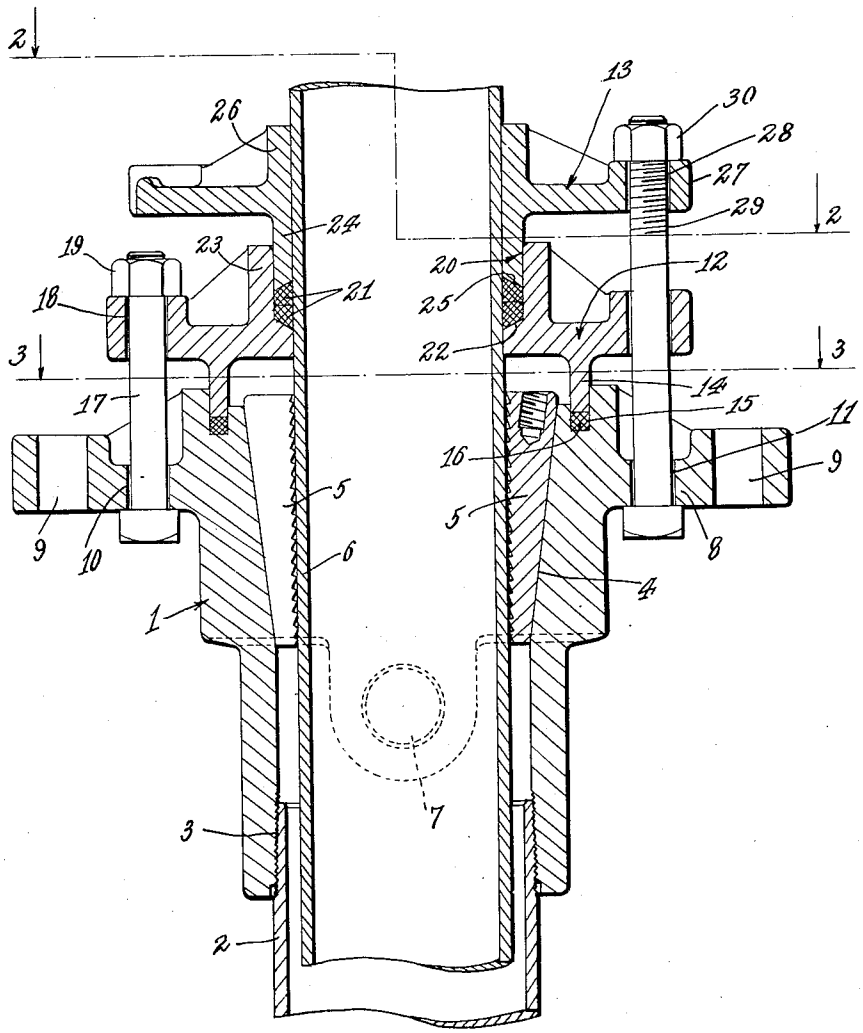
Dec. 1, 1931. E. TIMBS 1,834,190

PACKING HEAD

Filed March 14, 1931 2 Sheets-Sheet 1

Fig. 1.



Inventor

Edward Timbs

By Lyon & Lyon

Attorneys

Dec. 1, 1931. E. TIMBS 1,834,190

PACKING HEAD

Filed March 14, 1931 2 Sheets-Sheet 2

Fig. 2.

