

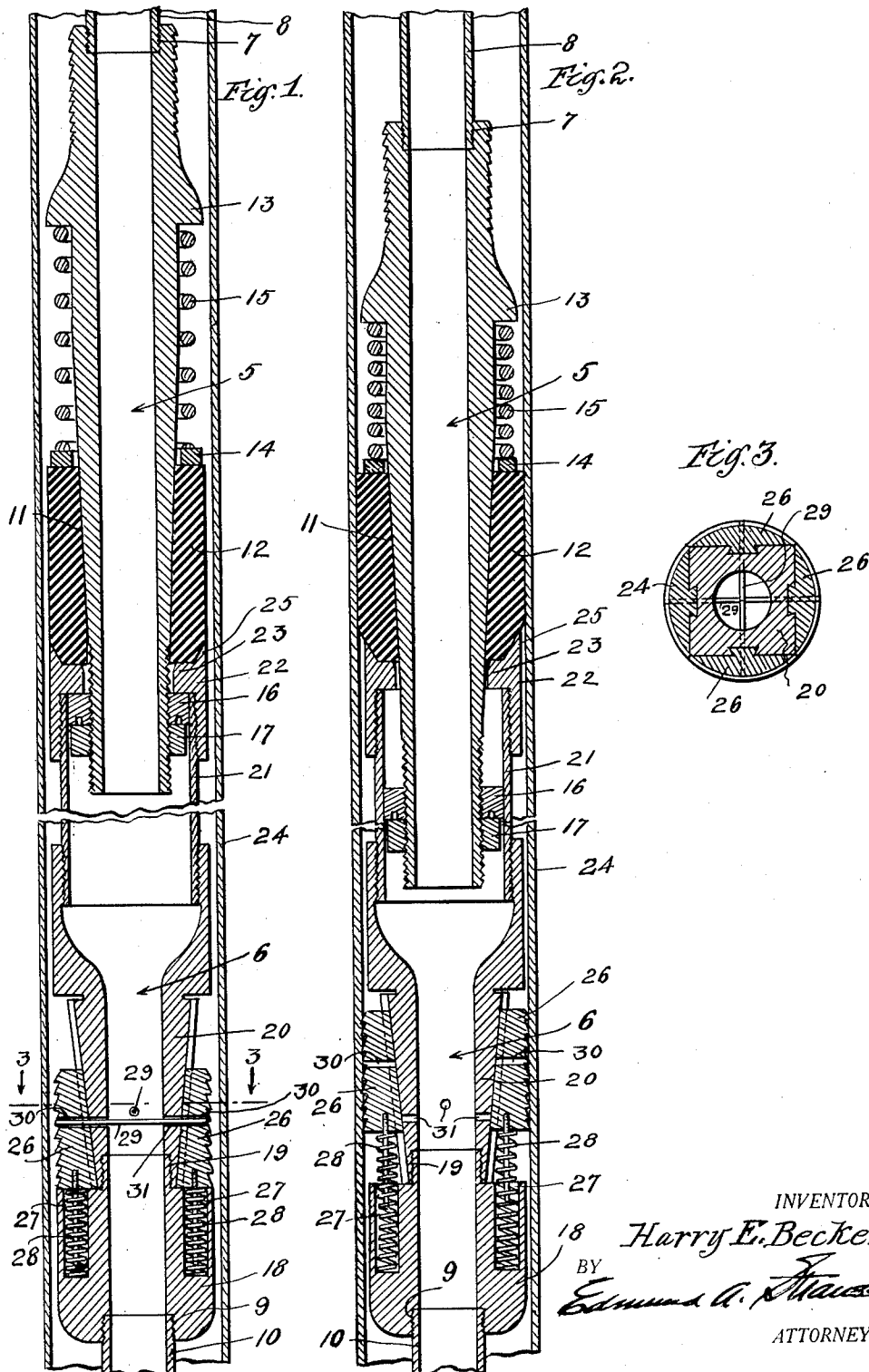
May 5, 1925.

1,536,370

H. E. BECKER

OIL WELL PACKER

Filed March 7, 1923



Patented May 5, 1925.

1,536,370

UNITED STATES PATENT OFFICE.

HARRY E. BECKER, OF BREA, CALIFORNIA, ASSIGNOR TO REGAN FORGE AND ENGINEERING COMPANY, INC., OF SAN PEDRO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

OIL-WELL PACKER.

Application filed March 7, 1923. Serial No. 623,554.

To all whom it may concern:

Be it known that I, HARRY E. BECKER, a citizen of the United States, residing at Brea, in the county of Orange and State of California, have invented new and useful Improvements in Oil-Well Packers, of which the following is a specification.

My invention relates to packers for oil wells, particularly adapted for sealing the space between the well tubing and the well casing, in order that water or other objectional fluids may be prevented from seeping into the well, becoming mixed with the oil and discharged therewith through the well tubing and for many other purposes which will be apparent to experienced oil well drillers.

