Jan. 19, 1965 K. F. WENTS ETAL 3,166,126

MULTIPLE ZONE WELL PRODUCTION APPARATUS

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FIG. 1.

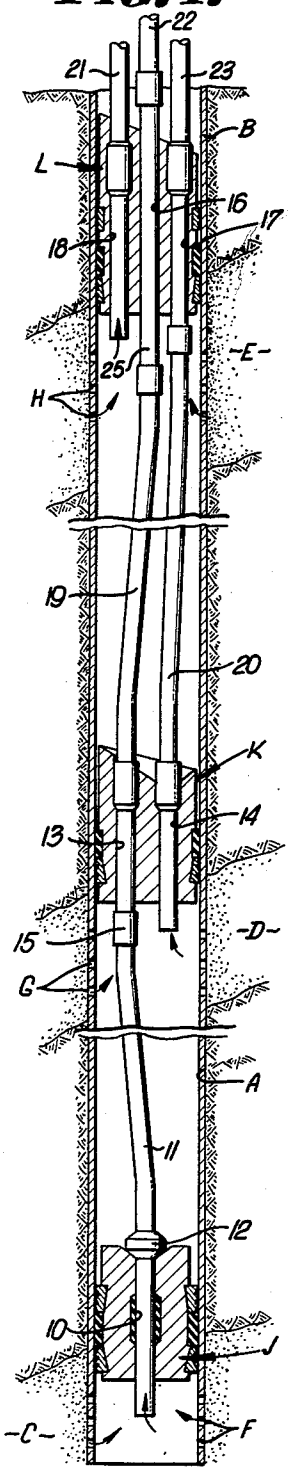


FIG. 4.

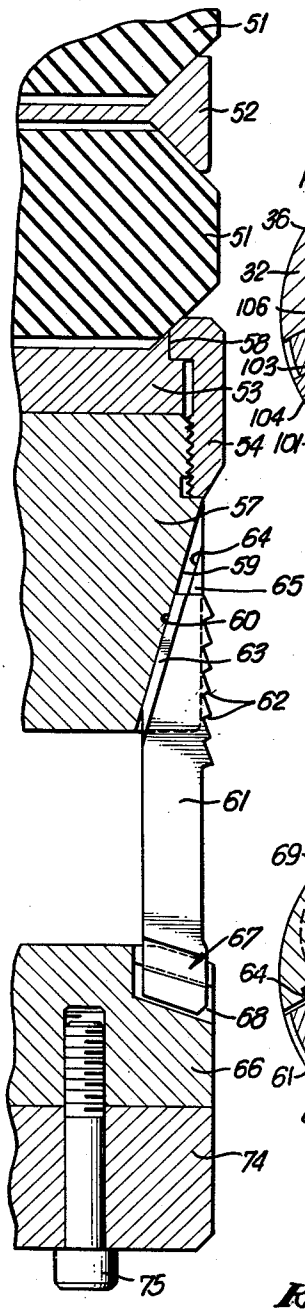


FIG. 5.

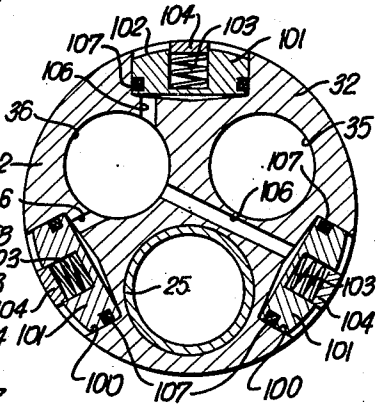
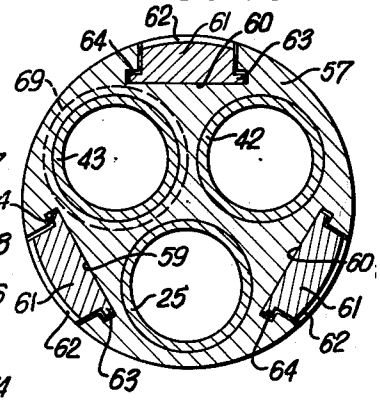


FIG. 6.



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MULTIPLE ZONE WELL PRODUCTION APPARATUS

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FIG. 2.

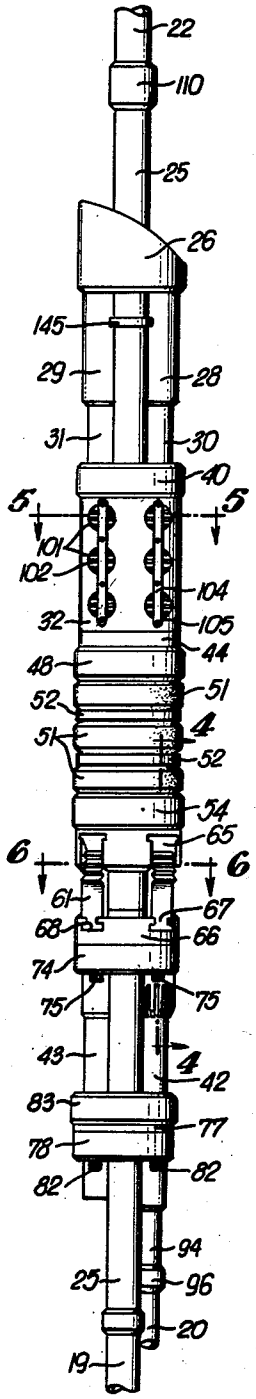


FIG. 3.

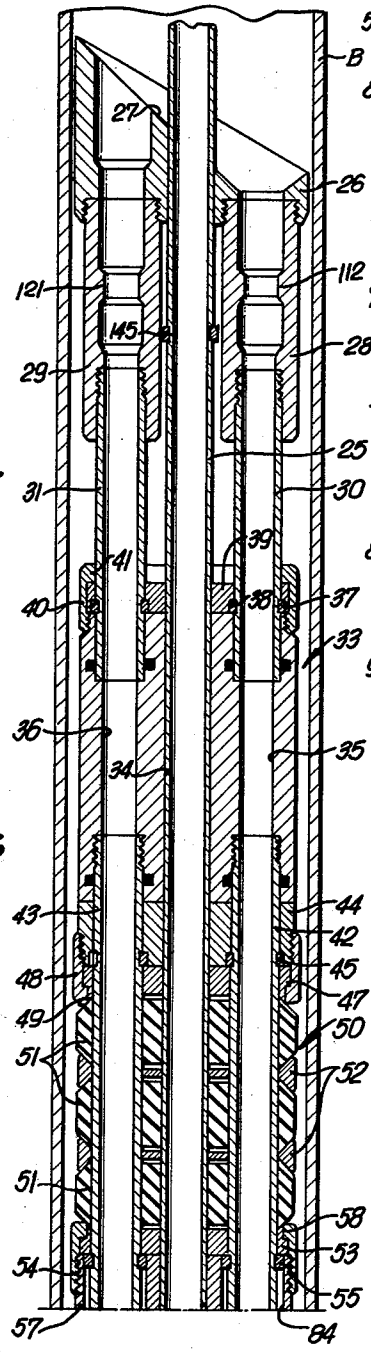
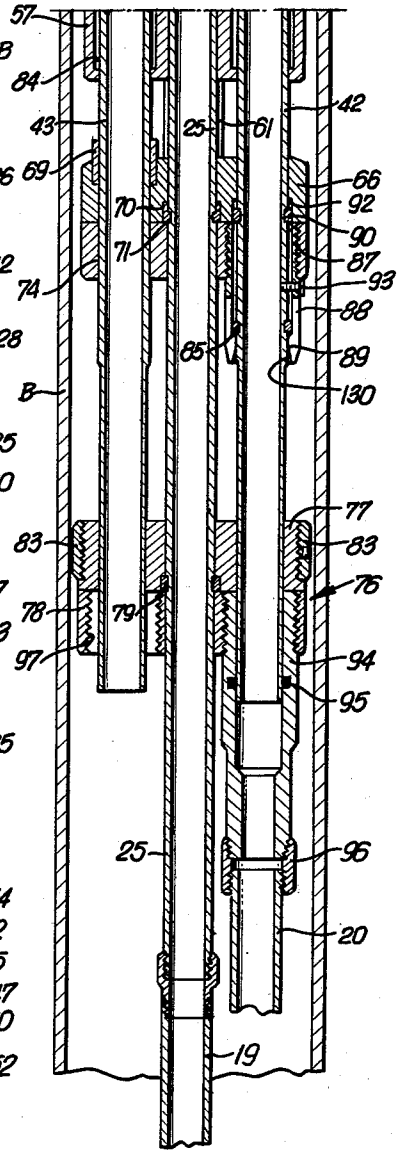


FIG. 3a.



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FIG. 1.

