May 24, 1938. C. S. CRICKMER 2,118,497

TUBING CATCHER

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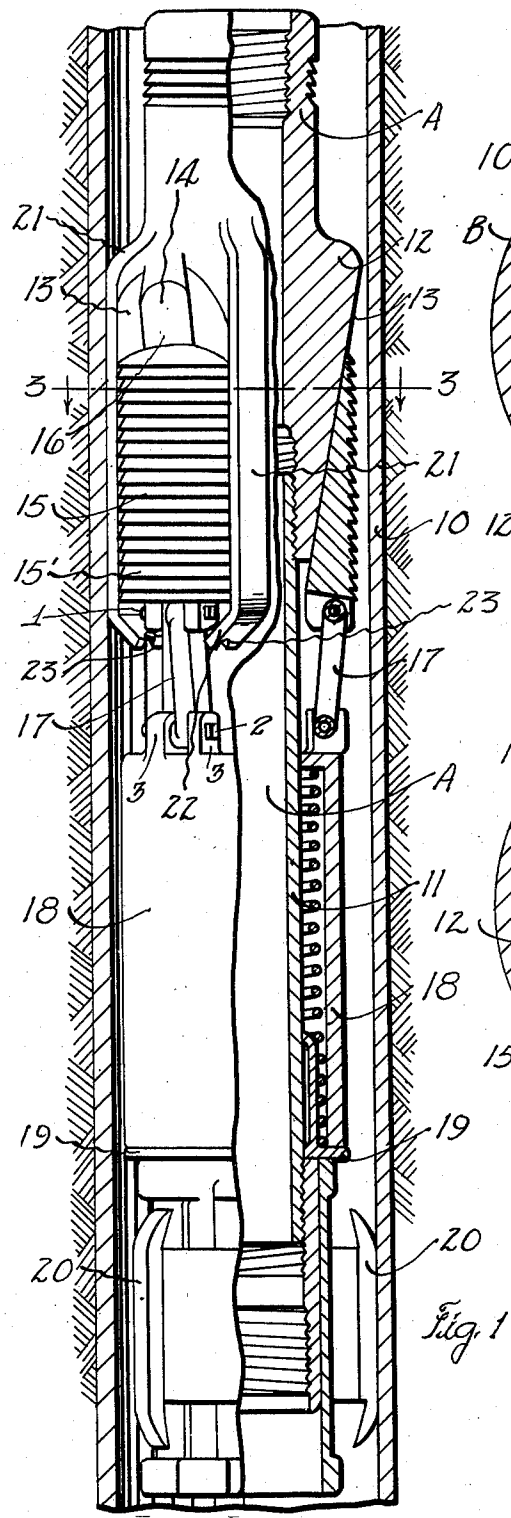