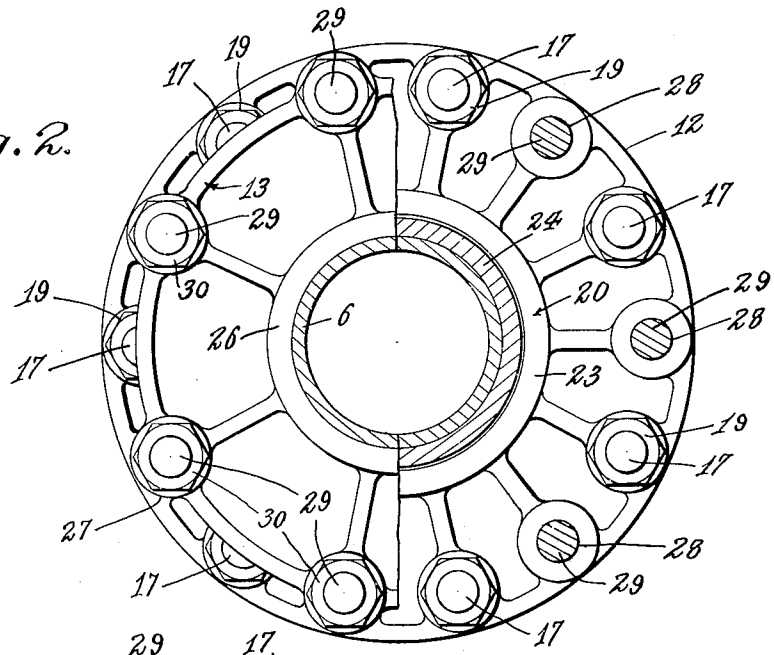
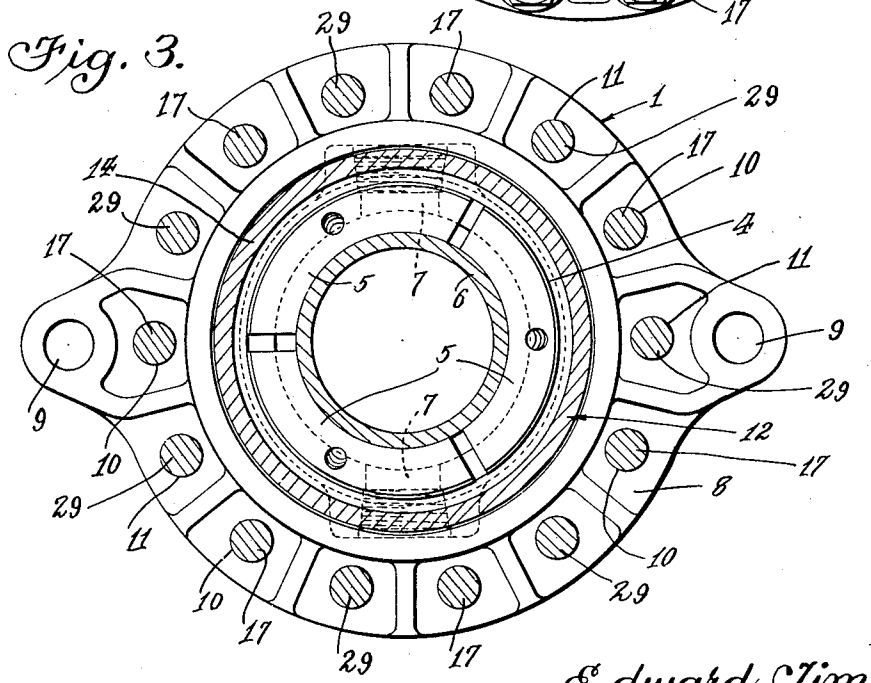


Fig. 3.



Inventor

Edward Timbs

By Lyon & Lyon

Attorneys

Patented Dec. 1, 1931

1,834,190

UNITED STATES PATENT OFFICE

EDWARD TIMBS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE NATIONAL SUPPLY COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO, AND THE NATIONAL SUPPLY CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

PACKING HEAD

Application filed March 14, 1931. Serial No. 522,576.

This invention relates to packing heads, and more particularly to a packing head for packing off between two strings of casing where it is required that the inner casing extends directly into a gate valve or a tubing head, and wherein the inner string is supported on slips, the packing seal being entirely independent of the suspended string renewal or adjustment of the compressing of the packing without disturbing the setting of the inner string of casing.

It is an object of this invention to provide a packing head including a vented body having a tapered bore for the reception of slips for suspending an inner concentric casing, and including a packing assembly formed of a cap adapted to be adjustably secured to the body of the packing head and to be packed thereto, and providing a packing gland for packing to the inner concentric casing, and wherein a gland follower is provided for expanding the packing to seal the inner casing to the cap, the gland follower being adjustably secured to the body of the packing head.

