United States Patent [19]

Renfrow

[11] **3,887,196**

[45] **June 3, 1975**

[54] **SELF ALIGNING STUFFING BOX**

[76] Inventor: **William Neil Renfrow,** 3306 58 St., Lubbock, Tex. 79408

[22] Filed: **Oct. 9, 1973**

[21] Appl. No.: **404,768**

[52] **U.S. Cl.** **277/2;** 277/30; 277/174; 403/131

[51] **Int. Cl.** **F16j 15/00**

[58] **Field of Search** 277/2, 30, 100, 174; 285/261; 403/131

[56] **References Cited**

UNITED STATES PATENTS

1,022,865	4/1912	Nicolai	277/2
1,529,874	3/1925	Culbertson	277/30
3,176,996	4/1965	Barnett	277/2
3,209,830	10/1965	Orr et al.	277/2 X
3,334,927	8/1967	Faccou	277/30 X
3,815,925	6/1974	Mattoon	277/2

Primary Examiner—Samuel B. Rothberg
Attorney, Agent, or Firm—Fishburn, Gold & Litman

[57] **ABSTRACT**

In a combination of an oil well pumping unit with sucker rods and the like, a self aligning stuffing box and well head seal to accommodate misalignment of the rods and tubing. The self aligning stuffing box structure includes a body member on a well tubing and a rod guide member mounted on the body member for limited universal movement. A guide extension is on the rod guide member and has a bore and an enlarged chamber. A rod extends through the guide extension bore and chamber, guide member, and body member into the oil well. Packing or seals in the guide extension sealingly engages the rod above and below the chamber to provide operative seals. Pressure sensitive members communicate with the guide member below the packing or seals therein to indicate fluid pressure in the chamber. Liquid pressure responsive structure communicates with the chamber and provides a signal in the event liquid accumulates in the chamber above a predetermined pressure; as by flowing through the packing or seals below the chamber.

5 Claims, 5 Drawing Figures

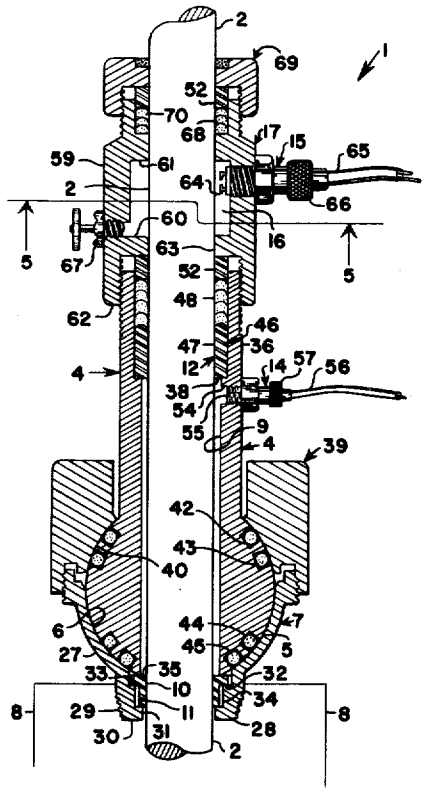


Fig. 1.

