May 15, 1956 R. E. ROSE 2,745,703

POLISH ROD STEPS

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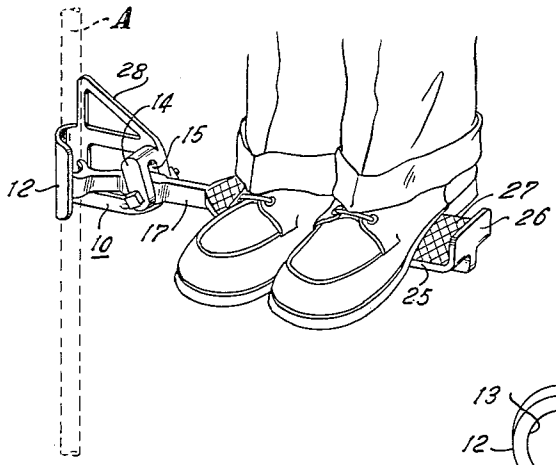


Fig. 1

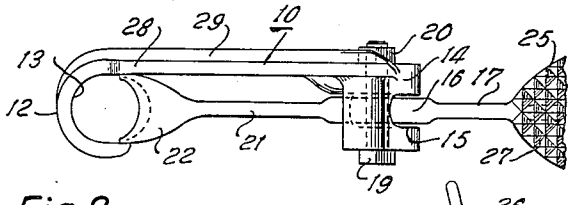


Fig. 2

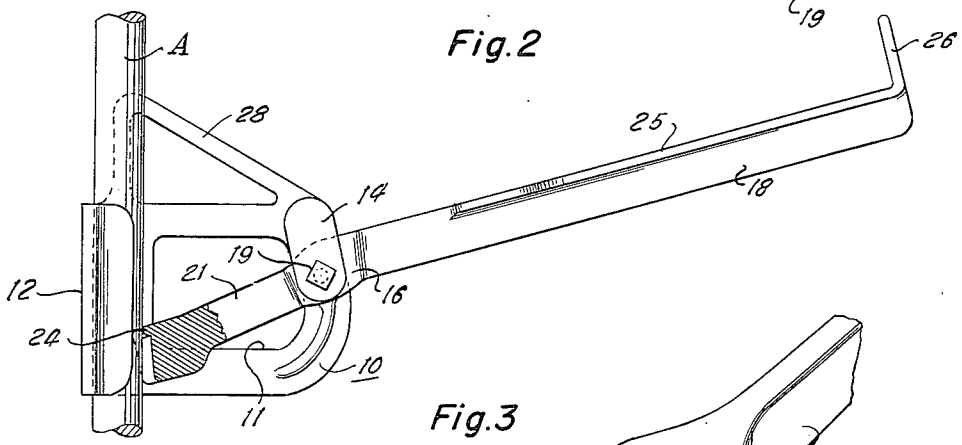


Fig. 3

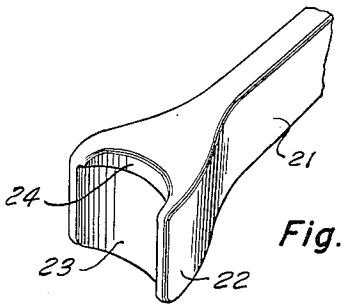


Fig. 5

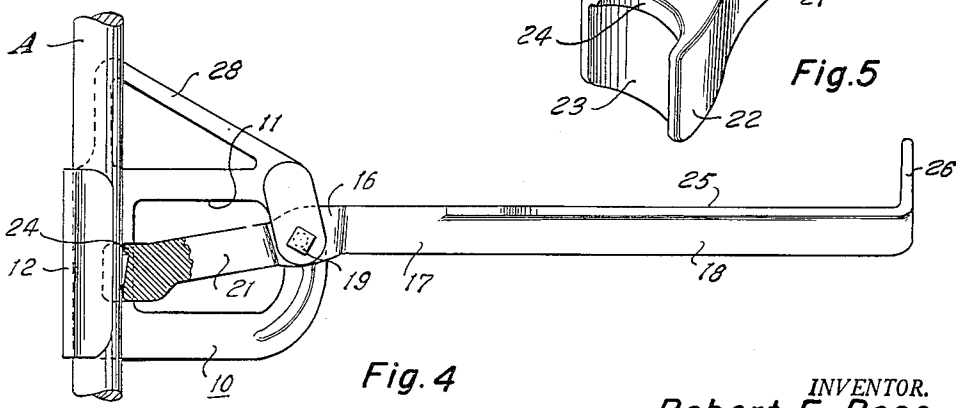


Fig. 4

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POLISH ROD STEPS

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3 Claims. (Cl. 304—28)

This invention relates to new and useful improvements in polish rod steps.

One object of the invention is to provide an improved step which may be readily placed on the polish rod of a pumping well and locked in position on said rod, when a workman desiring to work upon the fixtures at the upper end of the rod, places his feet upon the step.

A particular object of the invention is to provide an improved polish rod step which has a toggle locking action, whereby positive holding on a highly polished and oily surface is obtained without marring said surface.

