

Aug. 18, 1925.

1,550,301

P. F. YUNGLING

PIPE PARTING OVERSHOT

Filed Nov. 3, 1922

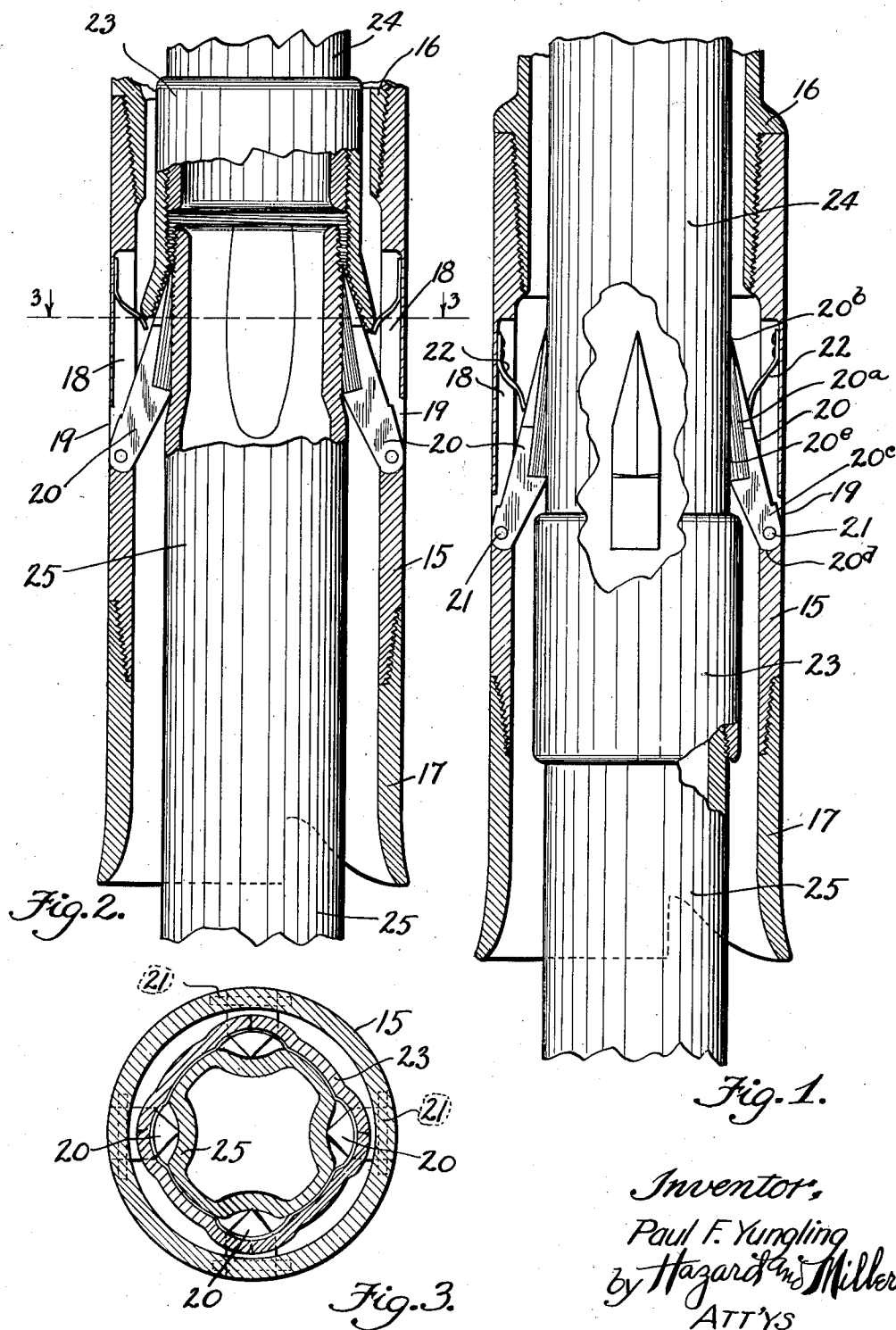


Fig. 1.

Fig. 3.

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Patented Aug. 18, 1925.

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UNITED STATES PATENT OFFICE.

PAUL F. YUNGLING, OF LOS ANGELES, CALIFORNIA.

PIPE-PARTING OVERSHOT.

Application filed November 3, 1922. Serial No. 598,882.

To all whom it may concern:

Be it known that I, PAUL F. YUNGLING, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Pipe-Parting Overshots, of which the following is a specification.

My invention relates to pipe parting overshots adapted for use in the recovery of drill pipe or casing from wells, and a purpose of my invention is the provision of an overshoot of this character which is operable to effect the parting of two sections of drill pipe or casing and the subsequent recovery of the disconnected sections all by the mere lowering and elevation of the overshoot, and without the necessity of rotating the overshoot and its attendant disadvantages.

Heretofore it has been the practice to grapple the drill stem or casing at or near the upper end and apply sufficient pulling power to break the pipe, and in this operation there is no way of predetermining the point at which the pipe will break, and it requires a pull of one hundred fifty to two hundred tons to break the pipe.

The principal object of my invention is to make a device which will grip the pipe at a predetermined point and which will by applying a pull of forty or fifty tons weaken the pipe and break it at the point at which the device is applied.

