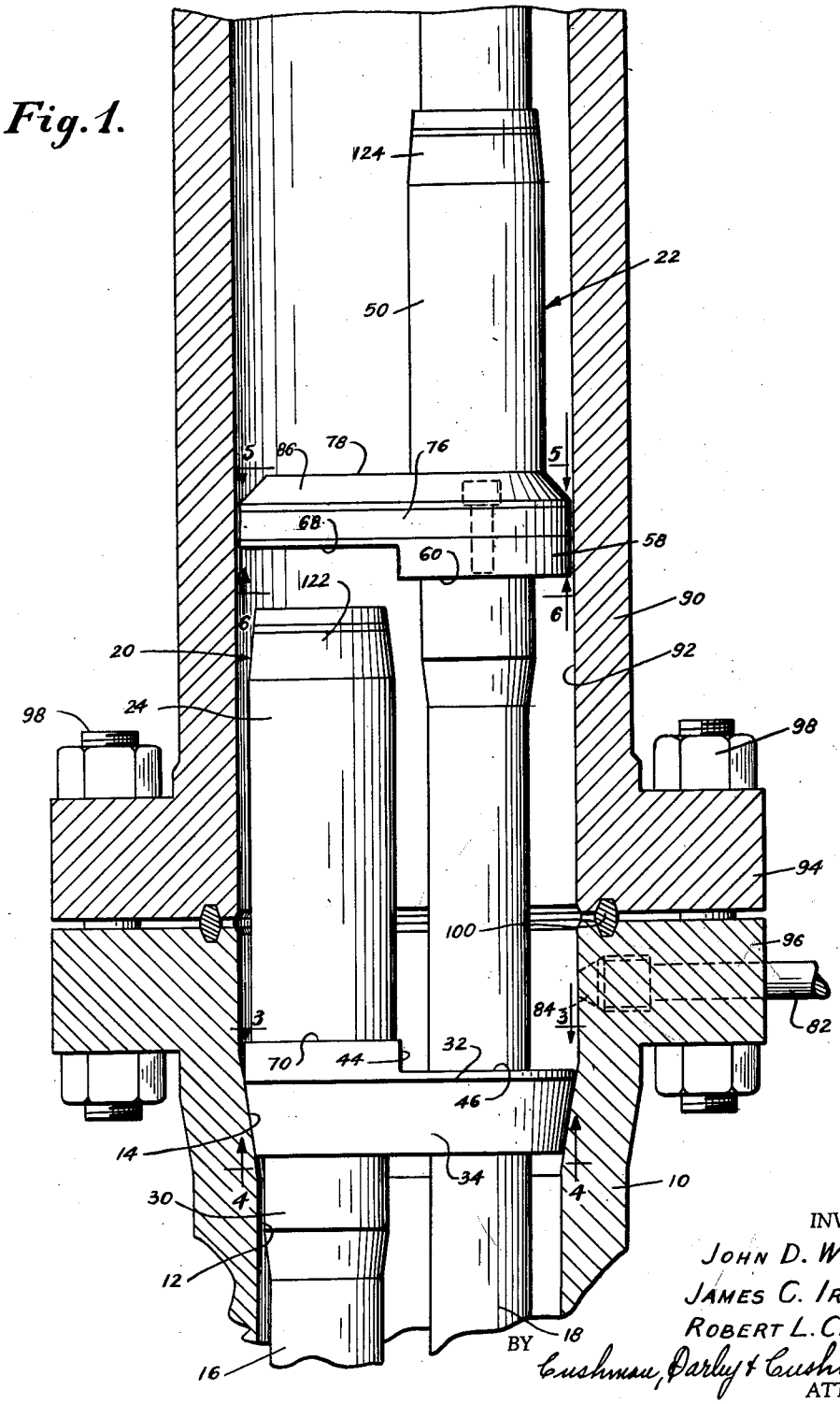
March 5, 1963 J. D. WATTS ETAL 3,080,181

MULTIPLE TUBING HANGER AND SEAL ASSEMBLY

Filed Aug. 19, 1958 3 Sheets-Sheet 1

Fig. 1.



