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

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

(56) **References Cited**

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(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

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**Related U.S. Application Data**

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(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.

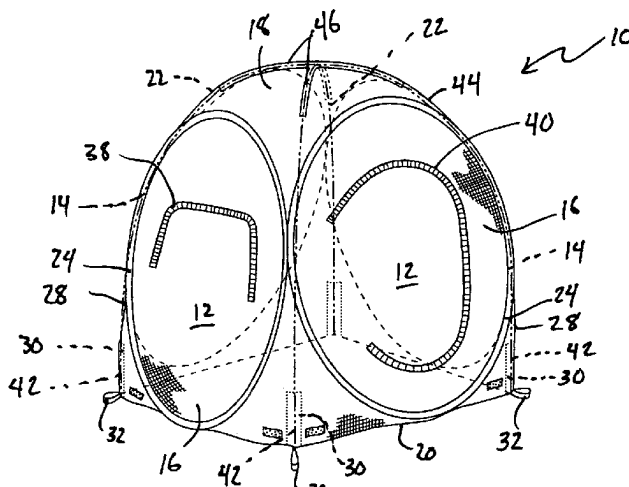
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*Primary Examiner*—Jeanette Chapman  
(74) *Attorney, Agent, or Firm*—Young Basile

(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.

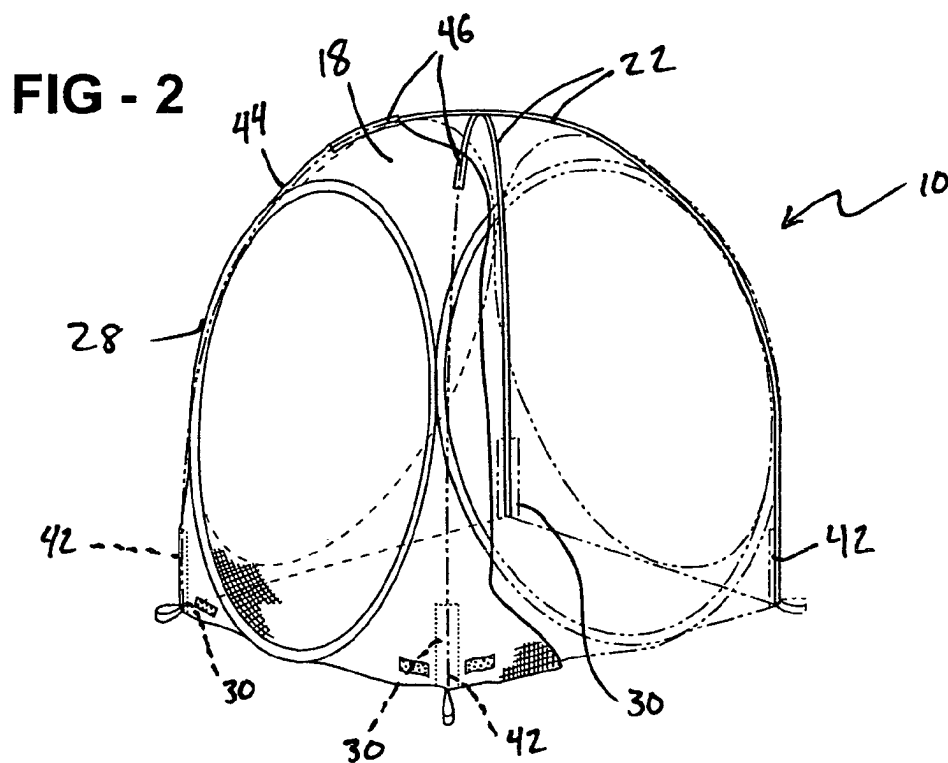
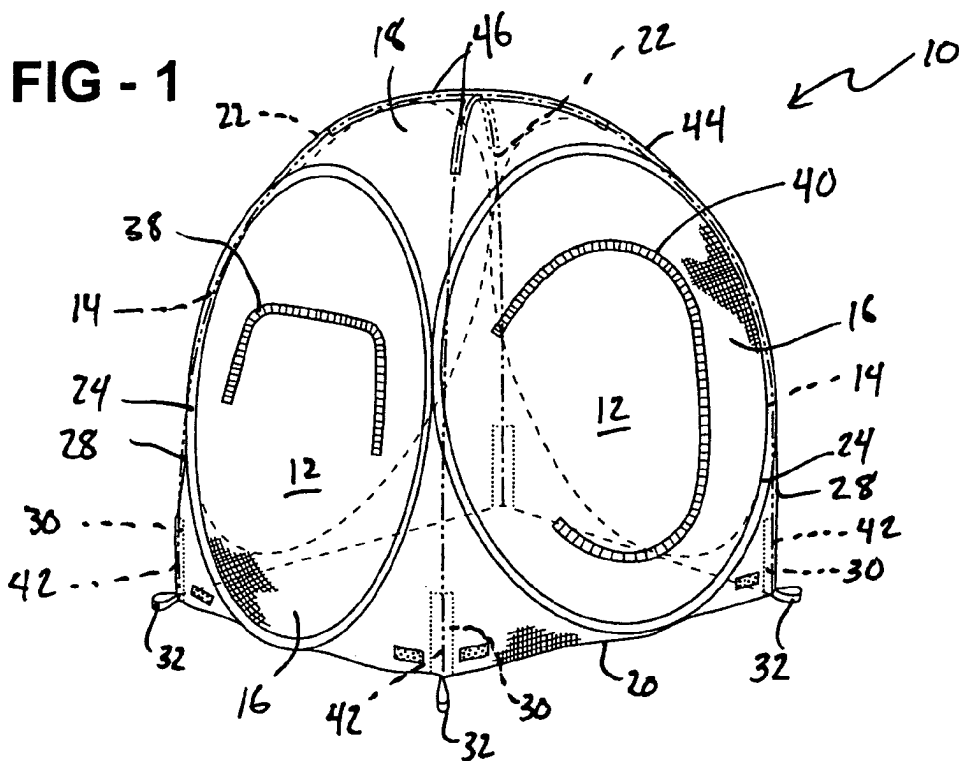
**2 Claims, 6 Drawing Sheets**



