April 5, 1932. M. W. CARROLL 1,852,695

PIPE HOLDER

Filed Nov. 8, 1929 2 Sheets-Sheet 1

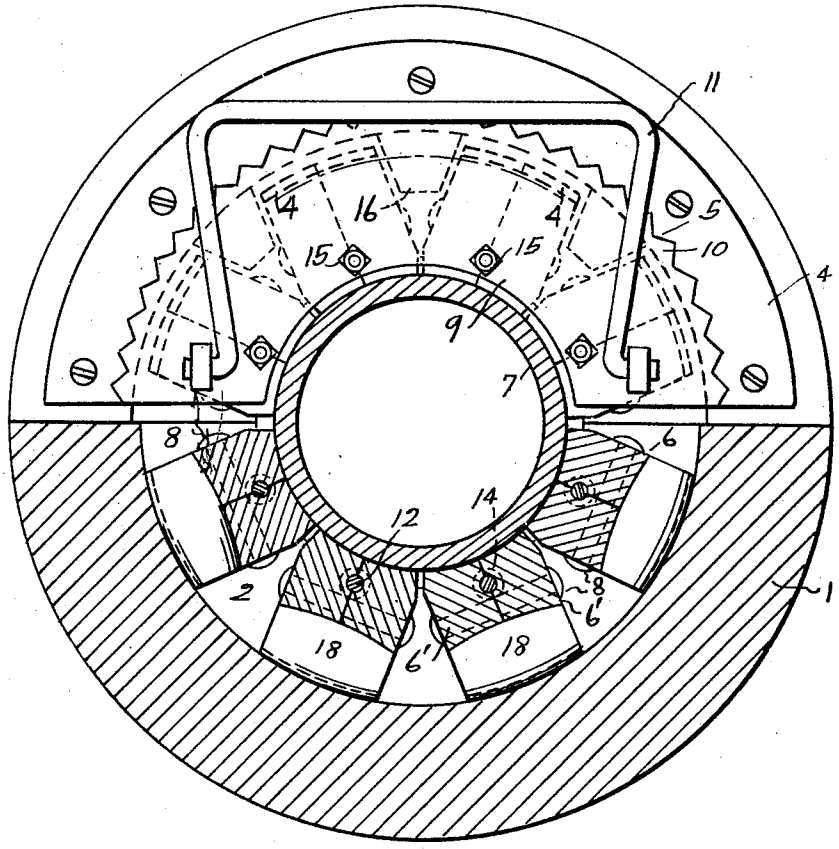

Fig. 1.

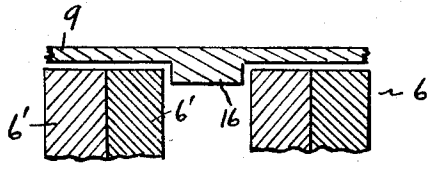

Fig. 4.