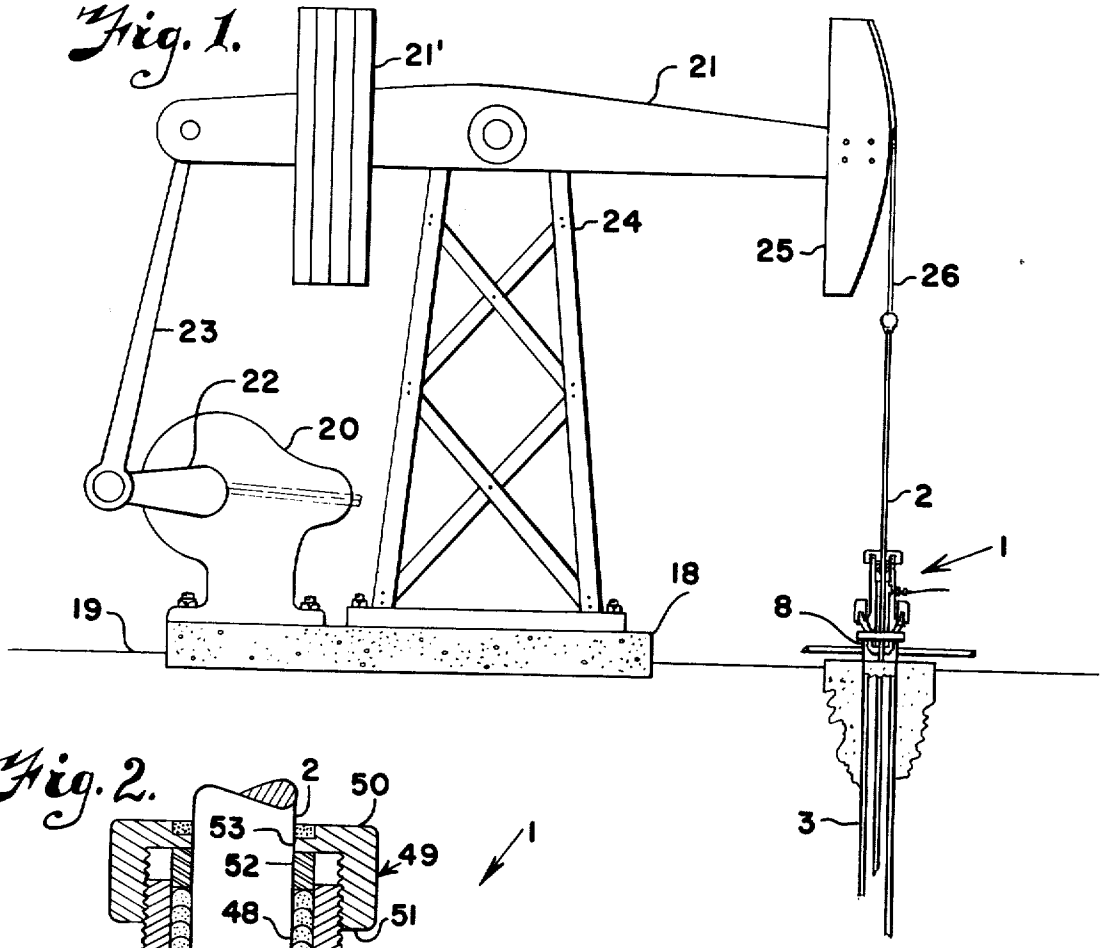


Fig. 2.

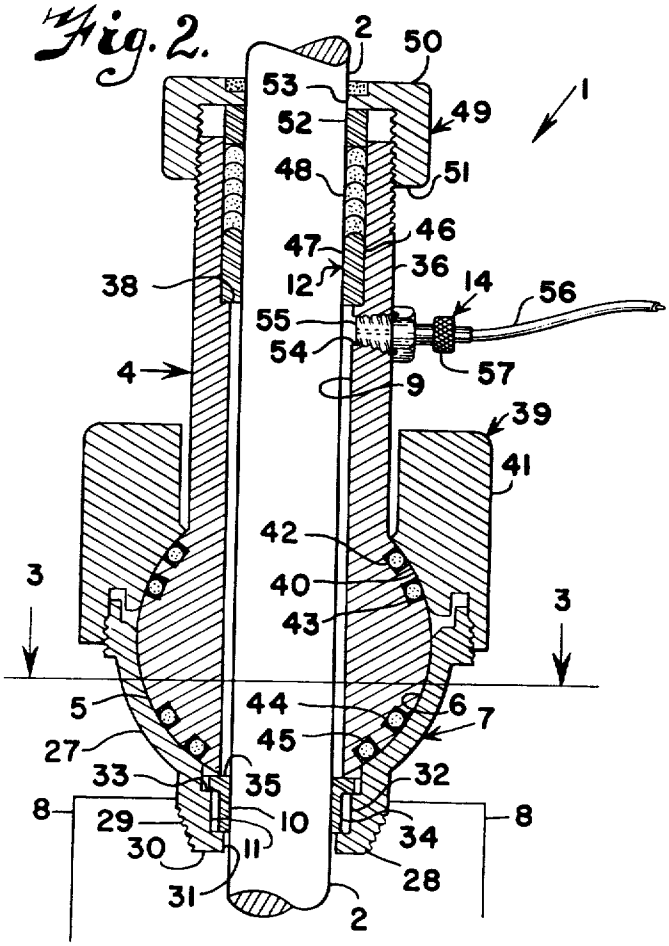


Fig. 3.

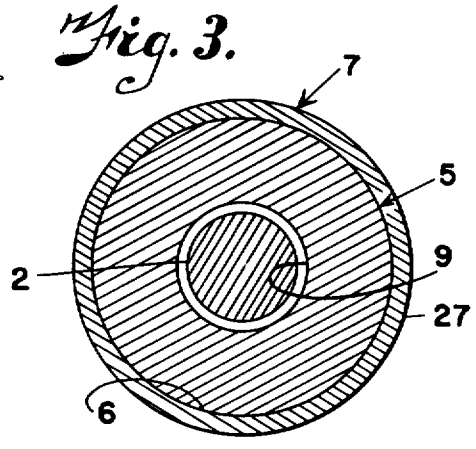


Fig. 4.

