

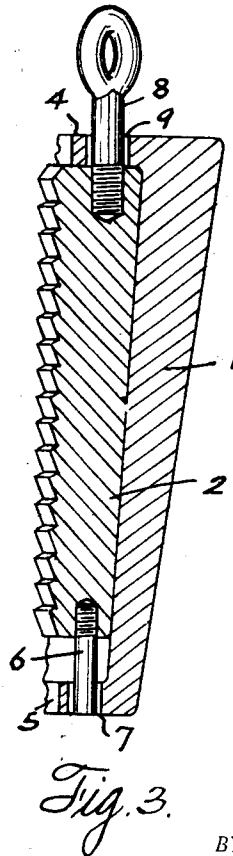
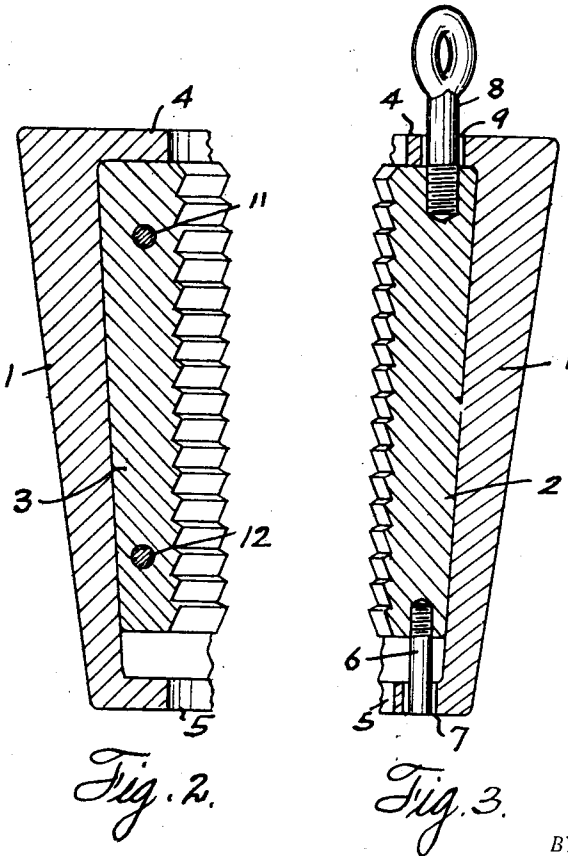
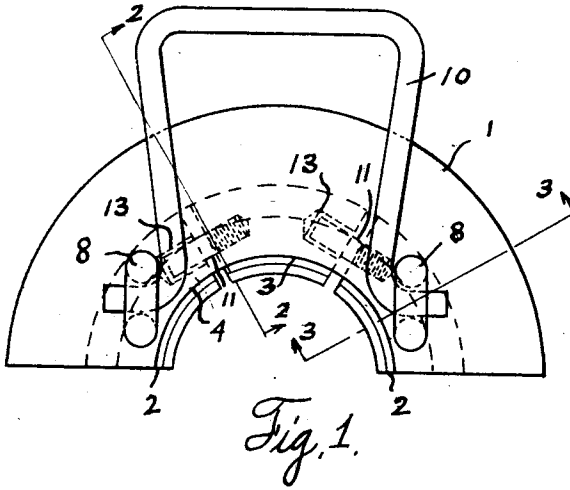
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W. G. CHRISTIAN

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SHIP

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SLIP.

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This invention relates to new and useful improvements in a slip.

One object of the invention is to provide a pipe engaging slip adapted to seat in the opening of a rotary table of a rotary drilling machine and engage with the drill stem, or other pipe, extending through said opening into a well bore, to hold said stem, or pipe, suspended in the bore.

Another object of the invention is to provide a slip, of the character described composed of a plurality, preferably two, of sections, each section having a plurality of independent pipe engaging segments capable of independent circumferential movement and movable simultaneously vertically and radially.

A further object of the invention is to provide a slip of the character described which is easily released from the pipe or drill stem.

A still further feature of the invention resides in a slip comprising a plurality of sections, each section having a plurality of segments and a handle connected to the segments in a novel manner, and through which the section may be bodily moved or handled.

With the above and other objects in view this invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:—

Figure 1 shows a plan view of one section of the slip.

