June 5, 1928. 1,672,694

P. J. SHRUM

METHOD OF MAKING THREAD PROTECTORS

Filed Jan. 9, 1926 2 Sheets-Sheet 1

Fig. 1.

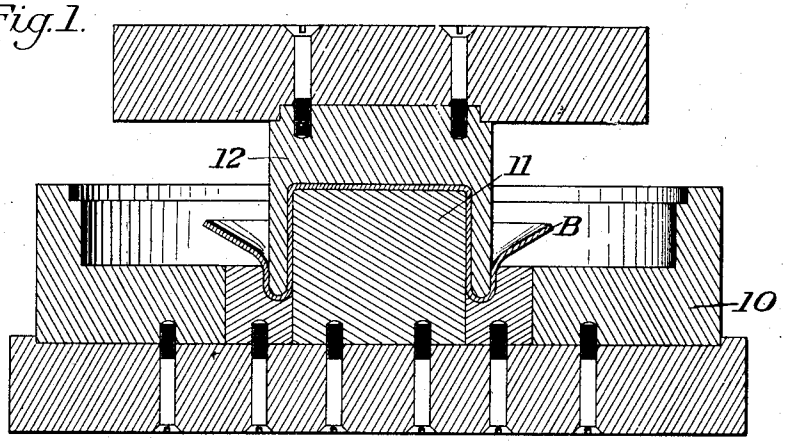
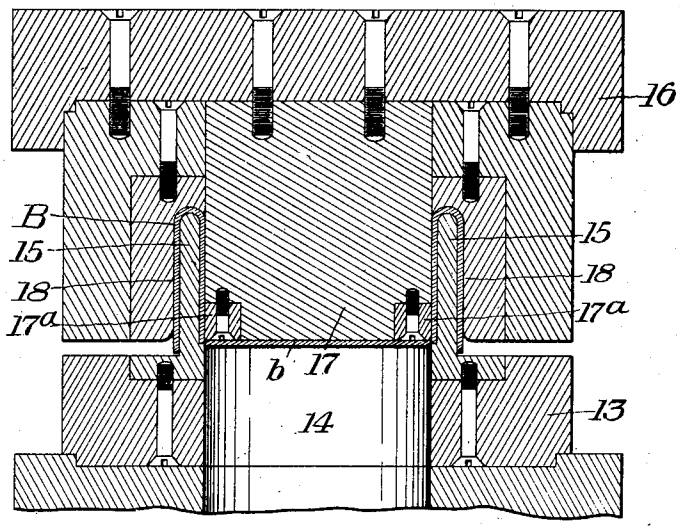


Fig. 2.



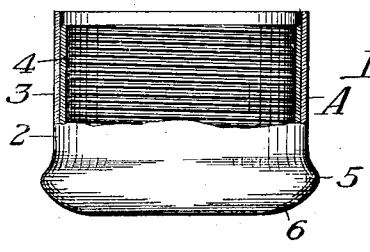


Fig. 5.

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Fig. 3.