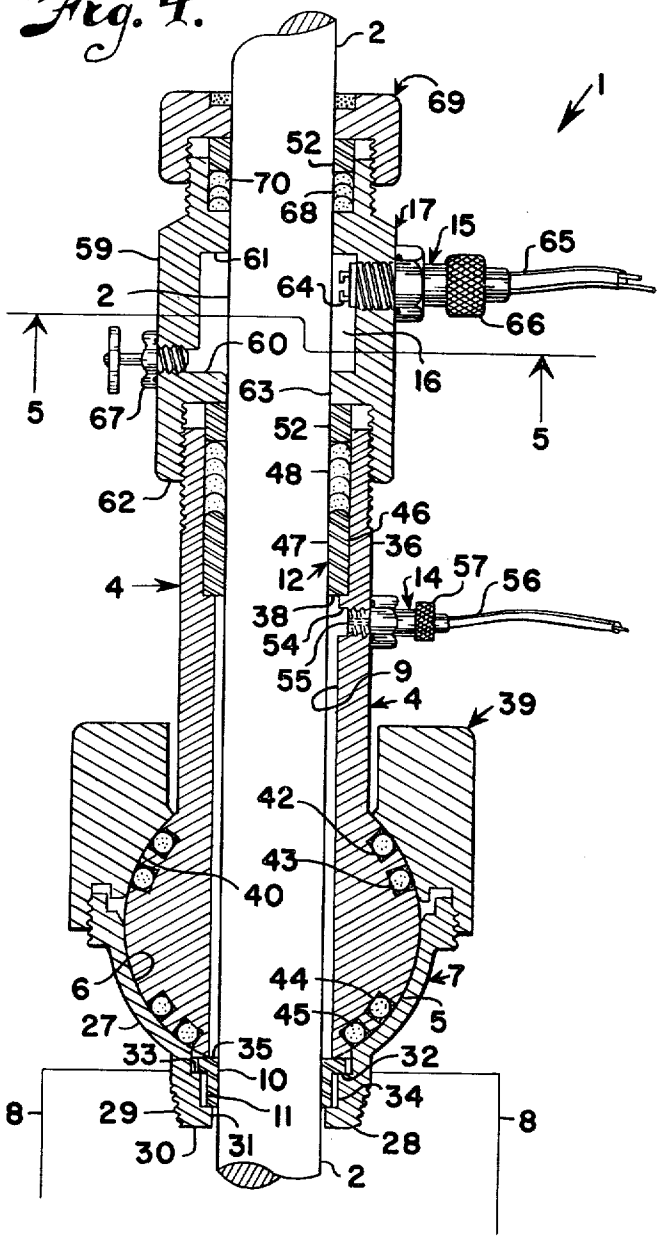
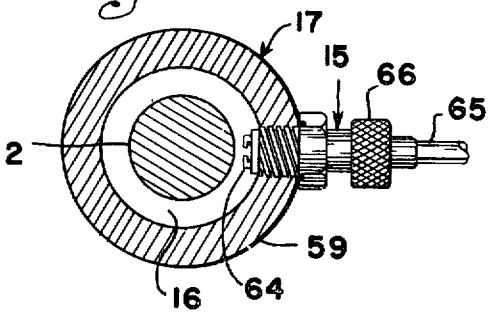

1
2
69
52
70
68
17
15
65
59
61
64
66
2
60
16
5
5
67
63
52
48
62
46
47
36
12
14
57
56
4
38
54
55
9
4
39
42
43
40
6
44
7
27
45
5
33
35
32
10
34
8
29
11
8
30
31
28
2

Fig. 5.


17
15
66
65
2
59
16
64

SELF ALIGNING STUFFING BOX

The present invention relates to oil well pump heads and more particularly to a device for accommodating misalignment of oil well rods with a stuffing box mounted on a tubing or casing.

The rod misalignment accommodating device provides for substantially improved aligning the polished rod with a stuffing box of an oil field pumping unit immediately above the christmas tree and just below an articulated horse's head of the pumping unit. Continuous pumping of oil wells to supply increased demand for crude oil is now permitted by government regulations and the present invention provides means to substantially reduce down time which is not only costly but takes a pumping unit out of service when it could otherwise be pumping crude oil for storage.