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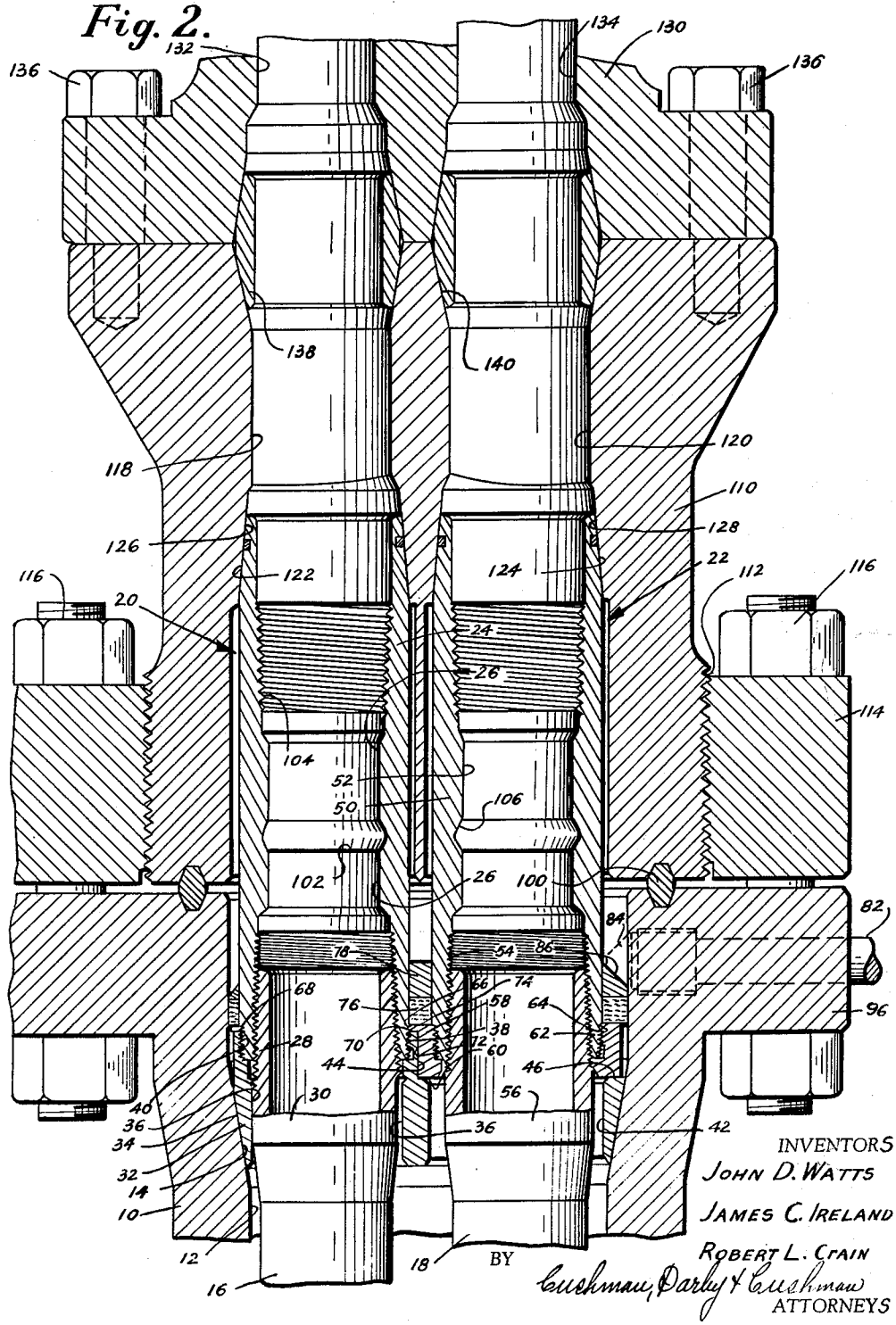
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MULTIPLE TUBING HANGER AND SEAL ASSEMBLY

Filed Aug. 19, 1958 3 Sheets-Sheet 2

Fig. 2.



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MULTIPLE TUBING HANGER AND SEAL ASSEMBLY

