



US007137399B1

(12) **United States Patent**
Ransom et al.

(10) **Patent No.:** **US 7,137,399 B1**
(45) **Date of Patent:** **Nov. 21, 2006**

(54) **COLLAPSIBLE STRUCTURE WITH TOP SUPPORTING ELEMENTS**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(76) Inventors: **Robert M. Ransom**, 8102 Coldwater Rd., Flushing, MI (US) 48433; **Todd P. Weston**, 7780 Pleasant La., Ypsilanti, MI (US) 48197; **Ryan L. Kubica**, 8470 Apple Blossom, Flushing, MI (US) 48433; **Scott D. Wehner**, 4407 W. Stanley Rd., Mt. Morris, MI (US) 48458

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/845,309**

(22) Filed: **May 13, 2004**

Related U.S. Application Data

(60) Provisional application No. 60/470,128, filed on May 13, 2003.

(51) **Int. Cl.**

E04H 15/40 (2006.01)

E04H 15/36 (2006.01)

E04H 15/26 (2006.01)

E04H 15/44 (2006.01)

(52) **U.S. Cl.** **135/128**; 135/136; 135/137; 135/138; 135/124; 135/121; 135/143; 135/126; 135/127; 52/79.5; 52/641; 52/649.5; 52/80.1; 52/81.2; 52/81.4; 52/81.5; 52/81.6; 52/82; 52/83

(58) **Field of Classification Search** 52/79.5; 52/641, 649.5, 63, 80.1–81.6, 82, 83, 86–89, 52/90.1–91.1; 135/92–93, 116–120, 128, 135/132–155, 124, 101, 126–127, 87, 95, 135/98, 121, 129, 143, 148, 157, 160; 206/321

See application file for complete search history.

1,887,382 A *	11/1932	Tupper	101/244
3,095,886 A *	7/1963	Frommelt	135/123
3,913,968 A *	10/1975	Luppens	296/161
3,990,463 A *	11/1976	Norman	135/126
4,269,210 A *	5/1981	Marks	135/125
4,779,514 A *	10/1988	Prigmore et al.	52/79.5
4,825,891 A *	5/1989	Machado	135/138
4,825,892 A *	5/1989	Norman	135/126
4,941,499 A *	7/1990	Pelsue et al.	135/125
4,951,432 A *	8/1990	Wilkinson	52/80.1
4,951,696 A *	8/1990	Jones, Sr.	
5,038,812 A *	8/1991	Norman	135/126
5,059,463 A *	10/1991	Peters	428/64.1
5,172,526 A *	12/1992	Morgan	52/79.5
5,195,551 A *	3/1993	Ju	135/126
5,205,089 A *	4/1993	Cunningham	52/79.1
5,218,982 A *	6/1993	Kenji	
5,311,813 A *	5/1994	Fairbanks et al.	99/645

(Continued)

Primary Examiner—Jeanette Chapman

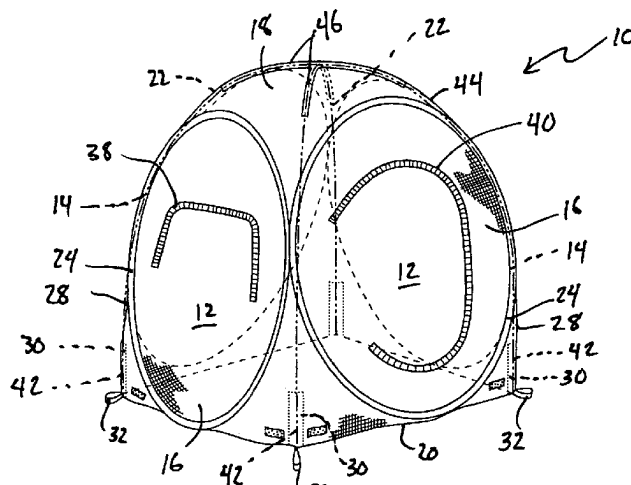
(74) *Attorney, Agent, or Firm*—Young Basile

(57)

ABSTRACT

The invention is a collapsible structure comprising a plurality of panel elements, each having a coilable frame element and flexible material attached to the frame element. The panel elements are joined to define an enclosure having a roof portion and a bottom perimeter. The bottom perimeter rests on a supporting surface. The structure has at least one roof support rod having a first end and a second end. The first end of the at least one roof support rod is attached to a first location on the bottom perimeter, and the second end of the at least one roof support rod is attached to a second location on the bottom perimeter. The at least one roof support rod is in supporting contact with the roof portion of the enclosure.