Figure 2 shows a sectional view taken on the line 2—2 of Figure 1, and

Figure 3 shows a sectional view taken on the line 3—3 of Figure 1.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 designates a segment holder, arcuate in cross sectional contour and whose outer side tapers downwardly to conform to and seat in the downwardly converging, pipe receiving opening, of the conventional rotary table of any well known type of rotary drilling machine. Within this holder are the end segments 2 and the intermediate segment 3, there being a plurality, preferably three, of segments in each holder. Each holder with its segments, con-

stitute a section of the complete slip. It is to be understood that a complete slip comprises, preferably two sections complementary to each other, and which, when assembled in the rotary table opening, surround and grip the stem or pipe to be suspended.

Each holder 1 has the upper and lower arcuate inwardly extending flanges 4 and 5 between which the segments 2 and 3 are located and the segments are of such lengths as to have a limited amount of vertical movement between said flanges. There are pins 6 secured to the lower ends of the segments 2 which work loosely through the bearings 7 in the lower flanges 5 and eyebolts 8, 8, work loosely through bearings 9, 9, of the upper flanges 4 and are connected to the upper ends of these segments 2.

There is a bail 10 for each section of the slip. This bail is U-shaped with the free ends of its arms outturned and working through the eyes of the eyebolts 8. This bail forms a handle through which its section may be bodily handled, as a unit.

The inner face of each segment is shaped to engage the suspended pipe, and the outer side of each segment tapers downwardly to conform to the downward taper of the inner side of the corresponding holder 1.

Upper and lower dowel pins 11 and 12 are provided to support the intermediate segment 3 in substantially transverse alignment with the segments 2. These pins may be anchored to one of these respective segments and project into sockets as 13, in the opposing face of the other segments in which said projecting ends fit loosely. The segments are thus permitted to move circumferentially relative to each other in the holder, but move substantially in unison, vertically and radially.

When the slip sections are held by the handles 10 the segments will be held in upper position relative to their holders with their upper ends abutting the flanges 4. In this position the complementary sections of the slip are simultaneously seated in the rotary table opening around the pipe while said pipe is suspended by a cable and tackle block from the derrick, in the usual way. As the pipe is now lowered the segments will engage it and move downwardly in the holders, meanwhile moving inwardly and wedging between the pipe and the slip

holders 1, until the load of the pipe is completely assumed by the slips and the pipe is held suspended in the bore.

What I claim is:

5 1. A slip composed of a plurality of independent sections, each section including a holder whose outer and inner surfaces taper downwardly, upper and lower abutments on the inner face of said holder, a plurality of
10 pipe engaging segments between said abutments and having a limited vertical movement with respect thereto, the lower ends of said segments and the opposing lower abutment being provided, one with pins and
15 the other with bearings through which said pins work.

2. A slip composed of a plurality of independent sections, each section including a holder whose outer and inner surfaces taper
20 downwardly, upper and lower abutments on the inner face of said holder, a plurality of segments between said abutments and having a limited vertical movement with respect thereto, said upper abutment having
25 bearings, a bail and means working through said bearings and connected to the segments beneath and having a pivotal connection with the respective ends of said bail.

3. A slip composed of a plurality of independent sections, each section including a holder whose outer and inner surfaces taper
30 downwardly, upper and lower abutments on the inner face of said holder, a plurality of segments between said abutments and having a limited vertical movement with respect thereto, the lower ends of some of said
35 segments and the opposing lower abutment being provided, one with pins and the other with bearings through which said pins work,
40 the upper abutment having bearings, a bail,

and means working through said upper bearings and connected to the segments beneath and having a pivotal connection with the respective ends of said bail.

4. A pipe holding slip composed of a plurality of independent sections, each section
45 including a holder whose outer and inner sides converge downwardly, upper and lower inside abutments in each holder, and a plurality of wedge shaped segments arcuate in cross section between said abutments
50 and whose inner surfaces are shaped to engage said pipe, means retaining some of said segments in said holder, dowel pins between the segments so retained and the adjacent
55 segment, each dowel pin being anchored at one end to one of said segments and the opposing face of the adjacent segment having a socket into which the other end of said
60 pin fits loosely.

5. A pipe holding slip composed of a plurality of independent sections, each section
65 including a holder whose outer and inner sides converge downwardly, upper and lower inside abutments on each holder, a plurality of wedge shaped segments arcuate in cross section whose inner faces are shaped
70 to engage said pipe, means retaining some of said segments in said holder, dowel pins between the jaws so retained and the adjacent segment, each dowel pin being anchored at one end to one of said segments
75 and the opposing face of the adjacent segment having a socket into which the other end of said pin fits loosely and a handle flexibly connected to the end segments of said section.

In testimony whereof I have signed my name to this specification.

WALTON G. CHRISTIAN.