Filed Aug. 19, 1958 3 Sheets-Sheet 3

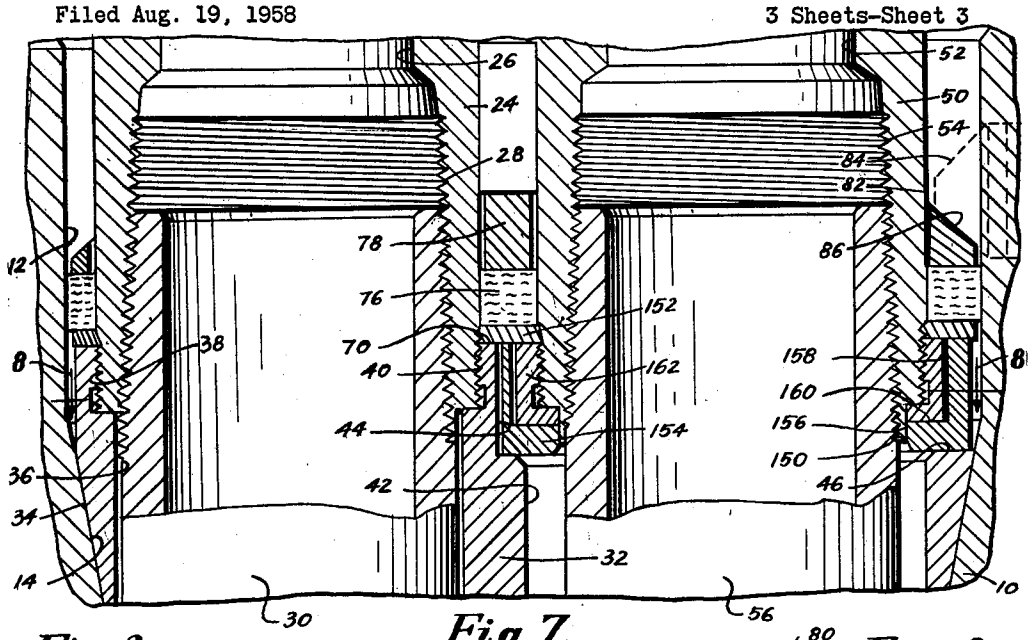


Fig. 7.

Fig. 3.

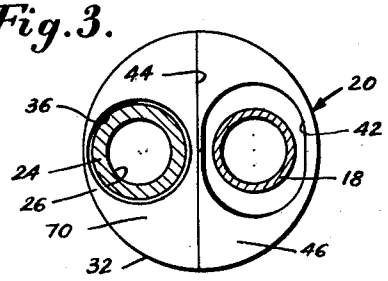


Fig. 6.

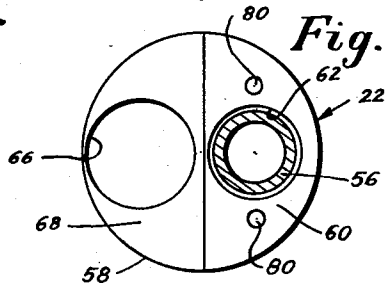


Fig. 4.

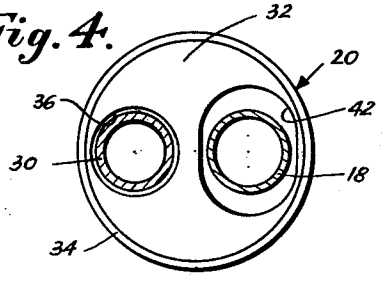


Fig. 8.

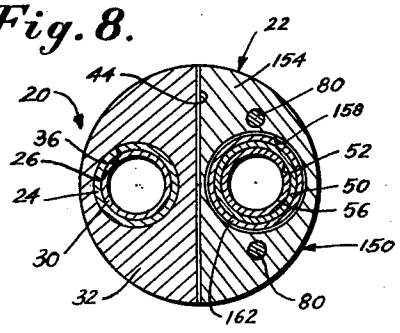
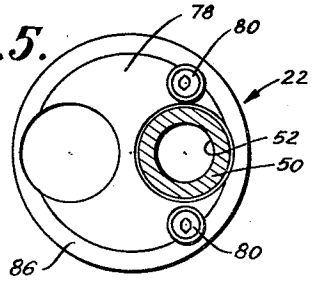


Fig. 5.



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United States Patent Office 3,080,181 Patented Mar. 5, 1963

3,080,181

MULTIPLE TUBING HANGER AND SEAL ASSEMBLY

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Filed Aug. 19, 1958, Ser. No. 755,933
6 Claims. (Cl. 285—137)

This invention relates to well completion equipment and more particularly to equipment for the multiple completion of oil wells and the like.

Oil well completion equipment of the type whereby oil or gas may be produced either simultaneously or alternately from producing strata of a well at different levels by the use of parallel tubing strings disposed in side-by-side relation within a well casing is well known as exemplified in the Penick et al. Patent No. 2,335,355 issued November 30, 1943.

An object of the present invention is the provision of apparatus for multiple completion of wells having an improved arrangement for suspending multiple tubing strings in a well head in such a manner that a tubing head of a minimum interior bore may be utilized along with control and completion equipment of a minimum size, thus materially reducing the costs involved in completing the well.

Another object of the present invention is the provision of apparatus for multiple completion of wells including a plurality of hanger units for suspending a plurality of tubing strings in a tubing head, in which one of the hanger units includes means for independently supporting one tubing string within the tubing head against movement laterally and longitudinally downwardly with respect thereto but permitting rotational movement thereof so that the hanger unit can be landed without the necessity of rotationally aligning the same with the tubing head.