2 Claims, 6 Drawing Sheets



Page 2

U.S. PATENT DOCUMENTS

U.S. PATENT DOCUMENTS				6,247,699	B1 *	6/2001	Macaluso	273/400
				6,302,127	B1 *	10/2001	Gayton	135/124
5,528,849	A	6/1996	Plinta	6,318,394	B1 *	11/2001	Zheng	135/126
5,562,225	A *	10/1996	McKenna	220/9.1	6,325,086	B1 *	12/2001	Shinner et al.
5,579,799	A *	12/1996	Zheng	135/126	6,328,050	B1 *	12/2001	McConnell
5,582,197	A *	12/1996	Dobberstein	135/87	6,431,193	B1 *	8/2002	Carter
5,613,512	A	3/1997	Bean	6,453,923	B1 *	9/2002	Zheng	135/126
5,669,403	A	9/1997	Belcher et al.	6,481,451	B1 *	11/2002	Zheng	135/126
5,676,168	A *	10/1997	Price	135/126	6,499,498	B1 *	12/2002	Zheng
5,794,640	A *	8/1998	Jang	135/131	6,543,776	B1 *	4/2003	Macaluso
5,816,278	A *	10/1998	Kim	135/126	6,550,491	B1 *	4/2003	Bixler et al.
5,842,940	A *	12/1998	Macaluso	473/478	6,679,009	B1 *	1/2004	Hotes
5,871,026	A *	2/1999	Lin	135/98	6,779,538	B1 *	8/2004	Morgante et al.
5,921,260	A *	7/1999	Carter	135/145	6,851,136	B1 *	2/2005	Brereton
6,109,282	A *	8/2000	Yoon	135/126	6,901,714	B1 *	6/2005	Liapi
6,151,841	A *	11/2000	Green	52/79.4				
6,202,665	B1	3/2001	O'Hare					
				* cited by examiner				