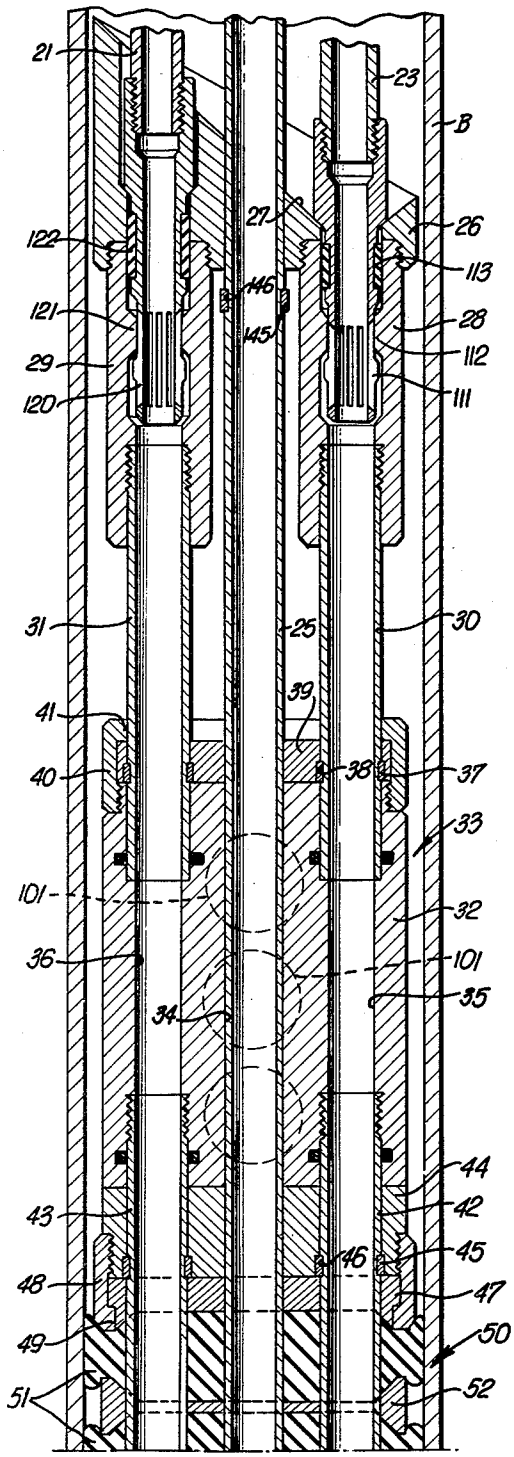
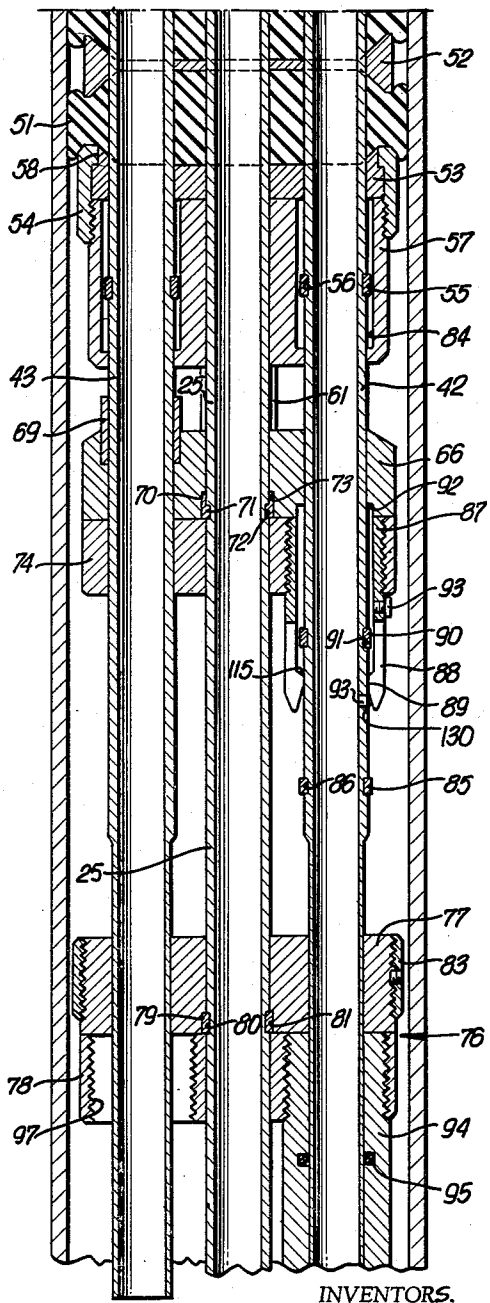


FIG. 1a.



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FIG. 8.

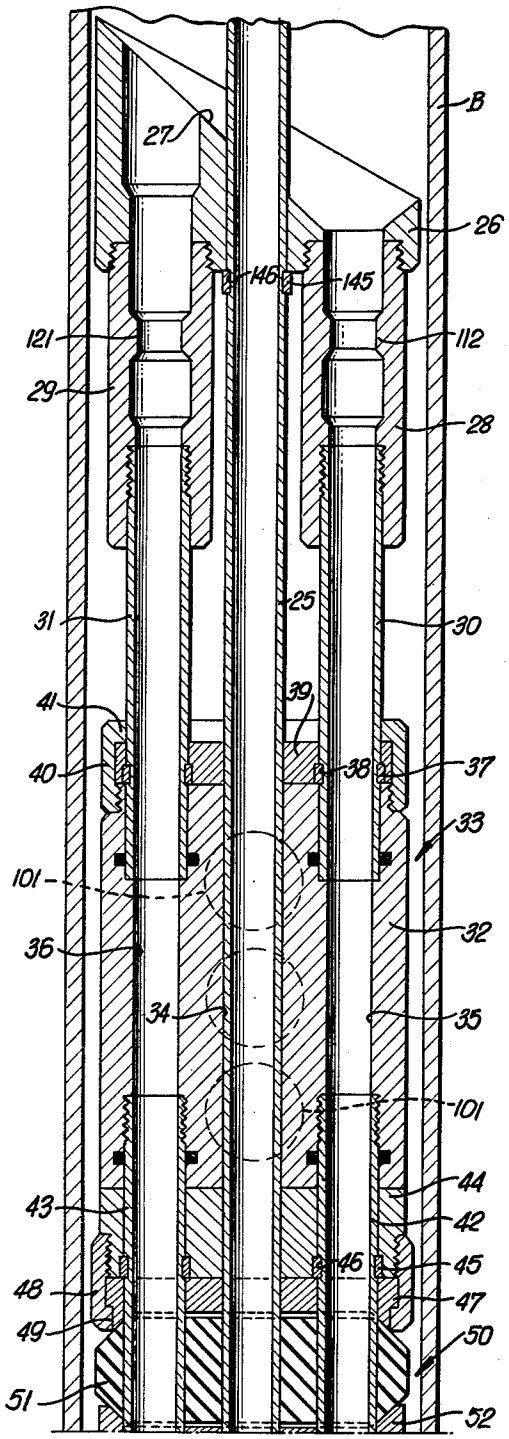
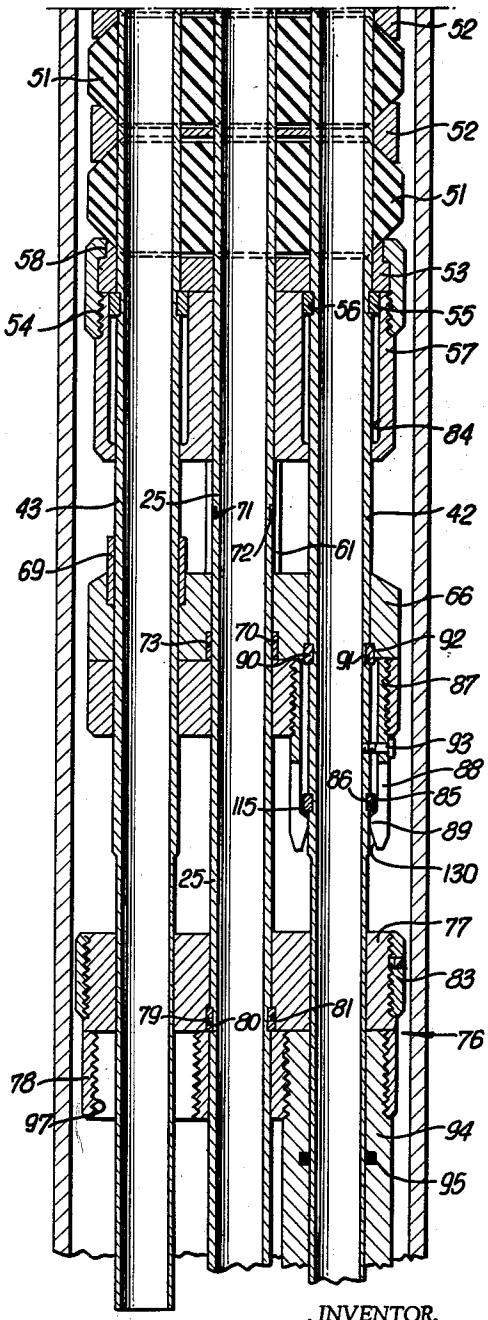


FIG. 8a.