Still another object of the present invention is the provision of apparatus for multiple completion of wells including a plurality of hanger units for supporting a plurality of tubing strings in a tubing head in side-by-side relation, one of the hanger units including means for effecting a seal between the bore of the tubing head and all of the hanger units mounted thereon, so that when all of the hanger units are disposed within the tubing head in operative position, the control equipment can be removed from the tubing head and replaced by the Christmas tree connections.

A further object of the present invention is the provision of apparatus of the type described above in which the hanger units are provided with improved means for cooperating with the Christmas tree connections to provide a permanent seal therewith.

A still further object of the present invention is the provision of apparatus for the dual completion of wells including hanger units which can be assembled prior to the time that the tubing string is made up and quickly and easily connected therewith to suspend the tubing strings in side-by-side relation within a well head, the arrangement being such that the first hanger unit is capable of independently supporting the first tubing string landed within the tubing head, the second hanger unit providing a sealing means for effecting a seal between the tubing head bore and the hanger units after both of the latter have been landed.

Still another object of the present invention is the provision of apparatus for the multiple completion of wells which utilizes a standard tubing head and tubular hanger bushings of similar construction.

Still another object of the present invention is the

provision of apparatus for the multiple completion of wells including hanger units of the type described, at least one of which includes improved means for supporting the tubing string so that it can be rotated after the hanger unit has been landed for purposes of setting packers and the like.

Still another object of the present invention is the provision of apparatus for the multiple completion of wells having improved sealing means for effecting a seal between the tubing head bore and the hanger units, which is actuatable into sealing engagement by transverse expansion in response to longitudinal compression.

Still another object of the present invention is the provision of apparatus of the type described which is simple in construction, effective in operation and economical to manufacture and maintain.

These and other objects of the present invention will become more apparent during the course of the following detailed description and appended claims.

The invention may best be understood with reference to the accompanying drawings, wherein illustrative embodiments are shown.

In the drawings:

FIGURE 1 is a fragmentary, vertical cross-sectional view of a tubing head and control equipment mounted thereon with tubing string suspending hanger units embodying the principles of the present invention shown in elevation therein in the position they assume just prior to the landing of the second hanger unit;

FIGURE 2 is a fragmentary, vertical cross-sectional view of a tubing head with the hanger units landed therein and Christmas tree equipment operatively connected therewith;

FIGURE 3 is a reduced, cross-sectional view taken along line 3—3 of FIGURE 1;

FIGURE 4 is a view similar to FIGURE 3, taken along line 4—4 of FIGURE 1;

FIGURE 5 is a view similar to FIGURE 3, taken along line 5—5 of FIGURE 1;

FIGURE 6 is a view similar to FIGURE 3, taken along line 6—6 of FIGURE 1;

FIGURE 7 is an enlarged, fragmentary cross-sectional view similar to FIGURE 2 illustrating a modified form of one of the hanger units embodying the principles of the present invention; and

FIGURE 8 is a reduced, cross-sectional view taken along line 8—8 of FIGURE 7.

Referring now more particularly to the drawings, there is shown in FIGURE 1 a tubing head **10** of somewhat conventional construction, the lower end of which is mounted on a well head in a position to receive the upper end of a string of casing (not shown) as is well known in the art. The lower end of the tubing head is sealed with respect to the casing by means of a hanger (not shown) also as is well known in the art.

Extending longitudinally through the tubing head **10** is a bore **12** having an inwardly tapering annular seat **14** of generally frusto-conical configuration formed therein which is arranged to support a pair of tubing strings **16** and **18** extending downwardly through the casing in side-by-side relation to different levels of producing strata within the well. The tubing strings are suspended within the tubing head **10** by hanger units **20** and **22** embodying the principles of the present invention which are respectively operatively connected therewith, the hanger units being successively landed on the seat **14** and supported thereby.

While the drawings illustrate apparatus for the dual completion of wells, it will be understood that the principles of the present invention are generally applicable to multiple completions and that more than two tubing

strings and hanger units therefor can be utilized if desired.

The hanger unit 20 includes a tubular hanger bushing 24 having a longitudinal opening 26 extending therethrough. Any suitable means is provided for suspending the tubing string 16 from the hanger bushing and, as shown, the lower end of the opening 26 is interiorly threaded, as indicated at 28, to receive the exteriorly threaded upper end of a tubing joint 30.

The hanger unit 20 also includes an annular support member 32 having a lower, inwardly tapering exterior surface 34 for engaging and seating on the annular seat 14 of the tubing head. Extending longitudinally through the support member 32 in one segmental portion thereof of substantially 180° is an opening 36 of a size sufficient to receive the tubing joint 30 and tubing string 16. The hanger bushing 24 and support member 32 are operatively connected together with their respective openings 26 and 36 in longitudinal alignment by any suitable means and, as shown, the lower end of the hanger bushing 24 is exteriorly threaded, as indicated at 38, for engagement within interior threads 40 formed in the upper end of the opening 36.