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PIPE HOLDER

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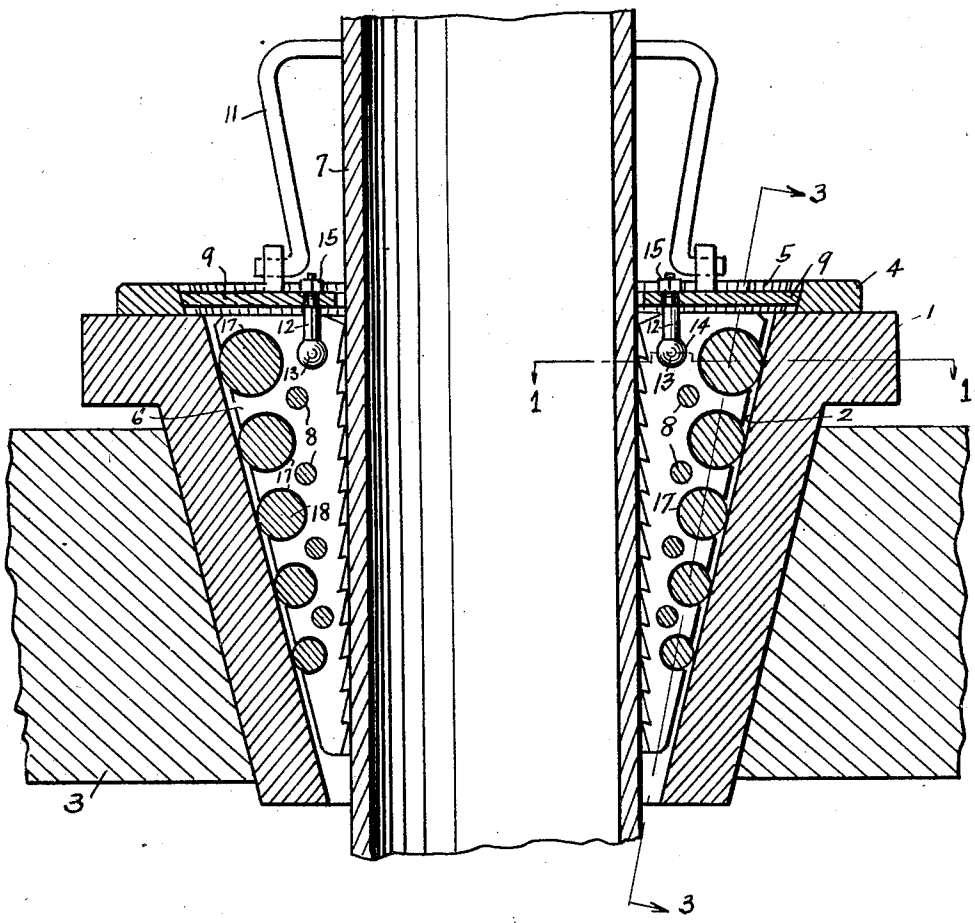

Fig. 2.

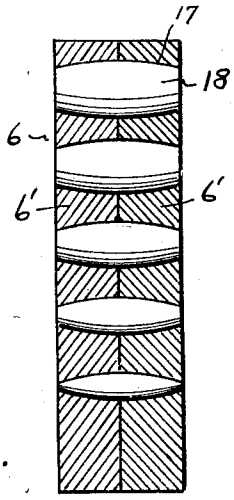

Fig. 3.

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UNITED STATES PATENT OFFICE

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PIPE HOLDER

Application filed November 8, 1929. Serial No. 405,617.

This invention relates to new and useful improvements in a pipe holder.

One object of the invention is to provide a holder of the character described, specially adapted for use in well drilling operations, to hold a pipe suspended in a well bore, and which is of such novel construction that it will readily release the pipe when the pipe is moved upwardly.

Another object of the invention is to provide a pipe holder equipped with antifriction means on the jaws and adapted to bear against the downwardly converging seat in which the jaws are located, said antifriction means being provided to prevent the jaws from wedging and sticking between the pipe and seat to the end that when the pipe is moved upwardly the jaws will readily release it. The construction, for the purpose indicated, constitutes an improvement over the type of holder disclosed by United States Patent No. 1,718,998, issued to me.

A further feature of the invention resides in the provision of novel means for preventing the jaws from rotating about the seat under tortional strain exerted through the pipe while screwing or unscrewing the joints connecting the sections of said pipe.

With the above and other objects in view, the 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 the holder partly in section taken on the line 1—1 of Figure 2.

Figure 2 shows a vertical sectional view.

Figure 3 shows a sectional view of a holder jaw taken on the line 3—3 of Figure 2, and

Figure 4 shows a fragmentary vertical sectional view, taken on the line 4—4 of Figure 1.

