



US006102118A

United States Patent [19]
Moore

[11] **Patent Number:** **6,102,118**
[45] **Date of Patent:** **Aug. 15, 2000**

[54] **MULTI-PURPOSE ADJUSTABLE
CENTRALIZER SYSTEM WITH TOOL**

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[21] Appl. No.: **09/223,362**

[57] **ABSTRACT**

[22] Filed: **Dec. 30, 1998**

[51] **Int. Cl.**⁷ **E21B 17/10**

[52] **U.S. Cl.** **166/241.7; 405/259.1;**
405/262

[58] **Field of Search** 166/241.7, 381-385;
405/154, 262; 175/202

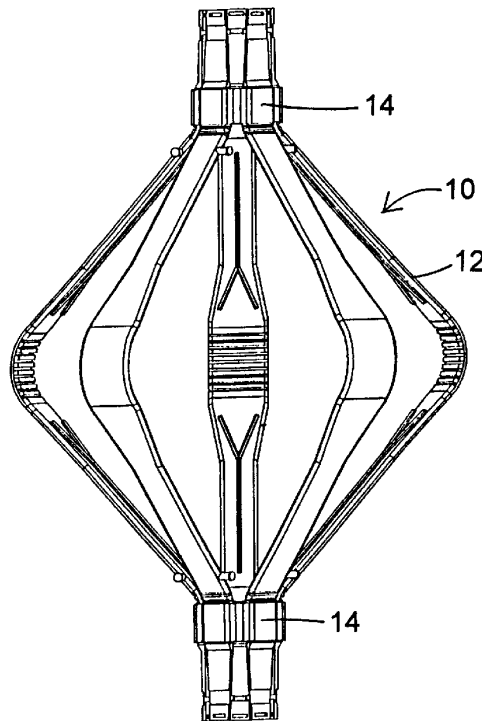
A novel centralizer system adaptable to virtually all known rock and soil anchoring applications. Most preferably made from a petroleum based material, the primary components to the centralizer include a plurality of straps and two collars at opposite ends of the straps. The straps are easily and manually inserted into slots in each of the collars. Each collar may be molded to provide slots for three or more straps. The collars are molded with grout passages between slots thereby allowing more than the required amount of grout to be fed through the centralizer. On a least one strap are molded two lock hold pins distally located along an outer edge of the strap yet before the point where the strap is inserted into each collar. A separate yet component tool is manually and virtually simultaneously placed over both lock pins. The tool is a narrow band of material punched with a plurality of holes and placed over both lock hold pins. The flexibility and compressibility of the straps allows for adaptability of the centralizer to various diameter bore holes. In addition, the flexibility of the straps permits easy manual assembly on-site without the use of conventional tools.

