

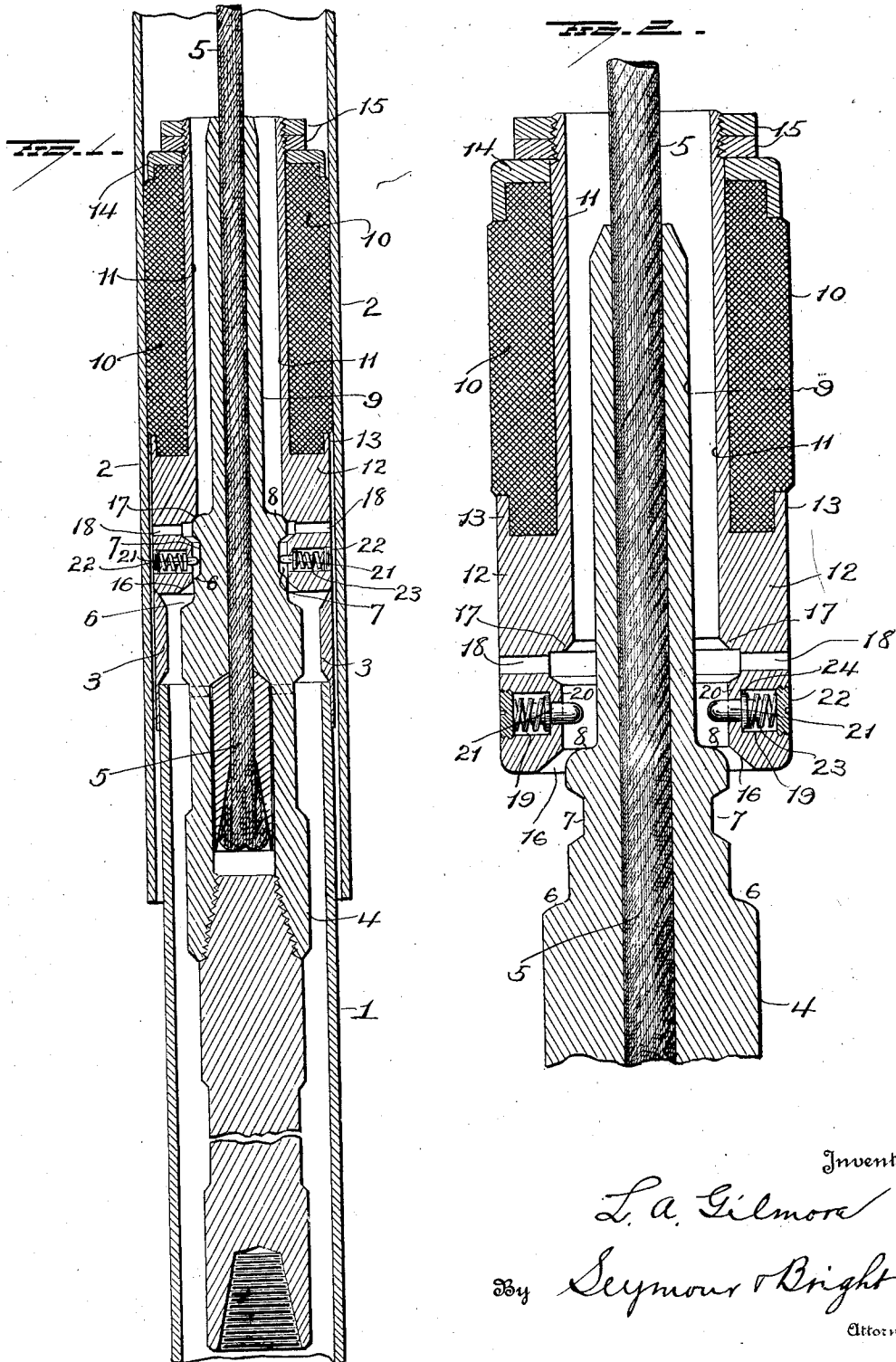
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L. A. GILMORE

OIL WELL SWAB

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Inventor

L. A. Gilmore

By Seymour Bright

Attorneys

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UNITED STATES PATENT OFFICE.

LUTHER A. GILMORE, OF DENOYA, OKLAHOMA.

OIL-WELL SWAB.

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To all whom it may concern:

Be it known that I, LUTHER A. GILMORE, a citizen of the United States, and resident of Denoya, in the county of Osage and State of Oklahoma, have invented certain new and useful Improvements in Oil-Well Swabs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to means for cleaning oil well casings and has special reference to the means for cleaning the upper section of the casing, the primary object of the invention being to provide a swab carrier which may be automatically coupled or released from the rope socket or tool carrier to be drawn from the well or to remain in the well and permit the rope socket or tool carrier to be operated in the usual manner. Other incidental objects will appear in the course of the following description, and the invention resides in certain novel features which will be particularly pointed out in the appended claims.