A long standing problem in pumping oil is the misalignment of rods in and through the stuffing box. Misalignment is caused primarily because foundations which support pump jacks settle due to operation of the pump jack with the resulting misalignment of the horse's head relative to a vertical line through the top of the pumping unit. Misalignment is greater and more critical as the height of the horse's head above the tubing or casing increases. Misalignment of the rod over the stuffing box causes the rod to bind in the packing used to seal the top of the christmas tree and causes excessive wear of the polished rod, the packing, and the jam nut.

The principle objects of the present invention are: to provide a rod misalignment accommodating device particularly adapted to overcome the above mentioned problems; to provide such a rod misalignment accommodating device adapted to accommodate misalignment of an oil well rod with the longitudinal axis of a christmas tree through which the rod extends and thereby substantially reducing wear of bearings and seals and packing glands and wear of the oil well rod; to provide such a rod misalignment accommodating device permitting the rod to align itself in such a manner that the rod will go more perfectly through the stuffing box chamber on the christmas tree and thereby eliminate or substantially reduce the wear and frequent down time now experienced; to provide such a rod misalignment accommodating device having means communicating with a bore of a rod guide member having an oil well rod moveable therethrough for generating a signal in response to fluid pressure in the bore above a selected level; to provide such a rod misalignment accommodating device having means communicating with a chamber in a liquid receiving member having the oil well rod moveable therethrough for generating a signal in response to increased pressure due to presence of liquid flowing into the chamber from the bore in the guide member thereby indicating a need to replace packing or seal members on the guide member; and to provide such a rod misalignment accommodating device which is economical to manufacture, durable in construction, positive in operation, and particularly well adapted for the proposed use.

Other objects and advantages of this invention will become apparent in the following description which is taken in connection with the accompanying drawings wherein are set forth, by way of illustration and example, certain embodiments of this invention.

The drawings constitute a part of this specification and include an exemplary embodiment of the present

invention and illustrate various objects and features of the oil well rod misalignment accommodating device.

FIG. 1 is a side elevational view of a pumping well having a rod misalignment accommodating device embodying features of the present invention mounted on an oil well christmas tree.

FIG. 2 is an enlarged longitudinal sectional view through the rod misalignment accommodating device.

FIG. 3 is an enlarged transverse sectional view taken on line 3—3, FIG. 2 and showing means for limited universal movement of a rod guide member in a body member.

FIG. 4 is an enlarged longitudinal sectional view through a modified rod misalignment accommodating device and showing leak detecting members.

FIG. 5 is an enlarged transverse sectional view taken on line 5—5, FIG. 4, and showing leak detecting means.

Referring more in detail to the drawings:

As required, detailed embodiments of the present invention are disclosed herein, however, it is to be understood that the disclosed embodiments are merely exemplary of the invention which may be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the present invention in virtually any appropriately detailed structure.

In the disclosed embodiment of the present invention, the reference numeral 1 generally designates a self aligning stuffing box or device for accommodating misalignment of a rod 2 connected to the upper end of a string of sucker rods and an oil well tubing or casing 3. The rod misalignment accommodating device 1 includes a rod guide member 4 having a spherical portion 5 received in a spherical cavity 6 of a body member 7 mounted on the tubing or casing 3 and in the illustrated structure, the device 1 is mounted on an oil well christmas tree 8. The oil well polished rod 2 extends through a bore 9 in the rod guide member 4 and is slidably received in a floating bushing or closure member 10 mounted in a recess 11 in the body member 7 and the polished rod 2 is slidingly and sealingly received in primary seal members 12 mounted on the rod guide member 4. Pressure sensitive members 14 communicate with the bore 9 in the rod guide member 4 and generate a signal in response to fluid pressure in the bore 9 above a selected level. Liquid detecting members 15 communicate with a chamber 16 in a liquid receiving member 17 mounted on the rod guide member 4 and generate a signal in response to a pressure increase due to liquid flowing into the chamber 16 from the bore 9 in the rod guide member 4 and through the primary seal members 12 mounted on the rod guide members 4 thereby indicating the need for repair or replacement of the primary seal members 12.