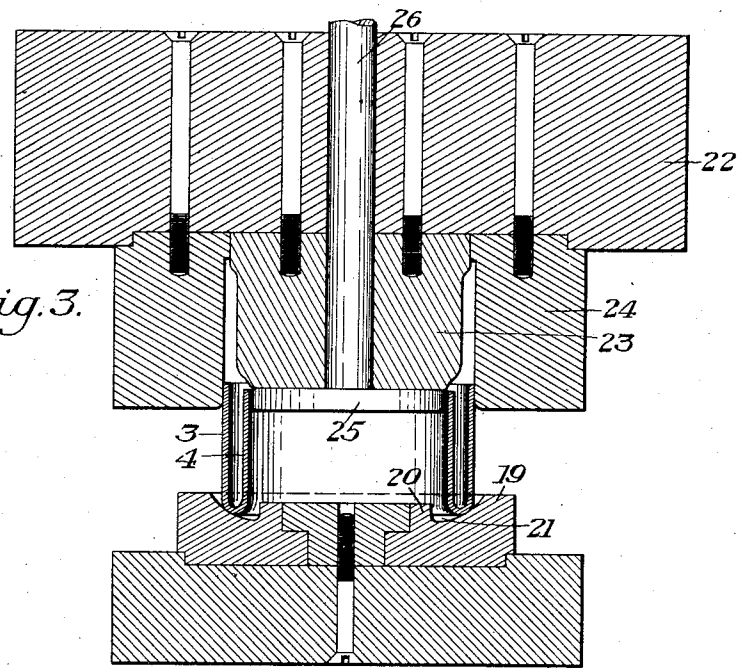
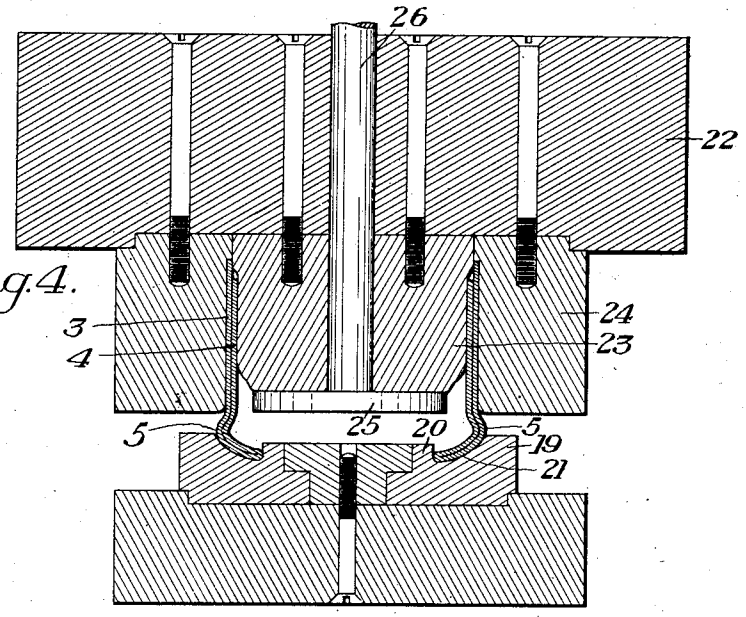


Fig. 4.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING THREAD PROTECTORS.

Application filed January 9, 1926. Serial No. 80,373.

This invention relates to a method of making thread protectors for the protection of threads on the ends of pipes, conduits, and the like.

Thread protectors most commonly in use at the present time are formed from a length of tubing bent to shape and threaded. According to the present invention it is proposed to provide a novel method of producing a thread protector stamped from flat sheet metal whereby an improved protector may be manufactured at a cost considerably less than the cost of those produced from metal tubing.

It is a further object of the present invention to provide a method of making a thread protector of sheet metal having seamless walls of double thickness by means of which the protector may be made of fairly light stock and yet possess the desired rigidity. At the same time, such a double-wall construction is slightly resilient, whereby the device may function more effectively to protect the threads.

The invention may be readily understood by reference to the accompanying drawings which illustrate a preferred form of protector and a method of producing the same, but to the particular construction and practice of which my invention is not confined.

In the drawings,—

Figure 1 is a vertical section through a forming die illustrating the first step in the manufacture of the protector;

Figure 2 is a similar view through a second die, illustrating the second forming operation;

Figures 3 and 4 are vertical sections through a third die, illustrating the last step in the shaping of the protector;

Figure 5 is a view partly in section and partly in elevation of a protector embodying and made in accordance with my invention.

Referring first to Figure 5, the novel thread protector may be first described. The protector illustrated is of the general form shown in my Patent No. 1,475,032 of November 20, 1923. It consists of a body A formed of a single piece of sheet metal having a cylindrical side wall portion 2 of double thickness, the outer thickness of metal 3 preferably projecting beyond the end of the inner thickness, 4, as shown. Near its outer end, the walls of the protector bulge outwardly, as indicated at 5, and then turn inwardly (see also Figure 4) to provide an inturned flange 6. The two thicknesses of metal unite at the inner edge of this flange. The inner cylindrical wall 4 is threaded, as shown.