* cited by examiner

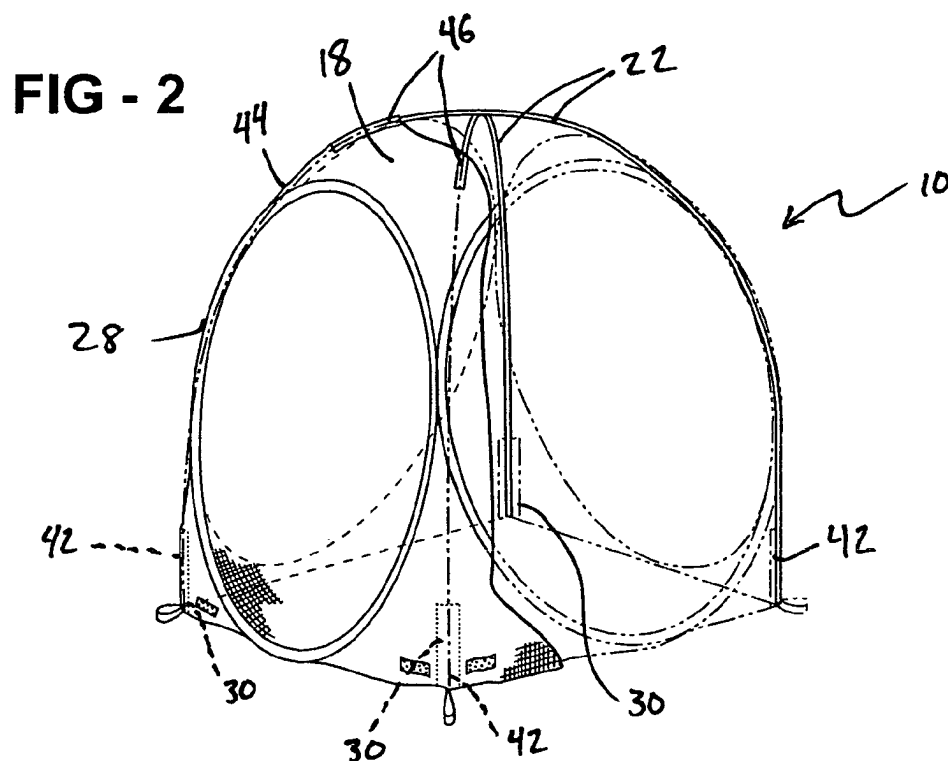
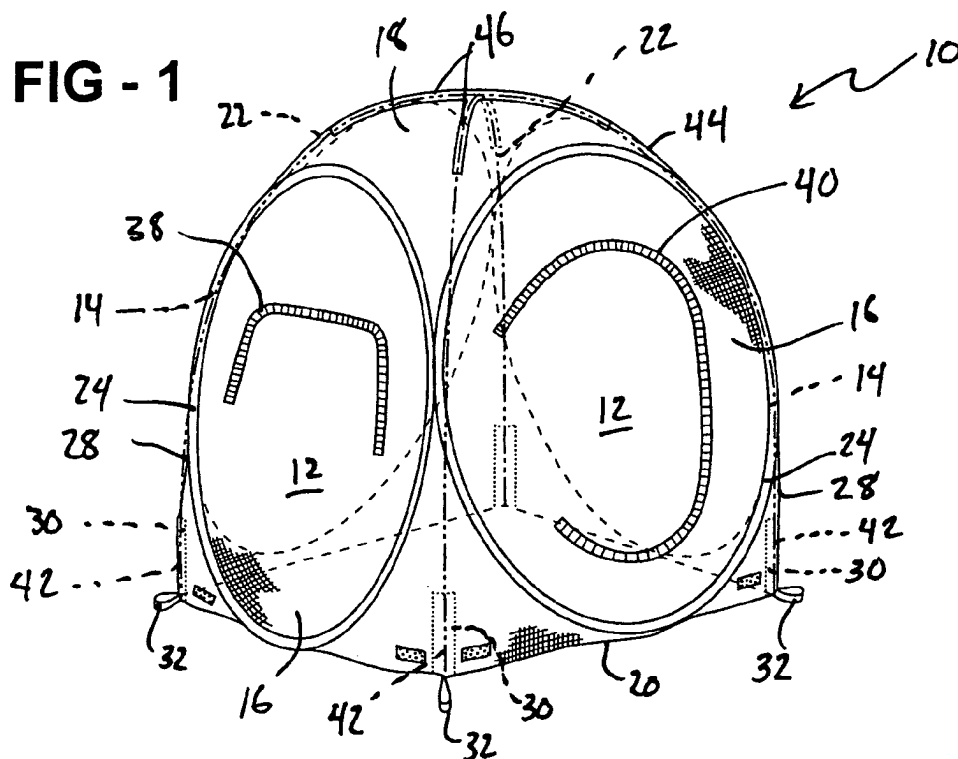


