Nov. 1, 1938. A. E. OSBORN 2,134,730

PIPE OR TUBE PROTECTOR

Filed Dec. 19, 1934

Fig. 1,

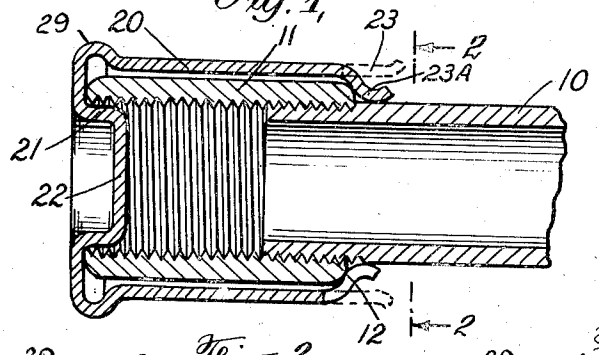


Fig. 2,

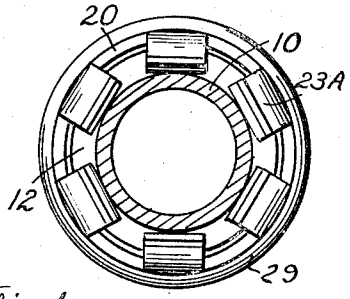


Fig. 3,

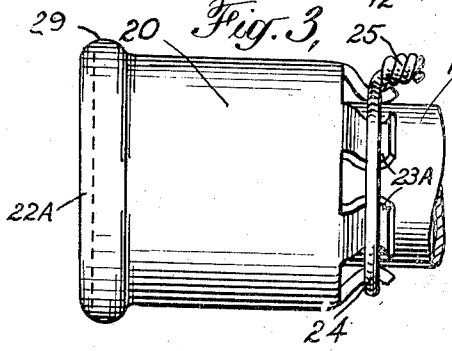


Fig. 4,

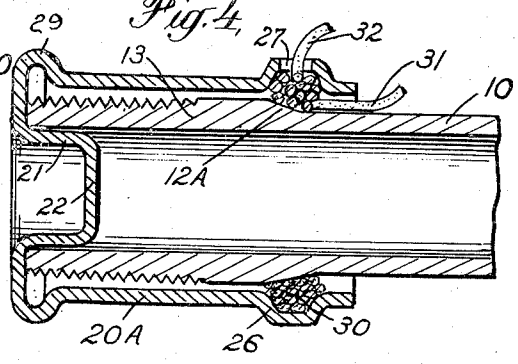


Fig. 5,

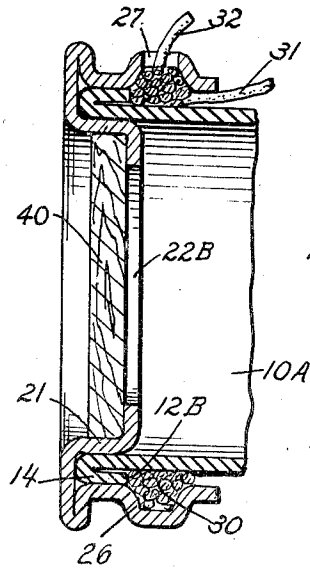


Fig. 6,

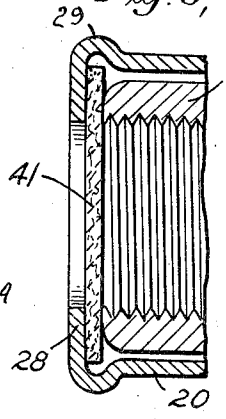


Fig. 7,

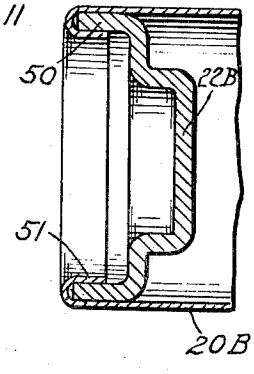
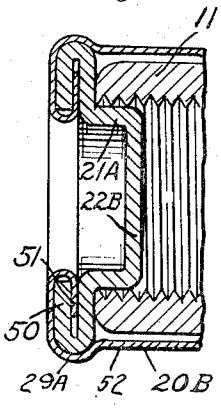


Fig. 8



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PIPE OR TUBE PROTECTOR

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Application December 19, 1934, Serial No. 758,238

1 Claim. (Cl. 138—96)

This invention relates to improvements in pipe or tube protectors, adapted to be attached to pipes or other articles which have a shoulder spaced from their ends, and to the novel means whereby such attachment is accomplished.

One of its objects is to provide a simple and inexpensive protective device which may be applied easily to such an article to prevent injury thereto.

Another objects is to so construct the device that it may close the end of the article to keep out dirt. It may be used also to keep the interior of the article dry and to protect it from injurious atmospheric conditions.

In its broader aspect, it relates to a novel means of attaching one article to another which has an external shoulder, by cooperation with such a shoulder.

These and other objects will appear in the following specification in which I will describe the invention, the novel features of which will be set forth in the appended claim.

