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C. W. PETER

2,880,761

THREAD PROTECTOR

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Fig. 1.

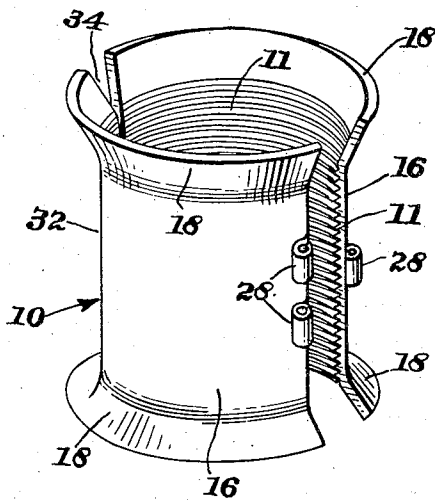


Fig. 3.

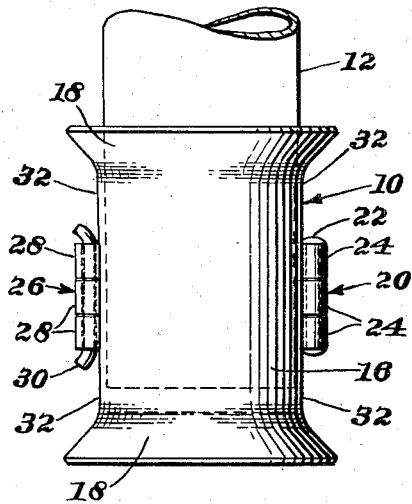


Fig. 2.

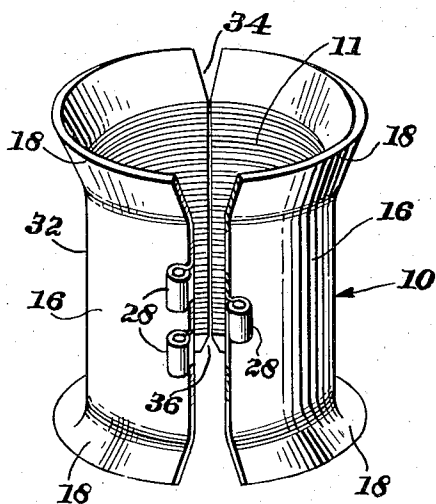
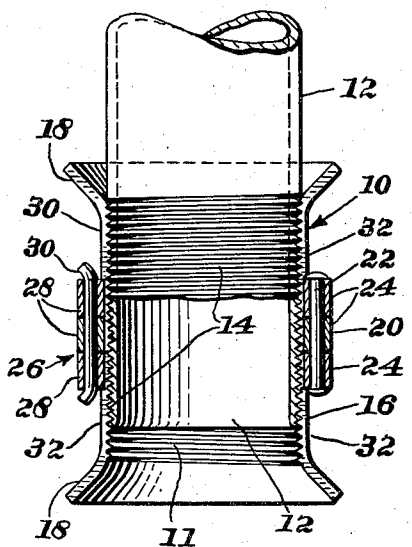


Fig. 4.



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THREAD PROTECTOR

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5 Claims. (Cl. 138—96)

The present invention relates to thread protectors of the type particularly adapted to protect external pipe threads.

Conventional protectors for external pipe threads have usually been of the internally threaded type wherein it is required to screw the protector onto the pipe threads to be protected. As can be appreciated, this procedure involves the usual time required to manipulate the generally cylindrical protector and dispose it in desired protecting position on the pipe. It will be appreciated that the time required by this operation, as well as the operation of screwing the protector off the pipe, can cause inconvenience and increase the labor costs involved in attaching and detaching the protector. And in some instances, the time spent in detaching the protectors is critical. This is especially true in the drilling and forming of oil wells where the number of pipe casing sections used in the well forming operation may be large, and also where the time involved in the placing of each of the casing sections in the well must be kept at a minimum so that ease and facility in removing thread protectors from the casing sections before placing them in the well are important considerations.

It has been proposed to use flexible thread protectors in the form of a detachable band which may be wrapped around or snapped over the external threads on the pipe rather than screwed thereon. However, such protectors are disadvantageous if the pipe is to be rolled from one location to another since these protectors usually involve projecting parts or structures which impair rolling. Rolling of the pipes between sites is likewise extremely important in the drilling and forming of oil wells, wherein the casing sections having external thread protectors thereon usually are rolled from their stored position to a position adjacent the well after which the protectors are removed.