The invention is illustrated in the accompanying drawing in which—

Figure 1 is a vertical section of a portion of a well with my improved device in position therein;

Figure 2 is a similar view showing the swab released from the rope socket.

In the drawing, the reference numeral 1 designates a portion of the lower section of the well casing, and 2 designates the upper casing section which has its lower end fitted around the upper end of the section 1 and coupled or spliced thereto by the collar 3 in the usual manner.

The rope socket 4 is hung on the drill rope 5 in any approved manner and the usual or any desired tools may be secured to the socket to operate in the well. The upper end portion of the socket is reduced to provide an annular seat 6 and above said seat an annular groove or series of recesses 7 is formed in the socket while the upper corner portion of the socket is beveled, as shown at 8, and a hollow stem 9 rises centrally therefrom to enclose the drill rope 5 and prevent lateral swaying and consequent wear of the same.

The swab 10 of rubber or other compressible material encircles a sleeve or tubular stem 11 which rises centrally from a body

12 and is of such diameter as to be spaced from the stem 9, as clearly shown. The stem 11 may be integral with the body 12 but may be otherwise secured rigidly thereto, and the body is provided with an annular axially extending flange 13 or otherwise formed to retain the swab seated thereon. Upon the upper end of the stem is mounted a clamping collar 14 and nuts 15 whereby the swab may be secured in position and axially compressed so as to be circumferentially expanded in an obvious manner to fit tightly in the casing section 2. The bore of the body 12 at its lower end is flared, as shown at 16, whereby the body may rest on the seat 6 on the rope socket, and the body is of such diameter that while it may move freely in the casing, when it is lowered its lower end will eventually impinge upon the upper end of the collar 3 and arrest the descent. It will also be noted, upon reference to the drawing, that the bore of the body is reduced in its upper portion thereby defining an annular shoulder 17 adapted to seat upon the beveled upper end 8 of the rope socket. Immediately below the shoulder 17, a series of radial vent openings 18 are formed radially through the body for the escape of gas, and below the vent openings radial sockets 19 are formed in the body, the inner ends of the sockets being each partly closed by a rim or stop shoulder 20. Latches 21 are mounted in these sockets and their inner ends project through the rims 20 in position to engage the groove or recess 7 in the rope socket. The outer ends of the sockets or chambers 19 are closed by plugs 22 and the latches are yieldably held in projected position by springs 23 coiled around the latches and having their opposite ends bearing respectively against the plugs and abutments 24 on the latches. Said abutments, by contact with the rims 20 prevent the latches being ejected from the latch sockets or chambers when the swab is released from the rope socket.

When the device is being lowered in the well, the latches are in engagement with the groove or recesses 7 in the rope socket so that the swab is coupled thereto. When the lower end of the body 12 impinges upon the coupling or splice collar 3, the weight of the rope socket and the tools carried thereby will jar the socket free of the latches whereupon the socket may continue to descend in

the well but the swab member will be stopped and supported by the coupling collar, and it will be noted that the upper and lower walls of the groove 7 are beveled so that the latches may easily ride into or out of engagement with the rope socket. When the rope socket is again raised, the seats 6 and 8 thereon will again engage the cooperating portions 16 and 17 of the body so as to lift the body, the latches automatically riding into the groove 7.

The rope socket may have a swab body mounted thereon or secured thereto so that the lower section of the casing may be cleaned. When the swab is not to be used, it may be raised above the well and secured to a high point of the drill rope without being removed or necessitating a cutting or changing of the rope. When it is to be used, it is merely slipped down the rope to the rope socket, the small swab being coupled in place below the tools.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In an oil-well appliance, the combination with a rope-socket, of a swab, and means whereby the swab may be automatically coupled with or released from the rope-socket.

2. The combination of a rope socket, and a swab removably coupled thereto and including a body constructed to fit around the upper portion of the rope-socket and hav-

ing a vent therethrough for the escape of gas from between the socket and the body.

3. The combination of a rope-socket having a reduced upper end portion, a swab body constructed to seat around the upper end portion of the rope-socket, a swab secured to said body, and latches carried by the body and yieldably engaging the rope-socket.

4. The combination of a rope-socket having a circumferential recess in its upper end portion, a body adapted to seat around the rope-socket and having a radial chamber, and a latch mounted in said chamber and arranged to yieldably engage the recess in the rope-socket.

5. The combination of a rope-socket having a circumferential recess in its upper end portion, a body adapted to seat around the rope-socket and having a radial chamber, a latch slidably mounted in said chamber and projecting through the inner wall thereof in position to engage the recess in the rope-socket, an abutment on the latch within the socket, a plug closing the outer end of the socket, and a spring coiled around the latch between the plug and the abutment.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

LUTHER A. GILMORE

Witnesses:

JNO. F. PEACOCK,
M. A. LIETH.