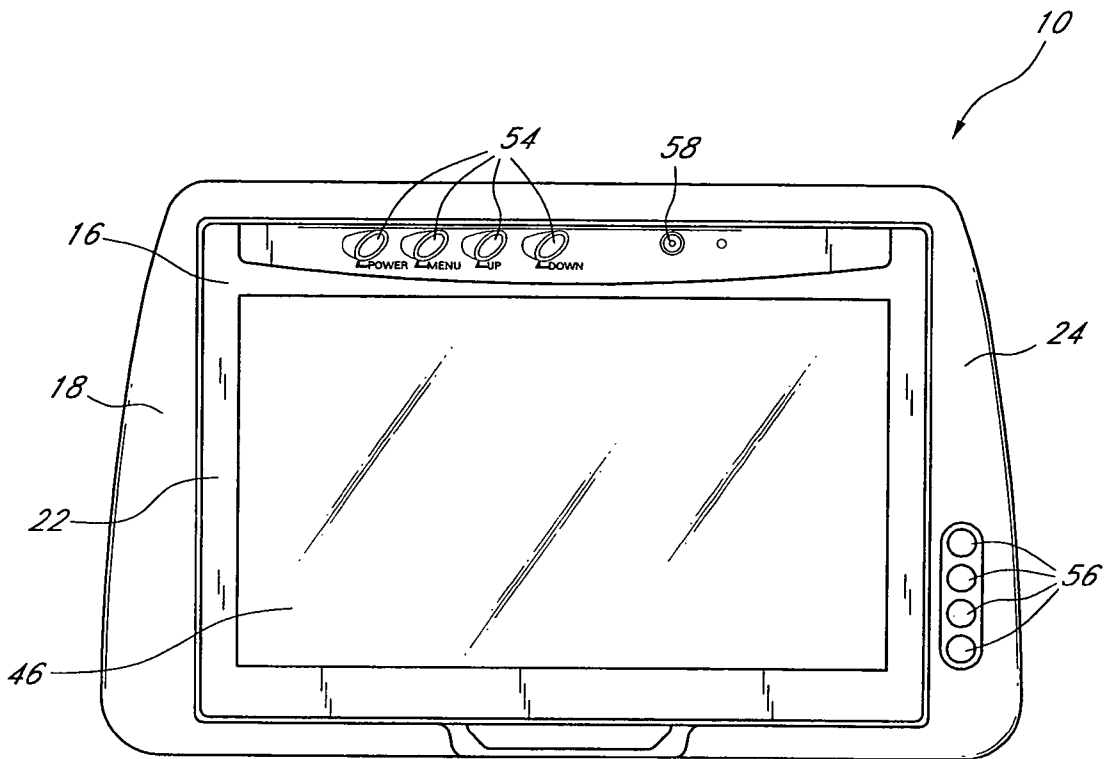


FIG. 1A

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