Referring now more particularly to the drawings, the numeral 1 designates a spider having a downwardly converging seat 2. This spider is adapted to be seated in a rotary table 3, of a conventional rotary drilling machine. The spider 1 is formed of confronting sections and fastened to the upper end of each section there is an arcuate rib 4 whose inner margin is serrated forming the teeth 5. The holder is composed of two confronting sections, each section being made up of a plurality of jaws designated generally by the numeral 6. Each jaw tapers downwardly the outer side thereof having a similar pitch relative to the vertical axis of the holder as that of the seat 2 and the inner side of each jaw is toothed to readily engage the pipe 7 to be suspended thereby. Each jaw is formed of two similar sections 6′, 6′ fitted together and secured by the rivets 8. At the upper ends of the jaws of the respective sections are the arcuate plates 9 whose outer margins are serrated forming teeth 10 which intermesh with the teeth 5 and each plate 9 has a bail 11 hinged thereto forming handles for moving the sections of the holder as a unit. Depending from the plates 9 are the hanger rods 12. The lower end of each rod is formed with a spherical head 13 which fits in a corresponding socket 14 between the sections 6′ 6′ of the jaws. The upper ends of the rods 12 are reduced and fitted through the corresponding plates 9 above and are secured to said plates by the nuts 15 threaded onto said reduced upper ends. The jaws are thus suspended from said plates and between the respective jaws there are the spacer lugs 16 depending from the respective plates 9 and which prevent the turning of the jaws on their vertical axes.

In the outer margins of the jaws are the bearings 17 in which are located the antifriction rollers 18. The outer ends of the bearings are gradually reduced and the rollers 18 are correspondingly shaped so that when the jaws are assembled said rollers will be retained in place and the outer surfaces of the said rollers project out beyond the corresponding jaws so as to bear against the seat 2 when the jaws are seated about the pipe in said seat. The rollers 18 are preferably reduced in diameter from above downwardly, as shown.

When the holder is seated in the seat 2, about the pipe, the teeth 5, 10 will intermesh and the jaws will wedge between the seat 2

and the pipe to be held and will securely hold the said pipe suspended. Said intermeshing teeth will prevent the holder from turning in the seat when torsional strain is exerted on the pipe.

Upon upward movement of the pipe suspended in the bore, when it is desired to withdraw the same from the bore, the jaws 6 will not stick between the pipe and the seat 2 but the antifriction rollers 18 will permit said jaws to readily move upwardly and outwardly from the pipe to release it.

The drawings and description disclose what is now considered a preferred form of the invention by way of illustration while the broad principle of the invention will be defined by the appended claims.

What I claim is:—

1. In a pipe holder, a wedge shaped jaw formed of sections secured together, transverse bearings in the outer margin of the jaw whose ends taper outwardly and rollers fitting in said bearings and having their external surfaces outwardly curved, and extending out beyond the jaw.

2. In a pipe holder, a wedge shaped jaw having teeth on its inner margin and transverse bearings in its outer margin, and rollers in said bearings projecting out beyond said outer margin said rollers being progressively reduced, in diameter, downwardly.

3. A pipe holder formed of sections, each section comprising an arcuate upper plate, hanger rods depending from said plate, a wedge shaped jaw attached to each rod and suspended from said plate thereby, and stops depending from said plates between said jaws.

4. A pipe holder formed of sections, each section comprising an arcuate upper plate, hanger rods depending from said plate, a wedge shaped jaw attached to each rod and suspended from said plate thereby, each jaw having transverse bearings, reduced at their ends, at its outer margin and roller bearings, conforming in shape to, and fitting within said bearings.

5. A pipe suspending device including a spider having a downwardly converging seat, means in the seat adapted to engage and suspend a pipe therein, said suspending means being formed of sections, each section comprising an upper arcuate plate and a plurality of jaws depending therefrom, said plates and spider having intermeshing means effective to prevent the rotation of said suspending means in the spider.

6. A pipe suspending device including a spider having a downwardly converging seat, means in the seat adapted to engage and suspend a pipe therein, said suspending means being formed of sections, each section comprising an upper arcuate plate and a plurality of jaws depending therefrom, said plates and spider having intermeshing means effective to prevent the rotation of said suspending means in the spider, and external anti-friction means on the outer margins of said jaws.

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

MONROE W. CARROLL.