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20 Claims, 8 Drawing Sheets



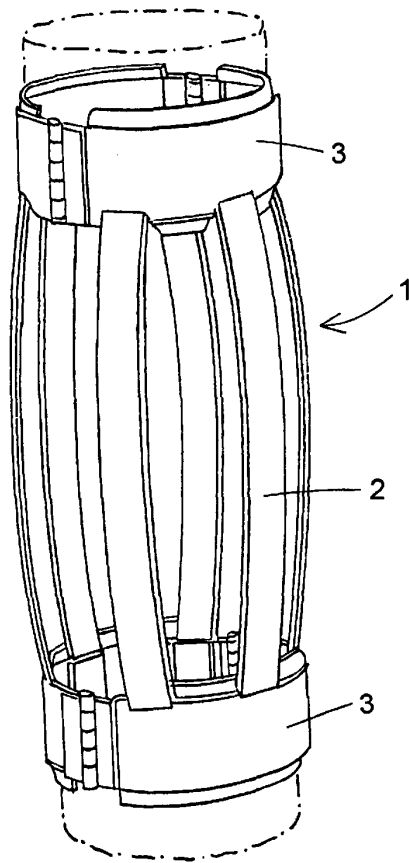


Fig. 1
PRIOR ART

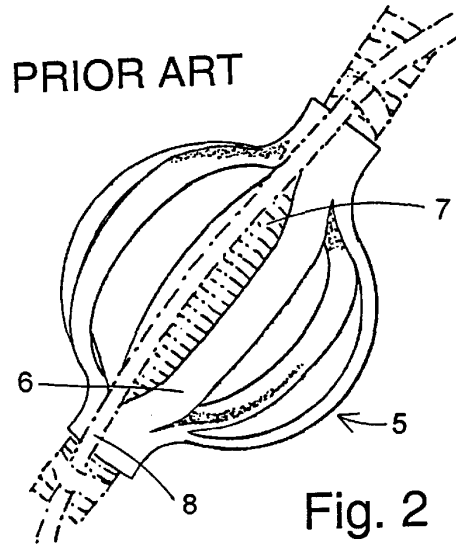


Fig. 2

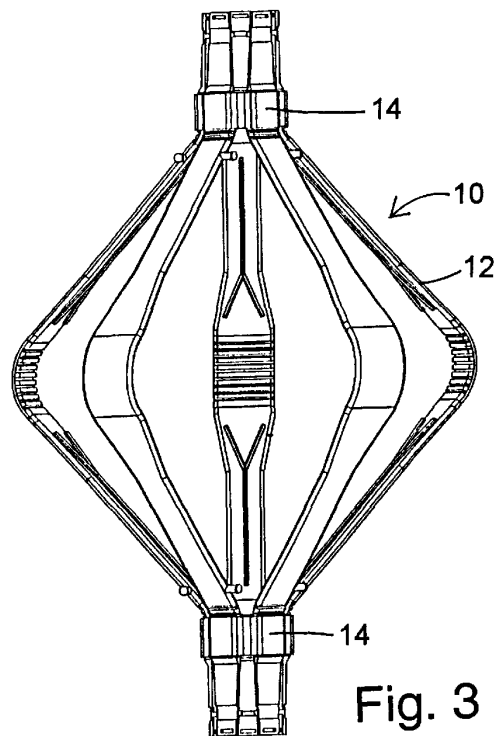


Fig. 3