Fig. 1

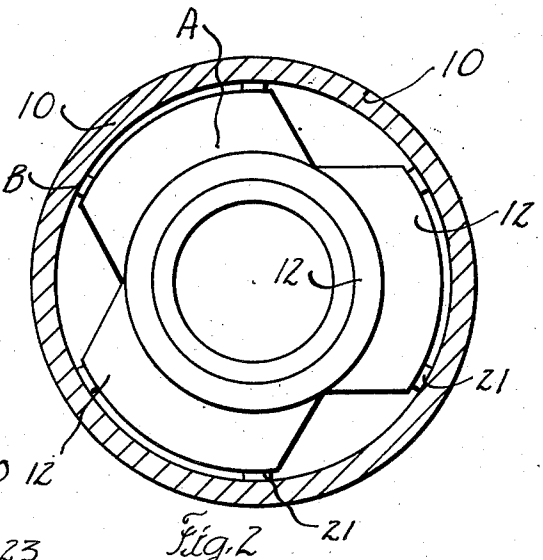


Fig. 2

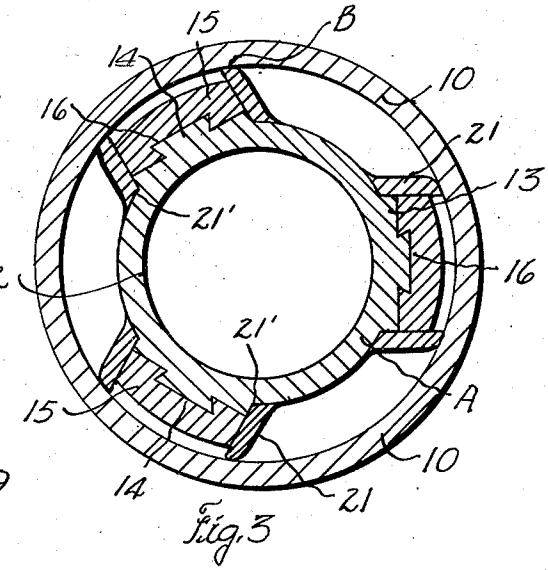


Fig. 3

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TUBING CATCHER

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5 Claims. (Cl. 103—219)

This invention relates to new and useful improvements in tubing catchers.

One object of the invention is to provide a tubing catcher having improved means for protecting the gripping slips which are slidably mounted thereon.

An important object of the invention is to provide guard members or bars which are disposed vertically on each side of each gripping slip of a tubing catcher, and which have their lower ends curved inwardly around the bottom of the slips, so that when the catcher is located within a well casing the slips are protected from the paraffin within the well casing, whereby danger of said paraffin forcing the slips upwardly into an engaged position is eliminated.

Another object of the invention is to provide guard members which are disposed on each side of each gripping slip of a tubing catcher, and which extend radially from the head of said tubing catcher sufficient distance so that their outer edge is beyond the teeth of the slip when said slip is in a lowered position, whereby said teeth are protected against danger by the interior couplings of the well casing during the lowering of the catcher within a casing.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing, in which an example of the invention is shown, and wherein:

Figure 1 is a view partly in elevation and partly in section of a tubing catcher having the guard members constructed in accordance with the invention mounted thereon,

Figure 2 is a plan view, and

Figure 3 is a horizontal cross-sectional view taken on the line 3—3 of Figure 1.

In the drawing, the numeral 10 designates a well casing in which the tubing catcher A is arranged to be entered in any suitable manner. The catcher comprises a mandrel 11 having a slip head 12 of the usual construction secured to its upper end. The slip head is provided with a trio of inclined guide faces 13 which are spaced equally around the head. Each guide face is provided with a central dovetail rib 14 which extends throughout its vertical length. Gripping slips 15 have their inner faces formed with a complementary dovetail groove 16 which is arranged to engage the rib 14 whereby the slip is slidable vertically on the inclined face 13. It is obvious that when the slips are in a lowered position the gripping teeth 15' thereof, are out of engagement with the inner wall of the casing 10. When the slips move upwardly on the inclined face, they are expanded radially to engage the casing wall.

The lower end of each slip is connected by a link 17 to the upper end of a spring pressed weight 18 which is supported on an annular shoulder 19 surrounding the mandrel 11. Resilient friction shoes 20 are located at the lower end of the catcher and engage the wall of the casing 10. All of the parts described above are present in the ordinary catcher and operate in the usual way. Therefore, they are subject to variation.

In carrying out the invention, a pair of elongated guard members or bars 21 are secured to the head 12 on each side of each gripping slip 15. As clearly shown in Figures 1 and 3, the members are merely flat bars which have their inner ends 21' welded or otherwise secured to the head, whereby they extend radially from said head. Each bar is of such width as to permit a clearance space B between its outer edge and the inner wall of the casing 10 when the catcher is entered into the casing. Due to this width, it will be seen that when the slips are in a retracted or lowered position, the outer edges of the bars extend beyond the teeth 15' of the slips, whereby the bars serve as a guard to prevent said teeth from engaging the couplings of the well casing as the catcher is moved downwardly through the casing. This eliminates danger of any damage to the teeth from such contact. Further, since the outer edges of the bars are in close proximity to the casing wall, said bars serve to guide the catcher axially through the casing.