The support member 32 also has an opening 42 extending longitudinally through the remaining segmental portion thereof of a size sufficient to receive the tubing string 18. As best shown in FIGURES 3 and 4, the opening 42 is preferably axially aligned with the opening 36 in a plane passing through the axis of the member 32. In addition, the opening 42 is elongated in a direction transverse to the above mentioned plane.

As best shown in FIGURES 1 and 3, a segment slightly in excess of 180° is removed from the upper portion of the annular support member 32 so as to form a vertical wall 44 spaced slightly from the axis of the annular member 32 and an upwardly facing surface 46 which, as shown, is substantially horizontal. While the member 32 is illustrated as being of unitary construction, it will be understood that for purposes of convenient manufacture, the same can be made of separate elements as for example, an apertured annular member having a thickness equal to the thickness of the member 32 adjacent the opening 42 and an additional apertured member of segmental configuration slightly less than 180° secured, as by bolts or the like, to the first mentioned member in alignment with the opening 36.

The hanger unit 22 includes a tubular hanger bushing 50 of a construction similar to the tubular hanger bushing 24. As before, any suitable means may be provided for suspending the tubing string 18 from the hanger bushing and, as shown, the lower end of an opening 52 extending through the hanger bushing 50 is threaded, as at 54, for engagement with the upper thread end of a tubing joint 56.

The hanger unit 22 also includes an annular support member 58. The member 58 includes a segmental portion of slightly less than 180° having a lower, downwardly facing surface 60 which, as shown, is disposed in a generally horizontal plane, for engagement with the surface 46 of the support member 32. Extending through the segmental portion of the member 58 is an opening 62 of a size sufficient to receive the tubing string 18 and tubing joint 56. Any suitable means may be provided for securing the support member 58 to the hanger bushing 50 and, as shown, the lower end of the latter is exteriorly threaded, as at 64, for engagement within the threaded upper end of the opening 62 in the support member 58.

The support member 58 also includes a relatively thin segmental portion having an opening 66 formed therein of a size sufficient to receive the hanger bushing 24 of unit 20. This segmental portion of the member 58 includes a downwardly facing surface 68 which is arranged to engage a cooperating upwardly facing surface 70 on the support member 32, both of these surfaces preferably being disposed in a horizontal plane. It will also be noted that the thicker segmental portion of the annular member 58 defines a vertical wall 72 which is spaced slightly from the vertical wall 44 of the member 32 when the hanger units are disposed in their operative position as shown in FIGURE 2.

The hanger unit 22 also includes means for effecting a seal between the bore of the tubing head and both of the hanger bushings 24 and 50 for a purpose hereinafter to be more fully described. To this end, it will be noted that the annular member 58 provides an upwardly facing surface 74 which is disposed in a generally horizontal plane upon which is mounted a suitably apertured disc 76 of a sealing material such as rubber, plastic or the like having the property of expanding transversely in response to longitudinal compression thereof.

In order to longitudinally compress the disc 76 of sealing material so that it will expand transversely into sealing engagement, a suitably apertured follower disc 78 of a rigid material, such as metal or the like, is mounted above the disc 76. The follower disc 78 is maintained in assembled condition with respect to the sealing disc 76 and support member 58 by any suitable means, such as bolts 80 having their heads engaged with the follower disc 78 and their stems extending through the sealing disc 76 and threadedly engaged within the annular member 58. It will be noted that this arrangement retains the follower ring and sealing ring in assembled relation with respect to the annular member 58 and hanger bushing 50 but permits longitudinal movement of the follower ring toward the support member 58 so as to longitudinally compress the sealing disc therebetween.

Any suitable means may be provided for effecting the longitudinal movement of the follower disc 78 toward the support member 58, and, as shown, such movement is effected by conventional circumferentially spaced locking screws 82. As is well known in the art, each locking screw 82 is threadedly mounted within the tubing head 10 for radial movement with respect thereto. Each locking screw includes an inner frusto-conical head 84 which is arranged to be projected into and out of the bore 12 of the tubing head in response to the turning movement of the locking screw. The frusto-conical head 84 of each locking screw is arranged to engage an inwardly tapering annular surface 86 of frusto-conical configuration formed on the upper exterior of the follower disc 78. It will be seen that by moving the locking screws 82 radially inwardly until the frustro-conical heads 84 project within the bore 12 of the tubing head, the follower ring 78 will be forced downwardly toward the annular member 58, by engagement of the heads 84 with the frusto-conical surface 86, to thereby longitudinally compress the sealing disc 76. As stated above, longitudinal compression of the sealing disc 76 results in a transverse expansion of the latter into sealing engagement with the bore of the tubing head and the exterior periphery of the hanger bushings 24 and 50.

