Nov. 9, 1937. W. L. CHURCH 2,098,332

OVERSHOT

Filed Jan. 31, 1935 2 Sheets-Sheet 1

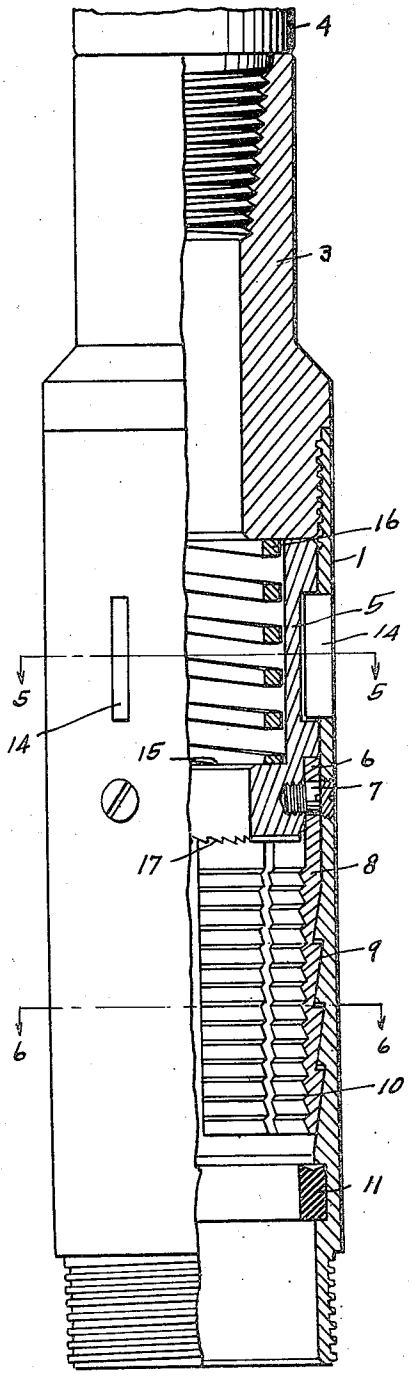


Fig. 1.

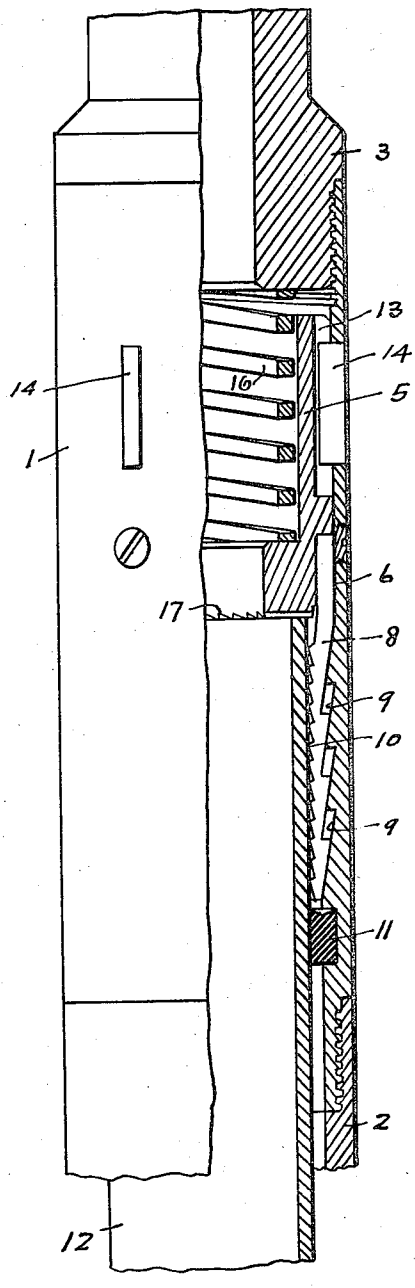


Fig. 2.

Inventor

Walter L. Church

By Hardway & Father

Attorneys

Nov. 9, 1937. W. L. CHURCH 2,098,332

OVERSHOT

Filed Jan. 31, 1935 2 Sheets-Sheet 2

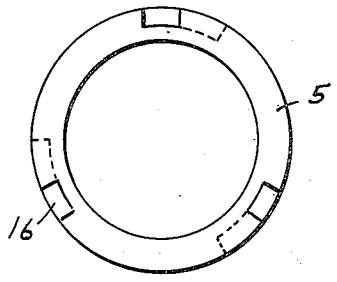


Fig. 3.