My invention contemplates a novel construction of packer device, adapted to be interposed in the oil well tubing at any desired position between its ends, which is simple, durable, efficient, inexpensive and which may be easily and expeditiously operated.

Other objects of my invention will be more fully disclosed in the following specification, reference being had to the accompanying drawings, in which:

Fig. 1 is a vertical section through my device, as it would appear when first inserted in an oil well casing.

Fig. 2 is a similar view to that of Fig. 1 showing the device in operative packing position.

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1.

In general, my packing device comprises two tubular members, 5 and 6, telescoped together, the tube 5 being adapted to be threaded at its upper end, as at 7, to an upper length of well tubing 8 which extends to the top of the well, and the tube 6 being adapted to be threaded at its lower end, as at 9, to a lower section of well tubing 10 extending into the oil bed.

The outer annular surface of tube 5 is conical in shape, as at 11, and surrounding the same intermediate its ends, is a rubber gasket 12. The tube 5 is provided adjacent its upper end with a flange or shoulder 13, and interposed between this shoulder, and a washer 14 which rests upon the upper surface of the gasket 12, and surrounding the tube 5, is a compression spring 15, which

serves to keep the gasket normally pressed downwardly on the tapered tube 5 and in an unexpanded state. Threaded to the lower end of tube 5 is a collar 16 which is held in an adjusted position by means of a lock nut 17, as clearly shown in the drawings.

The tubular member 6, for convenience of assembly, is made up of several parts, comprising the lower washer member 18 to which the lower section 10 of the well tubing is threaded, and which in turn is threaded at 19 to the spear member 20, which in turn is threaded to a tubing 21 in which the collar 16 of tube 5 slides. The upper end of tubing 21 is provided with a cap 22 having an inturned flange 23 formed thereon, and adapted to engage with the collar 16 to limit the telescoping movement of tubings 5 and 6 and to prevent them from separating when projected into the well casing, which is represented by the numeral 24.

The lower end of the packing gasket 12 rests upon the flange 23 of cap 22 and is held centrally disposed therewith by means of the tapered flange 25, formed on the cap.

The spear member 20, adapted to operate in the usual manner, to grip the well casing 24, is provided with the usual slips 26, and disposed in sockets 27 formed in washer member 18, are the springs 28 which engage with the lower ends of the slips 26, and in order that the slips may be temporarily held from becoming engaged with the wall of the well casing while the device is being lowered into the same, pins 29, are provided, or otherwise pass transversely across the bore of the spear member 20, and the ends of the same engage in corresponding apertures 30 and 31 formed respectively in the slips and the wall of the spear member, as clearly shown in Fig. 1 of the drawings. The pins 29 are formed of a pliable metal of sufficient strength to withstand the pressure of the springs 28, said springs being only of sufficient strength to force the slips upwardly on the inclined walls of the member 20 to engage with the well casing 24.

In the operation of the device, the well tubing is lowered into the casing until the packing gasket 12 reaches the position at which it is desired to form the seal. A suitable tool, (not shown) is then lowered through the well tubing and manipulated to bend the pins 29 and disengage them

from the slips. The springs 28 then act to force and slips upwardly and cause them to engage with the wall of the well casing, as shown in Fig. 2 of the drawings, thus locking the tubular member 6 and the well tubing 10 pending therefrom, to the well casing. After this operation has been completed, the tubing 8 is released, and as the weight of the same is sufficient to overcome the pressure of the spring 15, the conical member 5 rides downwardly and consequently causes the packing gasket 12 to expand and wedge tightly against the wall of the well casing, thus forming a seal between the well tubing and the well casing.

What I claim is—

1. A well packer, comprising a tubular member having a clutch mechanism mounted thereon, a conical shaped tubular member telescoped within said first mentioned tubular member, a resilient packing gasket surrounding the conical shaped tubular member and resting upon said first mentioned tubular member, and a coiled spring mounted on the conical member and bearing against the packing gasket to return the same to an unexpanded condition after a packing operation.

2. A well packer, comprising a tubular member, a clutch member mounted in said tubular member, a resilient means for operating said clutch member, means projecting into the bore of said tubular member for rendering said resilient means inoperative, a second conical shaped tubular member mounted in telescopic and vertically movable relation with the first mentioned tubular member, and a resilient packing member associated with the conical shaped tubular member adapted to be operated upon a relative sliding movement thereof.

3. A well packer, comprising a tubular member having a clutch mechanism mounted thereon, a conical shaped tubular member telescoped within said first mentioned tubular member provided with a shoulder, a resilient packing gasket surrounding the conical shaped tubular member and resting on the first mentioned tubular member, and a spring interposed between said resilient packing gasket and the shoulder of said conical shaped tubular member.

In witness that I claim the foregoing I have hereunto subscribed my name this 27 day of January, 1923.

HARRY E. BECKER.