United States Patent

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[54] **SLEEVE CONNECTOR AND DETONATING ASSEMBLY**
6 Claims, 2 Drawing Figs.

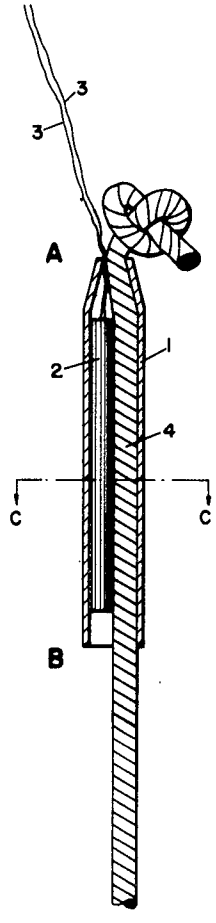
[52] **U.S. Cl.** **102/28**
[51] **Int. Cl.** **F42b 3/10**
[50] **Field of Search** 102/20, 21.6, 22–24, 27, 70; 175/4.6

[56] **References Cited**
UNITED STATES PATENTS

645,849	3/1900	Fusner	102/27
2,708,408	5/1955	Sweetman	175/4.6
2,980,017	4/1961	Castel	175/4.6
3,477,372	11/1969	McFerrin et al.	102/24 HC

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ABSTRACT: A sleeve connector for holding an electric blasting gap securely to a detonating cord, the assembly so formed, and the method of forming it. The sleeve connector is a cylinder having a small opening at one end. The blasting cap is passed through the sleeve connector via the small opening, the detonating cord is passed through and knotted at the small opening, and the blasting cap is retracted into the sleeve connector.



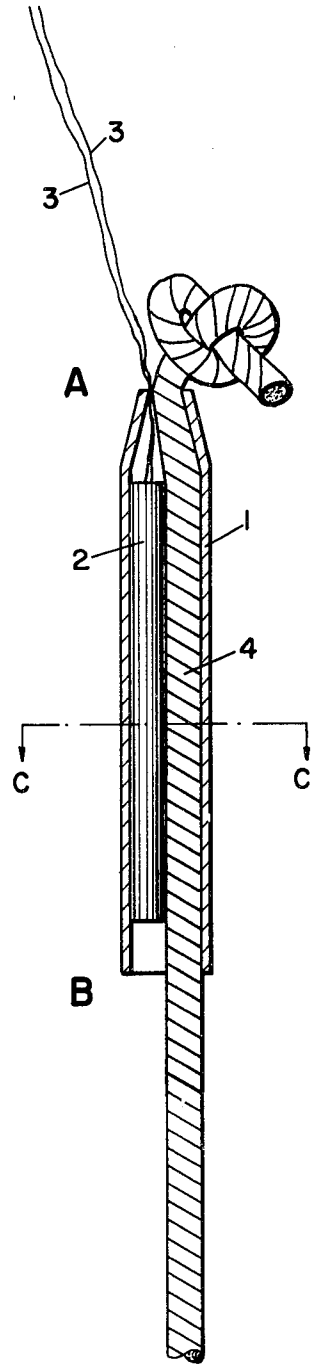


FIG. 1

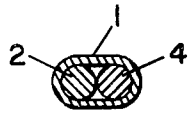


FIG. 2

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SLEEVE CONNECTOR AND DETONATING ASSEMBLY

This invention relates to a sleeve connector, a method of securing an electric blasting cap to a detonating cord with it, and to the assembly so formed.

PRIOR ART

Often, in blasting operations, it is necessary or desirable to fire a detonating cord with an electric blasting cap; to do so it is necessary to position the blasting cap in intimate contact with the detonating cord.

Although many types of devices have been used to connect an electric blasting cap and a detonating cord, they have generally been complex, difficult to manufacture and use, and sometimes permitted misfires due to separation or inadequate contact between the electric blasting cap and the detonating cord.