It will be understood that by using a blow-out preventer, a portion of which is indicated by the numeral 90 in FIGURE 1, as well as other conventional control equipment, the hanger units 20 and 22 can be landed within the tubing head while full control of the well is maintained. As is well-known, the blow-out preventer 90 has a bore 92 extending longitudinally therethrough and is mounted on the tubing head by any suitable means such as conventional attaching flanges 94 and 96 formed on the lower end of the blow-out preventer and upper end of the tubing head respectively, bolted together by bolts 98 and sealed as by an A.P.I. ring gasket 100.

In utilizing the present equipment, the hanger unit 20 is made up in the tubing string 16 by threadedly engaging the tubing joint 30 within the threads 28 in the lower end of the hanger bushing 24. The hanger unit 20 with the tubing string suspended thereon is then lowered through the control equipment including the blow-out preventer

90 until the same is landed on the frusto-conical seat 14 of the tubing head. It will be noted that the engagement of the inwardly tapering exterior surface 34 of the support member 32 with the inwardly tapering surface of the seat 14 prevents longitudinal downward movement of the hanger unit 20 and lateral movement thereof, and, it is not necessary to align the same rotationally.

In most instances a conventional back-pressure valve (not shown) is mounted within the hanger bushing 24 when the hanger unit 20 is made up with the tubing string 16. In this regard, it will be noted that the opening 26 within the hanger bushing 24 is provided with a centrally disposed annular groove 102 that cooperates with a back-pressure valve. One embodiment of a back-pressure valve which may be utilized in connection with the present equipment is disclosed in our co-pending application, Serial No. 659,424, filed May 15, 1957.

In a like manner, the opening 52 of the tubular hanger bushing 50 has a centrally disposed annular groove 106 formed therein for cooperating with a similar back-pressure valve. The construction of the back-pressure valve, the manner in which the same cooperates with the groove provided within the hanger bushings and the manner in which the same are operated is fully disclosed in our above-mentioned application to which reference can be had if necessary.

After the hanger unit 20 has been suitably landed in the manner noted above, the tubing string 18 is made up together with the hanger unit 22, suitably plugged as noted above, by threadedly engaging the tubing joint 56 within the interior threads 54 and the lower end of the hanger bushing 50. The hanger unit 22 is then lowered through the control equipment including the blow-out preventer 90, and it will be noted that the opening 42 in the support member 32 of the hanger unit 20 guides the lower end of the tubing string 18 into a general position of alignment within the well casing. As the hanger unit 22 is lowered through the blow-out preventer, the opening 66 in the support member 58 and corresponding openings in the sealing disc and follower disc 78 will pass over the hanger bushing 24 and will thus be guided into proper position. The hanger unit 22 is landed when the surfaces 60 and 68 thereof contact and engage the surfaces 46 and 70 of the hanger unit 20. After the hanger unit 22 has been landed, the locking screws 82 are actuated to effect the transverse expansion of the sealing disc 76 into sealing engagement with the bore and exterior periphery of the hanger bushings 24 and 50 in the manner described above.

The sealing disc 76 thus actuated forms a seal between the bore of the tubing head and the exterior of the hanger units 20 and 22. The interiors of the hanger units are sealed by means of the back-pressure valves (not shown) described above. In this condition the blow out preventer 90 and the other control equipment (not shown) associated therewith can now be removed from the tubing head and replaced by flow equipment.

Referring now more particularly to FIGURE 2, there is shown a tubing head cap 110 having exterior threads 112 formed on the lower end thereof. The cap 110 is mounted above the tubing head 10 and sealed thereto by means of the conventional A.P.I. ring gasket 100 previously described. As shown, the cap 110 has an interiorly threaded locking ring 114 engaged on the threads 112 thereof, which ring is secured to the flange 96 of the tubing head by bolts 116 or the like. Extending longitudinally through the cap 110 is a pair of vertical openings 118 and 120, which are spaced from one another and arranged to generally align with the openings extending through the hanger bushings 24 and 50 respectively.

It will be noted that the hanger bushings 24 and 50 extend above the upper surface of the tubing head a considerable extent and each has its upper end provided with an inwardly tapering exterior seating surface, as indicated at 122 and 124 respectively. The lower portion of the openings 118 and 120 in the cap 110 are arranged to receive the upper portion of the hanger bushings 24 and 50 respectively and are provided with inwardly tapering seats 126 and 128 respectively for engagement with the seating surfaces 122 and 124 thereof.

The particular construction of the seating surfaces 122 and 124 and the cooperation thereof with the frusto-conical seats 126 and 128 is disclosed in specific detail in Watts et al. application Serial No. 583,104 filed May 7, 1956.