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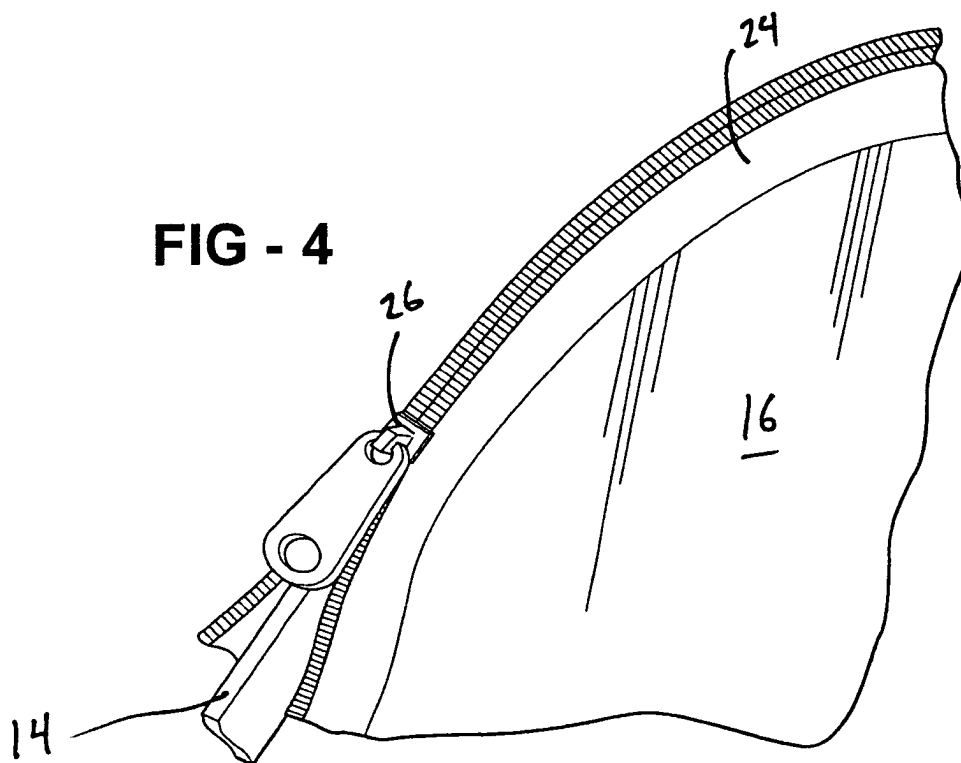
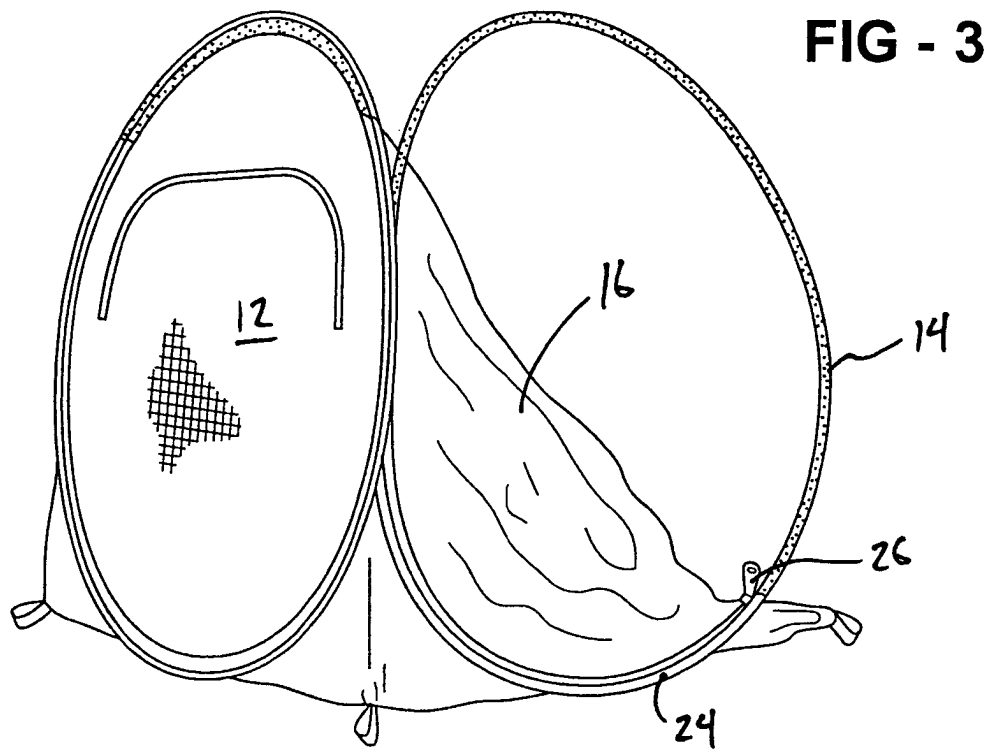


