April 15, 1941. H. M. HICKS 2,238,643

END PROTECTOR

Filed Dec. 22, 1939

FIG. 1.

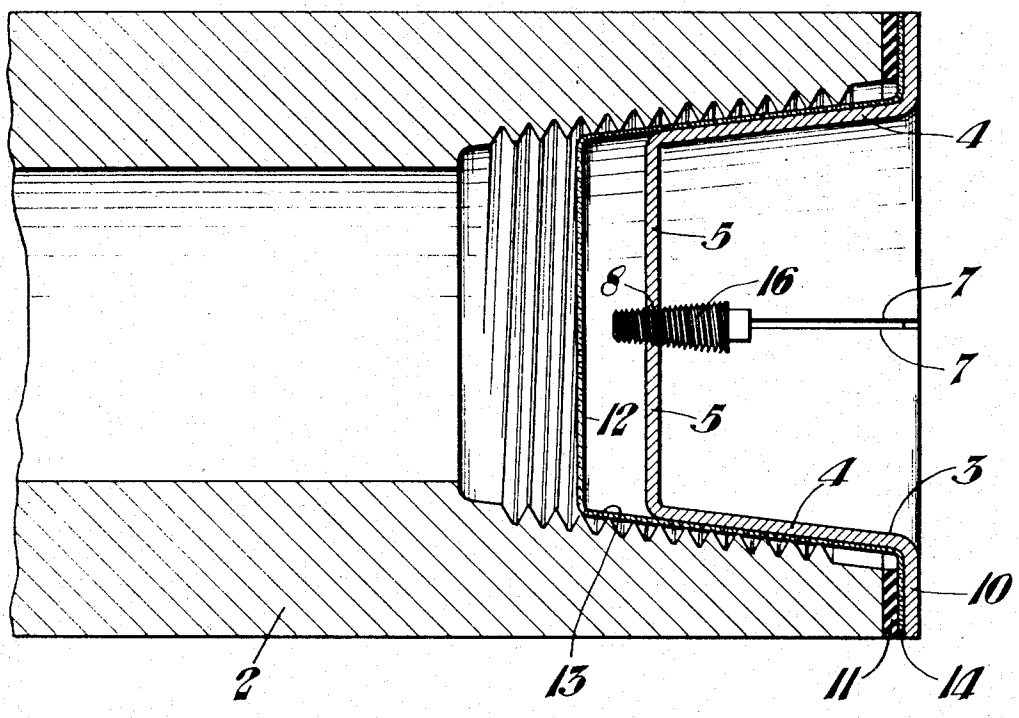
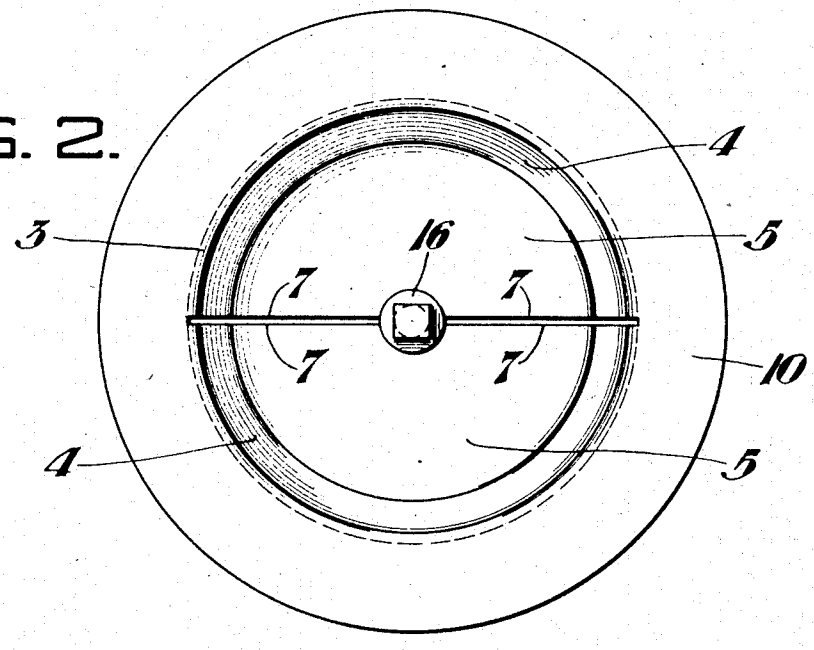


FIG. 2.



Inventor:
HOWARD M. HICKS,
by: John E. Jackson
His Attorney.