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FIG. 9.

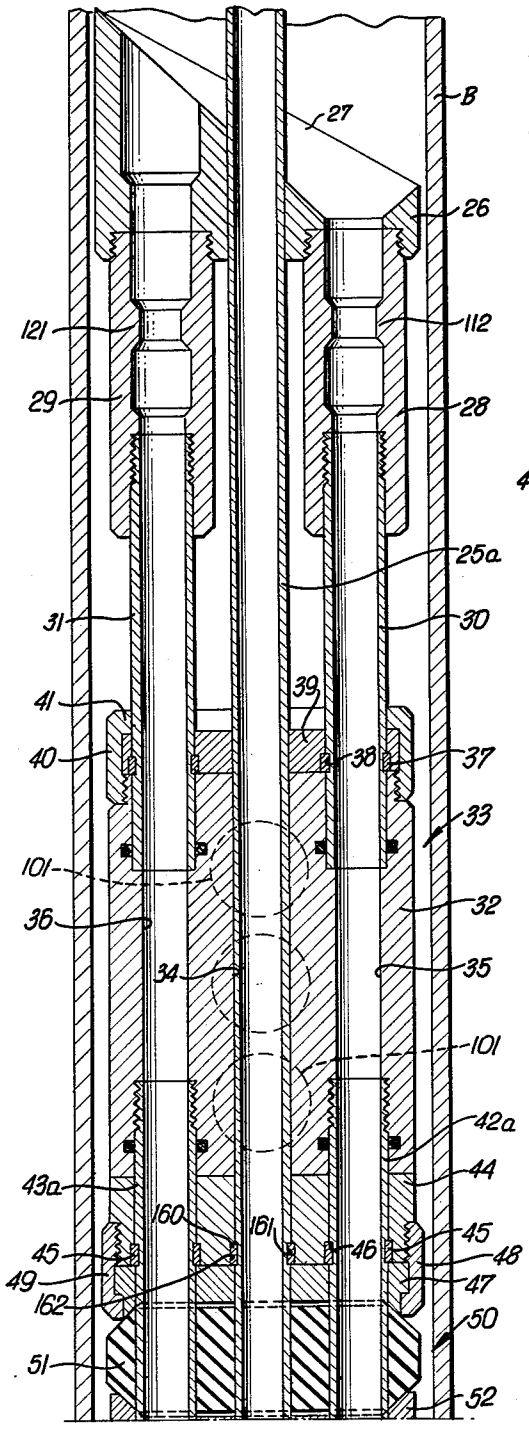
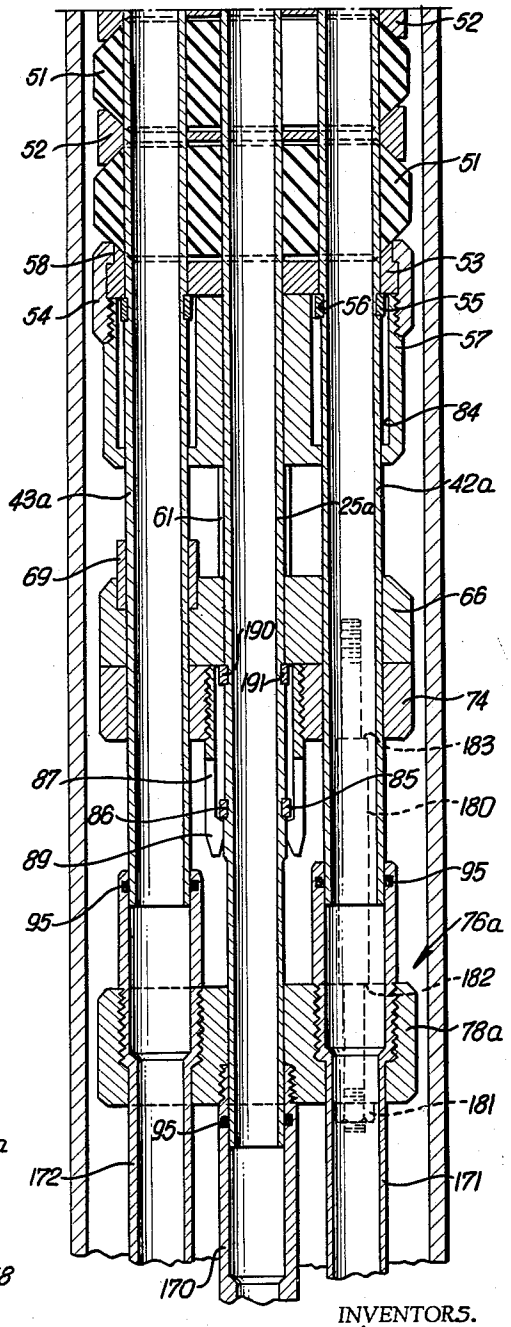


FIG. 9a.



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MULTIPLE ZONE WELL PRODUCTION APPARATUS

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FIG. 10.

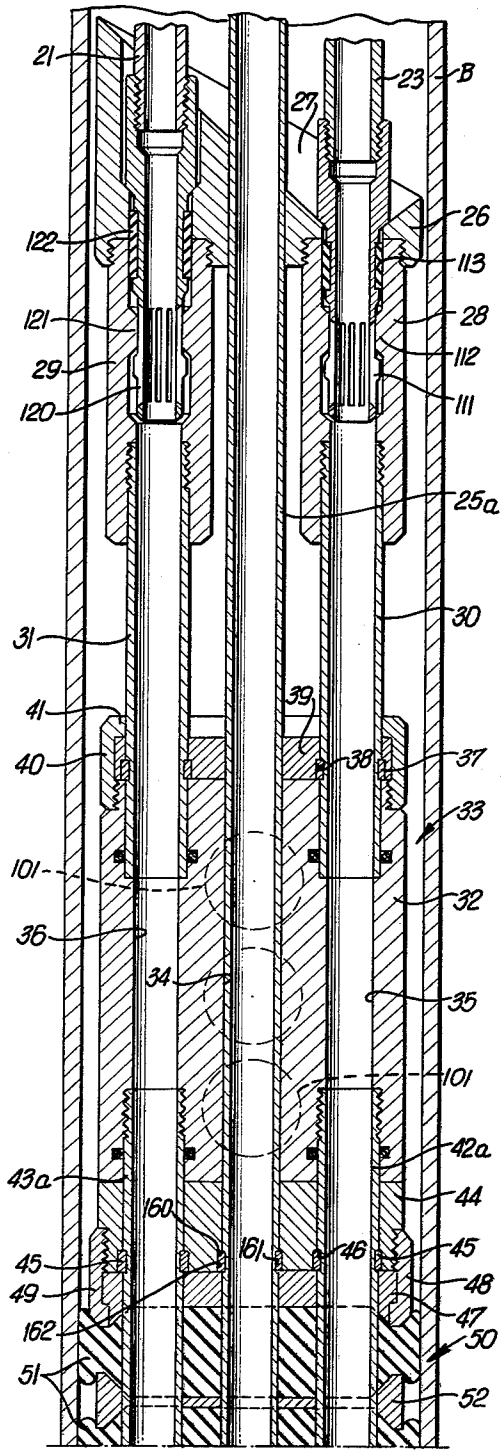
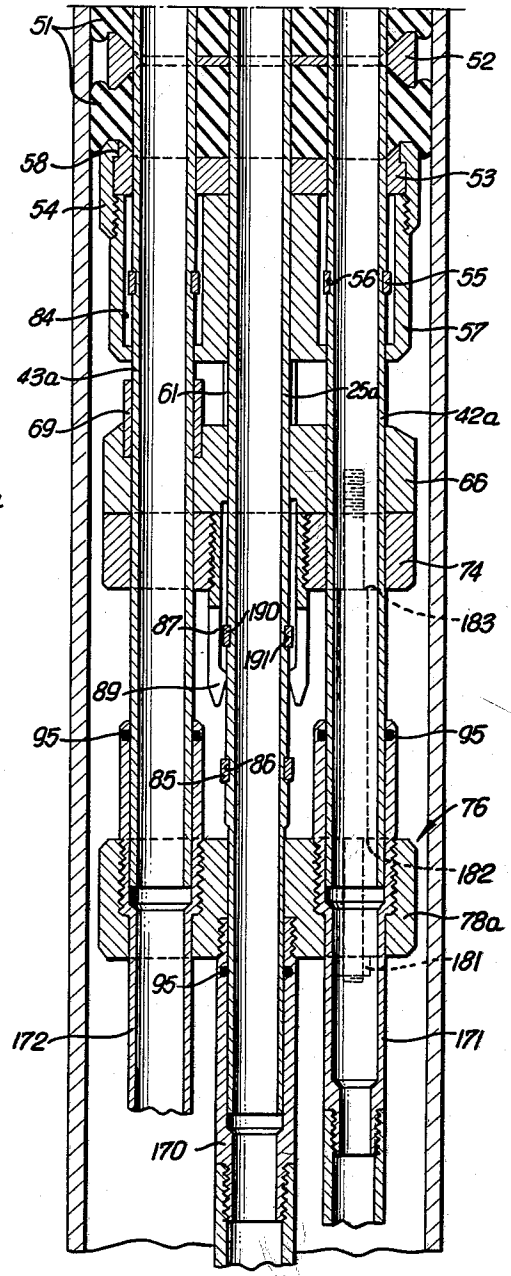


FIG. 10a.