The lower end of each bar is bent inwardly as clearly shown at 22 (Figure 1), so that this bent portion extends beneath the bottom of the slip 15. A notch or groove 23 is provided between the meeting ends of the portions 22 so as to receive the projecting end of the bolt 2 which extends through the ears 3 and which serves as a means to connect the link 17 to the weight 18, the said link being connected at its upper end to the slip 15 by means of a bolt 1. When the weight 18 is raised relative to the bars 21 the projecting end of the bolt 2 would pass through the groove 23. With the slips in a lowered position, it is obvious that paraffin which may accumulate within the well casing is prevented from contacting the bottom of the slips. It has been found that this paraffin accumulation in

some cases is so great that it will force the slips upwardly to their set position. By providing the bent portions **22** of the bars **21**, the bottom of the slips are protected against this paraffin, whereby danger of the slips being set thereby is entirely eliminated.

It is pointed out that the structure is simple and cheap in manufacture. The bars **21** may be of any desired length and preferably extend upwardly the entire length of the head. It would be possible to make said bars integral with the head instead of welding, and it is to be clearly understood that the method of attaching said bars is optional. Since the outer ends of the bars extend beyond the teeth **15'** of the slips **15** when the latter are in a retracted position, said bars not only protect the teeth from damage from interior couplings, but also serve to guide the catcher axially through the casing.

What I claim and desire to secure by Letters Patent is:

1. A well tubing catcher including, a support, longitudinally elongated gripping slips mounted to slide vertically on the support and arranged to be expanded radially into gripping engagement with a well casing when slid upwardly, said slips having parallel longitudinal side portions, and guard members extending radially from the support and disposed vertically on each side of each slip, said members comprising bars attached to the support on opposite sides of each slip and having their lower ends bent inwardly beneath the slip, whereby, when the slip is in a lowered or retracted position, said members serve to guide the support as well as protect the slip from contact with paraffin within the well casing.

2. A well tubing catcher including, a support, gripping slips mounted to slide vertically on the support and arranged to be expanded radially into gripping engagement with a well casing when slid upwardly, and a pair of flat bars welded to the support and extending radially therefrom, the bars being disposed one on each side of each slip and lying parallel to the side faces of each slip, said bars having their lower ends bent inwardly beneath the bottom of the slip, whereby when the slip is in a retracted position, it is protected from contact with paraffin in the casing.

3. A well tubing catcher including, a support, toothed gripping slips mounted to slide vertically on the support and arranged to be expanded radially into gripping engagement with a well casing when slid upwardly, and a pair of flat bars welded to the support and extending radially therefrom, the bars being disposed one on each side of each slip and lying parallel to the side faces of each slip, said bars having their lower ends bent inwardly beneath the bottom of the slip, whereby the slip is protected from contact with the paraffin within the casing, said bars being of such width that their outer edge extends beyond the teeth of the slip when the latter is in a retracted position, whereby the bars serve as a guard to prevent damage to the teeth through contact with the couplings of the well casing as the catcher is lowered in the well.

4. A well tubing catcher including, a support, toothed gripping slips mounted to slide vertically on the support and arranged to be expanded radially into gripping engagement with a well casing when slid upwardly, and pairs of flat bars welded to the support and extending radially therefrom, the bars being disposed one on each side of each slip and having their lower ends bent inwardly beneath the bottom of the slip, whereby the slip is protected from contact with the paraffin within the casing, said bars being of such width that their outer edge extends beyond the teeth of the slip when the latter is in a retracted position, whereby the bars serve as a guard to prevent damage to the teeth through contact with the couplings of the well casing as the catcher is lowered in the well, the outer edge of each bar being located in close proximity to the inner wall of the well casing so that said bars act to guide the catcher axially through the casing during the vertical movement therethrough.

5. A well tubing catcher including, a support, a head having a trio of inclined sides secured to the support, a gripping slip mounted to slide vertically on each inclined side whereby the slip moves radially with relation to the head, and pairs of flat bars welded to the head and extending radially therefrom, the respective pairs being disposed one bar on each side of each slip and lying parallel to the side faces thereof, said bars having their lower ends bent inwardly beneath the bottom of the slip, whereby when the slip is in a retracted position, it is protected from contact with paraffin in the casing.

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