Oct. 8, 1940. J. D. NIXON 2,217,072

SLIP SUPPORTING DEVICE

Filed Sept. 17, 1937 2 Sheets-Sheet 1

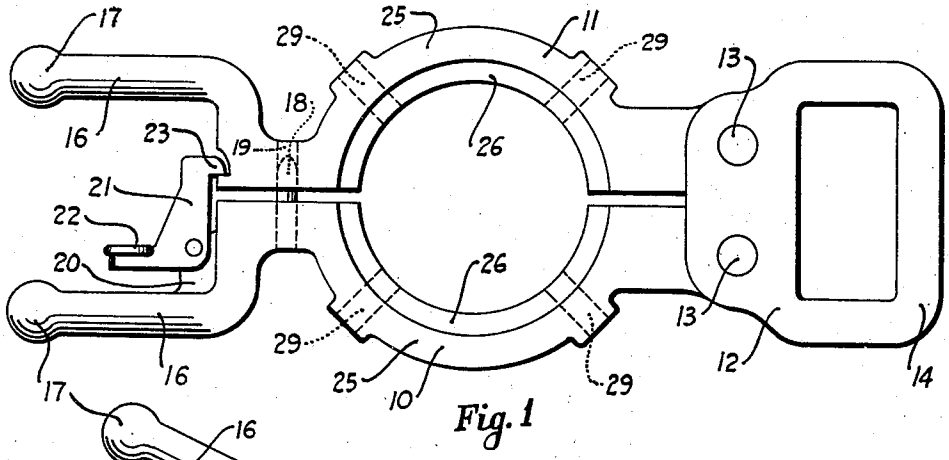


Fig. 1

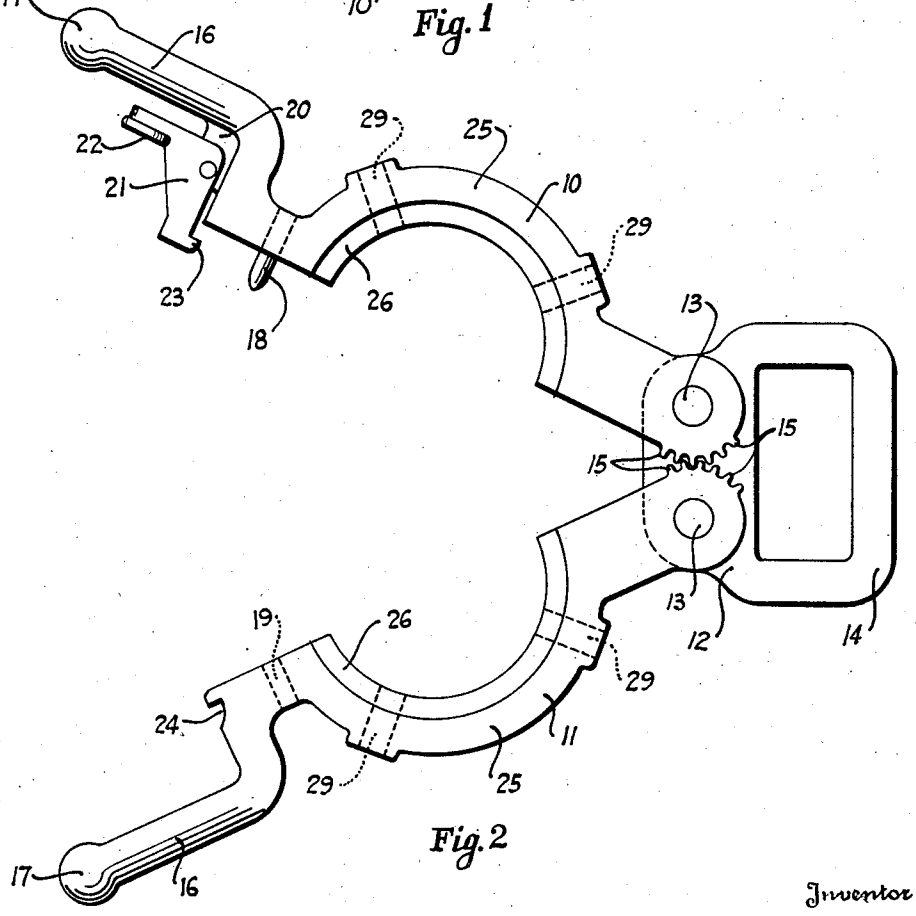


Fig. 2

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SLIP SUPPORTING DEVICE

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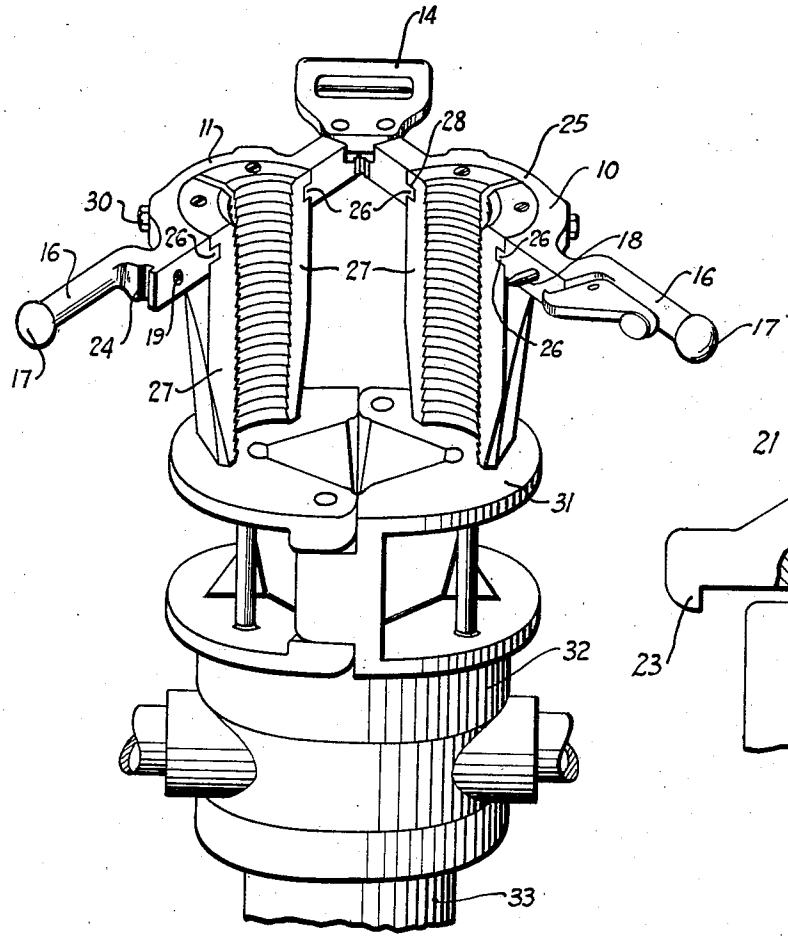


Fig. 3

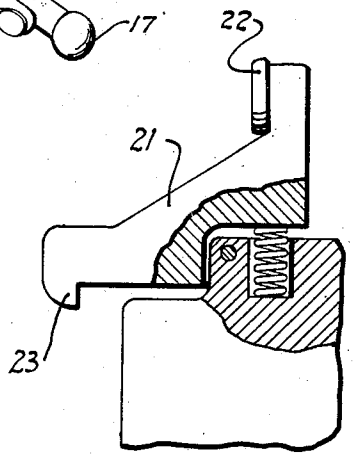


Fig. 5

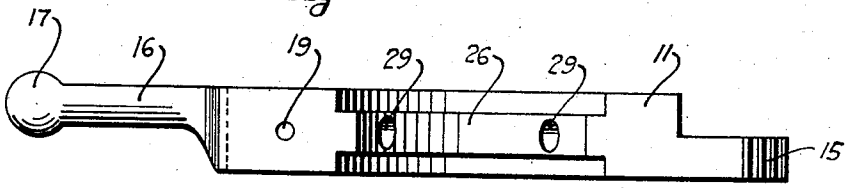


Fig. 4

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Patented Oct. 8, 1940 2,217,072

UNITED STATES PATENT OFFICE

2,217,072

SLIP SUPPORTING DEVICE

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Application September 17, 1937, Serial No. 164,329

3 Claims. (Cl. 24—250)

This invention relates to new and useful improvements in slip supporting devices.