Although I will describe only one form of pipe parting overshoot embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claim.

In the accompanying drawings,

Figure 1 is a view showing in vertical section one form of pipe parting overshoot embodying my invention in applied position with respect to a drill pipe;

Fig. 2 is a view similar to Fig. 1 showing the overshoot in parting position with respect to two sections of drill pipe; and

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2.

Referring specifically to the drawings, in which similar reference characters refer to similar parts, my invention in its present embodiment comprises an overshoot casing 15 adapted for connection at its upper end with

a supporting collar 16 to which latter the usual operating means is adapted to be connected for effecting the lowering and elevation of the overshoot in a well. The lower end of the casing 15 is adapted for connection in the usual manner with a bowl 17. Between the ends of the casing are longitudinally extending recessed portions 18 communicating at their lower ends with slots 19. These recesses and slots are circumferentially spaced to accommodate a plurality of dogs 20, all of the dogs being mounted for swinging movement above horizontal axes by means of pins 21 secured within the walls of the slots 19.

Each dog 20 comprises an elongated shank 20^a which is tapered to provide a pointed end 20^b, the opposite or wide end being provided with an integrally formed head 20^c through which the pivot pin 21 extends. The end of the head 20^c is rounded as indicated at 20^d so as to have engagement with the rounded bottom wall of the slot 19 when the dog is in active position, as shown in Figure 2. By this arrangement it will be clear that the pivot pin 21 is relieved of any strain or stress exerted upon the dog to prevent distortion of the pin and insure proper operation of the dog at all times. The shank 20^a is of triangular shape in cross section so as to provide upon its inner side a longitudinally extending crimping edge 20^e.

The several dogs 20 are mounted to occupy an inactive position, as shown in Figure 1, wherein they are disposed within the recesses 18 to allow of the application of the overshoot casing to a length of drill pipe. The dogs are also capable of occupying an active position, as shown in Figure 2, in which they are projecting toward the axis of the casing 15 through the medium of leaf springs 22 arranged in the manner shown.

In operation, the overshoot is lowered into the well in surrounding position with respect to the drill pipe and until the pointed ends 20^b of the several dogs 20 are disposed below the connecting collar 23 of two sections of drill pipe designated at 24 and 25. During the application of the overshoot the springs 22 yield to permit movement of the dogs into the recesses 18 so as to allow of the casing 15 being lowered to the desired point. With the dogs disposed beneath the connecting collar 23 it will be clear that upward

movement of the overshot casing will cause the pointed ends of the dogs to be forced between the pipe sections and the collar 23, and because of the construction of the dogs they will effect the longitudinal crimping of the pipe section 25 at circumferentially spaced points, as clearly shown in Figure 3. Under this crimping action, the major portions of the threads of the pipe section 25 are disengaged from the threads of the connecting collar 23 so that upon continued upward pull upon the overshot the collar 23 can be disengaged from the pipe section 15 section 24.

The pipe sections 24 and 25 have the regular tapered pipe threads upon their meeting ends, and the collars 23 are the usual pipe couplings. The dogs 20 are in reality heavy chisels, and the points of the dogs rub against the casings 24 and 25 and spread out to pass the couplings, and these points will engage the lower edge of a coupling when the device is moved upwardly and the points of the chisels dig into the external threads of the section 25 and the internal threads of the coupling 23 and cut more or less of a groove.

The continual upward pull on the overshot will tend to expand the coupling and at the same time crimp the pipe. The more the lower end of the coupling is expanded, the weaker the joint becomes because the threads at the extreme ends of the pipe 25 are smaller in diameter than the lower threads. The result is that the pipe 25 is crimped inwardly and grooved and the coupling 23 is bulged outwardly, and the process is continued and power applied until the joint breaks.

It is only a question of making the dogs 20 strong enough and making the casing 15 and the pulling parts above the casing strong enough, and applying power enough to break the drill pipe at the point pre-

viously determined upon and engaged by the dogs 20.

After the disengagement of the lower drill pipe section 25 from the collar 23 the upper drill pipe section 24 and its collar 23 will be supported by the dogs 20. It should be noted that the lower portion of the dogs 20 about the pivot 21 rests upon the wall of the casing 15 at 20°. The wall of the casing 15 will be made of sufficient strength to support the section of the drill pipe 24 and its collar 23 and will prevent the dogs 20 from turning downwardly of their pivots 21. However, in case the dogs 21 should turn downwardly they will not assume a position parallel to the walls of the casing 15 in view of the widened head 20° and the position of the pivot 21, and would at most, occupy a position extending downwardly and obliquely away from the walls of the casing 15, thus preventing the drill pipe section 24 and its collar 23 from falling downwardly in the well. The overshot, with its section of drill pipe, is then raised from the well in any conventional or preferred manner.

After the removal of the pipe section from the well has been effected, it will be manifest that the dogs 20 can be removed from the collar 23 to permit of the overshot being again applied to the succeeding section of drill pipe.

What I claim is:

A pipe parting overshot comprising a body, a pointed dog carried by said body adapted to be forced between a pipe coupling and one of the pipe sections connected thereby, said dog being provided with a crimping edge adapted to crimp the pipe section inwardly away from the interior surface of said coupling.

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

PAUL F. YUNGLING.