In the drawing,

Fig. 1 is a sectional side elevation of an end portion of an externally threaded pipe with a coupling on it, with a device which embodies this invention applied thereto;

Fig. 2 is a sectional end view of the parts shown in Fig. 1, the section being taken on the line 2—2 of the latter figure;

Fig. 3 is a side elevation of a slightly modified form of the device shown in the preceding figures;

Fig. 4 is a sectional elevation of a pipe with an upset or enlarged end, with another form of my device applied to it;

Fig. 5 is a sectional side elevation on a larger scale of the end portion of another form of pipe with a cover of a further modified form applied to it;

Fig. 6 is a sectional elevation of the end portion of a coupling or pipe and of a portion of a cover illustrating another modification of construction;

Fig. 7 is a sectional side elevation of the end portion of a two-piece protector which also embodies my invention shown in process of construction; and

Fig. 8 is a sectional side elevation of the end portion of the form of protector shown in Fig. 7 in its completed condition and positioned over the end of a coupling.

In Figs. 1, 2 and 3, 10 designates the end portion of an externally threaded pipe with a coupling 11 on it which forms a shoulder 12. 20 is a cylindrical shell adapted to pass over the outside of the coupling. Its outer ends is depressed to form a cylindrical boss 21 of less diameter than that of the threads of the coupling. In this case its outer end is shown closed by an integral portion 22. The inner end of the shell is cut away to form a plurality of spaced lugs 23. It is enlarged, as shown at 29, to stiffen its outer end.

When this device is positioned over the coupling the lugs 23 are bent down back of the shoulder 12, as shown at 23A, to attach the device to the pipe and coupling.

In Fig. 3 a wire 24 is shown as passed over the lugs with its ends twisted together, as at 25. The ends of the lugs are bent outwardly to prevent longitudinal displacement of the wire. Obviously this wire forms with the lugs a more secure attachment of the device. It may be used to bend the lugs inwardly.

It is important that the outer end of the shell extend inwardly over the end of the article to which it is applied. Its central part may be left open or it may be closed by a flat portion indicated by dotted lines in Fig. 3 at 22A, but I prefer the dished-in construction shown in Fig. 1 as this forms a convenient recess for engagement of a hook for moving the pipe and, of course, hooks may be used without injury to the thread of the coupling.

The lugs 23 form a convenient arrangement for bending the inner end of the shell back of the shoulder, but are not an essential part of the construction.

In Fig. 4 the pipe 10 is shown with an upset or enlarged end 13 (in this case externally threaded) which forms a beveled shoulder 12A. The outer end of the shell 20A is of the form shown in Fig. 1, but its inner end is constructed as shown, to enable the use of the method of attachment which is shown and claimed in my Patent No. 1,949,431, dated March 6, 1934. Near its inner end the shell is constructed to form an annular channel 26 around the beveled shoulder 12A and an opening 27 is provided for the insertion of a flexible element 30, such as a cord, wire or other material. An end 31 of the flexible element extends through a clearance between the end of the shell and the pipe 10 into a position where it may be held against rotation relative to the pipe. Its other end 32 is passed through the opening 27. By a relative rotation of the pipe and the shell the flexible element is drawn into the channel 26. Continued rotation will cause enough of this flexible element to be drawn into the space between the channel and the beveled shoulder to exert a

considerable lateral pressure upon both of them which securely attaches the protector to the pipe. The incline of the shoulder creates a longitudinal component of pressure which tends to move the sleeve onto the pipe. With this arrangement, the end of the pipe is effectively sealed.

The same method of attachment is shown in Fig. 5 in which the device is shown applied to the end of a pipe having another kind of shoulder and is of a form suitable for use on a victaulic pipe, for example. The end 22B is in this figure shown open with a block 40 of wood, for example, placed within the boss 21 to close it. The pipe 10A in this figure is shown as bent back upon itself, as at 14, to form a shoulder 12B.

The outer end of the shells of any of the preceding figures may be constructed as shown in Fig. 6 with an inturned end 28 with a disk 41 interposed between it and the end of the coupling 11 or any other article to which the device is applied. The disk may be of frangible material to permit the insertion of a rod for moving the pipe.

In Fig. 7 an outer end member is shown which forms a boss 21A, closed as at 22B, and a cylindrical part 50. The end of an outer shell 20B is shown bent around and under the part 50 at 51 in Fig. 7, and in Fig. 8 these parts, 50 and 51, are shown bent together to form the completed end. The outer shell is bent inwardly, as at 52, to form a projecting flange 29B. This construction has the advantage of not only easily permitting one portion of the protector casing to be of lighter gauge than another part, thus reducing weight and cost, but also, by enabling several thicknesses of metal to be placed in the seam between the sleeve and end parts and so placing the seam that it comes over the most vulnerable part of the article to be protected, greatly increasing the protection given to said vulnerable part.

Many modifications of structure may be made within the scope and spirit of this invention, as may be seen from those shown for illustrative purposes, and the invention is capable of other uses than those which have been described. I therefore intend no limitations other than those imposed by the following claim.

What I claim is:

A protector for a tubular part to be protected, said part to be protected having a cylindrical portion provided with an enlarged end forming a shoulder spaced from the end thereof, said protector comprising a sleeve adapted to cover said enlarged end and the adjacent portion of the part to be protected and providing a circumferential recess therein and flexible retaining means in said recess and disposed against the shoulder of the enlarged end and substantially filling the recess and serving to anchor the sleeve against said shoulder, said retaining means being adapted to be inserted into the recess by relative rotation between the part to be protected and the sleeve of the protector.

ALDEN E. OSBORN.