FIG. 1 illustrates a typical pumping well using the polished rod 2 extending through the christmas tree 8 and into an oil well tubing or casing 3 and connected to a string of sucker rods in the tubing or casing 3. The pumping unit is mounted on a foundation 18 which in the usual case was installed by unskilled workmen wherein the foundation 18 is a concrete pad placed on existing soil 19 which was in its original condition. A gradual shift and settling of the foundation 18 upon uncompacted soil 19 generally occurs over a period of

years particularly when there is water or liquid draining toward the foundation **18** from adjacent structures or equipment thereby causing soft areas under a portion of the foundation **18.**

A suitable gear reduction unit **20** is mounted on the foundation **18** and is driven by a suitable motor (not shown). The gear reduction unit **20** is operative to effect movement of a walking beam **21,** as later described, by means of an articulated throw or arms which push and pull. In the illustrated pumping unit, an arm **22** has one end suitably mounted on a drive shaft (not shown) of the gear reduction unit **20** and the other end pivotally connected to one end of a pitman arm **23** which has the other end thereof pivotally connected to one end of the walking beam **21.**

The walking beam **21** is pivotally mounted on a tower **24** and the vertically axis of the tower **24** is preferably parallel with the vertical axis of the tubing or casing **3,** however, particularly for taller towers, such as **25** to **30** feet above the foundation **18,** it has been found that vibration of the foundation **18** causes compaction under the drive motor and gear reduction unit **20** with a corresponding shift in the top of the tower **24.** This misalignment of the top of the tower **24** is proportional to the height of the tower **24** and such misalignment requires costly reworking of the well head.

A horse's head **25** is mounted on the other end of the walking beam **21** and, in the illustrated unit, has a suitable cable **26** connected thereto, with the other end of the cable **26** being connected to an upper end of the oil well polished rod **2.** The oil well christmas tree **8** is mounted on the top of the tubing or casing **3** and receives the polished rod **2.** Misalignment of the polished rod **2** with the longitudinal axis of the christmas tree **8** and the tubing or casing **3** results in wear of the polished rod **2** and wear of seals or packing and packing glands within the entrance to the christmas tree **8** and a jam nut and a bushing (not shown) in conjunction with a sealing device on the upper end or entrance to the christmas tree **8.**

Counter weights **21'** are mounted on the walking beam **21** and positioned between the pitman arm **23** and the tower **24.** The counter weights **21'** are adjustable in position along the walking beam **21** to balance the weight of the horse's head and the string of sucker rods used in the particular oil well.

FIGS. **2** and **3** illustrate the misalignment accommodating device **1** of the present invention which is mounted on the upper end or entrance of the christmas tree **8** and is operative to accommodate substantial misalignment between the polished rod **2** and the longitudinal axis of the christmas tree **8.** The illustrated body member **7** has a side wall **27** having an interior surface defining the cavity **6.** The illustrated recess **11** is formed in a tubular extension or portion **28** extending from the side wall **27** of the body member **7** and the tubular extension or portion **28** has a side wall **29** defining a generally cylindrical extension of the body member **7** which is closed by an end wall **30** having a bore **31** therethrough and the bore **31** communicates with the recess **11** and the cavity **6** in the body member **7.** The side wall **29** of the extension **28** is illustrated as having threads on the exterior surface thereof whereby the body member **7** is adapted to be mounted on the upper end of the christmas tree **8.** The side wall **29** of the tubular portion **28** has an enlarged portion **32** thereby defining a shoulder **33,** for a purpose later described.

The floating bushing or closure member **10** is mounted in the recess **11** and slidingly receives the polished rod **2** and is illustrated as a generally tubular member having one end thereof in engagement with the end wall **30** of the tubular portion **28.** The floating bushing or closure member **10** has a side wall **34** defining a generally cylindrical portion having an exterior diameter which is less than an interior diameter of the side wall **29** and the enlarged portion **32** thereof to thereby define a space between the side wall **34** and the enlarged portion **32** of the side wall **29** which will accommodate floating or lateral movement of the polished rod **2** relative to the bore **31** in the end wall **30** of the tubular portion **28.** The floating bushing or closure member **10** may be formed of any suitable material which is dissimilar to the polished rod **2,** such as brass, bronze, or any of the resin impregnated linen type materials, such as phenolic impregnated linen.

The interior diameter of the side wall **34** is less than the diameter of the bore **31** in the end wall **30** to thereby permit lateral movement of the polished rod **2** without engagement of the polished rod **2** with the surfaces defining the bore **31** in the end wall **30** of the tubular portion **28.** The closure member or floating bushing **10** has a flange **35** on the other end thereof and the flange **35** is adapted to seat on the shoulder **33** and has a peripheral surface having a diameter less than the diameter of the interior of the side wall **29** thereby allowing floating or lateral movement of the polished rod **2** relative to the rod guide member **4** and the surface defining the bore **9** therethrough.

