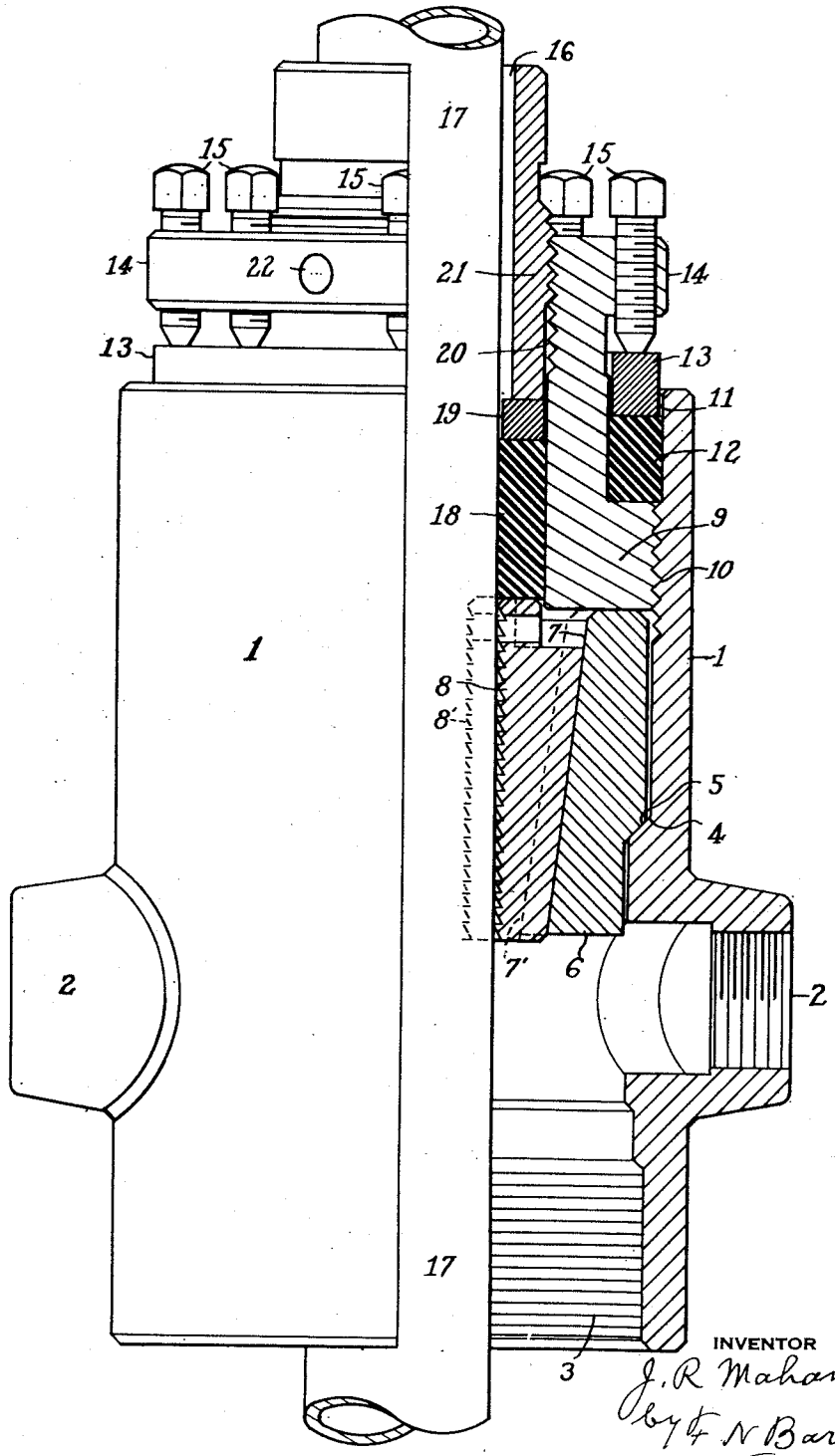
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CASING HEAD

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CASING HEAD

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My invention relates to casing heads or combined tubing hangers and packing-off devices.

It is an object of this invention to provide a casing head with a tubing-hanging means adapted to tubings of different diameters. Another object is to provide an adapter ring positioned in the upper portion of the casing head and resting upon the bowl which supports the tubing-suspending slips, with adjusting devices for packings between the casing head and the adapter ring and between the latter and a tubing in the casing head. Other objects appear hereinafter.

The accompanying drawing shows a casing head equipped with my invention, the left half being a side elevation and the right half a central vertical section and the tubing in the casing head having its ends broken away.

1 designates an annular casing head having the usual vents or outlets 2. It has the internal threads 3 at its lower end to receive the upper threaded end of a length of casing.

Above the vents 2 the bore of the casing head has the outwardly and upwardly inclined annular shoulder 4 upon which a correspondingly-shaped annular shoulder 5 on the periphery of the annular bowl 6 rests. Preferably, the bowl extends below the shoulders 4 and 5 as shown. The interior wall 7 of the bowl is tapered downwardly. Slips 8 (only one shown) have correspondingly tapered outer walls in engagement with the tapered wall 7 of the bowl.

The adapter ring 9 rests on the upper end of the bowl, overlies the outer portion of the upper end of the slips, and has its lower end provided with an external threaded portion 10 screwed into a corresponding threaded portion in the inner wall of the casing head. Above the said threaded portion the adapter ring has the annular recess 11 open to the top of the casing head and containing the packing ring 12 on which the metal ring 13 rests. The upper end of the adapter ring has a peripheral flange 14 through which several screws 15 work and engage the upper edge of the ring or gland 13 to compress and adjust the packing ring 12 for the purpose of sealing the threaded joint just below the same.