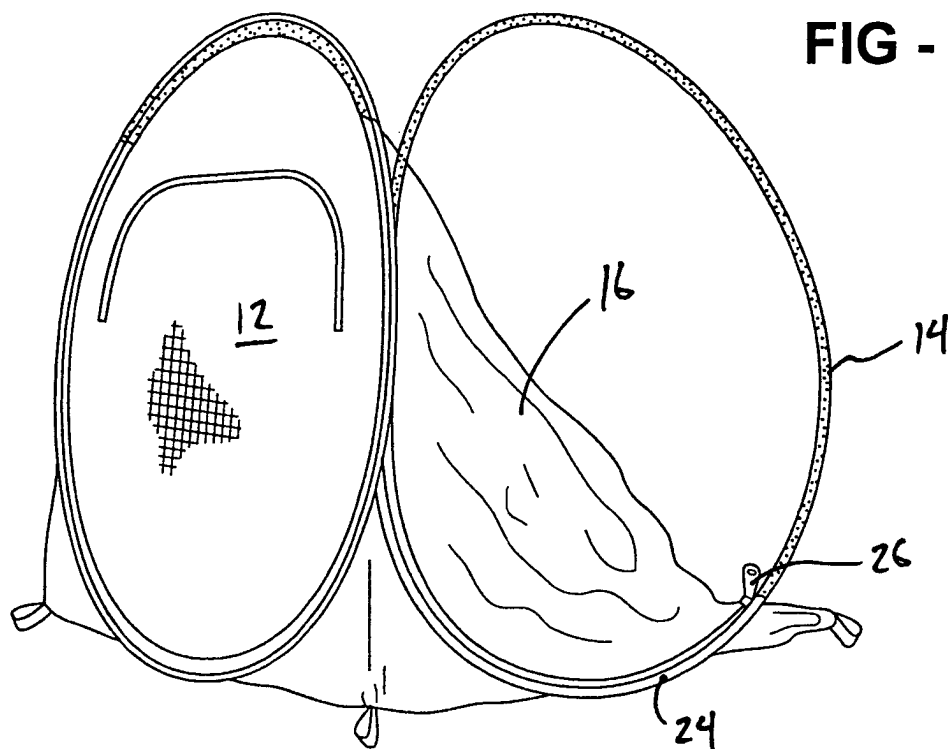
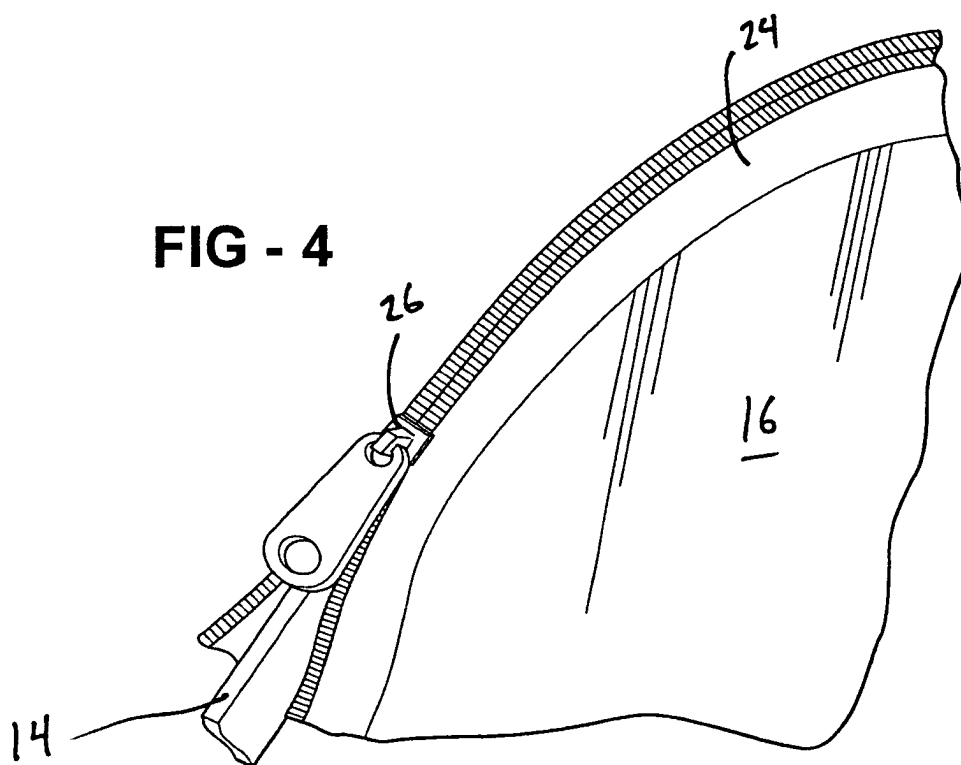
FIG - 3**FIG - 4**