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3,166,126

MULTIPLE ZONE WELL PRODUCTION APPARATUS

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Filed June 5, 1961, Ser. No. 114,786
20 Claims. (Cl. 166—120)

The present invention relates to multiple zone well production apparatus, and more particularly to well packer apparatus capable of conducting well bore production from a plurality of formation zones through separate parallel tubing strings to the top of the well bore.

An object of the invention is to provide an improved apparatus for use in conducting well production from at least three producing zones in a well bore separately through three parallel tubular strings to the top of the well bore.

Another object of the invention is to provide a well packer apparatus having at least three parallel flow passages through it with which three tubular strings extending to the top of the well bore can be placed in communication, the passages all being of relatively large diameter which is substantially the same as the inside diameter of the tubular strings, so that a full opening through each passage and tubular string is present for the unrestricted flow of fluid, and for movement therethrough of other devices.

A further object of the invention is to provide a well packer apparatus having at least three parallel passages through it with which separate parallel tubular strings extending to the top of the well bore can be placed in communication, the packer apparatus being set in the well bore by manipulation of the tubular strings, and without the necessity for supporting the apparatus from a lower device, such as a lower packer, set in the well bore.

An additional object of the invention is to provide a well packer apparatus having at least three parallel passages through it with which separate parallel tubular strings extending to the top of the well bore can be placed in communication, setting of the packer apparatus in the well bore being effected by imposing downweight on either one, two or three of such tubular strings, thereby dividing the weight applied between them and preventing buckling of a single tubular string, and at the same time insuring that sufficient downweight can be imposed on the packer apparatus to maintain it set in packed-off condition.

Another object of the invention is to provide a well packer apparatus having at least three parallel passages through it with which three parallel tubular strings can be placed in communication, setting of the packer apparatus in the well bore being effected by holding one tubular string in tension and imposing downweight on one or both of the other tubular strings, release of the packer being accomplished by elevating the other tubular strings, or if need be, the tubular string originally held in tension.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of several forms in which it may be embodied. Such forms are shown in the drawings accompanying and forming part of the present specification. These forms will now be described in detail for the purpose of illustrating the general principles of the invention; but it is to be understood that such detailed description is not to be taken in a limiting sense, since the scope of the invention is best defined by the appended claims.

Referring to the drawings:

FIGURE 1 is a diagrammatic view of an apparatus embodying the invention disposed in a well bore;

FIG. 2 is a side elevational view of the upper packer disclosed in FIG. 1;

FIGS. 3 and 3*a* together constitute a longitudinal section through the packer illustrated in FIG. 2 with the parts disclosed in a single plane for convenience of illustration, FIG. 3*a* constituting a lower continuation of FIG. 3;

FIG. 4 is an enlarged longitudinal section taken along the line 4—4 on FIG. 2;

FIG. 5 is an enlarged cross-section taken along the line 5—5 on FIG. 2;

FIG. 6 is an enlarged cross-section taken along the line 6—6 on FIG. 2;

FIGS. 7 and 7*a* together constitute a longitudinal section through the apparatus illustrated in FIGS. 3 and 3*a*, on an enlarged scale, illustrating the packer anchored in packed-off condition in the well casing, FIG. 7*a* constituting a lower continuation of FIG. 7;

FIGS. 8 and 8*a* are views corresponding to FIGS. 7 and 7*a*, respectively, illustrating the packer released from the well casing after having been set therein;

FIGS. 9 and 9*a* together constitute a longitudinal section of a modified form of well packer apparatus in condition for movement through a well casing, FIG. 9*a* constituting a lower continuation of FIG. 9; and

FIGS. 10 and 10*a* together constitute a longitudinal section through the apparatus shown in FIGS. 9 and 9*a*, the packer being set in packed-off condition in the well casing.

As disclosed in FIG. 1, a well bore A has been drilled and casing B set therein. The well bore is shown as passing through a lower producing zone C, an intermediate producing zone D and an upper producing zone E, there being lower, intermediate and upper perforations F, G, H in the casing communicating with the lower, intermediate and upper zones, respectively. A lower packer J of any suitable type is anchored in packed-off condition in the well casing B between the lower and intermediate casing perforations F, G, this packer having a single or first central passage **10** therethrough receiving the lower end of a first lower tubing string **11** which may have a head **12** attached thereto adapted to rest upon the lower packer. This lower tubing string extends upwardly and communicates with a first longitudinal passage **13** through an intermediate packer K that can be set in packed-off condition in the well casing B between the intermediate and upper casing perforations G, H. This intermediate packer K may be of any suitable form, having a second longitudinal passage **14** extending therethrough. The intermediate packer K may be of a type which is anchored in packed-off condition in the well casing by imposing downweight on the packer, and by relatively moving an upper portion of the packer with respect to a lower portion of the packer, the lower portion being prevented from moving by the lower tubing string **11**. To permit such setting to occur, the lower tubing string may include a telescopic joint **15**. The intermediate packer K is essentially a hook wall packer having the first and second parallel passages **13, 14** extending completely therethrough, being of any preferred specific type. By itself, it constitutes no part of the present invention.

An upper well packer L is set in the well casing B above the upper perforations H and is of the specific structure illustrated in FIGS. 2 to 8*a* or FIGS. 9 to 10*a*. This packer L has first, second and third parallel passages **16, 17, 18** therethrough, there being a first intermediate tubing string **19** extending between its first passage **16** and the first passage **13** through the intermediate packer K. A second intermediate tubing string **20** extends between the second passage **17** in the upper packer and the second passage **14** in the intermediate packer K. The third passage **18** in the upper packer L is open to the

casing B immediately therebelow and will conduct fluid from the upper zone E into a third tubing string **21** disposed in the third passage **18**, and which extends to the top of the well bore. Similarly, a first tubing string **22**, extending to the top of the well bore, coacts with the first passage **16** in the upper packer; and a second tubing string **23**, extending to the top of the well bore, communicates with the second passage **17** in the upper packer.

From the foregoing description of FIG. 1, it will be evident that well production from the lower zone C passes into the lower tubing string **11**, flowing upwardly into the first passage **13** of the intermediate packer K, through the first intermediate tubing string **19** and the first passage **16** in the upper packer L, and then through the first tubing string **22** extending to the top of the well bore. The well production from the intermediate zone D flows through a separate path into the second passage **14** of the intermediate packer K, then continuing upwardly through the second intermediate tubing string **20** to the second passage **17** of the upper packer L, from where it flows through the second tubing string **23** to the top of the well bore. Well production from the upper zone H flows through the third passage **18** in the upper packer, and through the third tubing string **21** to the top of the well bore.

In the installation illustrated diagrammatically in FIG. 1, the lower packer J may be run in the well casing B and set in place between the lower and intermediate perforations F, G, after which the running-in and setting equipment (not shown) is removed from the well casing. The lower tubing string **11** of the proper length is then attached to the second packer K and the first and second intermediate tubing strings **19, 20** are also attached to the second packer. The upper packer L is then secured to the first and second intermediate tubing strings **19, 20** and the first tubing string **22** then attached to the upper packer. The combination just described is run in the well casing B until the lower tubing string **11** enters the first passage **10** of the lower packer J and the tubing head **12** comes to rest thereon. Downweight is then imposed on the first tubing string **22** which will be transmitted through the first intermediate tubing string **19** to the second packer K, effecting its anchoring in packed-off condition against the well casing B between the intermediate and upper perforations G, H. Since the first and second intermediate tubing strings **19, 20** are of a proper length, the upper packer L will then be disposed above the upper casing perforations H. The upper packer can then be anchored in packed-off condition against the well casing B, in the manner described in detail hereinbelow. In general, if the first tubing string **22** is secured to the body of the upper packer, such string may be held in tension and one or both of the other tubing strings **21, 23** then lowered in the well casing and fitted in their respective passages **18, 17**, whereupon downweight is imposed upon them for the purpose of expanding the gripping members against the well casing, as well as the packing structure, described hereinbelow. The upper packer L can assume another form in which the first intermediate tubing string **19** cannot move downwardly, because of its being supported by the set intermediate packer K, whereupon downweight can be imposed on the first tubing string **22**, or, if the second and third tubing strings **23, 21** have been positioned in the second and third passages **17, 18**, downweight can be imposed on all three of such tubing strings, or on only one of them, or any two of them, in order to effect an anchoring of the upper packer L in packed-off condition against the wall of the well casing, as described hereinbelow.