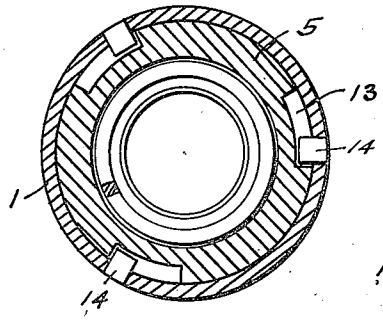


Fig. 5.

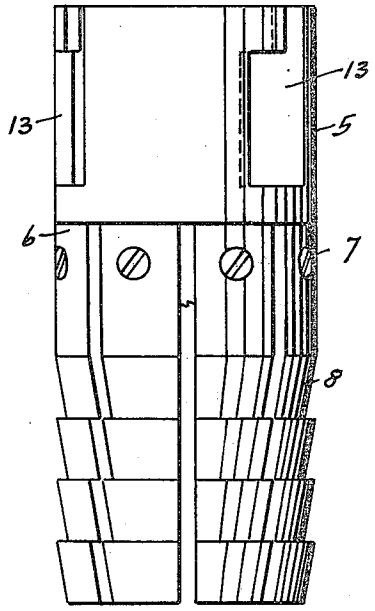


Fig. 4.

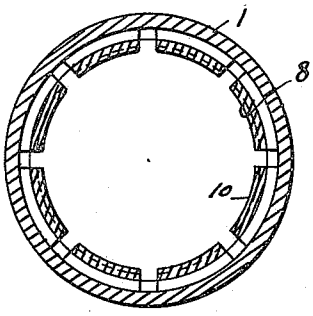


Fig. 6.

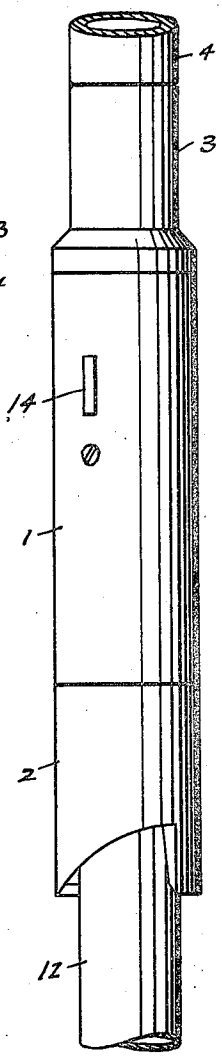


Fig. 7.

Inventor

Walter L. Church

By Hardway & Cathey

Attorneys

Patented Nov. 9, 1937 2,098,332

UNITED STATES PATENT OFFICE

2,098,332

OVERSHOT

Walter L. Church, Houston, Tex.

Application January 31, 1935, Serial No. 4,262

2 Claims. (Cl. 294—102)

This invention relates to an overshot.

An object of the invention is to provide a tool of the character described adapted to be connected to an operating string and lowered into a well bore over a pipe in said bore, and having novel pipe engaging means for gripping the pipe whereby the pipe may be removed from the bore.

Another object of the invention is to provide, in an overshot, novel means for releasing the pipe engaging means from the pipe whereby the tool may be withdrawn in case the pipe can not be pulled.

The invention comprehends novel means for retaining the pipe engaging means retracted or inactive, and for releasing the pipe engaging means by manipulation of the operating string, and means for moving the pipe engaging means into active position in engagement with the pipe upon such release.

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 fragmentary side elevation of the tool, shown partly in section, with the pipe engaging slips in inactive position.

Figure 2 shows a fragmentary side elevation of the tool, partly in section, showing the slips in active position in engagement with the pipe.

Figure 3 shows an upper end view of the slip support.

Figure 4 shows a side view of the support and the slips depending therefrom.

Figure 5 shows a cross-sectional view taken on the line 5—5 of Figure 1.