One of the main disadvantages with the ordinary slip supports, now in common use, is that they are not balanced. This is due to the fact that the handle members or sections cannot be opened to the same degree and, thereby become unbalanced on one side, which causes them to topple over or upset when resting upon the bushing or bowl. Frequently, the handgrip is made integral with one of the sections and offset with relation to the handles which swing the sections. Obviously, such arrangement would unbalance the device when the sections are swung apart.

One object of the invention is to provide an improved slip support having the sections thereof pivoted and so connected as to swing simultaneously, each to the same degree when the sections are opened, whereby the support is balanced and will not be easily upset or topple over when resting upon the slip bowl or bushing.

Another object of the invention is to provide a slip support having a handgrip to which the sections are pivoted, whereby said sections swing independently of the hand grip, thus permitting the latter to remain stationary and to maintain its balance with respect to the device.

A further object of the invention is to provide a slip support having a hand grip remaining stationary when the sections of said support are swung and which is readily available, so that when needed a workman may quickly grasp the same, whereby his work is made safer and easier.

Still another object of the invention is to provide a slip support having an automatic latch, so that when the sections are swung together, the latch will fasten and lock said sections together, whereby should the string of pipe bounce or move upwardly, which ordinarily would release the slips, said sections will hold said slips in engagement with said pipe and prevent the dropping of said pipe and damage to the same.

A further object of the invention is to provide a slip support having an automatic latch so arranged that upon the handles being gripped by an operator to swing the sections apart, said latch is engaged by the operator's thumb to release said latch, whereby said sections may be readily swung apart and the slips removed from said pipe.

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

Figure 1 is a plan view of a slip supporting device constructed in accordance with the invention, and shown in its closed position;

Figure 2 is a bottom view looking at the opposite side of the slip support from Figure 1 and showing the support in an open position;

Figure 3 is an isometrical view of the slip support in an open position and resting upon the upper surface of a slip bowl and also showing slips fastened within the support;

Figure 4 is a side elevation of one of the sections of the support; and

Figure 5 is a view of the latch partly in section and partly in elevation.

In the drawings the numeral 10 designates one section or arm of the slip supporting device and 11 designates the other arm. It will be seen in Figures 1, 2, and 3 that the arms 10 and 11 each have one end pivoted to a flat bar or yoke 12 by pivot pins 13. For the sake of clarity, the pivoted ends of the arms will be hereinafter referred to as the inner end. The flat bar 12 is provided with a suitable hand hold or grip 14.

The pivoted ends of the arms 10 and 11 are rounded and are provided with intermeshing gear teeth 15, whereby the arms move in unison. It is pointed out that by individually pivoting the arms 10 and 11 to the flat bar 12 and providing the engaging teeth 15, the swinging of the arms is simultaneous and each moves equidistant from the center longitudinal axis of the handle 14. As the arms are swung, the flat bar 12 and handle 14 remain in substantially the same position, no matter to what extent said arms are swung.

The opposite or outer ends of the arms 10 and 11 are formed with offset, longitudinally projecting hand bars or grip 16 having knobs 17 made integral therewith, which knobs prevent an operator's hand from slipping off of the bars 16 when swinging the arms. The section 10 is provided with a dowel pin 18 coacting with a recess or opening 19 in the section 11, so as to facilitate the aligning of the sections, in order that they may be readily latched together. The section 10 also has a boss or ear 20 on which is hinged a swinging latch member 21 having a thumb piece 22 thereon extending contiguous to the bar 16. The latch 21 may be readily swung by the operator grasping the knobs 17 or bars 16 and exerting pressure on the thumb piece 22, whereby the latch member is swung. Said member 21 is formed with an integral bill 23 adapted to engage

a keeper 24, shown as a notch but may be any suitable shape desired, on the section 11, whereby the arms are locked together. Disengagement of the bill from the keeper, unlatches the sections or arms to permit them to be swung apart.