Patented Apr. 15, 1941 2,238,643

UNITED STATES PATENT OFFICE

2,238,643

END PROTECTOR

Howard M. Hicks, McKeesport, Pa., assignor to National Tube Company, a corporation of New Jersey

Application December 22, 1939, Serial No. 310,623

1 Claim. (Cl. 138—96)

This invention relates to end protectors, and more particularly to those which are used for protecting the threaded ends of pipes and tubes such as are used for well casing, drill tubing, line pipe, or to any threaded tubular article wherein corrosion and mechanical injury to interior threads or machined surfaces are undesirable.

In well drilling, for example, extreme accuracy must be maintained in preparing the joints in the string of drilling tools. However careful these joints are made at the place of manufacture, they are subject to possible damage in transit to the consuming site and while awaiting assembly after their arrival. If they are to be used for the purpose for which they are intended, they must be protected from exposure to moisture to prevent corrosion as well as from abrasion and mechanical injuries to the interior threads and machined surfaces which are used in completing the joint.

It is among the objects of the present invention to provide an end protector for tubular articles having on the interior ends thereof screw-threaded, machined or otherwise prepared surfaces.

Another object is the provision of a device of the class described which is cheap to manufacture, easy to install and remove and one which is, at the same time, very durable in service.

The foregoing and other objects will be more apparent after referring to the drawing, in which:

Figure 1 is a sectional elevation of the device of the invention as it is used on the interiorly threaded end of the female element of a threaded tube; and

Figure 2 is an end view of the showing of Figure 1.

Referring more particularly to the drawing, the numeral 2 designates the end of a tubular article, such as the female element of a drill tube. In order to protect the interior surfaces of the female element of the drill tube, which may be screw-threaded or machined in the manner well known in the art, the device of the present invention includes a split cup member 3 which, more specifically, comprises a pair of semi-cylindrical wall members 4, each of which terminates in a semi-circular right-angularly extending bottom portion 5. In other words, the semi-cylindrical wall members 4 and bottom portions 5, when in assembled relationship, form a cup which is split in half along lines indicated by the adjacent opposed surfaces 7. The center of the bottom of the cup 3, which is formed by the bottom portions 5, is provided with an aperture 8 which is taper-threaded for a purpose to be later described. In other words, each of the members 5 is provided with a semi-circular recess which is screw-threaded on a taper, whereby the complementary screw-threaded surfaces form a taper-threaded aperture.

From the foregoing it will be seen that the sectional cup 3 comprising the cylindrical side walls 4 and the bottom portions 5 will seat into and snugly occupy the female element of the tubular article 2.

Secured to the outer ends of the side walls 4 of the sectional cup 3 is a continuous radial flange 10 which is adapted to cover the end of the wall of the tubular article 2 and to effect a seal with the same through the medium of an intermediately disposed gasket 11.

In operation:

A waterproof paper cup 12, which is similar in shape, although deeper than, the sectional cup 3, is disposed within the tapered interior of the tubular article which forms the female joint forming instrumentality, which may be either machined, threaded, or the like. This paper cup 12 comprises a side wall 13 which is of greater height than the side walls 4 of the sectional cup 3. This side wall 13 of the cup 12 is provided on its outer end with a continuous radial flange 14 which is adapted for disposal between the inner surface of the radial flange 10 on the cup 3 and the gasket 11 which fits against the end of the wall of the tubular article 2.

With the elements disposed in this position, a tapered screw-threaded plug 16 is disposed in the tapered and screw-threaded aperture 8 formed in the bottom portion 5 of the cup 3; and the continued screwing of the tapered screw-threaded plug 16 into the aperture 8 forces the side walls 4 of the sectional cup 3 against the side wall 13 of the waterproof paper cup 12 and, accordingly, the latter against the tapered female joint forming instrumentality (screw-threads or machined surfaces).

While I have shown and described one specific embodiment of the present invention, it will be seen that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claim.

I claim:

An end protector for the female element of a frusto-conical joint for a tubular article comprising, in combination, a frusto-conical cup arranged in segments and adapted to fit within

said female element, a radial flange on the outer end of said cup, a frusto-conical cup-shaped lining for said female element, a gasket between the radial flange of said cup and the end wall of said female element, a radial flange on the outer end of said lining for disposal between said gasket and the radial flange on the outer end of said cup, and a coniform screw-threaded plug extended through the bottom wall of said cup in screw-threaded engagement therewith whereby the segments thereof may be expanded to contact with said cup-shaped lining and accordingly said female element.

HOWARD M. HICKS.