Accordingly, to overcome the foregoing and other disadvantages of prior art devices, it is an important object of the invention to provide a novel protector for external pipe threads minimizing time requirements for attachment and detachment.

Another object resides in the provision of a protector for external pipe threads designed to be conveniently disposed in thread protecting position on a pipe and particularly adapted to be utilized in connection with oil well casing sections for facilitating rolling thereof. A related and somewhat more specific object is to provide an external thread protector in the form of an internally threaded split sleeve wherein the split sleeve sections are hinged together.

It is a further object to provide an improved thread protector, of the type referred to above, of simple, inexpensive and durable construction.

In carrying out the foregoing and other objects, the present invention contemplates a protector, for externally threaded pipes, which is constructed as an internally threaded sleeve of generally cylindrical configuration and split axially or longitudinally into two sections hinged to-

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gether at one seam or edge thereof for swinging opening or closing movement of the sections about an axis parallel to the axis of the sleeve which is formed when the sections are closed.

Such a thread protector can be simply and conveniently attached to or removed from the externally threaded portion of the pipe to be protected, by swinging movement of the sleeve sections thereby eliminating the necessity of screwing the protector onto the pipe in question. The invention further contemplates releasable fastening means provided along the other seam or edge of the sleeve sections of the thread protector for retaining them in closed, pipe-embracing position, and as an important feature, the sleeve sections are so constructed that when closed, both the hinge structure and the releasable fastening means, which are arranged externally, preferably do not project radially outwardly beyond the outer radial extremities of the opposite ends of the sleeves so that they will not interfere with or impair rolling of the pipe.

Further objects and advantages of the invention will be in part obvious and in part pointed out hereinafter.

The novel features of the invention may be best made clear from the following description and accompanying drawings in which:

Figure 1 is a perspective view of a thread protector embodying the invention;

Figure 2 is another perspective view of the protector of Figure 1;

Figure 3 is a fragmentary side elevational view of the protector of Figure 1 shown as applied to a pipe; and

Figure 4 is a fragmentary view corresponding to Figure 3, partly cut away and partly in section.

Referring now to the preferred embodiment of the invention illustrated in the accompanying drawing, a thread protector 10 having internal threads 11 is shown in Figures 3 and 4 as being arranged on pipe 12 encircling and protecting the external threads 14 thereon. The thread protector 10 may be constructed in any conventional manner, of any suitable material such as metal and preferably is of generally cylindrical configuration including split sleeve sections or halves 16. Each of the sections 16 preferably is of identical construction being in the semi-cylindrical form shown and flaring radially outwardly at the opposite ends 18 thereof.

These sections 16 are hinged together along one edge or seam thereof by a hinged construction indicated by numeral 20. This hinge 20 is arranged externally of the sleeve sections and may be of any conventional type such as that shown in the drawing involving a hinge pin or pintle 22 inserted through aligned bushings 24. In conventional manner, the upper and lower bushing 24 may be affixed to or integral with one of the sleeve sections 16 while the intermediate bushing is, similarly associated with the other sleeve section. Thus, the sections 16 are swingable about the axis of hinge pin 22, which axis is parallel to the axis of the sleeve defined when the sections 16 are closed. This is highly advantageous in facilitating attachment of the protector 10 to the pipe 12 in desired position for protecting pipe threads 14 inasmuch as the sections 16 need only be first opened by swinging them a sufficient amount apart and then clamp them around the threaded section 14 of the pipe with the internal threads 11 of the protector 10 and pipe threads 14 disposed in the same interfitting and interlocking relationship normally effected in conventional thread protectors by the more time-consuming screwing operation.

To retain the sleeve section 16 in closed position about the pipe 12, releasable fastening means 26 are provided along the other seam of the sleeve section, that is, the seam diametrically opposed to the hinge 20. This fastening means may also be a form of hinge con-

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struction including aligned bushings 28 and removable locking pin 30. As noted heretofore in describing hinge 20, the bushings 28 of the fastening means 26 may be arranged on the sleeve sections 16 with the upper and lower bushings on one section and the intermediate bushing on the other section as indicated in Figure 2. The pin 30 preferably is constructed of flexible or pliable material having sufficient rigidity to enable it to be inserted in straight and undeformed condition into the aligned bushings 28 and subsequently be deformed outwardly at its ends in the manner indicated to prevent inadvertent or undesired removal thereof. This locking operation may be performed by any suitable tool and when it is desired to release or remove the thread protector from the pipe, it will be apparent that this may be accomplished either by pulling on the pin 30 in an axial direction with a sufficiently large force to effect a straightening of the other end of the pin or by first straightening one or both ends of the pin. Subsequent insertion of the same or a different pin 30 into locking position can be conveniently carried out in the manner indicated above. In this connection, it will be noted that if desired, one end of the pin 30 may be deformed initially before insertion thereof into interlocking position and the other end deformed after insertion of the pin.