FIG - 5

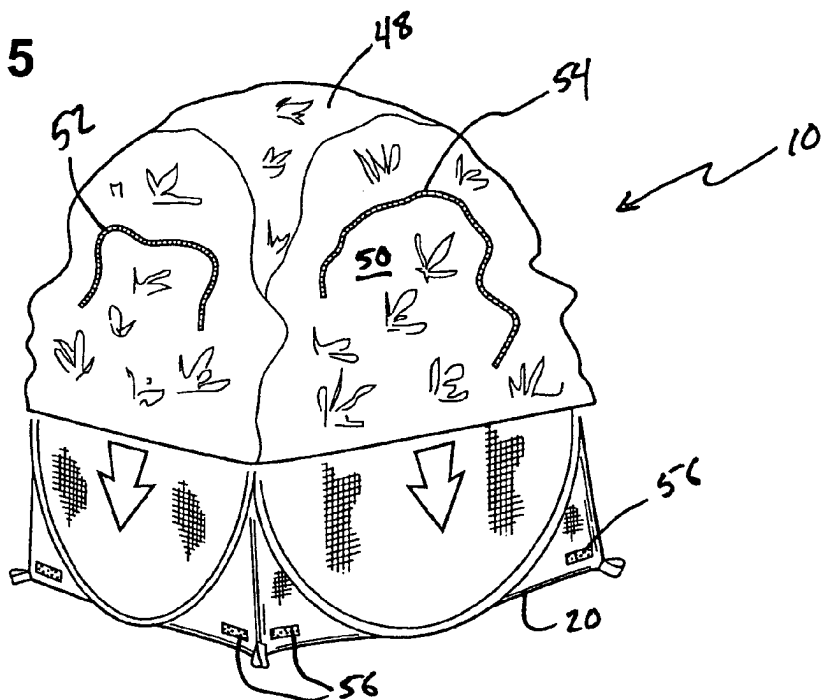
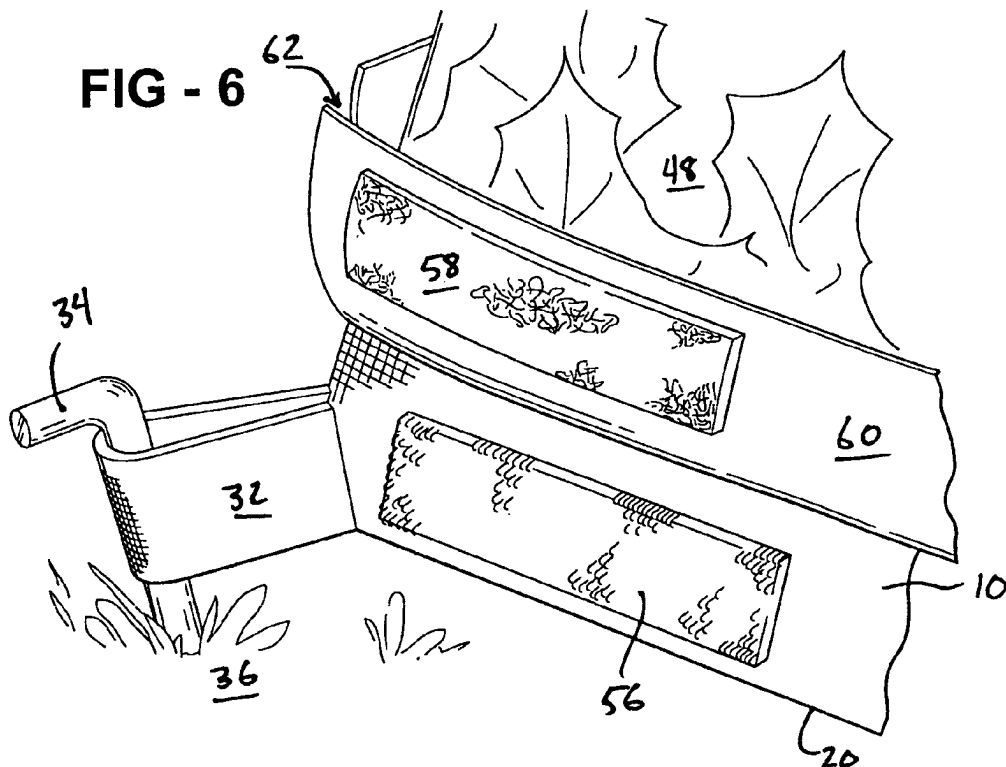


FIG - 6



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.