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H. E. LINDAS

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TUBE END STRUCTURE

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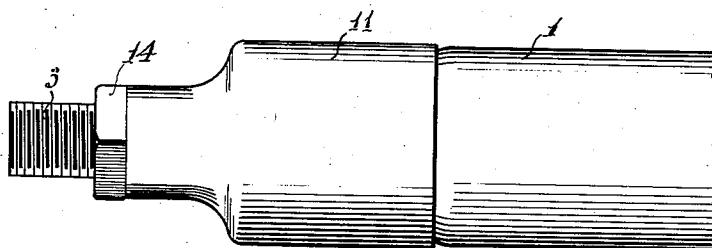


Fig. 1.

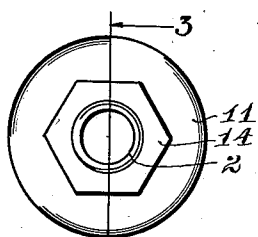


Fig. 2.

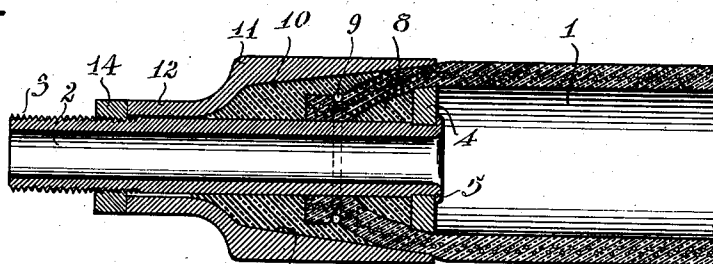


Fig. 3.

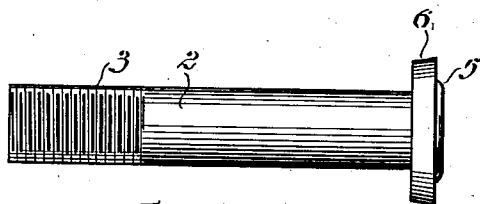


Fig. 4.

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## UNITED STATES PATENT OFFICE

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## TUBE END STRUCTURE

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Application April 11, 1934, Serial No. 720,054

2 Claims. (Cl. 25—128)

The present invention relates to an end structure for an inflatable tube, such as a core, for use in making concrete conduit.

In the making of concrete conduit, as set forth in my application, Serial Number 603,138 (in which application this invention is essentially disclosed, but not claimed), it is sometimes desirable to couple several lengths of core together and to use them when thus coupled as a single unit, and it is also necessary to have a convenient threaded end portion to facilitate the attachment of a pump to an end of the core, and a cap, or other suitable closure member, for the other end of the core.

Among the objects of the present invention is to secure an end fitting for the conduit core which will be particularly water and air tight, which shall be strengthened and reinforced to resist to the extreme the pulling stresses exerted in removal of the core, and which will be simple and easy of repair.

In order to attain these objects, there is provided, in the adaptation of my invention shown in the drawing, a tubular member projecting at one end into one end of the core, the tubular member having an enlarged inner end over which the end of the core is drawn inwardly and ligated to the tube. In the adaptation shown in the drawing, I provide a sleeve surrounding the core and fitting exteriorly at its inner end over the core, with sealing elements filling the spaces between the sleeve and the ligated end of the core, and the core and inner enlarged end of the tube. The sleeve has threaded support upon the tube so as to be adapted to be forced into close contact with the core and with the contained sealing elements to bring about a close sealing engagement of all the component parts.

These and other features of the invention will be more fully brought out in the following description and the accompanying drawing, wherein:

Figure 1 is a view in side elevation of an end portion of a core for concrete conduit having an end connection embodying the present invention mounted thereon.

Figure 2 is an end view of the structure shown in Figure 1.

Figure 3 is a sectional view on the line 3—3 of Figure 2; and

Figure 4 is a view in side elevation of a central tubular binding element.

Referring to the drawing in detail, a tubular concrete conduit core 1 is preferably of the type shown in my allowed application, Serial Number

603,138, although the end fitting comprising the present invention is suitable for any inflatable tubular member of a general character requiring an end fitting of this type. The end fitting comprises a tubular, central member 2 having a threaded portion 3 in the outer end thereof, and having a head portion such as a disk 4 secured to the inner end thereof, as by riveting 5.

The periphery of the head 4 is preferably tapered, as shown at 6. This angle is not critical, but should be such as to permit the disk 4 to be drawn along the inner face of the conduit 1 without cutting into the rubber or fabric with which such conduits are usually lined.

A filler ring 8, of rubber, is provided on the outer face of the disk 4, this ring being preferably formed of a waterproof substance, such as rubber. The end of the core 1 is drawn inwardly as by means of a suture ring 9 into close engagement with the tube 2, and a filler 10, also, preferably, of plastic, waterproof substance, is provided over the suture ring 9 and end portion of the core 1. A cap 11 has the outer end portion 12 thereof of a size to telescopically receive the tube 2 therein, and is provided with an outwardly flaring skirt 13 adapted to fit closely over the filler 10 and to grip the walls of the core 1 between the disk 4 and the inner end of the cap 11. A nut 14 is threaded onto the threaded end portion 3 of the tube 2, and engages the outer end of the cap member 11, forcing the member 11 inwardly to compress the filler 10 and force the inner end portion of the cap member 11 into close gripping engagement with the wall of the core 1. After assembly, the structure may be subjected to heat treatment to complete vulcanization of the elements 8 and 10 when these elements are of unvulcanized, or partially vulcanized, rubber.

The device comprises a simple and strong end connection for conduit cores, and one which is peculiarly adapted to the severe end stresses to which such fittings are subjected in drawing a long length of core from a formed conduit. The entire structure may be disassembled and removed from the core, if necessary or desired, and this feature is particularly valuable, where it is necessary to cut or change the length of conduits in the field. By the use of an ordinary pipe union, not shown, but with which those versed in the art are familiar, several lengths of conduit can be connected together, as shown in my pending application, Serial Number 603,138,

where it is desired to use a plurality of lengths of core, as a single unit.

An ordinary pipe cap, also not shown, since such caps are well known to the trade, may be threaded onto the threaded portion 3 of the tube 2 where such closure is necessary.

While I have, as set forth, constructed the sealing ring 8 and the sealing filler 10 of plastic, unvulcanized, or partially vulcanized rubber, I may, particularly with respect to the ring 8, construct the same of other suitable material, such as lead or copper, and may make the sleeve 8 a component part of the enlarged end of the tube 2.

I claim:

1. In combination with a core, a core head of the class described comprising a tube having one end projecting into the end of the core, said tube being provided with a circumferentially enlarged end portion over which the end of the core is drawn and turned inwardly into contact

with the tube, a sleeve adjustably supported on the tube to make exterior contact with the core, and a sealing element filling the space between the sleeve and the end of the core surrounding the tube, with said sealing element forming a tapering wedge between the sleeve and the core end.

2. In combination with a core, a core head of the class described comprising in combination with the end of the core a tube having one end extending into the end of the core, said extending tube end having an outwardly projecting part, means for clamping the end of the core around said tube on the outer side of said projecting part, a sleeve adjustably supported upon the tube and engaging with the exterior of the core, and a compressible sealing element sealing the space between said sleeve and the end of the core surrounding said tube, for the purpose set forth.

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