Other objects and advantages of this invention it is believed will be apparent from the following detailed description of a preferred embodiment thereof as illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a sectional side elevation of the packing head embodying my invention.

Figure 2 is a sectional end view taken substantially on the line 2—2 of Figure 1.

Figure 3 is a sectional end view taken substantially on the line 3—3 of Figure 1.

In the preferred embodiment of my invention illustrated in the accompanying drawings, 1 indicates the body of the casing head which is threaded to the upper end of the outer casing 2 as indicated at 3. The body 1 is provided with a longitudinal bore which is tapered at its upper portion as indicated at 4 to receive sectional slips 5. The sectional slips 5 provide a means for suspending the inner concentric casing 6 from the packing head. The inner concentric casing 6 extends through the body 1 of the packing head and is connected to a flow line, Christmas tree, or tubing head, all of which structures are well understood in the art, above the body 1. The body 1 is provided with a pair of vents 7 into which a gas line or other flow line is connected for conducting fluid which flows between the concentric casings 2 and 6 from the well bearing.

The upper end of the body 1 is formed with an outwardly extending annular flange 8 formed at diametrically opposed points with eyes 9 for the reception of a hoisting line or bails for suspending the packing head in the derrick as it is being placed in operation to seal the two concentrically mounted casings 2 and 6. The annular flange 9 is provided with a plurality of bolt holes 10 and 11 alternately spaced around the periphery of the flange 9.

The bolt holes 10 are cap bolt holes, while the bolt holes 11 are gland follower bolt holes, permitting both the packing head cap 12 and the packing head cap gland follower 13 to be bolted directly to the body 1.

The cap 12 is provided with an integral downwardly extending annular sleeve 14 which fits an annular packing groove 15 formed in the upper end surface of the body 1. Packing 16 is positioned in the groove 15 and is compressed therein as the cap 12 is drawn downwardly by means of cap bolts 17 which pass through cap bolt holes 18 formed in the cap 12, and the cap bolt holes 10 formed in the annular flange of the body 1.

The bolts 17 are provided with nuts 19 for adjusting the compression of the packing 16 in the groove 15. By this means the cap 12 is packed to the body 1. The cap 12 provides a packing gland 20 for the reception of a pair of oppositely beveled packing rings 21. The end of the packing gland 20 is provided with a tapered packing seat 22 tapered to correspond with the tapering of the packing ring 21.

In order to provide for the packing gland 20, the cap 12 is formed integral with an upstanding packing collar ring 23 which forms the packing gland 20 around the inner concentric casing 6, and the collar 23 likewise provides a guide means for guiding the annular skirt 24 of the cap gland follower 23.

The lower end of the skirt 24 is tapered as indicated at 25 opposite to the tapering of the seat 22 to correspond with the tapering of the upper face of the upper packing ring 21.

The gland follower 13 is formed with an upwardly extending annular sleeve portion 26 which, together with the downwardly extending skirt 24, forms a guide for the cap gland follower 13 as it is passed downwardly into the packing gland 20 of the cap 12. The gland follower 13 is formed with an outwardly extending annular flange 27 formed with spaced gland bolt holes 28 through which gland bolts 29 are passed. The gland bolts 29 at their opposite ends are passed through the gland bolt holes 11 formed in the annular flange of the body 1. The gland bolts 29 are provided with nuts 30 for adjustably forcing the cap gland follower 13 downwardly in the packing gland 20 to compress the packing 21 between the cap 12 and the inner concentric casing 6.

Either of the packings 26 or 16 may be adjusted independently, and both of these packings may be adjusted without disturbing the seating of the inner concentric casing 6. The compressing of both the packing 16 and 21 is accomplished by adjustable means which are anchored to the body 1 of the packing head.