ADVANTAGES OF THE INVENTION

The sleeve connector of this invention is of a simple design and is inexpensive and easy to manufacture and use. It not only holds the detonating cord and the electric blasting cap in intimate contact, but it also provides a confinement around them to further concentrate the explosive force of the electric blasting cap. Moreover, it does this without wasting any more detonating cord than is required to tie a simple knot. Finally, the sleeve connector is so constructed that a pulling force on either the detonating cord or the leg wires of the blasting cap will result in a separation of the blasting cap from the detonating cord only by the destruction of the sleeve connector, and the cap leg wires are likely to break before this happens.

DESCRIPTION OF THE INVENTION

FIG. 1 shows a view of an electric blasting cap, a detonating cord, and a sleeve connector in cross section and FIG. 2 shows a view through C—C of FIG. 1.

the drawings, a sleeve connector 1 according to this invention secures an electric blasting cap 2 having leg wires 3 to a detonating cord 4 to form an assembly according to this invention.

To form the assembly shown in the drawings, the blasting cap is passed through the opening at end A of the sleeve connector, leaving the leg wires extending through the sleeve connector. The detonating cord is then passed through the sleeve connector, preferably from end B through the opening at end A, and is knotted at end A. Finally, the blasting cap is retracted into the sleeve connector, preferably by gently pulling the leg wires with one hand while holding the sleeve connector and detonating cord with the other hand.

The sleeve connector is at least as long as the blasting cap with which it is to be used and is typically about 2 to about 4 inches long. The opening at end A should be slightly larger than the blasting cap, but not large enough to permit the blasting cap to pass through it when the detonating cord is in place. This opening is typically about 0.28 to about 0.30 inches in diameter.

The cross-sectional end view (i.e., looking directly at end B) of an empty sleeve connector preferably has the outline shape of the blasting cap and detonating cord side-by-side (i.e., approximately elliptical) when a rigid sleeve connector is used. However, if a semirigid sleeve connector is used, which is preferably, the cross-sectional end view is preferably circular so that the sleeve connector will exert a gripping force on the blasting cap and detonating cord since it must be flexed to accommodate them. The sleeve connector may also be elastic to further provide a gripping force on the blasting cap and detonating cord. Other cross-sectional end view shapes may also be used such as diamond or teardrop shapes.

The sleeve connector is preferably made of plastic such as polyethylene, polypropylene, polyvinylchloride, polyurethane, or polystyrene. It may also be made of metal, paper, rubber, or other suitable materials.

What is claimed is:

1. A sleeve connector for joining an electric blasting cap and a detonating cord in initiating relationship comprising a semirigid cylinder at least as long as said electric blasting cap, said cylinder having an opening at one end A slightly larger than the diameter of said blasting cap and smaller than the diameter of said blasting cap plus said detonating cord, and having a sufficient inside diameter and opening at the other end B to contain said electric blasting cap and said detonating cord side-by-side therein.

2. A sleeve connector according to claim 1 which is made of a plastic material.

3. A detonating assembly comprising:

a. a sleeve connector according to claim 1,

b. an electric blasting cap positioned within said sleeve connector and having leg wires extending through the opening at end A thereof, and

c. a detonating cord extending through said sleeve connector and being knotted outside said sleeve connector at end A thereof.

4. A method of joining a detonating cord and an electric blasting cap having leg wires with a sleeve connector according to claim 1 comprising

a. passing said electric blasting cap through the opening at end A of said sleeve connector and through said sleeve connector, leaving said leg wires extending through said sleeve connector;

b. passing said detonating cord through said sleeve connector;

c. knotting said detonating cord outside of end A of said sleeve connector; and

d. retracting said electric blasting cap into said sleeve connector.

5. The method of claim 4 wherein said electric blasting cap is inserted into said sleeve connector by grasping said leg wires by one means while by another means grasping said sleeve connector and detonating cord, and exerting a gentle pulling action between said means.

6. The method of claim 4 wherein said detonating cord is passed through said sleeve connector from end B to end A.

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