In the upper packer form L of invention illustrated in FIGS. 2 to 8*a*, inclusive, the lower portion of the first tubing string **22** may be constituted as a first mandrel or body **25** slidable through an upper guide **26** having a tapered guide surface **27** for guiding the second and third tubular strings **23, 21** into their respective passages **17, 18** in the upper packer. A second tubular body or receptacle **28** is threadedly secured to the guide, as well as a third tubular receptacle or body **29**, the second and third receptacles being adapted to receive the lower portions of the second and third tubular strings **23, 21**, respectively. Second and third body extensions **30, 31** are threadedly attached to the second and third receptacles **28, 29**, respectively, these body extensions extending into the body **32** of an anchor device **33**, which is to prevent fluid pressure from below the well packer L from moving it upwardly in the well casing B. The anchor body **32** has first, second and third longitudinal passages **34, 35, 36** therein, the first mandrel **25** being slidable in the first passage **34**, whereas the second and third body extensions **30, 31** extend into the second and third passages **35, 36**, being fixed to the anchor body **32** by a split coupling ring **37** in a peripheral groove **38** in each body extension, which engages the upper end of the anchor body **32** to prevent downward movement of the extensions relative to the anchor body. Upward movement of the body extensions **30, 31** is prevented by an insert plate **39** through which the extensions pass and the first mandrel **25** is slidable, this plate being fastened against the upper end of the anchor body **32** by a clamp ring **40** threaded on the anchor body and having an inwardly directed flange **41** engaging the insert plate **39** to hold it against the coupling rings **37**.

Threaded into and depending from the anchor body **32** are second and third tubular mandrels or bodies **42, 43** communicating with the second and third passages **35, 36** of the anchor body, respectively. These tubular body members extend downwardly through an upper connector **44** abutting the lower end of the anchor body **32**, the connector resting upon split rings **45** mounted in grooves **46** in the second and third mandrels **42, 43**. An upper abutment **47** is clamped against the connector **44** and the split rings **45** by an abutment clamping member **48** threaded on the upper connector **44** and having an inwardly directed flange **49** engaging the upper abutment **47**. In operating effect, the upper abutment **47** and the clamp ring **48** together constitute an abutment. Such composite abutment engages the upper portion of a packing structure **50**, which, as specifically illustrated, includes a plurality of pliant, elastic packing elements **51**, made of rubber or rubber-like material, separated by metallic spacer elements **52**, the lowermost packing element **51** engaging a composite lower abutment **53, 54** resting initially upon lower split rings **55** disposed in grooves **56** in the second and third mandrels or body members **42, 43**. An abutment clamp ring **54** is threaded onto a lower expander member **57** and has an inwardly directed flange **58** engaging the lower abutment **53** to clamp the latter against the upper end of the expander **57**.

The expander **57** has tapered expander surfaces **59** thereon which incline in a downward and inward direction, cooperating with companion tapered surfaces **60** on slips **61** having external wickers or teeth **62** facing predominantly in a downward direction, so as to anchor the well packer L against downward movement in the well casing B. Relative downward movement of the expander **57** along the slips **61** will expand the latter outwardly against the well casing B, whereas relative upward movement of the expander along the slips will effect a retraction of the latter from the well casing. Such retraction will occur because of the side tongues **63** on the inner portions of each slip being slidable in companion grooves **64** on opposite sides of each expander slot **65** in which the slip is received.

The slips **61** are connected for joint longitudinal movement by being coupled to a slip ring **66**, the lower end **67** of each slip being of generally inverted T-shape and received within a companion T-shaped generally radially

groove 68 in the slip ring. Thus, the slip ring 66 couples the slips 61 for joint longitudinal movement, but permits them to move radially of the ring, the T-shaped heads 67 being slidable in their companion grooves 68. Longitudinal movement of the slips 61 along the expander 57 when the slips are being expanded is limited by a stop sleeve 69 on the ring 66 slidable along one of the mandrels 43 and engageable with the expander 57.

The first tubular mandrel or body 25 extends slidably through the upper connector 44, upper abutment 47, packing elements 51, spacers 52 and expander 57, and also extends through the slip ring 66, being coupled to the latter member by a split shear ring 70 having an inwardly directed flange 71 disposed in a peripheral groove 72 in the first mandrel 25 and received within a counterbore 73 in the slip ring 66. The first mandrel 25 is prevented from moving downwardly of the slip ring 66 by a retaining ring 74 through which all of the mandrels 25, 42, 43 pass, which is attached to the slip ring 61 by a plurality of longitudinal extending screws 75 (see FIGS. 2 and 4). The first mandrel 25 extends downwardly from the slip ring 61 and passes through a lower body structure 76, including an upper retaining portion 77 and a lower ring 78. A split coupling ring 79 is mounted in a peripheral groove 80 in the first mandrel 25 and is disposed within a counterbore 81 in the upper body member 77, being held against the upper retaining member 77 by the retaining ring 78. The upper retaining member 77 and retaining ring 78 are secured together by longitudinal screws 82 (FIG. 2). The upper member 77 may have a guide ring 83 threaded thereon which has a desired external diameter, so as to insure the passage of all of the packer parts thereabove in the well casing B. If any restrictions are encountered, they will be engaged by the ring 83, which is indirectly connected to the first mandrel 25, thereby precluding inadvertent setting of the well packer.

The second and third tubular mandrels 42, 43 pass slidably through the packing elements 51, spacers 52 and lower abutment 53, and are also movable relatively downwardly in the expander 57, since their coupling rings 55 are received within enlarged bores 84 in the expander. The second and third mandrels 42, 43 also are slidable through the slip ring 66 and its retaining ring 74, as well as through the lower body structure 76. Initially, however, one of the tubular mandrels 42, 43, such as the second tubular mandrel 42, is releasably coupled to the slip ring 66, to prevent setting of the well packer against the well casing until such setting is purposely desired. As illustrated most clearly in FIGS. 3*a*, 7*a* and 8*a*, a split control ring or cam 85 is mounted in a peripheral groove 86 in the second tubular member 42, this ring being initially disposed within a latch sleeve 87 threaded into the retainer ring 74 and which has depending latch legs 88 terminating in inwardly directed fingers 89 which are, at first, disposed under the cam 85. The upward position of the second mandrel 42 relative to the slip ring 66 may be limited by mounting a stop ring 90 in a groove 91 in the second mandrel 42 engageable with a shoulder 92 on the slip ring, the stop ring 90 being slidable downwardly relative to the slip ring 66 and also being slidable within the latch sleeve 87. If desired, the second tubular member 42 may be initially secured to the latch sleeve 87 by a shear screw 93.

The second tubular member 42 extends downwardly through the lower body retainer 77 and into a tube or receptacle 94 threadedly secured to the retainer ring 78 and which depends therefrom. Leakage of fluid between the lower end of the second mandrel 42 and the lower receptacle 94 is prevented by a suitable side seal ring 95 in the receptacle slidably engaging the periphery of the second mandrel 42. A coupling 96 attaches the second intermediate tubing string 20 to the receptacle 94, this second intermediate tubing string, as described above, extending into the second passage 14 through the intermediate packer K.

The third tubular mandrel 43 is also slidable downwardly through the lower body 76. Thus, the second and third tubular members 42, 43 are slidable downwardly through the lower body 76, but the first mandrel 25 is attached to the lower body of the coupling ring 79 and the lower retaining ring 78 and screws 82. The retainer ring 78 may have a threaded box 97 surrounding the third mandrel 43 into which another tubular member (not shown) may be threaded and into which the mandrel 43 would telescope.

The anchor portion 33 of the tool is used whenever high pressures in the upper zone E might tend to move the packer L in an upward direction. The lower slips 61 are capable of anchoring the well packer L against downward movement in the well casing, but not against upward movement. Accordingly, the anchor 33 prevents such upward movement. As shown, the anchor body 32 has a plurality of radial cylinders 100 therein, each cylinder slidably receiving a gripping member or anchor element 101 urged outwardly by fluid pressure, to place the upwardly facing wickers or teeth 102 of the gripping element in anchoring engagement with the well casing B. A helical compression spring 103 normally urges each anchor element 101 in an inward direction, or to retracted position, the inner end of each spring engaging an anchor element 101 and its outer end a retainer member 104 extending longitudinally across a row or set of anchor elements 101 and being secured to the anchor body in any suitable manner, as by means of screws 105.