The lower end of the annular space 16 between the adapter ring 9 and the tubing 17, shown suspended by the slips 8, contains the packing ring 18 seated upon the upper end of the slips. A metal ring 19 is seated on the packing ring 18. The inner wall of the adapter ring 9 has above the ring 19 and the packing ring 18 a threaded portion 20 co-operating with a corresponding threaded portion on the periphery of the adjusting ring 21 which projects above the casing head where it may be engaged by suitable means for rotating it for adjusting the packing ring 18.

By increasing the thickness of the wall of the bowl or that of the slips or both, tubing of smaller diameters can be suspended by the slips. The dotted line 7' shows the inner wall of the bowl extending farther inwardly. The line 8' shows the slip 8 adjusted inwardly to correspond to the increased thickness of the wall of the bowl.

22 is a hole in the flange 14 for the insertion of a lever for turning the ring 9.

When my invention is used for the handling of tubing while it is being lowered into a well hole or removed therefrom, the adapter ring 9, the rings 13, 19 and 21 and the packing rings 12 and 18 are removed. It will be observed that the adjusting screws 15 and the adjusting ring or gland 21 form a unit which is removed and replaced without the necessity of their separation. This facilitates their removal and replacement and prevents the elements thereof from being separately lost or misplaced.

I claim:—

1. In a casing head, an annular body, a bowl with a downwardly-tapered interior wall seated therein, slips seated against the said interior wall, an adapter ring resting upon the bowl and secured to the casing head, a packing between the casing head and the adapter ring, a packing above the slips and between the adapter ring and a tubing in the casing head, and separate means attached to the adapter ring and adjustable therewith and effective for compressing the two packings.

2. In a casing head, an annular body, means for attaching the upper end of a well-casing thereto, means in the body for suspending a tubing axially therein, an adapter ring screw-threadedly attached to the inner wall of the casing head, annular packing between the outer wall of the adapter ring and the upper portion of the inner wall of the casing head, annular packing between the tubing and the inner wall of the adapter ring, and separate adjustable means supported by the adapter ring for compressing the packings to effect a fluid pressure seal between the body and the tubing.

3. In a casing head, an annular body, means for attaching the upper end of a well-casing thereto, means in the body for suspending a tubing axially therein, an adapter ring screw-threadedly attached to the inner wall of the cas-

ing head, annular packing between the outer wall of the adapter ring and the upper portion of the inner wall of the casing head, annular packing between the tubing and the inner wall of the adapter ring, and adjustable means supported by the adapter ring for compressing the second packing, a flange on the upper end of the adapter ring, and screws extending down through the flange and operating to compress the first packing.

4. A casing head comprising a hollow vented body having an upper bore of one diameter and a lower bore of less diameter with an annular shoulder connecting the bores, an annular bowl positioned within the larger bore and adapted to rest on the shoulder, slips supported by the bowl for suspending a well-casing or tubing in the body and bowl, an adapter ring having threaded engagement with the wall of the larger bore and arranged to bear upon the upper end of the bowl to force the latter toward the shoulder, a packing ring between the adapted ring and the wall of the larger bore, means carried by the adapter ring for compressing the packing ring, an annular packing within the adapter ring arranged to surround and engage the well-casing or tubing, and means carried by the adapter ring for compressing the annular packing.

5. In a casing head, a hollow vented body unit having a downwardly and inwardly tapered portion, means for securing the body to an outer casing, means within the body adapted to support an inner concentric casing, an adapter ring member secured within the bore of the body above said tapered portion, a packing groove formed betwen the bore of the body and the ring member, a second packing groove formed between the ring member and the inner casing, packing disposed within said grooves, and separate means for applying pressure to compress respectively each of said packings.

6. In a casing head, a hollow vented body unit having a downwardly and inwardly tapered portion, means for securing the body to an outer casing, slips within the body adapted to support an inner concentric casing, an adapter ring member secured within the bore of the body above said tapered portion, a packing groove formed between the bore of the body and the ring member, a second packing groove formed between the ring member and the inner casing, packing disposed within said grooves, and separate means for applying pressure to compress respectively each of said packings.

7. In a casing head, a hollow vented body unit having a downwardly and inwardly tapered portion, means for securing the body to an outer casing, means within the body adapted to support an inner concentric casing, an adapter ring member secured within the bore of the body above said tapered portion, a packing groove formed between the bore of the body and the ring member, a second packing groove formed between the ring member and the inner casing, packing disposed within said grooves, and separate means independently accessible from above the body for applying pressure to compress respectively each of said packings.

8. In a casing head, a hollow vented body unit having a downwardly and inwardly tapered portion, means for securing the body to an outer casing, means within the body adapted to support an inner concentric casing, an adapter ring member secured within the bore of the body above said tapered portion, a packing groove formed between the bore of the body and the ring member, a second packing groove formed between the ring member and the inner casing, packing disposed within said grooves, and separate means carried by said ring member for applying pressure to compress respectively each of said packings.

9. In a casing head, a hollow vented body unit having a downwardly and inwardly tapered portion, means for securing the body to an outer casing, means within the body adapted to support an inner concentric casing, an adapter ring member secured within the bore of the body above said tapered portion, a packing groove formed between the bore of the body and the ring member, a second packing groove formed between the ring member and the inner casing, packing disposed within said groove, and separate means positioned one above the other for applying pressure to compress respectively each of said packings.

10. In a casing head arranged to support a string of tubing, the combination of an adapter ring insertable into the casing head, packing rings, one between the adapter ring and the suspended tubing and the other between the adapter ring and the casing head, means carried by the adapter ring for holding it in the casing head, and separate adjustable means carried by the adapter ring for compressing the said packing rings and sealing the casing head.

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