Each section 10 and 11 is provided intermediate its ends with an arcuate portion 25 which is formed internally with an arcuate rib 26, so that when the sections are placed around the usual slip segments 27, the rib 26 will be received by an annular circumferential groove 28 provided in the upper end of the slips. The arcuate portion 25 of each section 10 and 11 and the rib 26 are drilled or formed with radial openings 29, one for each slip segment, and a suitable bolt 30 may be inserted through each opening 29 and threaded through an externally screw threaded opening (not shown) in the periphery of each slip segment 27. The bolt openings 29 are preferably made a little larger than the bolts 30 to be inserted therethrough, in order to permit a small amount of movement of said bolts in said openings. It will be seen that these bolts will draw the slips onto the rib 26 and it is the usual practice that the slips are not drawn tight, but a very small space or an amount of play is left between the slips and the ribs, whereby a certain degree of movement of the slip segments is obtained. The reason for the openings 29 being larger than the bolts 30 and a small amount of play left between the ribs 26 and slips 27, is so that the slip segments may center themselves in the bowl and conform to the inclination thereof and grip the pipe, as well as to straighten out before being placed upon the slip bowl, for supporting the assembly.

In operation, any suitable type of tubing slip bowl 31 is mounted upon a regular casing head 32 on the upper end of the usual casing 33. As will be seen in Figure 3, the slip segments 27 mounted on each arm 10 and 11 of the slip supporting device, by means of the ribs 26 engaging within the annular groove 28 on the upper end of the segments 27, and the bolts 30 extending through the bolt holes 29 which bolts fasten the slip segments to the slip support.

In making up a string of tubing (not shown), the slips 27 are engaged around the upper end of a string of tubing suspended through the tubing slip bowl 31; and the tubing and slips are lowered so that the slips will fit into the bowl and grip the pipe, as is the usual practice. An additional joint or section of tubing may then be screwed onto the upper end of the string of tubing, and then said string is lifted, whereby the slips and slip support are carried upwardly. When the slips have moved sufficiently above the bowl 31, a workman may open the same by swinging them apart and placing them upon the upper face of the bowl 31. The tubing string may then be lowered and the making up of said string continued.

With the slip assembly resting upon the bowl, as shown in Figure 3, it will be seen that said assembly is in a very convenient position so as to be readily applied at any time to the tubing string. When it is desired to again use the slip assembly, a workman grasps the handles 16 and knobs 17 and if desired, a second workman may grasp the hand hold 14, and the slip support and slips thereon are closed around the tubing and the swinging latch 21 engaged to hold them in that position. The tubing string may now be lowered until the slips seat within the bowl and the tubing string is again securely gripped by the slip segments preventing a further downward movement of said string.

In unlatching the arms of the slip support prior to swinging them apart, the operator or workman grasps the handles 16 and knobs 17 and in doing so places his thumb upon the thumb piece 22 of the latch member 21, which moves said latch and lifts the bill 23 out of engagement with the keeper 24. The arms are now ready to be swung apart when desired, and as the arms are swung, the meshing of the gear teeth 15 causes said arms to move simultaneously, so that each moves to a point equidistant from the central axis of the handle 14. The flat bar 12 and handle 14 remain in substantially the same position, whereby it will be seen that swinging the arms apart will not affect the balance of the slip support. Attention is called to the fact that the slip support balances on the lower edge of the slip segments in any position from an opened position to a completely closed one, and is pointed out that the handle 14 is always in position so as to be readily available when needed. In Figure 3, it will be seen that a workman may quickly grasp the handle 14 due to the fact that the handle remains substantially stationary and his work is made safer and easier with the resultant speeding up thereof.

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

1. In a slip assembly, the combination of a pair of elongate members, a hand element for manually supporting one end of the assembly and to which the ends of said members are pivoted in common, cooperating means on the pivoted ends of said members for swinging said members in unison, whereby said members are balanced with respect to said hand element when said members are swung apart, and slips carried by and depending from said members.

2. In a slip assembly, the combination of a pair of elongate members, a hand element for manually supporting one end of the assembly and to which the ends of said members are pivoted in common, cooperating means on the pivoted ends of said members for swinging said members in unison, whereby said members are balanced with respect to said hand element when said members are swung apart, thumb operable means for fastening said members together, and slips carried by and depending from said members.

3. In a slip assembly, the combination of a pair of elongate members, a hand element for manually supporting one end of the assembly and to which the ends of said members are pivoted in common, cooperating means on the pivoted ends of said members for swinging said members in unison, whereby said members are balanced with respect to said hand element when said members are swung apart, a swinging latch on one member adjacent the handle thereof for engaging the swinging end of the other member and fastening said members together, a thumb piece on said latch adjacent said handle, whereby said thumb piece may be readily engaged whenever said handles are gripped to swing said members, and slips carried by and depending from said members.

JEDDY D. NIXON.