Fluid pressure from one of the zones, such as the upper zone E, will pass into the lower end of the third mandrel 43 and upwardly therethrough into the third passage 36 of the anchor body. Ports 106 extend from such third passage 36 to each of the cylinders 101, in order that fluid under pressure from such zone can act upon the piston elements 101 and urge them outwardly into gripping engagement with the wall of the well casing B, when sufficient pressure is present to overcome the force of the retracting springs 103. As shown, leakage of fluid past the piston gripping elements 101 is prevented by piston rings 107 engaging the walls of the cylinders 100. If such pressure is insufficient to overcome the force of the springs, the piston elements 101 remain in retracted position. However, the absence of sufficient pressure will merely mean that there is no pressure tending to release the well packer from its anchored condition in the well casing by elevating it. Assuming sufficient pressure is present, then it is necessary to relieve such pressure before releasing the well packer L from the well casing B, in order to remove it from the well bore.

As described above, the lower well packer J has previously been set in the well bore. The lower tubing string 11 is then secured to the intermediate packer K in communication with its first passage 13, the lower tubing string 11 being of a sufficient length such that when its tubing head 12 rests upon the lower packer J, the intermediate packer K will be disposed above the intermediate perforations G in the well casing and below the upper perforations H. The first and second intermediate tubing strings 19, 20 are then appropriately secured to the intermediate packer K and the apparatus lowered in the well casing. With the upper portions of the first and second intermediate tubing strings 19, 20 still disposed above the top of the well bore, they are connected to the first tubular mandrel 25 of the upper packer L and to the tube or receptacle 94, respectively. The first tubing string 22 is secured to the first tubular mandrel 25, as by means of the coupling 110, and the lowering of the combination of upper and intermediate packers K, L, and tubing strings 19, 20, 11 is then continued, by lowering the first tubing string 22. During such lowering, of course, the packing and slip portions of the intermediate packer and of the upper packer are in retracted position,

the upper packer parts being in the relative position illustrated in FIGS. 2, 3 and 3*a*. Lowering is continued until the lower tubing string **11** extends through the passage **10** in the lower packer J and its head **12** comes to rest thereupon. The imposition of downweight on the first tubing string **22** will now be transmitted directly through the first intermediate tubing string **19** to the second packer K and effect its anchoring in packed-off condition in the well casing B above the intermediate perforations G, in a known manner. The first and second intermediate tubing strings **19, 20** have sufficient length such that the setting of the packer K in the well casing B above the intermediate perforations G will locate the upper packer L in the well casing above the upper casing perforations H.

One of the other tubing strings, such as the second tubing string **23**, may now be lowered in the well casing and its lower end will engage the tapered guide surface **27** on the head **26**, which will direct it into the second receptacle **28**. It will enter such second receptacle and, if it has latches **111**, such latches will snap inwardly and then pass under a shoulder **112** in the receptacle, at which time a side seal **113** on the lower end of the second tubing string **23** will engage the wall of the receptacle **28** to prevent leakage therebetween. With the first tubing string **22** prevented from moving downwardly, downweight is imposed on the second tubing string **23**, which will exert a downward force on the second tubular mandrel **42** through the body extension **30** and anchor body **32**, this downward force being imposed on the shear screw **93**, which is secured to the latch sleeve **97** and, in effect, to the first tubular mandrel **25** through the agency of the retainer ring **74**, slip ring **66** and shear ring **70**. When a sufficient downward force has been imposed to shear the screw **93**, it becomes disrupted, whereupon the cam ring **85** on the second mandrel engages the upper tapered surfaces **115** of the latch legs **88, 89**. The imposition of sufficient downward force will now cause the ring **85** to cam or expand the legs **88, 89** outwardly to a releasing position and permit downward movement of the second mandrel **42** within the slip ring **66** and latches **88, 89**, as well as downwardly within the lower body **76**. Such downward movement of the mandrel **42** is accompanied by downward movement of the anchor body **32** and second body extension **30** connected thereto, as well as of all of the other parts connected thereto, including the guide head **26**, third receptacle **29**, third extension **31** and third tubular mandrel or body **43**. In fact, all parts then move downwardly with the exception of the lower body structure **76** and lower tube **94**, the slip ring **66**, retainer ring **74**, and the first mandrel **25**, as well as the slips **61** coupled to the slip ring.

Downward movement shifts the expander **57** downwardly along the slips **61** and expands them outwardly into engagement with the well casing B, which will then preclude further downward movement of the expander **57** and lower abutment **53, 54**. Accordingly, continued downward movement of the second tubing string **23** moves the guide head **26** and second and third receptacles **28, 29** downwardly along the first tubular mandrel or body **25**, carrying the body extensions **30, 31**, anchor body **32** and second and third mandrels **42, 43** downwardly with it, the upper connector **44** and upper abutment **47** being moved down toward the expander **57** and lower abutment **53** which engages the latter. Accordingly, the packing structure **50** is shortened and the packing elements **51** expanded outwardly into sealing engagement with the wall of the well casing B. In a typical installation, a downweight imposed on the structure, in setting the packer L, of from about 6,000 to 9,000 pounds will insure its appropriate anchoring in packed-off condition against the well casing. After the slips **61** have been expanded against the casing, the additional downward force to expand the packing elements **51** against the well casing B is not imposed upon the first mandrel **25** and the first tubing string **22** secured thereto.

After the upper packer L has been anchored in packed-off condition in the well casing, such as disclosed in FIGS. 7 and 7*a*, the third tubular string **21** is lowered through the well casing B alongside the first and second tubing strings **22, 23**. Its lower end will engage the tapered surface **27** on the guide head **26**, which will direct it into the third receptacle or body **29**. This third string may also have latches **120** thereon which will be forced inwardly past the shoulder **121** in the third receptacle until they pass therebelow, which will then prevent upward removal of the third string **21** from the receptacle **29** unless a predetermined force is imposed thereon. The lower end of the third string **21** also has a suitable side seal **122** engaging the wall of the receptacle **29** to prevent leakage therebetween.

Prior to setting of the well packer L in the well casing, if desired, the second tubing string **23** may be lowered in the well casing and located in its second receptacle **28**, followed by lowering of the third tubular string **21** in the well casing and its reception in its third receptacle **29**. Thereafter, the upper packer L can be anchored in packed-off condition in the well casing by holding a strain on the first tubing string **22** and by then imposing the necessary downward weight on both the second and third tubing strings **21, 23**. By distributing the downweight on both these tubing strings, buckling of either of the strings is minimized, since the downweight is shared between them.

With the upper packer L anchored in packed-off condition, and in view of the fact that the lower packer J and intermediate packer K have previously been anchored in packed-off condition in the well casing, the well production from the lower zone G will flow into the lower tubing string **11** and through the first passage **13** of the intermediate packer K into the first intermediate tubing string **19**, continuing upwardly through the first tubular mandrel **25** to the first tubing string **22** that extends to the top of the well bore. The well production from the intermediate or second zone D will pass into the second passages **14** in the intermediate packer K and then through the second intermediate tubing string **20**, flowing into the second passage **17** (in the parts **94, 42, 32, 30, 28**) through the upper packer and into the second tubing string **23**, which extends to the top of the well bore. The production from the upper zone E will flow into the third passage **18** (in the parts **43, 32, 31, 29**) in the upper well packer and then to the third tubing string **21** that extends to the top of the well bore. Accordingly, production from the zones C, D, E is conducted through separate and distinct paths through the parallel tubing strings **22, 23, 21** to the top of the well bore, there being no commingling therebetween.

In the event that the pressure in the upper zone acts on the upper packer L and tends to unset it, such action is precluded since the fluid under pressure from the upper zone E is also present in the third passage **18** (**36**) in the upper packer. Such fluid under pressure passes through the ports **106** into the anchor cylinders **101**, urging the anchor and gripping elements **101** outwardly into engagement with the wall of the well casing B, and thereby preventing upward movement of the anchor body **32** in the casing, as well as the remainder of the packer L.

In the event it is desired to release and retrieve the upper packer L, the pressure in the third passage **36** of the anchor body **32** should be relieved. This can be accomplished by exerting an upward pull on the third tubular string **21**, its latches **120** snapping past the shoulder **121** and allowing it to be removed from the third receptacle **29**. Accordingly, the pressure below the upper packer L can now pass through its third passage **18** to the region thereabove, equalizing the pressure on both sides of the packer and across the anchor gripping elements **101**, which will allow the springs **103** to shift such gripping elements to their retracted position.

After the third string **21** has been removed from its

receptacle 29, and the pressure equalized across the upper packer L, an upward pull is taken on the second tubular string 23, to release the well packer L. The latch device 111 holding the lower portion of the second string 23 in the second receptacle 28 may require a sufficient force, before it will move past the shoulder 112 in the receptacle, in order to disconnect the second tubing string from the well packer. For example, if about 6,000 pounds is required to release the latch 111 from the receptacle 28, the taking of an upward strain on the second string of less than that amount will ordinarily result in upward movement of the receptacles 28, 29, body extensions 30, 31, and anchor body 32 and upper abutment 47 along the first tubular mandrel 25. When the upper abutment 47 moves away from the lower abutment 53, the packing elements 51 can inherently move inwardly into their retracted position. Continued upward movement of the second tubular string 23 will move the parts upwardly with it, including the second and third tubular mandrels 42, 43, until the limit rings 55 engage the lower abutment 53, which will then move the expander 57 upwardly with it relative to the slips 61, the tongue and groove interconnection 63, 64 between the slips and expander causing the slips to shift to their retracted position. When the slips 61 are being shifted to their retracted position, the cam 85 on the second mandrel engages the tapered surfaces 130 at the lower ends of the latch fingers 89, expanding such fingers outwardly and relocating the cam 85 above the latch fingers, or in their initial latching position, which will then preclude inadvertent downward movement of the tubular mandrel 42 relative to the slip ring 66 and slips 61, which might produce resetting of the packer parts.