FIG - 5

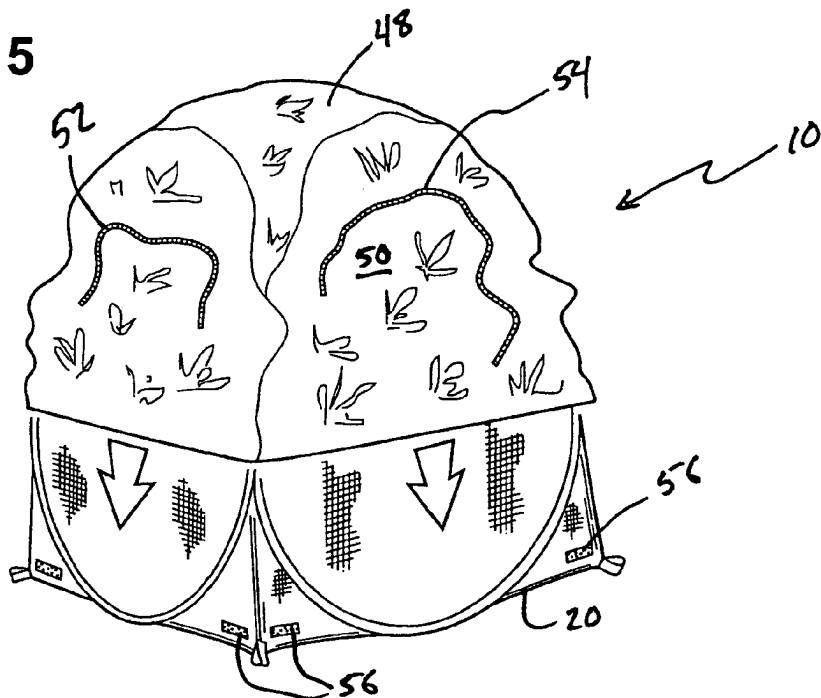
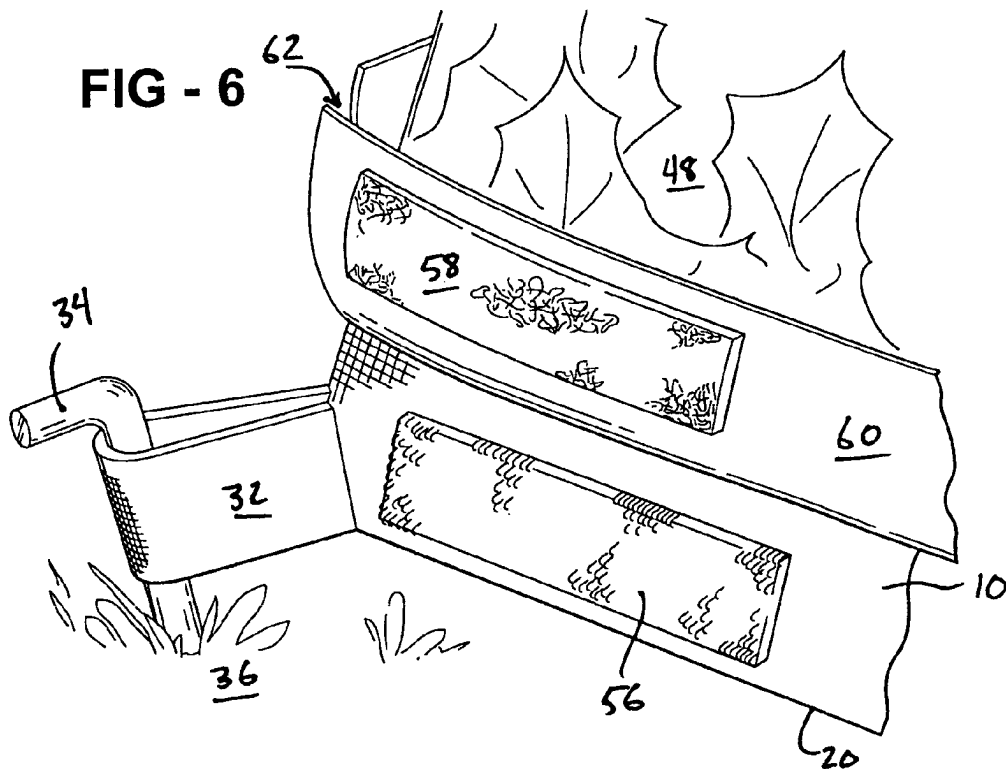


FIG - 6



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