The illustrated rod guide member **4** has the spherical portion **5** on one end thereof and adapted to be received in the cavity **6** and in engagement with the flange **35** of the floating bushing or closure member **10.** The rod guide member **4** includes a guide extension **36** having a side wall defining a generally cylindrical elongated tubular portion extending from the spherical portion **5** and defining the bore **9** therethrough, which also extends through the spherical portion **5** and has a diameter larger than the polished rod **2** to thereby avoid contact between the polished rod **2** and the rod guide member **4.**

The side wall of the guide extension **36** has a shoulder **38** formed in the interior surface thereof and the shoulder **38** is adapted to receive the primary seal members **12,** as later described. The end of the guide extension **36** has threads on the exterior thereof, for a purpose later described.

The body member **7** has a retainer **39** suitably mounted on the upper end of the side wall **27** of the body member **7,** as by cooperating threads, and has a first wall portion **40** having a surface engaging the spherical portion **5** of the rod guide member **4** for retaining the rod guide member **4** in the cavity **6** in the body member **7.** The illustrated retainer **39** has a second wall portion **41** extending from the first wall portion **40** and spaced from the exterior of the side wall forming the guide extension **36** and defining a generally cylindrical recess having a diameter greater than the exterior diameter of the guide extension **36** to thereby permit universal movement of the rod guide member **4** in the cavity **6** in the body member **7.**

Surfaces of the spherical portion **5** which are in engagement with the side wall **27** of the body member **7**

and with the first wall portion **40** of the retainer **39** are preferably sealed to prevent escape of fluid, therefore, a first pair of spaced seal members **42** and **43** are mounted in suitable recesses in the surface of the spherical portion **5** and sealingly engage the surface of the first wall portion **40** of the retainer **39** and a second pair of spaced seal members **44** and **45** are mounted in suitable recesses in the surface of the spherical portion **5** and sealingly engage the side wall **27** of the body member **7**.

The primary seal members **12** are mounted on the upper end of the guide extension **36** of the rod guide member **4** to prevent escape of fluid through the misalignment accommodating device **1** from the christmas tree **8**. The illustrated primary seal members **12** include an annular bearing gland **46** having one end in engagement with and supported on the shoulder **38**. The bearing gland **46** has a bore **47** adapted to slidingly engage the oil well polished rod **2** during reciprocable movement thereof. The bearing gland **46** is preferably split on a vertical axis for ease of installation and fits securely around the polished rod **2** to prevent the polished rod **2** from rubbing against the rod guide member **4**. Phenolic impregnated linen has been found to be a suitable material for the bearing gland **46**.

Suitable packing **48** is positioned in engagement with the other end of the bearing gland **46** and will be compressed against the polished rod **2**. The packing members **48** are preferably split on a forty-five degree (45°) angle when the packing is used in its horizontal position in the misalignment accommodating device **1** with the splits to be installed every 90°.

A pack cap **49** is mounted on the end of the guide extension **36** and has an end wall **50** having a threaded outer ring **51** engaging the side wall of the guide extension or tubular portion **36**. The end wall **50** of the packing cap **49** is in engagement with one end of an annular inner pressure bushing or ring **52** which is adapted to be received within the guide extension **36** and the ring **52** has the other end thereof in engagement with the packing **48** to retain same between the inner pressure bushing or ring **52** and the bearing gland **46**. The end wall **50** of the packing cap **49** has a bore **53** therethrough adapted to slidingly receive the polished rod **2**.

The annular inner pressure bushing or ring **52** is substantially similar to the bearing gland **46** and is preferably of a longitudinal dimension which will cooperate with the packing **48** and the bearing gland **46** to form a selected stack height particularly for molded seals which float in a sealing chamber while cut packing members require pressure applied thereto as by moving the pack cap **49** along the guide extension **36** toward the shoulder **38**.

The pack cap **49** has a recess in the end wall **50** adapted to receive a suitable wiper in engagement with the periphery of the polished rod **2** and which will skim off or remove dirt, tar, snow, ice, and other materials which could enter the primary seal members **12** and damage same.

When the oil well pump unit operates without on site observation, fluid pressure above a selected level in the bore **9** of the rod guide member **4** and the guide extension **36** generates a signal to a suitable computer or control system which may turn off the drive motor for the walking beam **21** thereby stopping pumping operations. In the illustrated structure, a recess **54** is formed in the interior surface of the side wall of the guide extension or tubular portion **36** and adapted to receive the pressure members **14** which include a pressure transmitter **55** having suitable points or contacts adapted to be closed in response to pressure build-up of fluid escaping from the christmas tree **8**. Closing the contacts or points of the pressure transmitter **55** closes a circuit which generates a signal by means of a conductor **56** electrically connected to a suitable computer (not shown). The conductor **56** is suitably connected to the pressure transmitter **55** as by a cannon plug **57** which permits quick disconnect of the conductor **56** for service of the misalignment accommodating device **1**.

