United States Patent [19]

Nett

[11] **3,855,934**

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[54] **BLIND MATING CONNECTOR FOR MISSILE SECTIONS**

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[73] Assignee: **The United States of America as represented by the Secretary of the Army,** Washington, D.C.

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[52] **U.S. Cl.** ..... **102/70 R,** 102/27 R

[51] **Int. Cl.** **F42b 3/10**

[58] **Field of Search** ..... 102/27, 49.4, 49.5, 70; 89/1 B

[56] **References Cited**

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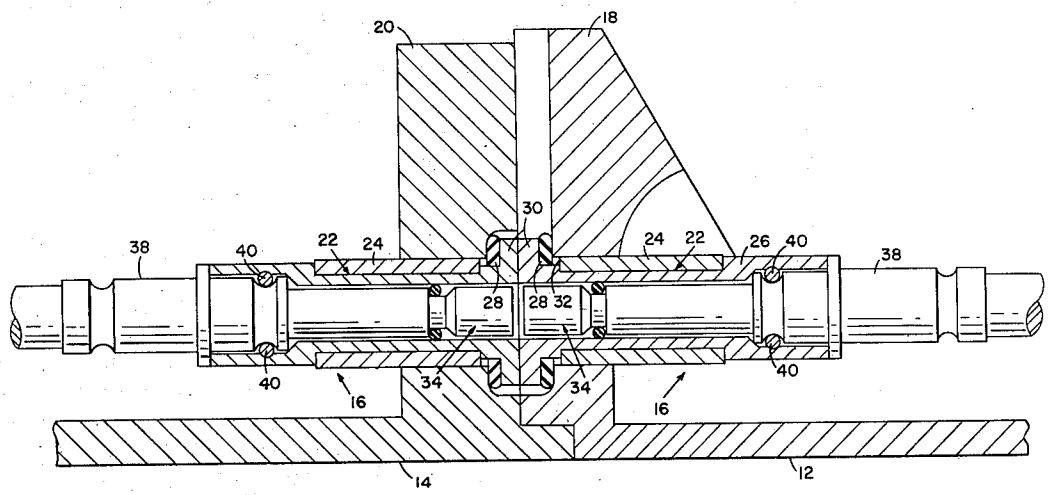
[57] **ABSTRACT**

A connector for aligning explosive interfaces between a pair of missile sections. The connector utilizes the missile frame itself for holding and aligning the explosive interfaces. The interfaces form a non-electric stimulus transfer system wherein a "signal" is carried from one section of the missile to another section responsive to actuation of the explosive interfaces.