The operation of the packing head embodying my invention is as follows:

After the inner concentric casing 6 has been landed and cemented off, the casing head body is screwed onto the upper end of the outer casing 2, tension is then pulled on the inner casing 6 and the slips 5 are set to the tapered portion of the bore of the body 1. The lower packing ring 16 is now inserted in the packing groove 15 and the cap member 12 is set in place and pulled down by means of the cap bolts 17. The upper packing rings 21 are inserted into the packing gland 20 formed in the cap 12, and the packing gland cap follower 13 is set in place and pulled down by means of the gland bolts 29.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details herein set forth, but my invention is of the full scope of the appended claims.

I claim:

1. In a packing head, the combination of a body, an outer string of casing, an inner string of casing, the body being threaded to the upper end of the outer string of casing, the body having a bore tapered for a portion of its length, slips mounted in the tapered portion of the bore to suspend the inner casing after a predetermined stretch has been pulled into the inner casing, an annular packing groove formed in the upper end of the body, packing positioned in said groove, a packing head cap having an annular sleeve fitting said annular groove to engage and compress the packing therein, a plurality of cap bolts adjustably secured to the cap and to the body for compressing the packing in the groove to form a fluid-tight connection between the cap and the body, a packing gland formed in the cap, packing rings positioned in the packing gland, a cap gland follower having a downwardly depending annular skirt adapted to fit in the gland and compress the packing, and a plurality of bolts adjustably connecting said cap gland follower and the body of the packing head to compress the latter said packing rings to form a fluid-tight connection between the cap gland follower and the inner concentric casing.

2. In a packing head, the combination of a body, an outer string of casing, an inner string of casing, the body being threaded to the upper end of the outer string of casing, the body having a bore tapered for a portion of its length, slips mounted in the tapered portion of the bore to suspend the inner casing after a predetermined stretch has been pulled into the inner casing, an annular packing groove formed in the upper end of the body, packing positioned in said groove, a packing head cap having an annular sleeve fitting said annular groove to engage and compress the packing therein, a plurality of cap bolts adjustably secured to the cap and to the body to compress the packing in the groove to form a fluid-tight connection between the cap and the body, a packing gland formed in the cap, packing rings positioned in the packing gland, a cap gland follower having a downwardly depending annular skirt adapted to fit in the gland and to compress the packing against the inner concentric casing, and means for adjustably clamping the cap gland follower to the body of the packing head.

3. In a packing head, the combination of a body, an outer string of casing, an inner string of casing concentrically positioned within the outer string of casing, means for securing the body to the upper end of the outer string of casing, sectional slips mounted in the bore of the body to suspend the inner concentric casing after a predetrmined stretch has been pulled in the inner concentric casing, an annular packing groove formed in the upper end of the body, packing positioned in said groove, a packing head cap having an annular sleeve fitting said annular groove to engage the packing therein, means for clamping the cap to the body to compress the packing in said groove to form a fluid-tight connection between the cap and the body, a packing gland formed in the cap, packing positioned in the packing gland, a cap gland follower having a downwardly depending annular skirt adapted to fit in the gland, and means for adjustably clamping the cap gland follower to the body of the packing head to compress

the packing in the packing gland to form a fluid-tight connection between the cap gland follower and the inner concentric casing.

4. In a packing head, the combination of a body, an outer string of casing, an inner string of casing concentrically mounted within the outer string of casing, means for securing the body to the upper end of the outer string of casing, the body having a bore tapered for a portion of its length, slips mounted in the tapered portion of the bore to suspend the inner concentric casing after a predetermined stretch has been pulled in the inner concentric casing, a packing head cap, packing positioned between the packing head cap and the upper end of the body, means for adjustably clamping the packing head cap to the body to compress and expand the said packing, a packing gland formed in the cap, packing positioned in the packing gland, a cap gland follower provided with means for engaging the packing in the packing gland, and means for adjustably clamping the cap gland follower to the body to compress the latter said packing to form a fluid-tight connection between the cap gland follower and the inner concentric casing.

Signed at Torrance, Calif., this 4th day of March, 1931.

EDWARD TIMBS.