By reference to Figures 1 to 4 inclusive of the drawings, the preferred manner of forming the protector may be understood. In these figures, the blank from which the body of the protector is formed will be designated as B.

According to the preferred method of manufacture, a suitable blank or disk B, is supported on a fixed die member 10 having a central forming portion 11. A pressing die 12 is then lowered into cooperation with the lower die, and the blank is pressed to the shape indicated in Figure 1. The partially pressed blank is then transferred to a second supporting die 13 having a central opening 14 and a forming flange 15, the position of the blank in the second die being inverted with respect to its position in the first die. The second die 13 cooperates with a pressing die 16 having a central plunger 17 about which is a recess 18. When the partially formed blank is set in position on the part 14 of die 13, and the pressing die 16 lowered, the blank B is folded to the shape shown in Figure 2. At the same time, a shearing element 17^a on the plunger 17 serves to cut out the central portion b of the blank B. The blank is then in the form of a double-walled annulus having the inner and outer walls spaced apart.

The blank as thus developed is then placed on a third die 19 in a position inverted with respect to the position shown in Figure 2. This die has a central portion 20 about which is an annular trough 21, the vertical side of the central portion 20 forming the inner face of the trough or channel. Cooperating with this die is a forming die 22 having a plunger 23 with a tapered end. Surrounding this plunger is a die member 24. When the plunger 23 is lowered into a blank resting on die 19, as shown in Figure 3, the inner wall of the blank is forced out against the outer one, while, in the same operation, the folded lower end of the blank is curled in and an

intermediate portion of the blank near the lower end bulged outwardly under pressure to form the part 5 of the protector.

Associated with the die 22 is a stripper 25 operable through a rod 26 for stripping the pressed blanks from the plunger 23. The blanks, after being pressed to this shape, are finished, except for threading. They may be threaded in the usual manner, the outward bulge in the blank allowing clearance for the forward end of the threading tool so that the thread may be formed over the entire cylindrical inner area of the inner wall 4.

The protector, while being of a double thickness of metal, is in one piece and is seamless. The projecting or longer edge of the outer portion will extend over and protect the very innermost threads on a piece of pipe. Being pressed of sheet metal, there will be some give or resilience to the protector, so that it will better serve to protect the threads onto which it is screwed.

The herein described method of manufacture is simple and provides a cheap and rapid method for the production of protectors of an improved type.

I claim as my invention:

1. The method of forming thread protectors which consists in pressing a flat blank of sheet metal into a double-walled cylindrical form, then forcing the two walls together, and then turning one end of the resulting form inwardly to provide an inturned flange portion and also expanding said form between its ends.

2. The method of forming thread protectors which consists in pressing a flat blank of sheet metal into the form of a double walled cylinder wherein the two walls are connected at one end of the cylinder, then forcing the walls together and turning the portion of the cylinder which connects the two walls inwardly to provide an inturned flange.

3. The method of forming thread protectors which consists in pressing a flat sheet into the form of a double walled cylinder having an integral disk closing at one end and punching away this disk, then squeezing the double walls of the cylinder together, and then upsetting the cylinder to turn one end thereof inwardly and to expand it near such inturned end.

4. The method of making thread protectors which consists in pressing a flat blank into a double wall cylindrical form, wherein the two walls are connected at one end of the cylinder and then in subjecting the cylindrical forms to pressure to force the walls together and to expand the resulting form adjacent the connected end.

5. The method of making thread protectors which consists in pressing a flat blank into a cylindrical form having an inner and outer wall, the said walls connected together at one end of the cylinder and the outer wall extending beyond the inner wall at the other end of the cylinder, in expanding the walls adjacent the connected end of the cylinder and turning the connected end of the cylinder inwardly to provide an inturned flange.

In testimony whereof I have hereunto set my hand.

PETER J. SHRUM