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JOINT FOR PRESSURE SUITS

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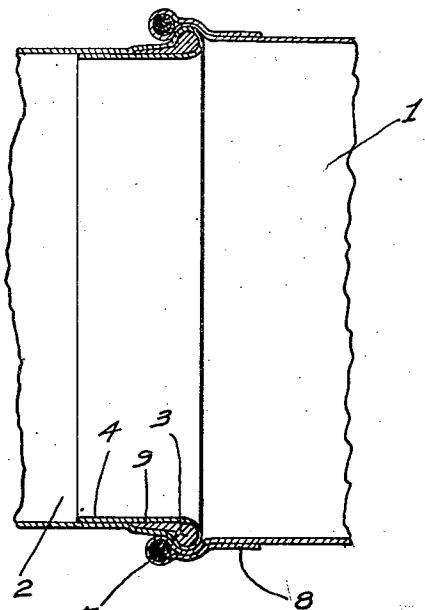


Fig. 1

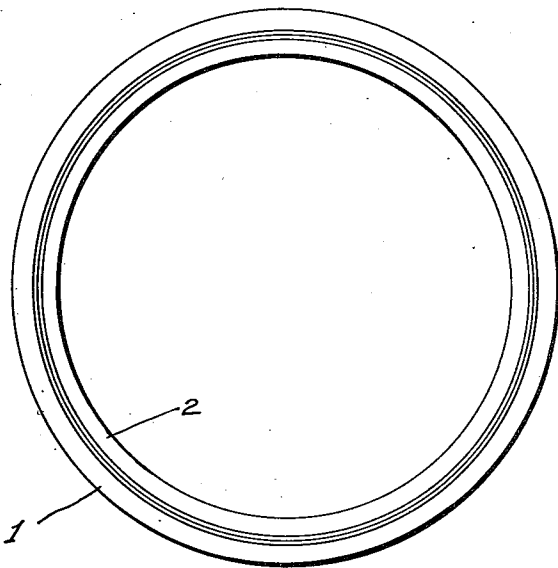


Fig. 2

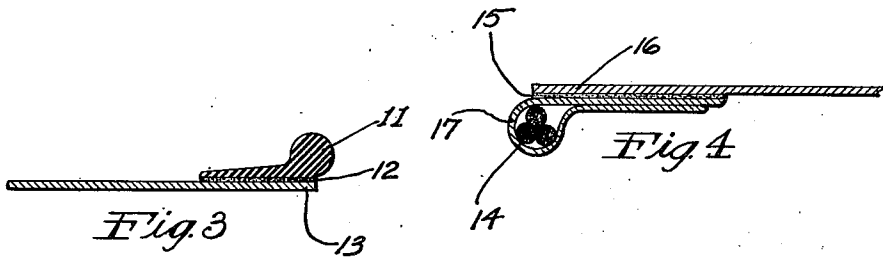


Fig. 3

Fig. 4

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JOINT FOR PRESSURE SUITS

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3 Claims. (Cl. 285—71)

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This invention relates to a pressure suit such as is worn by an aviator at high altitudes or by a diver. Such suits are expensive, and the present suits must be tailored to the wearer. According to this invention, such a suit is provided with so-called disconnects, which are disconnectable members for the arms and legs. These disconnectable members may be of different lengths, and the hands or feet may be of different sizes to fit different prospective wearers. By their use, any one suit may be fitted to persons of different sizes. This is, obviously, a desirable economy.

According to this invention, the disconnectable member and the portion of the suit to which it is to be attached are fitted with a pair of rings, one of which may be slipped inside of the other, the opening at the arm or leg being fitted with one of the rings and the disconnectable member being fitted with the other. The invention will be further described in connection with the accompanying drawing. Fig. 1 illustrates, in section, the manner of interlocking the disconnectable member with the opening in the suit. Fig. 2 is an end view of Fig. 1. Figs. 3 and 4 show an alternative method of attaching the interlocking rings to the fabric.

The pressure suits are ordinarily made of fabric which is coated with rubber or other suitable plastic. The stub end of an arm or leg is indicated at 1 in the drawing, and the disconnectable member is indicated by the reference numeral 2. Alternatively, the disconnectable member might be the section indicated by the numeral 1, and the stub end of the arm or leg might be the section indicated by the numeral 2. One end of the disconnectable member 2 is banded to a rigid ring 3, which may be metal, hard rubber or the like. The convenient manner of doing this is to overlap the end 4 of the fabric around the ring before vulcanizing and then, on vulcanizing, bond the overlapping portions of the fabric together to enclose the ring 3.

The flexible, but inextensible, ring 7 is united to the stub end of the arm or leg 1. This is preferably done by bringing the arm or leg fabric up over the ring and vulcanizing the overlapped end 8 to the main portion of the fabric. As shown, this ring is made of flexible wire cable.

The diameters of the rings are such that when the rigid ring 3 is slipped through the flexible ring 7, as shown in the drawing, and the two are brought together, as illustrated, the flexible ring locks over the rigid one and gives a strong gas-tight seal. This is most easily accomplished if the ring 3 is provided with the cylindrical flange,

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9. The assembly may be further consolidated, if desired, by covering the area of the junction of the members with a wide rubber band which is slipped on under tension.

5 The rings may be molded of hard or soft rubber with a metallic core, and the suit fabric may then be spliced to the rings and may be adhered thereon by vulcanization or by a suitable adhesive.

Fig. 3 shows a hard rubber ring 11 cemented at 12 to the fabric 13. The flexible ring in Fig. 4 is made of three turns of the cable 14, which is designed primarily to replace tire cord in a wire pneumatic tire. It is cemented at 15 to the fabric 16. The cement 12 and 15 may be a curable rubber cement. The fabrics 13 and 16 and the flipper 17 may be of rubber fabric. These various elements are preferably united by assembling in the uncured condition and then curing.

To accommodate wearers of different sizes, a series of disconnectable members 2, each of different lengths, is provided, and the disconnectable legs may comprise a series to which boots of different sizes are attached. By means of simple disconnects of this type, it is possible to lengthen or shorten the arms and legs of a suit and select a boot of the proper size without tailoring the complete suit to the wearer.

On inflation, as the suit portion and disconnectable member are placed under tension, the rings 3 and 7 will be drawn together to form a tight seal. The seal is tight enough to prevent any appreciable escape of air.

What I claim is:

1. In a pressure suit, a joint structure between a disconnectable member and the stub of a limb member of a suit which comprises a flexible substantially inextensible ring and a rigid ring, one attached to the stub member and the other to the disconnectable member, the inside diameter of the flexible ring being smaller than the outside diameter of the rigid ring, and a substantially cylindrical flange portion on the rigid ring against which the flexible ring engages after the rigid ring has been inserted in the flexible ring, said flange portion operating to bring the two rings in substantially coaxial and juxtaposed relation, thereby forming a fluid-tight connection between the parts.

2. In a pressure suit, a fluid-tight joint structure between a disconnectable member and the stub of a limb member of a suit which comprises a flexible substantially inextensible ring attached to the stub portion and a rigid ring on the disconnectable member, the inside diameter of the flexible ring being smaller than the outside di-

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ameter of the rigid ring, wedge means carried by the rigid ring coacting with the flexible ring to retain said rings in assembled relation.

3. A fluid-tight connection for detachably connecting tubular fabric conduits comprising a flexible substantially inextensible ring disposed adjacent the end of one of said conduits, and a sub-

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stantially rigid ring disposed adjacent the end of the other of said conduits to be interconnected, said rigid ring embodying an annular bead portion and means guiding said flexible ring into position against said bead portion when the conduits are interconnected.

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