With the slips 61 fully retracted, the taking of a sufficient strain on the second tubing string 23 will cause its latch 111 to snap out of the receptacle 28, allowing the second tubular string 23 to be removed from the well casing. Thereafter, the first tubular string 22 is elevated, which will elevate the upper well packer L in the well casing. Upward movement of the first tubular string 22 and its mandrel 25 will also effect release of the intermediate packer K, in a known manner, causing such intermediate packer, together with the first and second intermediate tubing strings 19, 20 and the lower tubing string 11, to be elevated in the well casing B and removed entirely therefrom.

In the event that the well packer L does not release upon the taking of a strain on the second tubing string 23, as described above, due, for example, to sand or junk in the well casing above the upper well packer, a pull is taken on the first tubular string 22 of a sufficient amount to shear the inner flange 71 of the shear ring 70 from its outer portion, which is secured to the slip ring 66. As an example, a pull of 20,000 pounds on the first tubular string 22 may be required to shear the ring 70. When the ring 70 shears, the first tubular string 22 and mandrel 25 move upwardly suddenly, causing a retracting ring 145, secured in a peripheral groove 146 on the first mandrel 25, and initially spaced below the guide head 26, to move upwardly suddenly and strike a blow on the head 26, shifting the head upwardly, as well as all of the parts connected and depending therefrom. Such upward shifting is accompanied by upward movement of the second and third receptacles 28, 29, second and third body extensions 30, 31, anchor body 32 and upper connector 44 and upper abutment 47, the latter moving away from the lower abutment 53 and allowing the packing elements 51 to shift to their retracted position, and also causing the limit rings 55 on the second and third mandrels 42, 43 to engage the expander 57 and pull it upwardly relative to the slips 61, releasing the latter from the casing B. Such upward movement is accompanied by upward movement of the second and third mandrels 42, 43 within the slip ring 66, to again place the latching cam 85 in its latching position above the holding fingers 89 (FIGS. 8, 8a). The elevating movement of the first tubular string 22 will also automatically release the intermediate packer K. The engagement of the retracting ring 145 with the head 26 will cause continued elevation of the first tubular string 22 to elevate the upper and intermediate packers L, K with it in the well bore, as well as the first and second intermediate tubing strings 19, 20 and lower tubing string 11.

In the form of invention illustrated in FIGS. 9 to 10a, inclusive, the upper packer L is set by virtue of its being supported by the set intermediate packer K. A downward weight is imposed on any one, or a plurality, of the tubular strings 21, 22, 23 extending to the top of the well bore. The general relationship of parts is the same as in the other form of the invention, except that the first tubular mandrel 25a is secured to move jointly with the second and third tubular mandrels 42a, 43a by coupling it to the upper connector 44. The first tubular mandrel 25a has a split ring 160 mounted in its peripheral groove 161 and received within a counterbore 162 in the upper connector 44, the ring 160 being held in position by the upper abutment 47 in the same manner as the coupling rings 45 securing the second and third mandrels or body members 42a, 43a to the upper connector. All of the tubular mandrels 25a, 42a, 43a are slidable through the packing structure 50 and slip ring 66, one of the tubular mandrels, such as the first tubular mandrel 25a, being releasably latched to the slip ring 66 in essentially the same manner as the second tubular mandrel 42 of the other form of invention was releasably latched to this slip ring. Thus, a cam or ring 85 is mounted in a groove 86 in the first mandrel 25a and is disposed within the latch sleeve 87, being initially located above the latch fingers 89, the latch sleeve being threaded into the retainer ring 74. The first, second and third tubular members 25a, 42a, 43a are slidable through the slip ring 66 and retainer ring 74. They are received in a lower body structure 76a, which includes three tubes or receptacles 170, 171, 172. Thus, a tube or receptacle 170 is threadedly attached to the body member 78a and depends therefrom, the first intermediate tubing string 19 being suitably connected to such receptacle. The second mandrel 42a is slidable in a second tube or receptacle 171 secured in the body member 78a, the second intermediate tubing string 20 being appropriately attached to the second receptacle 171. The third mandrel 43a is slidable in the third receptacle 172 threadedly secured in the body member 78a, this third receptacle terminating below the upper packer L so that fluid from the upper zone E and upper set of perforations H can flow thereinto. The lower body 76a in which the first, second and third mandrels 25a, 42a, 43a telescopically fit is secured to the slip ring 66 by means of intermediate longitudinal studs 180, the upper portion of which is threaded in the slip ring 66 and the lower portion of which extends through the body member 78a, a suitable nut 181 clamping the stud to the body member 78a and holding the body member against a stud shoulder 182, and a stud shoulder 183 against the retainer ring 74, as shown in dotted lines in FIGS. 9a and 10a.

The upper packer L is connected to the first tubular string 22, with its parts in the retracted positions disclosed in FIGS. 9 and 9a, and is lowered in the well casing B until the desired setting point is reached. The first and second intermediate tubing strings 19, 20 will be properly related to the intermediate packer K and will be supported by the latter, which precludes downward movement of the lower body member 78a and the lower slip ring 66. Accordingly, the imposition of sufficient downweight on the first tubular string 22 will cause the cam ring 85 to expand the latch fingers 89 outwardly, which will then carry all of the entire packer structure, with the exception of the lower body 76a and slip structure 66, 61, downwardly with it, shifting the expander 57 downwardly within the slips 61 and expanding the slips radially outwardly into anchoring engagement with the

wall of the well casing B. The continued imposition of downward force on the tubing string **22** will cause the upper abutment **47** to move toward the lower abutment **53** and expander **57** to shorten the distance therebetween and expand the packing elements **51** outwardly into sealing engagement with the wall of the well casing. During setting of the packer L, the mandrels **25***a*, **42***a*, **43***a* telescope within their respective receptacles **170**, **171**, **172**, leakage therebetween being prevented by the side seals **95** (FIGS. 10, 10*a*). The second tubing string **23** may then be lowered in the well casing B and will engage the guide head **26**, being directed into the second receptacle **28**. The third tubing string **21** can now be lowered in the well casing B and will engage the guide surface **27** and be directed into the third receptacle **29**. The well production from the three zones C, D, E will now flow through three separate paths and through the first, second and third tubular strings **22**, **23**, **21** to the top of the well bore, in the same manner as described in connection with the other form of the invention.

If the pressure in the upper zone E tends to elevate the upper packer L in the well casing, such pressure will pass through the third passage **18**, (**36**) into the cylinders **101** and expand and hold the gripping elements **101** outwardly in anchoring engagement with the well casing B, thereby preventing the packer L from being moved upwardly.

When it is desired to release the well packer L, the third tubular string **21** is first pulled from its receptacle **29**, in the manner described above in connection with the other form of the invention, to equalize the pressure above and below the packer and allow the abutment anchor elements **101** to be retracted by the springs **103**. Thereafter, an upward pull is taken on the first tubing string **22**, which will move the upper abutment **47** away from the lower abutment **53**, allowing the packing elements **51** to shift to their retracted positions. When the limit rings **55** on the second and third tubular mandrels **42***a*, **43***a* engage the lower abutment **53**, the expander **57** is moved upwardly relative to the slips **61**, shifting the latter to their retracted positions, at which time the cam element **85** will have snapped upwardly past the latch fingers **89** to its initial position, precluding inadvertent downward movement of the mandrels **25***a*, **42***a*, **43***a* relative to the other packer parts and resetting of the packer. Upward movement of the mandrel **25***a* carries the slip ring **66** and slips **61**, as well as the lower body structure **76***a*, upwardly with it, by virtue of engagement of a stop ring **190** secured in a groove **191** in the mandrel **25***a* with the lower end of the slip ring **66**, the parts again occupying their relative retracted positions illustrated in FIGS. 9 and 9*a*.

In lieu of lowering the upper packer L on the first tubular string **22** and effecting its setting by means of such first tubular string, the well packer can be lowered to its desired setting location on the first tubular string **22** and, before setting occurs, the second tubular string **23** and the third tubular string **21** can be lowered and inserted in their second and third receptacles **28**, **29**. Thereafter, setting can occur by imposing downweight on all three tubing strings **21**, **22**, **23**, if desired, or on any one or any two of such tubing strings, such downweight being distributed, if desired, between the tubing strings, and being imposed through the upper abutment **47** and the packing structure **50** on the expander **57**, first releasing the latch **88**, **89** and then moving the expander downwardly relative to the slips **61**, anchoring the latter against the well casing. Such anchoring is followed by shifting of the upper abutment **47** toward the lower abutment **53** to shorten the packing elements **51** and expand them outwardly against the well casing B. If desired, the downward force can be maintained on all three tubing strings **21**, **22**, **23**, or on one or more of them.