Briefly, the seating surfaces 122 and 124 have a taper which is slightly steeper than the taper of the seats 126 and 128 so that when they are initially contacted they diverge slightly from one another. When the bolts 116 are tightened, the upper ends of the hanger bushings are flexed slightly inwardly within the elastic limits of the metal, until the cooperating surfaces are in parallel relation with one another.

The well head completion equipment including the cap 110 illustrated in FIGURE 2 generally corresponds to the well head completion equipment disclosed in the Watts et al. application, Serial No. 583,104, now U.S. Patent No. 3,001,803. It will be noted that FIGURE 2 further illustrates the lower portion of a dual completion manifold 130 which is mounted on the upper end of the cap 110 and provided with openings 132 and 134 arranged for alignment with the openings 118 and 120 of the cap respectively.

The manifold 130 is secured on the cap 110 by any suitable means, such as bolts 136, and the pairs of aligned openings extending therethrough are sealed by a pair of conical sealing members 138 and 140, having double tapering exterior seating surfaces arranged to engage within tapering seats formed in the adjacent ends of each pair of aligned openings 118—132 and 120—134. The construction of the sealing cones 138 and 140 and the manner in which the exterior double tapering sealing surfaces thereof cooperate with the tapering seats of the cap 110 and manifold 130 is more particularly described in the above mentioned Watts et al. application Serial No. 583,104, now U.S. Patent No. 3,001,803.

While well completion equipment of the type disclosed in Watts et al. application Serial No. 583,104, now U.S. Patent No. 3,001,803, is shown as being utilized in completing the well equipment of the present application, it will be understood that well completion equipment of the type illustrated in our co-pending application, Serial No. 659,424, may be utilized in lieu thereof if desired, as well as other types of similar equipment. In this regard, a significant feature of the present equipment is that the hanger bushings 24 and 50 extend above the upper end of the tubing head and are provided with inwardly tapering seating surfaces which form permanent seals with the well head completion equipment mounted on the tubing head after the control equipment has been removed.

With the particular cap 110 illustrated in FIGURE 2 of the drawings, the spacing between the center lines of the openings 118 and 120 is slightly greater than the spacing between the center lines of the openings extending through the hanger bushings 24 and 50. This permits the tubing strings to be spaced closer together so that they can be more easily passed into the casing. The openings through the hanger bushings are of the smallest possible diameter and this slight offsetting of the center lines is possible because the openings 118 and 120 are slightly greater in diameter than the openings in the hanger bushings.

It will be understood that after the completion equipment has been properly mounted on the tubing head, the well can be made to flow in accordance with usual practice. See, for example, either of the Watts et al. applications noted above.

Referring now more particularly to FIGURE 7, there is illustrated therein a modified form of the hanger unit 22. In this embodiment the support member 58 is re-

placed by a support sub-assembly 150. The sub-assembly 150 includes a thin disc 152 suitably apertured to receive the hanger bushing 24 and the hanger bushing 50 as well as the bolts 80 previously described. A sector shaped member 154 is mounted beneath the disc 152 and threadedly receives the bolts 80 in a manner similar to that described above in connection with the embodiment disclosed in FIGURES 1–6. The sector shaped member has an arcuate extent slightly less than 180° and is provided with a bore 156 of a size sufficient to receive therethrough the tubing joint 56 and tubing string 18. Extending downwardly from the upper end of the member 154 is a counterbore 158, the lower end of which forms an annular shoulder 160 disposed in a substantially horizontal plane. Rotatably received within the counter bore 158 is a sleeve 162 having its lower end seated on the shoulder 160 and the upper portion of its interior threaded to receive the exterior threads 64 on the lower end of the hanger bushing 50.

It will be noted that the sub-assembly 150 permits rotary movement of the hanger bushing 50 and tubing string 18 connected therewith after the hanger unit 22 has been landed within the tubing head. Such rotation is desirable in certain installations to carry out fishing operations and the like which are sometimes necessary. It will be noted that this rotation is possible because of the mounting of the sleeve 162, which is rigid with the hanger bushing, within the counter bore 158 of the support member 154, which serves to support the hanger unit and tubing string within the tubing head.

It can thus be seen that there has been provided apparatus for multiple completion of wells which permits the utilization of a minimum size tubing head and hence minimum size control equipment and Christmas tree connections therewith. The hanger units of the present invention are readily fabricated utilizing simple component parts and are fully assembled as self-contained units for use by the oil well operator. The unit 20 permits the first tubing string to be landed and supported within the tubing head without the necessity of rotationally aligning the same therein. Of course, such landing of the hanger unit can be accomplished while full control of the well is maintained through conventional control equipment. The first hanger unit provides a support upon which the second hanger unit 22 is landed. Rotational alignment of the second unit is initially effected by the elongated opening 42 provided by the first hanger unit. Final alignment is effected by the movement of the upper inwardly tapering exterior surface of the hanger bushing 24 within the openings for receiving the same formed in the hanger unit 22.