FIGS. **4** and **5** illustrate the fluid detecting members **15** which are mounted on the end of the tubular portion or guide extension **36** and are adapted to detect presence of and generate a signal in response to an increase in pressure due to liquid flowing into the fluid detecting members **15** from the bore **9** of the rod guide member **4**, such as due to wear of the bearing gland **46**, packing **48**, or annular inner pressure bushing or ring **52**. In the illustrated embodiment, the pack cap **49** is replaced by the fluid receiving member **17** which includes a housing having a side wall **59** surrounding the oil well polished rod **2** and opposite end walls **60** and **61** thereby defining the chamber **16** surrounding the oil well polished rod **2** during reciprocable movement thereof. The illustrated fluid receiving member or housing **17** has a threaded outer ring **62** in engagement with the threaded end of the guide extension **36**. The end wall **60** of the housing **17** is in engagement with one end of the annular inner pressure bushing or ring **52**. The end wall **60** has a bore **63** therethrough adapted to slidingly receive the polished rod **2**.

In the illustrated structure, liquid flowing into the chamber **16** closes suitable points or contacts of a transmitter **64** to complete a circuit and generate a signal to a computer (not shown) or other suitable control system for indicating an increase in pressure due to the presence of liquid in the chamber **16** above a predetermined pressure. The transmitter **64** is electrically connected to the control system (not shown) by a conductor **65** which is suitably removably connected to the transmitter **64** as by a suitable cannon plug **66** or the like thereby permitting quick removal of the conductor **65** from the transmitter **64** during service of the misalignment accommodating device **1**. A suitable drain cock **67** is positioned adjacent the end wall **60** and is adapted to bleed out any accumulating of oil or other liquid in the chamber **16** after the packing **48** has been repaired or replaced. The transmitter **64** should be removed and cleaned to permit restarting the sensing cycle.

While the transmitters **55** and **64** have been illustrated as electro chemical contact points, it is to be understood that a sensitive potentiometer could be used to indicate the presence of liquid in the bore **9** or chamber **16** above a predetermined pressure.

The chamber **16** may have a suitable lubricant therein to provide protection for the polished rod **2** and the seals or packing **48**. The lubricant in the chamber **16** is not under pressure, therefore, the fluid detecting members **15** will sense and indicate any pressure increase in the chamber **16** due to a failure of the primary seal or packing as defined by the seal members **12**.

When the chamber **16** has suitable lubrication material therein, the drain cock **67** may be replaced by a suitable grease zerk, which would allow the lubricant to

enter the chamber **16** and retain same therein until pressure in the chamber exceeds a predetermined level.

When a pressure sensitive potentiometer is used with the fluid detecting members **15** to detect pressure increase in the chamber **16**, it is not necessary to drain the chamber **16**, however, pressure therein must be relieved in any suitable manner, such as the drain cock **67** or a suitable grease zerk. It is also not necessary to clean the chamber **16** each time the pressure exceeds the predetermined level when the pressure sensitive potentiometer is used with the fluid detecting members **15**.

Packing or seal members **68** are mounted in engagement with the end of the side wall **59** and include a pack cap **69** constructed substantially similar to the pack cap **49**. The pack cap **69** is in engagement with an annular inner pressure bushing or ring **52** which engages suitable packing **70** positioned between the end wall **61** and the ring **527** to thereby prevent escape of liquid from the chamber **16**.

During pumping operations, a signal from the pressure transmitter **55** or the transmitter **64** activates suitable controls to discontinue operation of the pumping unit. The misalignment accommodating device **1** is disassembled and the floating bushing or closure member **10**, bearing gland **46**, packing **48**, and pressure ring **52** are examined to determine if replacement is necessary. The transmitters **55** and **64** are cleaned and reinstalled and the conductors **56** and **65** respectively are connected. The polished rod **2** is also examined to locate points or areas of wear which would prevent an effective seal between the rod **2** and the packing in engagement therewith.

The polished rod **2** is coaxial with the pack cap **49**, packing **48**, and bearing gland **46** or coaxial with the pack cap **69**, packing **70**, packing **48**, and bearing gland **46**. Misalignment of the polished rod **2** with the christmas tree **8** is accommodated by limited universal movement of the spherical portion **5** in the cavity **6** in the body member **7** and movement of the polished rod **2** and floating bushing or closure member **10** laterally in the recess **11** of the tubular portion **28** of the body member **7**.