In effecting release of the well packer from the well casing, the third tubular string **21** may be pulled from its receptacle **29** to equalize the pressure and allow the anchor elements **101** to be retracted by the springs **103**. Thereafter, an upward strain, if desired, may be taken on both the first and second tubing strings **22**, **23** to effect retraction of the packing elements **51** and the slips **61**, and the relatching of the first tubular mandrel **25***a* in its initial position shown in FIGS. 9 and 9*a*, which will retain all of the parts retracted. The second tubing string **23** can then be removed from its receptacle **28** and removed from the well casing B, after which the upper packer L, and the parts therebelow, are elevated in the well casing and removed therefrom by elevating the first tubing string **22**.

We claim:

1. In well apparatus adapted to be set in a well bore: first, second and third parallel tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; an expander on said body members; slip means engaged by and movable outwardly by said expander to anchor the well apparatus in the well bore; means securing said first body member to said slip means; said second and third body members being movable longitudinally of said slip means; and means for transmitting the longitudinal movement of said second and third body members to said expander to move said expander longitudinally of said slip means and first body member to expand said slip means.

2. In well apparatus adapted to be set in a well bore: first, second and third parallel tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; an expander on said body members; slip means engaged by and movable outwardly by said expander to anchor the well apparatus in the well bore; means securing said first body member to said slip means; said second body member being movable longitudinally of said slip means; means for transmitting the longitudinal movement of said second body member to said expander to move said expander longitudinally of said slip means and first body member to expand said slip means; and releasable latch means releasably securing said slip means to one of said second and third body members to initially prevent expansion of said slip means.

3. In well apparatus adapted to be set in a well bore: first, second and third parallel tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; an expander on said body members; slip means engaged by and movable outwardly by said expander to anchor the well apparatus in the well bore; means releasably securing said first body member to said slip means; said second and third body members being movable longitudinally of said slip means; means for transmitting the longitudinal movement of said second and third body members to said expander to move said expander longitudinally of said slip means and first body member to expand said slip means; and means for transmitting movement of said first body member to said expander, after release of said securing means, to shift said expander relative to said slip means and retract said slip means.

4. In well apparatus adapted to be set in a well bore: first, second and third parallel tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; an expander on said body members; slip means engaged by and movable outwardly by said expander to anchor the well apparatus in the well bore; means releasably securing said first body member to said slip means; said second body member being movable longitudinally of said slip means; means for transmitting movement of said first body member to said expander, after release of said securing means, to shift said expander relative to said slip means and retract said slip means; and releasably latch means securing said slip means to

one of said second and third body members to initially prevent expansion of said slip means.

5. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; normally retracted packing means on said body members; an expander movable on said body members below said packing means; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means securing said first body member to said slip means; said second and third body members being movable longitudinally of said slip means; and means for transmitting downward movement of said second and third body members to said packing means to move said expander longitudinally of said slip means and first body member to expand said slip means and to expand said packing means.

6. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; normally retracted packing means on said body members; an expander movable on said body members below said packing means; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means securing said first body member to said slip means; said second body member being movable longitudinally of said slip means; means for transmitting downward movement of said second body member to said packing means to move said expander longitudinally of said slip means and first body member to expand said slip means and to expand said packing means; and releasable latch means releasably securing said slip means to one of said second and third body members to initially prevent expansion of said slip means.

7. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; normally retracted packing means on said body members; an expander movable on said body members below said packing means; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means releasably securing said first body member to said slip means; said second body member being movable longitudinally of said slip means; means for transmitting downward movement of said second body member to said packing means to move said expander longitudinally of said slip means and first body member to expand said slip means and to expand said packing means; releasable latch means releasably securing said slip means to one of said second and third body members to initially prevent expansion of said slip means; and means for transmitting upward movement of said first body member to said second body member, after release of said first body member from said slip means, to retract said packing means and slip means.

8. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; normally retracted packing means on said body members; an expander movable on said body members below said packing means; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; shearable means releasably securing said first body member to said slip means; said second body member being movable longitudinally of said slip means; means for transmitting downward movement of said second body member to said packing means to move said expander longitudinally of said slip means and first body member to expand said slip means and to expand said packing means; releasable latch means releasably securing said slip means to one of said second and third body members to initially prevent expansion of said slip means; and means for transmitting upward movement of said first body member to said second body member, after shearing of said shearable means to release said first body member from said slip means, to retract said packing means and slip means.

9. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means securing said first body member to said slip means; said second and third body members being movable longitudinally of said slip means; said connnecting means being movable downwardly of said first body member to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

10. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means releasably securing said first body member to said slip means; said second and third body members being movable longitudinally of said slip means; said connecting means being movable downwardly of said first body member to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means; and means on said first body member engaging said connecting means, after release of said securing means, to elevate said connecting means, body members and expander to effect retraction of said packing means and slip means.

11. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means adapted to prevent downward movement of said slip means; at least one of said body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

12. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, sec-

ond and third tubular strings extending to the top of the well bore; means connecting said second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; and expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means adapted to prevent downward movement of said slip means; at least one of said body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means; and releasable latch means releasably securing said slip means to one of said body members to initially prevent expansion of said slip means.

13. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said first, second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means adapted to prevent downward movement of said slip means; said first, second and third body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

14. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said first, second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means adapted to prevent downward movement of said slip means; said first, second and third body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means; and releasable latch means releasably securing said slip means to one of said body members to initially prevent expansion of said slip means.

15. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said first, second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; a lower body structure telescopically receiving said first, second and third body members and connected to said slip means to prevent downward movement of said slip means; said first, second and third body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

16. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said first, second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; a lower body structure telescopically receiving said first, second and third body members and connected to said slip means to prevent downward movement of said slip means; said first, second and third body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means; and releasable latch means releasably securing said slip means to one of said body members to initially prevent expansion of said slip means.

17. In well packer apparatus adapted to be set in a well bore: first, second and third tubular body members adapted to be placed in communication with first, second and third tubular strings extending to the top of the well bore; means connecting said first, second and third body members for joint longitudinal movement; normally retracted packing means on said body members below said connecting means; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; a lower body structure telescopically receiving said first, second and third body members and connected to said slip means to prevent downward movement of said slip means; said first, second and third body members being movable longitudinally of said slip means; said connecting means being movable downwardly to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means; said lower body structure including first, second and third tubular means receiving said first, second and third body members, respectively, in leak-proof relation.

18. In well packer apparatus adapted to be set in a well bore: an upper structure having first, second and third passages; a first tubular body member extending through said first passage; second and third tubular body members connected to said structure in communication with said second and third passages, respectively; said first tubular body member being adapted to be connected to a first tubular string extending to the top of the well bore; said second and third passages being adapted to receive second and third tubular strings, respectively, extending to the top of the well bore; normally retracted packing means on said body members below said structure; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means adapted to prevent downward movement of said slip means; at least one of said body members being movable longitudinally of said slip means; said structure being movable downwardly with said second and third tubular body members connected thereto to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

19. In well packer apparatus adapted to be set in a well bore: an upper structure having first, second and

third passages; a first tubular body member extending through said first passage; second and third tubular body members connected to said structure in communication with said second and third passages, respectively; said first tubular body member being adapted to be connected to a first tubular string extending to the top of the well bore; said second and third passages being adapted to receive second and third tubular strings, respectively, extending to the top of the well bore; normally retracted packing means on said body members below said structure; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; means securing said first body member to said slip means; said second and third body members being movable longitudinally of said slip means; said structure being movable downwardly to move said second and third body members longitudinally of said slip means and to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

20. In well packer apparatus adapted to be set in a well bore: an upper structure having first, second and third passages; a first tubular body member extending through said first passage; second and third tubular body members; said first, second and third tubular body members being connected to said structure with said second and third tubular body members in communication with said second and third body passages, respectively; said

first tubular body member being adapted to be connected to a first tubular string extending to the top of the well bore; said second and third passages being adapted to receive second and third tubular strings, respectively, extending to the top of the well bore; normally retracted packing means on said body members below said structure; an expander below said packing means and movable on said body members; slip means below said expander and engaged and movable outwardly by said expander to anchor the well apparatus in the well bore against downward movement; said first, second and third body members being movable longitudinally of said slip means; a lower body structure telescopically receiving said first, second and third body members and connected to said slip means to prevent downward movement of said slip means; said upper structure being movable downwardly in response to downward movement imposed on at least one of the tubular strings to move said packing means and expander downwardly of said slip means to expand said slip means and to expand said packing means.

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