1 Claim, 4 Drawing Figures



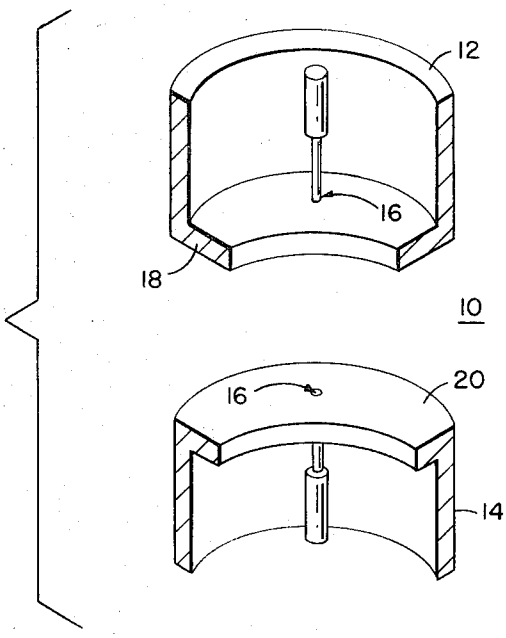


FIG. 1

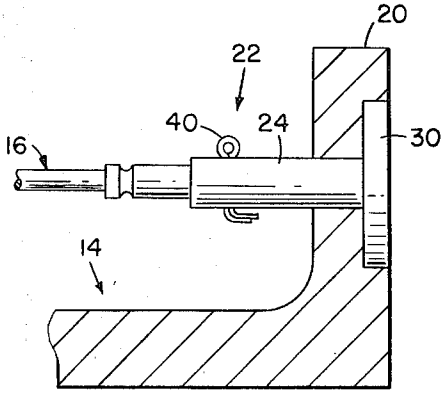


FIG. 2

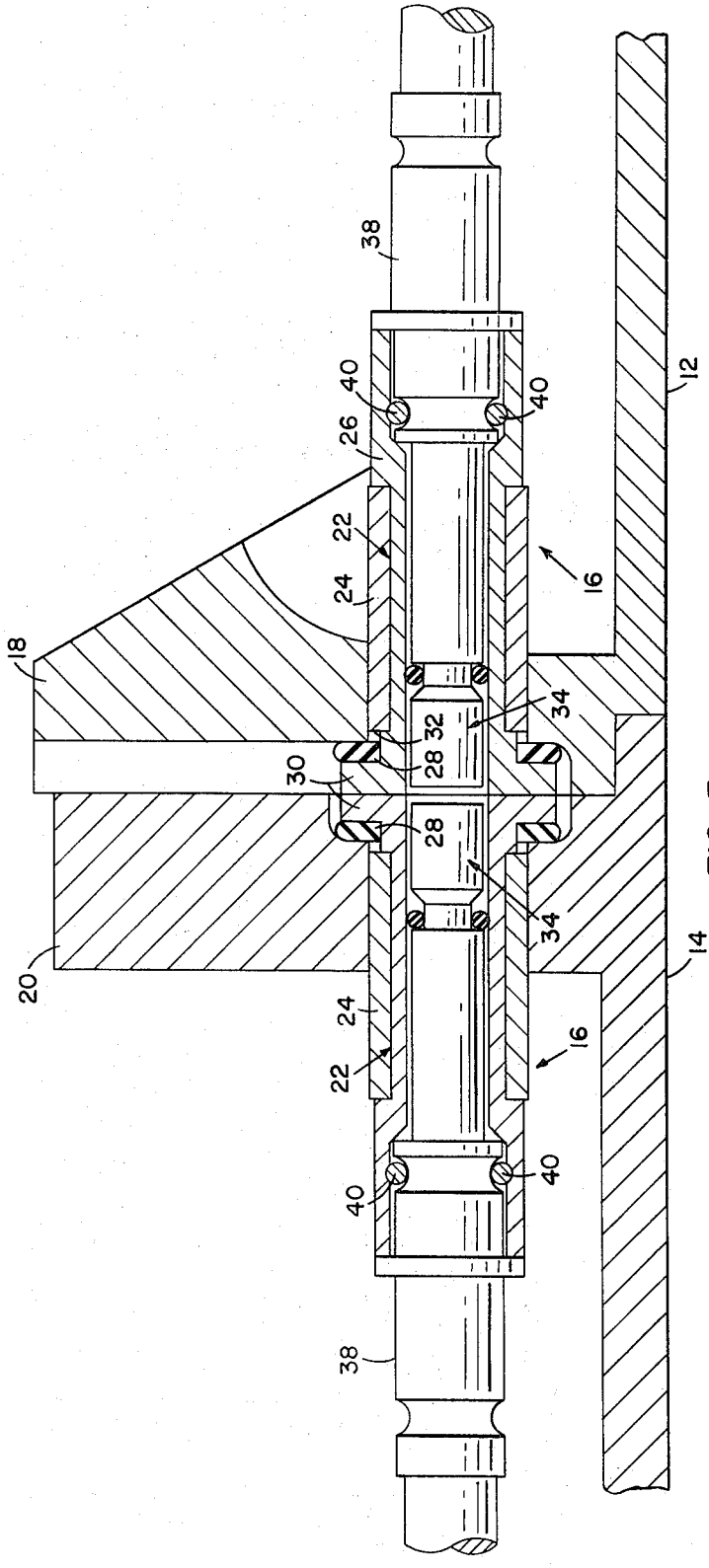

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FIG. 3

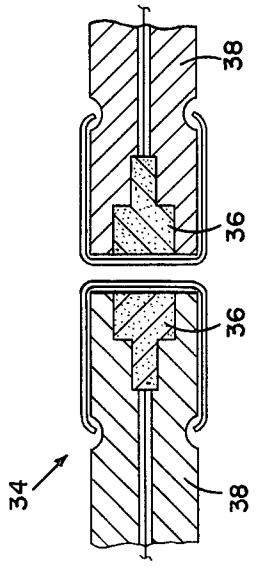
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FIG. 4

BLIND MATING CONNECTOR FOR MISSILE SECTIONS

BACKGROUND OF THE INVENTION

Some missiles are made of sections which must be mated together at the launch site to form the complete missile. Typically, the sections may comprise the tail section, the body section (which may be comprised of a plurality of sections) and the nose section. Each section usually contains components such as gas generators, warhead arming mechanisms, etc. These components must be connected to a power source upon assembly of the missile sections whereby the components are actuated either prior to or subsequent to separation of the missile sections during flight of the missile.