It is to be understood that while I have illustrated and described certain forms of my invention, it is not to be limited to the specific forms or arrangement of parts herein described and shown.

What I claim and desire to secure by Letters Patent is:

1. A self aligning well head structure for use with an oil well tubing and a pumping unit reciprocating a polished rod extending into the well tubing and connected to a string of sucker rods, said self aligning well head structure comprising:

a. a body member having walls defining a cavity adapted to receive a portion of a sphere;

b. a tubular portion extending from said body member and having a side wall and an end wall with a bore therethrough, said tubular portion having a recess coaxial with said bore and communicating with the cavity in said body member, said tubular portion of said body member being adapted to be mounted on an oil well christmas tree;

c. a tubular bushing member having opposite ends and positioned in said tubular portion of said body member and having one end thereof in engagement with the end wall of said tubular portion and a side wall defining a bore adapted to slidingly receive an oil well polished rod during reciprocable movement thereof, said tubular bushing member being smaller than said recess for limited lateral movement of said bushing member and oil well polished rod;

d. a rod guide member having a generally spherical end portion received in the cavity in said body member and an elongated tubular portion extending from the spherical end portion and having a side wall defining a bore therethrough, said spherical end portion engaging the other end of said bushing member and having a bore therethrough communicating with and coaxial with the bore through the tubular portion of said rod guide member, said bores through the tubular portion of the body member and through the spherical end portion and tubular portion of the rod guide member being larger than the polished rod providing a clearance greater than the limited lateral movement of said bushing member and polished rod;

e. a retainer mounted on said body member and having walls engaging said spherical end portion of said rod guide member for retaining same in the cavity in said body member; and

f. seal means mounted on said tubular portion of said rod guide member and adapted to slidingly and sealingly engage the oil well polished rod during reciprocable movement thereof.

2. A self aligning well head structure as set forth in claim **1** including:

a. tubular means mounted on said tubular portion of said rod guide member and engaging said seal means for defining a chamber surrounding the oil well polished rod during reciprocable movement thereof;

b. means communicating with the chamber for detecting presence of and generating a signal in response to liquid flowing into the chamber from the bore of said rod guide member; and

c. second seal means mounted on said means defining the chamber and spaced from said first named seal means and adapted to slidingly and sealingly engage the oil well polished rod during reciprocable movement thereof while sealing the chamber;

d. said first named seal means and said second seal means being above the spherical end portion and said bushing member being below said spherical end portion with said first named seal means, second seal means and bushing member providing sliding engagement with and guiding of said polished rod.

3. A self aligning well head structure as set forth in claim **2** including:

a. means on the side wall of said tubular portion of said rod guide member defining a recess therein below said first named seal means; and

b. means communicating with the recess in the side wall of said tubular portion of said rod guide member for generating a signal in response to fluid pressure above a selected level.

4. A self aligning well head structure as set forth in claim **1** wherein:

a. said recess in said tubular portion of said body member is enlarged to define a shoulder adjacent to and spaced from the cavity in said body member;

b. said bushing member has a flange in engagement with said shoulder;

c. said spherical end portion of said rod guide member is in engagement with the flange on said bushing member; and

d. said bushing member and said recess in said tubular portion of said body member having relative sizes to accommodate limited lateral movement of the oil well polished rod and retain same from engaging surfaces of the bores in the body member and rod guide member whereby the polish rod has sliding engagement and guiding support with the bushing member and seal means.

5. A misalignment accommodating device for oil well pump heads and comprising:

a. a body member having walls defining a cavity adapted to receive a portion of a sphere;

b. walls extending from said body member and defining a recess communicating with the cavity, one of said recess defining walls having a bore therethrough and communicating with the recess;

c. a bushing member in the recess and having a bore adapted to slidingly receive an oil well polished rod during reciprocable movement thereof, said bushing being smaller than said recess for limited lateral movement of the bushing member and polished rod;

d. a rod guide member having a generally spherical portion received in the cavity in said body member and having a bore therethrough alignable with the bore through said bushing member and said recess defining walls; and

e. seal means mounted on said rod guide member and adapted to slidingly and sealingly engage the oil well polished rod during reciprocable movement thereof;

f. said bores in said one recess defining wall and said rod guide member being larger than the polished rod and providing a clearance greater than the limited lateral movement of the bushing member, said bushing member and seal means providing sliding engagement and guiding support for said polished rod.

* * * * *