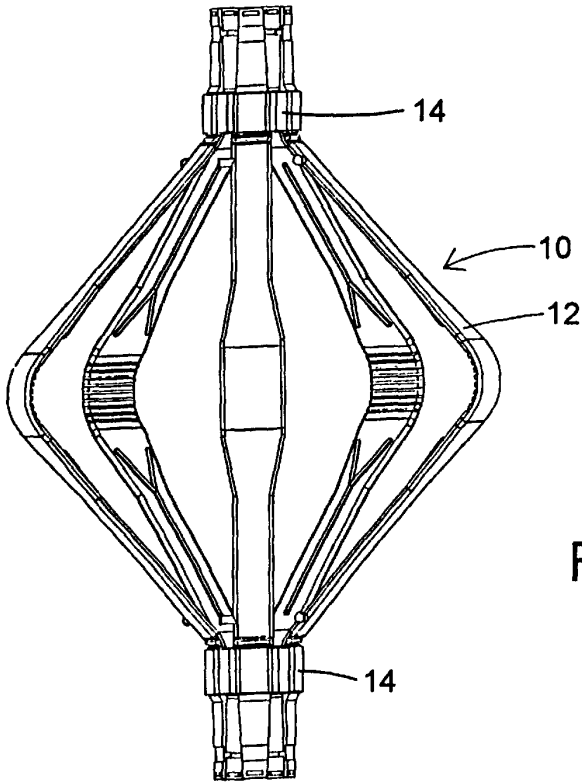


Fig. 4

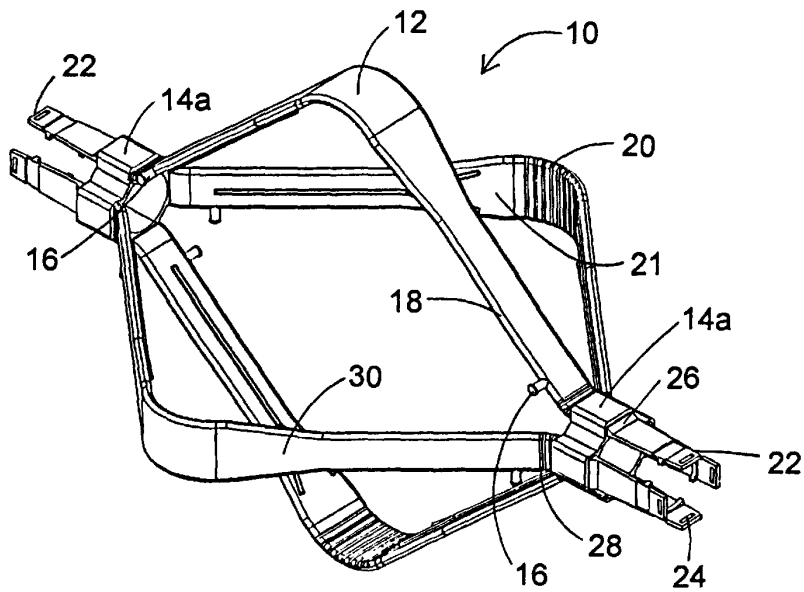


Fig. 5

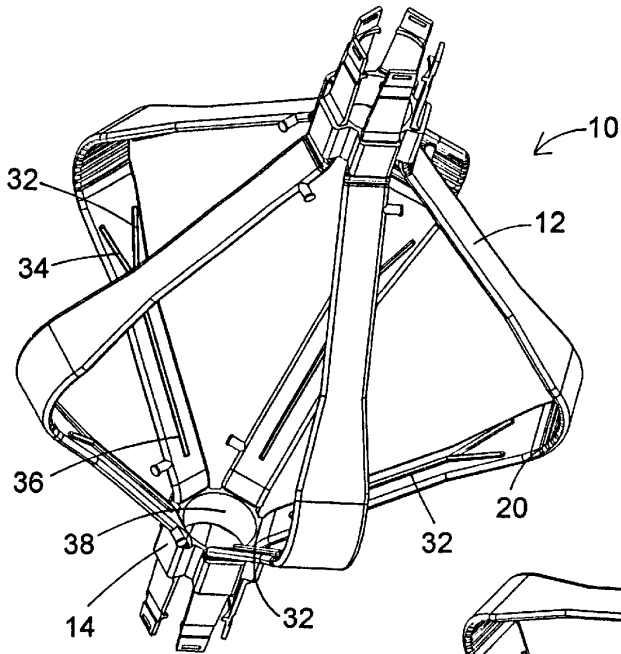


Fig. 6

Fig. 7

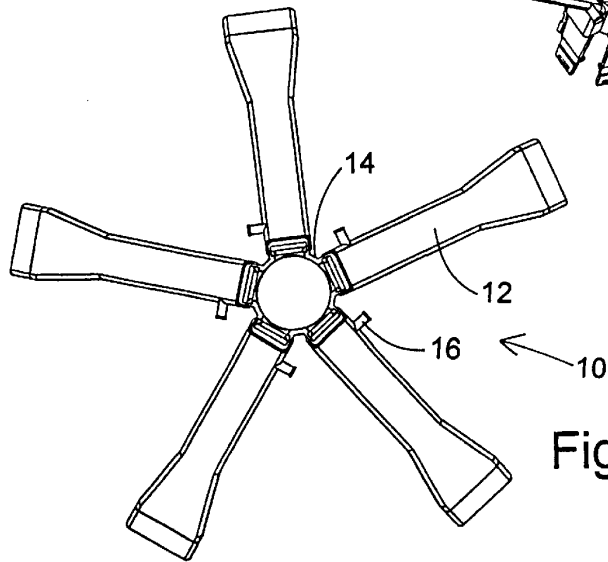
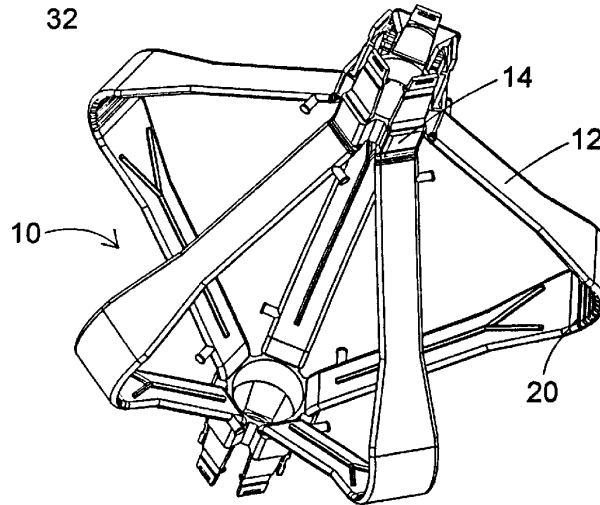


