Aug. 30, 1927. 1,640,969

W. H. WESTERMAN

THREAD GUARD

Filed May 18, 1927

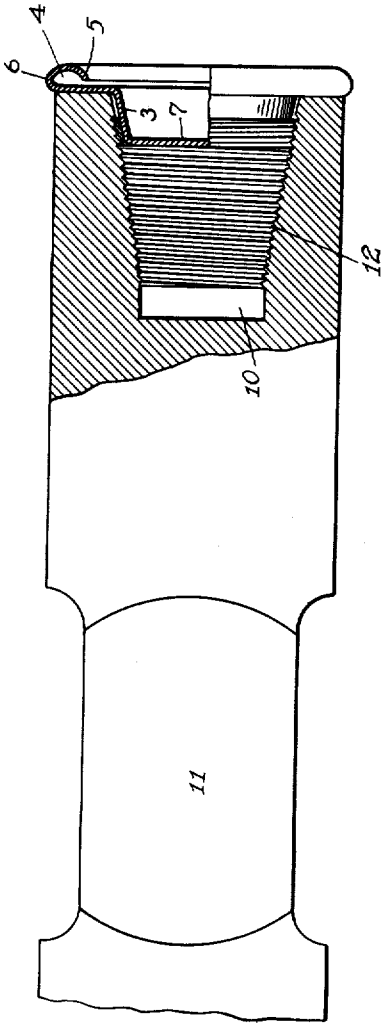


FIG 1

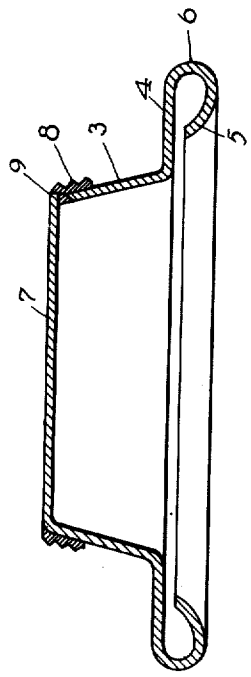


FIG 2

INVENTOR

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UNITED STATES PATENT OFFICE.

WILLIAM H. WESTERMAN, OF MARIETTA, OHIO.

THREAD GUARD.

Application filed May 18, 1927. Serial No. 192,498.

This invention broadly relates to thread protectors and more particularly to protectors for internal threads such as found in the boxes of well drilling tools.

An object of this invention is to produce a protector for threads of internally threaded devices of the kinds contemplated which will not only effectively protect the threads thereof from injury but will also protect the ends of the devices to which the protectors are applied.

Thread protectors should be capable in most cases of sealing the threaded cavity or interior of the device against the admission of water, sand and other foreign matter and a further object of this invention is to produce a protector which is relatively cheap to manufacture and which will, in addition to affording protection for the threads and ends form an effective seal as well.

These and other objects are obtained by means of the protector illustrated in the single sheet of drawings accompanying and forming part of this application.

In the drawings, Figure 1 is a view partly in elevation and partly in section of a protector applied to a box forming part of a well drilling tool; one specific form of device to which the protector is applicable. Fig. 2 is a somewhat enlarged view partly in section and partly in elevation of the protector included in Fig. 1 disclosing the details of construction more clearly than is done in Fig. 1.

In this application I have disclosed the protector of a form for use in connection with a box of a well drilling tool but I do not wish to limit the invention to such form since by slight modifications it can be made applicable to other forms of devices.

The protector is preferably pressed from sheet metal so as to provide an annular body portion 3 having an outwardly turned lip 4 adapted to contact with the end of the article to be protected and an inwardly turned flange 5 on the lip, spaced out of contact therewith but connected thereto by wall 6.

One end 7 of the protector is closed while the other end which is surrounded by lip 5 is open. The body portion adjacent the closed end is provided with screw threads. These threads are moulded in a ring 8 which is formed as an integral part of the protector by being cast onto the body thereof as shown.

A relatively soft metal preferably lead is used for forming ring 8 and the threads are preferably cast in the ring itself while it is being cast onto the protector body. For the purpose of securing the ring to the body, that part of the body lying beneath the ring is provided with wickers or prongs 9 which extend outwardly and which are embraced by the metal forming the ring.

In Fig. 1 the protector is shown in position in a box 10 of a well drilling tool 11 and from the construction it will be apparent that the threads 12 of the box are effectively protected and the cavity of the box sealed against the admission of any foreign matter such as water, sand, etc. It will be apparent that if desired the box threads can be smeared with grease or oil before the protector is applied.

The double walled end construction affords effective protection for the end of the box by providing a yielding structure or cushion thus preventing distortion of the box end during handling.

The threads of ring 8 even though they are not accurate accommodate themselves to the box threads on account of being formed in soft metal and form an effective seal. The tangs or prongs 9 which extend into the soft metal threads supplement the same for the reason that they in effect engage the threads of the box and relieve the soft metal threads of much of their burden.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A thread protector comprising an annular body having a threaded exterior portion; said body having an integral outwardly turned lip for contact with the end of the article to be protected, and an inwardly turned flange on the lip spaced out of contact therewith, said flange providing a yieldable guard at the end of the protector.

