US006439099B1

(12) United States Patent

(10) Patent No.: US 6,439,099 B1
(45) Date of Patent: Aug. 27, 2002

79,148

(54) EXPLOSIVE CHARGES BRAIDED INTO A LINE CHARGE ASSEMBLY

(75) Inventors:

(73) Assignee: The United States of America as represented by the Secretary of the Navy, Washington, DC (US)

(*) 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.: 09/662,165

(22) Filed: Sep. 14, 2000

(51) Int. Cl.[7] F41H 11/12

(52) U.S. Cl. 89/35.01; 89/1.13; 206/3; 102/275.12

(58) Field of Search 89/35.01, 34, 1.13; 206/3; 102/275.12

(56) References Cited

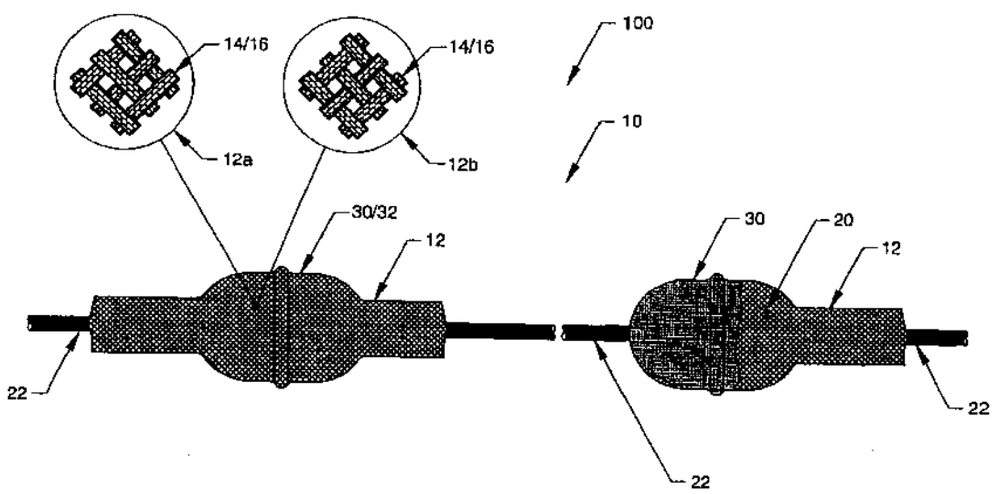
U.S. PATENT DOCUMENTS

722,123	A *	3/1903	Mills	89/35.01
3,908,549	A	9/1975	Turner	102/27 R
3,968,725	A	7/1976	Holzhauer	87/6
4,083,305	A	4/1978	Garrison et al.	102/27 R
4,230,041	A	10/1980	Bailey et al.	102/27 R
4,292,896	A	10/1981	Morrey et al.	102/275.8
4,312,272	A	1/1982	Baker et al.	102/275.8
4,438,699	A	3/1984	Nitzberg	102/312
4,643,097	A	2/1987	Chawla et al.	102/306
4,643,119	A	2/1987	Langston et al.	112/421
4,693,167	A *	9/1987	Bagwell, Jr.	206/443
4,714,018	A	12/1987	Lofgren	102/275.7
5,524,524	A	6/1996	Richards et al.	89/1.13
5,540,154	A	7/1996	Wilcox et al.	102/275.1
5,675,104	A	10/1997	Schorr et al.	89/1.13
6,182,573	B1 *	2/2001	Richards et al.	102/275.12

* cited by examiner

Primary Examiner—Stephen M. Johnson
(74) *Attorney, Agent, or Firm*—Mark Homer

(57) ABSTRACT

A line explosive charge attaching system connects individual explosive charges in line with a yarn structure having yarns interlocked in a braided structure to cover and position several individual explosive charges together.

15 Claims, 2 Drawing Sheets