Fig. 8

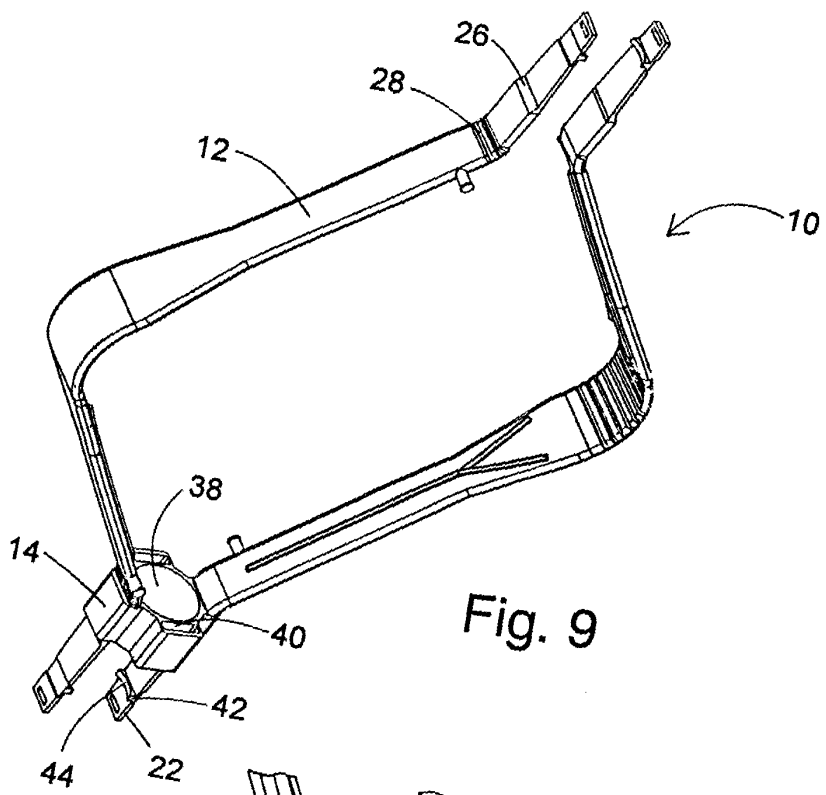


Fig. 9

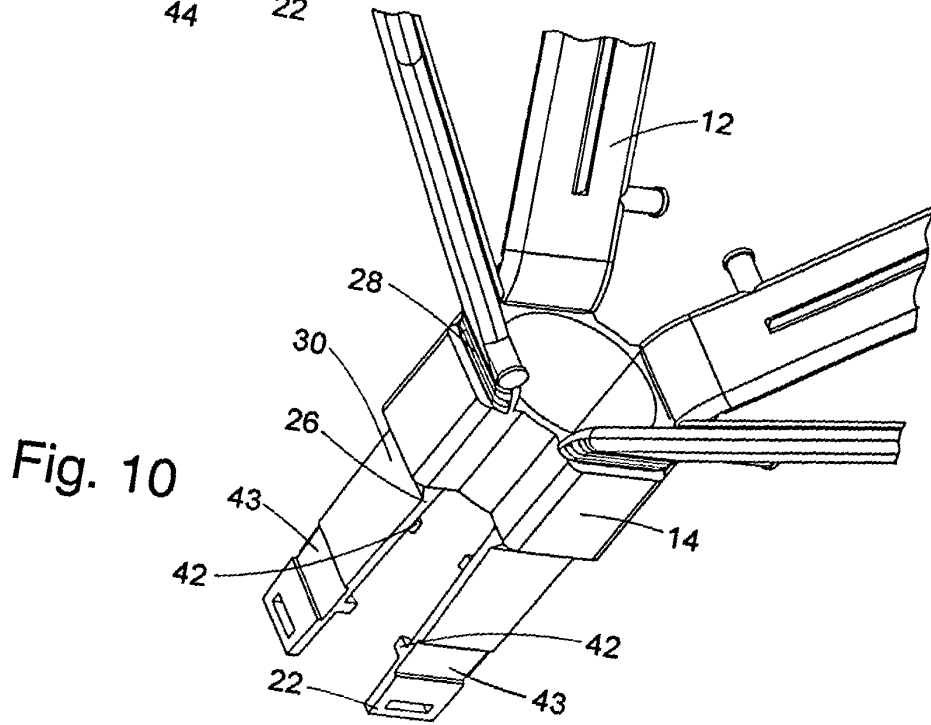


Fig. 10

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