Of particular significance is the fact that the second hanger unit 22 includes as a self-contained part thereof a sealing arrangement for effecting a seal between the bore of the tubing head and the exterior of both of the hanger units, which seal permits removal of the control equipment from the tubing head so that the well may be completed with the usual Christmas tree connections.

The particular sealing arrangement utilized is simple in operation and quite effective, the seal being obtained by transverse expansion of a sealing disc in response to longitudinal compression thereof by means of a follower ring moved downwardly by locking screws or the like. Furthermore, both of the hanger units include hanger bushings which extend above the upper surface of the tubing head and are provided with inwardly tapering exterior surfaces which form a permanent seal with the well completion equipment mounted on the tubing head after the control equipment has been removed.

The modified form of hanger unit illustrated in FIGURES 7 and 8 is particularly advantageous where it is desired to be able to effect a rotary movement of the second tubing string within the casing. As is well-known, such rotation is sometimes necessary in fishing operations and other times in the normal operation of a well.

It thus will be seen that the objects of this invention have been fully and effectively accomplished. It will be realized, however, that the foregoing specific embodiment has been shown and described only for the purpose of illustrating the principles of this invention and is subject to extensive change without departure from such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.

We claim:

1. A hanger assembly for suspending a plurality of tubing strings from the bore of a well head having upwardly facing seat means, in side-by-side relation comprising: a plurality of hanger units each having means for receiving and suspending a tubing string therefrom, one of said units having an annular part of a size to fit within the well head bore, and including downwardly facing seat means for engaging said well head seat means throughout the inner periphery thereof to provide independent support for said one unit therein, the tubing string receiving and suspending means of said one unit being spaced radially from the axis of said annular part, said one unit also including a sector-shaped part of substantially

$$\frac{360°}{X}$$

extent where X equals the number of units which part extends above a portion of said annular part, the remainder of said annular part defining upwardly facing sector-shaped surface means and having an opening extending through at least the central portion of each

$$\frac{360°}{X}$$

extent thereof, the remainder of said units each comprising a sector-shaped part of substantially

$$\frac{360°}{X}$$

extent supportable on said annular part in operative coextensive relationship with said sector-shaped surface means of said one unit with its associated tubing string receiving and suspending means vertically aligned with an associated opening formed in the remaining portion of the annular part of said one unit, the tubing string receiving and suspending means for at least one of the remainder of said units including a hanger bushing and means for mounting said hanger bushing within its corresponding sector-shaped part for rotation about its axis, the top surface of the axially extending part of said one unit defining with the top surface of said remaining units a substantially continuous top surface axially displaced from said surface means defined by said remainder of the one unit, and hold-down screw actuated sealing means carried on the top surface and engageable with said bore throughout its periphery and the tubing string receiving said suspending means for effecting a seal between said bore and all of said hanger units when the latter are disposed in said position.

2. Hanger assembly defined in claim 1 wherein said rotatable mounting means includes an interiorly threaded sleeve having inwardly facing bottom circumferential flange portion operative for support by said unit adjacent thereto, said hanger bushing being exteriorly threaded for reception by said sleeve and having a bottom surface for abutting engagement with the top surface of said circumferential flange portion so that said hanger bushing and said sleeve are operative for rotation together.

3. A hanger assembly as defined in claim 1 wherein said one unit has a bore extending through the central portion of said sector-shaped part and said annular part of a size to receive a tubing string and wherein the tubing string receiving and suspending means of said one unit comprises a hanger bushing secured within said bore.

4. A hanger assembly as defined in claim 3 wherein the upper end of said hanger bushing is provided with an

exterior frusto-conical surface for sealing engagement with a cooperating frusto-conical sealing surface formed in a flow head adapted to be secured above and to the well head.

5. A hanger assembly as defined in claim 3 wherein the lower end of said hanger bushing is exteriorly threadedly engaged within the upper end of said bore and is interiorly threaded to receive and suspend the tubing string.

6. A hanger assembly as defined in claim 1 wherein there are only two units, the unit other than said one unit having a rigid annular part fixed to and disposed above the sector-shaped part thereof of a size substantially coextensive with annular part of said one unit, and said sealing means includes a compressible annular sealing part above said rigid annular part, and a second rigid annular part above said compressible annular part provided with upwardly facing set screw engageable wedging surface means.

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