Figure 6 shows a cross-sectional view taken on the line 6—6 of Figure 1, and

Figure 7 shows a side elevation of the complete tool as applied to the pipe to be pulled.

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 shell or housing to the lower end of which the guide 2 is connected. A coupling 3 is connected to the upper end of the shell and an operating string 4 is attached to the upper end of this coupling and extends to the ground surface.

Within the shell and beneath the lower end of the coupling 3, there is a tubular slip support 5 whose lower end is reduced, and the upper ends 6 of the wedge shaped slips 8 are fitted around the said reduced portion and secured thereto by the set-screws 7.

The inner side of the shell, 1, is provided with a plurality of downwardly and inwardly tapering faces 9, and the outer sides of the slips 8 are correspondingly shaped to ride on said faces 9. The slips have the inside pipe engaging teeth 10 to engage the pipe to be pulled.

Beneath the slips, the shell is provided with an inside annular packing 11 which is seated in an annular groove therein and which is adapted to fit closely around the pipe 12, to be pulled, when the tool is inserted over said pipe, as shown in Figure 2.

The slip support 5 is provided with J-slots 13 whose lower ends are widened and which extend to the upper end of said support. The shell 1 has inwardly projecting keys 14 secured thereto which work in the slots 13.

The lower end of the support 5 is inwardly thickened, forming an annular seat 15, and a strong coil spring 16 is located within said slip support and is seated on the seat 15 with its upper end resisting against the lower end of the coupling 3.

When the keys 14 are located in the laterally turned lower ends of the slots 13, as shown in Figure 1, the support 5 will be held elevated, and the spring 16 will be maintained under compression, and the slips 8 will be maintained in their upper or inactive position.

When in this position, the tool may be lowered into the well over the upper end of the stuck pipe 12 until the lower end of the slip support 5 lands on the upper end of said pipe. The operating string may be then turned slightly to the left to carry the keys 14 out of the laterally turned portions of the J-slots 13, and during this turning movement, the ratchet teeth 17 on the lower end of the slip support will engage the upper end of the pipe 12 to hold said support against turning. Thereupon, the tool may be slightly elevated but the spring 16 will move the slip support 5, and the slips carried thereby, relatively downwardly, and the slips will ride on the downwardly and inwardly tapering faces 9 and will thereby be moved inwardly into engagement with the pipe 12.

An upward pull may then effect the removal of the stuck pipe.

If desired, water under pressure may be forced down through the operating string 4, and the packing 11 will force this water to flow on downwardly through the stuck pipe 12 and out at the

lower end thereof and back up around said pipe, thus assisting in freeing the pipe and washing it loose.

In case the stuck pipe can not be removed, the operating string may be lowered and turned to the right to carry the keys **14** into the laterally turned portions of the J-slots **13**, and thus will cause a relative upward movement of the slips **8** with relation to the shell **1**, releasing the slips from the stuck pipe and maintaining them so released. Whereupon the tool may be withdrawn from the bore.

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

What I claim is:—

1. An overshot comprising a shell like housing, an operating string whose end is screwed into the housing forming a downwardly facing abutment, a tubular slip support in the housing having external J slots and whose lower end is inwardly thickened forming an upwardly facing shoulder, keys secured to the shell and working in said J slots, independent slips depending from the support, radial pins securing the upper ends of the slips to the support, said housing and slips having coacting faces shaped to effect the contraction of the slips upon downward movement of the support in the housing, and a coil spring between the abutment and shoulder and housed within the support and effective to accelerate such downward movement and to maintain the slips contracted.

2. An overshot comprising a shell-like housing having a side opening, an operating string whose lower end is attached to the housing, an inside abutment in the housing, a tubular slip support in the housing having external J-slots and whose lower end is inwardly thickened forming an upwardly facing shoulder and whose lower end is also provided with teeth, keys on the shell working in the J-slots, independent slips depending from the support, set screws in horizontal alignment with the housing opening and securing the upper ends of the slips to the support, said housing and slips having co-acting faces shaped to effect the contraction of the slips upon downward movement of the support relative to the housing, a coil spring between the abutment and shoulder and housed within the support and effective to accelerate such downward movement and to maintain the slips contracted and a removable plug for closing said side opening.

WALTER L. CHURCH.