An outstanding feature of the invention resides in the structure and arrangement of the flaring ends 18 of the sleeve sections whereby an intermediate annular recess 32 is provided for the reception of the externally mounted hinge 20 and fastening means 26 wherein no portion of the hinge or fastening means projects radially outwardly beyond the outer radial extremities of the ends 18.

By virtue of this construction, the ends 18 define annular rims enabling the pipe to be disposed horizontally on the ground and rolled on the rims 18 about the horizontal axis of the pipe and attached protector without encountering any interference to such movement by the hinge 20 or fastening means 26. As noted hereinabove, this is particularly advantageous in facilitating transfer of pipes, such as oil well casing sections, from a stored position to the oil well location. And the convenient releasability or detachability afforded by the hinged sleeve sections 16 and releasable fastening means 26, explained above, considerably minimizes the time necessary for removing the protector. In the use of conventional protectors that must be screwed on and off, foreign objects are likely to become lodged between the threads on the protector and the pipe, thereby making removal of the protector difficult and even more time consuming. This problem is frequently encountered in oil well forming operations and it will be appreciated that the protector of the invention does not present this problem since removal thereof may be effected by swinging sections 16 apart.

To enable sections 16 to be swung apart to a sufficiently open position for clamping around pipe 12, the flaring ends 18 in the upper 34 and lower 36 regions of the seam or joint on which hinge 20 is mounted, may be formed to incline outwardly and upwardly away from each other as best seen in Figures 1 and 2.

It will be evident that sections 16 may be constructed with configurations at their ends other than the flared arrangement 18 shown. For example, these ends may be of other form defining radially outwardly extending annular flanges or beads, however, it is preferred that they still define the annular recess 32 for receiving the hinge means 20 and fastening means 26 whereby both of these means will not project outwardly beyond the flange.

Numerous other types of hinge structures and releas-

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able fastening means may be substituted respectively for hinge 20 and fastening means 26, as will be evident to those skilled in the art. Additionally, the pin 22 of hinge 20 may take the form of pin 30, for example, whereby the hinge 20 and means 26 may then be alternatively utilized as the hinge or the releasable fastening means. That is to say, the protector will then be completely symmetrical so that the pin in hinge 20 may be removed and the sections 16 swung about the axis of pin 30, or vice versa.

It will thus be seen that the objects of this invention have been fully and effectively accomplished. It will be realized, however, that the foregoing specific embodiment has been shown and described only for the purpose of illustrating the principles of the invention and is subject to extensive change without departure from such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the appended claims.

I claim:

1. A protector for external threads on a pipe or the like, said protector comprising: an internally threaded cylindrical sleeve, said sleeve being axially split into two sections, means hingedly connecting said sections together, means detachably fastening said sections in closed position, said sections having radially outwardly extending end portions, said end portions defining an external annular recess in said sleeve, said hingedly connecting means and said fastening means being disposed in said recess, and said ends extending radially outwardly at least as far as both of said means.

2. The structure defined in claim 1 wherein said end portions define continuous annular rims, and wherein said hingedly connecting means and said fastening means are diametrically opposed on said sleeve.

3. A thread protector for external threads on a pipe or the like including: an internally threaded sleeve, said sleeve having a cylindrical body portion and radially outwardly flaring ends, said ends defining annular rims for said sleeve, said sleeve being split axially into two semi-cylindrical sections, external means hingedly connecting said sections together along an axial seam thereof, detachable and external latch means connecting said sections together along the opposite axial seam thereof, and both of said means being disposed radially inwardly of the extremities of said rims.

4. The structure defined in claim 3 wherein said hingedly connecting means and said latch means are diametrically opposed on said sleeve.

5. A thread protector for external threads on a pipe or the like, said protector comprising: a generally cylindrical and internally threaded sleeve, said sleeve being split axially into two sections, hinge means at one edge of each of said sections connecting said sections together for swinging movement on an axis parallel to the axis of said sleeve, means at the other edge of each of said sections detachably connecting them together to define said sleeve, each of said sections including a cylindrical body portion and ends flaring radially outwardly substantially the same distance to define annular rims at either end of said sleeve, said rims being located at least as great a radial distance from the axis of said sleeve as any other part associated therewith.

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