SUMMARY OF THE INVENTION

The present invention provides means for rapid and facile assembly of missile sections in a manner which will permit alignment of explosive interface fittings in each section of the missile. The explosive interfaces provide for a non-electric stimulus transfer system whereby a detonation "signal" is carried from one section of the missile to another section of the missile. The missile sections are flanged at the distal ends thereof and an explosive is carried in end fittings, or connectors, provided in the flanged portion of the missile section. A mild detonating fuse is in contact with the explosives and extends through the missile section to connect to a device to be actuated, such as, a gas generator, the warhead arming mechanism, etc., for actuation thereof.

It is, therefore, an object of the present invention to provide means for rapid and facile assembly of missile sections while maintaining "signal" transmitting lines in the sections in alignment for mating thereof.

Other objects and advantages of the present invention will be more readily apparent from the following drawing and description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a pictorial partial view of a pair of missile sections utilizing the connector of the present invention.

FIG. **2** is a sectional view of the missile section showing the connector therein.

FIG. **3** is a sectional view of the missile sections in assembled position.

FIG. **4** is a diagrammatic view of the explosive end member of the connector shown in FIG. **3.**

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in FIG. **1,** a missile **10** includes a pair of sections **12** and **14,** each having a connector assembly **16** mounted in flanged portions **18** and **20** of the missile sections. The connector assemblies are mounted in predetermined positions in the flanges so that when the sections are mated, the connectors in each section are in alignment.

As shown in FIGS. **2** and **3** each connector assembly includes a sleeve assembly **22** having an outer cylindrical member **24** and an inner cylindrical member **26**

(FIG. **3**).

As more clearly shown in FIG. **3,** a gasket **28** is mounted between a flanged portion **30** of cylindrical member **26** and an end **32** of outer cylindrical member **24.** An explosive end fitting **34** is mounted in the sleeve assembly. As seen in FIG. **4** the explosive end fitting includes an explosive **36** and a confined detonating fuse **38** in contact with the explosive. Fuse **38** may extend to a similar connector assembly or to the device to be actuated.

Referring again to FIG. **3,** the missile sections are shown joined. However, before they are brought together, the sleeves are pushed into place from the front of each flange, then the explosive end fittings **34** are pushed into the sleeves and held in place by cotter pins **40.**

In operation, the mild detonation fuse is detonated and will initiate, in turn, the explosive **36** carried in end fitting **34** of missile section **14.** The detonation shock wave is transmitted to the adjacent end fitting in section **14** and transmitted through fuse **38** to either another end fitting or the device to be actuated. Such as, a warhead arming mechanism, gas generator, etc.

It is to be understood that applicant has provided a non-electric stimulus transfer system which is mounted in flanges provided on the distal ends of the missile section in a manner which will permit rapid and facile assembly of the missile sections.

I claim:

1. Apparatus for transmitting detonation waves between missile sections comprising:

a. a flanged portion provided on the distal ends of said missile sections and each of said missile sections having a recess therein;

b. sleeve assembly means carried in predetermined positions on said flanged portions, whereby upon assembly of said missile sections, said sleeve assembly means in each of said missile sections will be in alignment, said sleeve assembly means consisting of a pair of connector assemblies, each of said connector assemblies including a first outer cylindrical member, a second cylindrical member disposed within said first cylindrical member, said second cylindrical member including first and second end portions extending through the ends of said outer cylindrical member, said first end portion having a flange thereon, the flange of each said first end portion disposed in abutting relation responsive to assembly of said missle sections; and gasket means disposed between each said flange of said second cylindrical member and each said recess of said missile sections; and

c. explosive means carried in each said connector assembly for initiating said detonation waves, each said explosive means including a mild detonation fuse, an explosive communicating with said mild detonation fuse; and an end cap enclosing said explosive means, said end cap disposed in said inner cylinder adjacent said flanged end thereof, and said mild detonation fuse extending through said second end portion of said inner cylindrical member.

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