A further object of the invention is to provide an improved step having a rod engaging member provided with an upstanding, triangular guard on its upper end, disposed to discourage a workman from removing one foot from the step arm and placing it upon the rod engaging member, which would result in shifting his weight and thus loosening the step upon the polish rod.

Still another object of the invention is to provide an improved polish rod step constructed to provide a tight grip upon the rod and including a pivoted step arm having thereon a protrusion located to bind the rod in a hanger and bring the head of the rod into locking engagement with the rod.

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 of the accompanying drawings, wherein an example of the invention is shown, and wherein:

Fig. 1 is a perspective view of a step constructed in accordance with the invention, locked on a polish rod which is shown in dotted lines and the feet of a workman standing upon the step.

Fig. 2 is a plan view of a portion of the step,

Fig. 3 is a side elevation of the step in position on a polish rod, but with the step arm raised and unlocked,

Fig. 4 is a similar view with the step arm lowered and the device locked on the rod, and

Fig. 5 is an enlarged perspective of the face of the locking head.

In the drawings the numeral **10** designates, in general, a bracket or support made of suitable metal and adapted to engage on a polish rod A, such as is used on oil and water wells. The bracket is elongated horizontally or has its greatest length longitudinally thereof and has its central portion open, as is indicated at **11** which tends to reduce its total weight. At its left-hand end, when in a horizontal position and as viewed in the drawings, the bracket has an upright hanger **12** which extends vertically of the left-hand or outer end of said bracket. This hanger has an inner vertical gripping face **13** which is substantially U-shaped in cross-section and merges on its inner side into the adjacent surface of the bracket, so as to snugly engage around the polish rod.

The right-hand or inner end of the bracket, a flat inverted yoke **14** extends outwardly from the upper portion of said bracket and is preferably integral with the bracket. This yoke, which in effect is overhanging, has a flat-sided opening **15**, and the flat-sided bearing boss **16** at the outer end of the shank **17** of a step arm **18**, is journaled in the opening **15** on a pivot bolt **19** passing transversely through the yoke and the boss and secured by a nut **20**.

The arm **18** is continued from the boss **16** in the form of a downwardly inclined finger or extension **21** which is merged at its outer end into a locking head **22** having an upright transversely curved face **23**. At the top of the face is a protruding arcuate bead or grip **24**, extending thereacross. When the arm is swung downwardly to an approximately horizontal position, the grip engages the polish rod and holds the step arm **18** in supporting position. A step plate **25** is cast medially along the upper edge of the arm and has an upstanding guard **26** at its outer end.

The upper surface of the step is roughened or serrated, as indicated at **27** in Fig. 1. A workman standing on the step engages his insteps on the surface **27** with his heels against the edge of said step as is shown in Fig. 1. A triangular guard **28** is cast upon the bracket and functions to discourage the workman from placing his foot upon the bracket and thus shifting his weight from the step plate **25**. Reinforcing ribs **29** are cast along the back face of the bracket.

The operation of this step is unique and important. It will be observed that the distance from the pivot bolt **19**, on which the arm **18** swings, to the surface of the bead **24** is slightly greater than the distance from said bolt to the imaginary line between said bead and the bottom edge of the face **23**, and consequently, a toggle action is had. When a man's weight is imposed on the step **25**, the grip is swung into engagement with the polish rod A. This causes the hanger **12** to be drawn tight around the rod (Fig. 3). Continued weight or downward pressure on the step, gives a snap action whereby the grip **24** which is tightly binding on the surface of the rod rides upwardly past a dead center position until the bottom edge of the curved face **23** rides into binding engagement with the rod (Fig. 4). This locks the step in position and holds it firmly against displacement. The device is readily removed by swinging the arm **18** upwardly which moves the finger **21** and head **22** downwardly, whereby the hanger **12** may be disengaged from the rod. While the grip **24** and the head face **23** are shown as transversely curved, these elements may have other forms.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

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

1. A polish rod step including, a support, an upright hanger on the support having a vertically-extending concave face for receiving a polish rod, a step arm pivotally mounted on the support at a point spaced laterally from the hanger and in horizontal alinement with the hanger, an extension carried by the arm and projecting from the pivot point of the arm toward the concave face of the hanger for engaging and clamping a polish rod in engagement with the hanger face, the end of said extension being formed with a rod-engaging face, and a transverse bead on the upper portion of the latter face spaced further from the pivot point of the arm than the imaginary line between the apex of the bead and the lower margin of the rod-engaging face of the extension, whereby as the extension is swung upwardly into engagement with a polish rod a toggle action is obtained

in forcing the extension upwardly past initial engagement of the bead with the polish rod to bring the apex of the bead and the lower margin of the rod-engaging face of the extension into clamping engagement with the rod.

2. A polish rod step as set forth in claim 1, wherein the upper margin of the support is inclined from a point above the hanger downwardly to a point above the pivot point of the arm, whereby a workman is prevented from standing on the support and the foot of the workman will automatically be shifted outward to the step arm.

3. A polish rod step as set forth in claim 1, wherein the rod-engaging face of the extension is transversely curved for conforming to the surface of a polish rod, and the transverse bead on the upper portion of said face is correspondingly curved in a transverse direction.

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