2. A thread protector comprising a substantially cylindrical body having a separately formed exteriorly threaded ring of soft metal cast thereon, said body having an integral outwardly turned lip for contact with the end of the article to be protected, and an inwardly turned flange on the lip and spaced therefrom, said flange providing a yieldable guard at the end of the protector.

3. A thread protector comprising an annular externally threaded body portion having an outwardly extending double-walled flange at one end adapted to contact with

the end of the article to be protected, said flange consisting of an outwardly bent portion of the protector forming an outwardly extending flange, an upwardly bent portion forming an annular wall, and an inwardly bent portion forming a lip overlying the outwardly bent portion.

4. A thread protector comprising an annular body portion provided with relatively soft metal threads and having an outwardly extending double-walled flange at one end adapted to contact with the end of the article to be protected.

5. A thread protector comprising an annular externally threaded body portion having an outwardly extending flange at one end adapted to contact with the end of an article to be protected and having an inwardly extending lip opposite to and spaced from said flange, the outer edges of said flange and lip being integrally connected and constructed so as to extend beyond the outer surface of the end portion of the article to be protected.

6. A thread protector comprising a conically shaped externally threaded body portion having an outwardly extending flange at one end adapted to contact with the end of an article to be protected and having an inwardly extending lip opposite to and spaced from said flange, said flange and lip being connected by an annular wall adapted to extend beyond the outer surface of the end portion of the article to be protected.

7. A thread protector comprising an annular externally threaded body portion having an outwardly extending flange at one end adapted to engage the end of the article to be protected and having an annular wall integral with the outer edge thereof and extending in the same axial direction as the body portion, said wall being extended outwardly beyond the outer surface of such article.

8. A thread protector formed from a single piece of sheet metal and having an external threaded ring cast thereon, the protector being closed at one end and open at the other, the open end being surrounded by a double-walled yieldable guard for protecting the end of the article to which the protector is applied.

9. In a thread protector, an annular tapered body having outwardly projecting wickers at the small end thereof, a threaded ring of relatively soft metal cast in place around the portion of the body having the wickers and an outwardly projecting flange at the other end of the body.

10. In a thread protector, an annular tapered body having outwardly projecting wickers at the small end thereof, a threaded ring of lead cast in place around the portion of the body having the wickers and an outwardly projecting double-walled flange at the other end of the body.

11. In a thread protector, an annular body, a threaded ring formed of relatively soft metal cast onto and surrounding one end of the body and a double walled flange at the opposite end of the body.

12. In a thread protector, an annular tapered body, a threaded ring of relatively soft metal cast onto and surrounding the smaller end of the body and a double walled flange at the larger end of the body.

In testimony whereof, I have hereunto subscribed my name this 11″ day of July, 1927.

WILLIAM H. WESTERMAN.

the end of the article to be protected, said flange consisting of an outwardly bent portion of the protector forming an outwardly extending flange, an upwardly bent portion forming an annular wall, and an inwardly bent portion forming a lip overlying the outwardly bent portion.

4. A thread protector comprising an annular body portion provided with relatively soft metal threads and having an outwardly extending double-walled flange at one end adapted to contact with the end of the article to be protected.

5. A thread protector comprising an annular externally threaded body portion having an outwardly extending flange at one end adapted to contact with the end of an article to be protected and having an inwardly extending lip opposite to and spaced from said flange, the outer edges of said flange and lip being integrally connected and constructed so as to extend beyond the outer surface of the end portion of the article to be protected.

6. A thread protector comprising a conically shaped externally threaded body portion having an outwardly extending flange at one end adapted to contact with the end of an article to be protected and having an inwardly extending lip opposite to and spaced from said flange, said flange and lip being connected by an annular wall adapted to extend beyond the outer surface of the end portion of the article to be protected.

7. A thread protector comprising an annular externally threaded body portion having an outwardly extending flange at one end adapted to engage the end of the article to be protected and having an annular wall integral with the outer edge thereof and extending in the same axial direction as the body portion, said wall being extended outwardly beyond the outer surface of such article.

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WILLIAM H. WESTERMAN.

CERTIFICATE OF CORRECTION.

Patent No. 1,640,969. Granted August 30, 1927, to

WILLIAM H. WESTERMAN.

It is hereby certified that the above numbered patent was erroneously issued to the inventor said Westerman, whereas said Patent should have been issued to "The Colona Manufacturing Company, of Monaca, Pennsylvania, a Corporation", said corporation being assignee of the entire interest in said invention.

In the heading to the printed specification, line 5, strike out "Application filed May 18, 1927. Serial No. 192,498." and insert instead "Application filed October 3, 1922. Serial No. 592,163. Renewed May 18, 1927. Serial No. 192,498." In the heading to the drawing strike out "Filed May 18, 1927" and insert "Original Filed October 3, 1922."; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of November, A. D. 1927.

M. J. Moore,
Acting Commissioner of Patents.

Seal.

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