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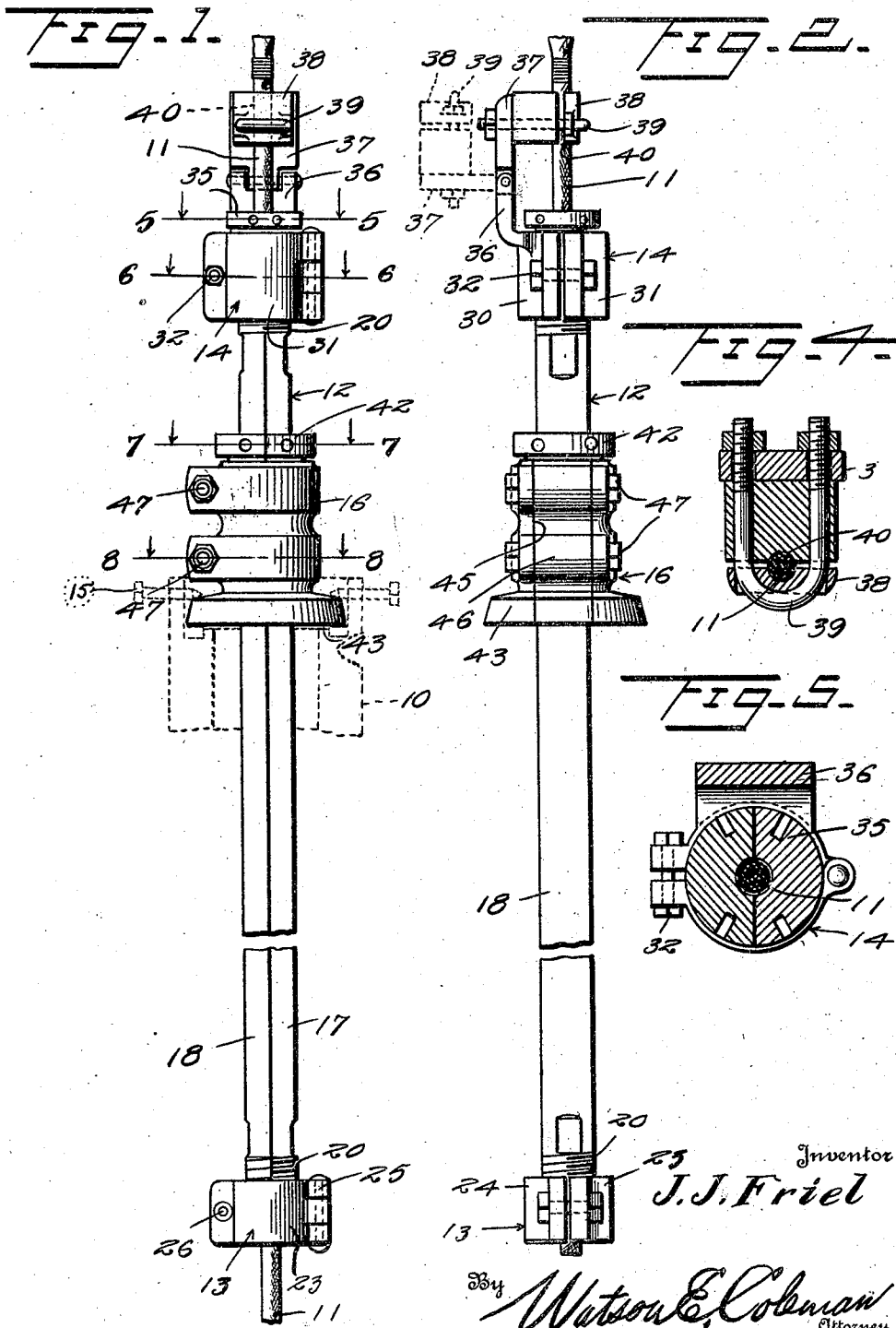
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J. J. FRIEL

OIL SAVER

Filed April 3, 1926

2 Sheets-Sheet 1.



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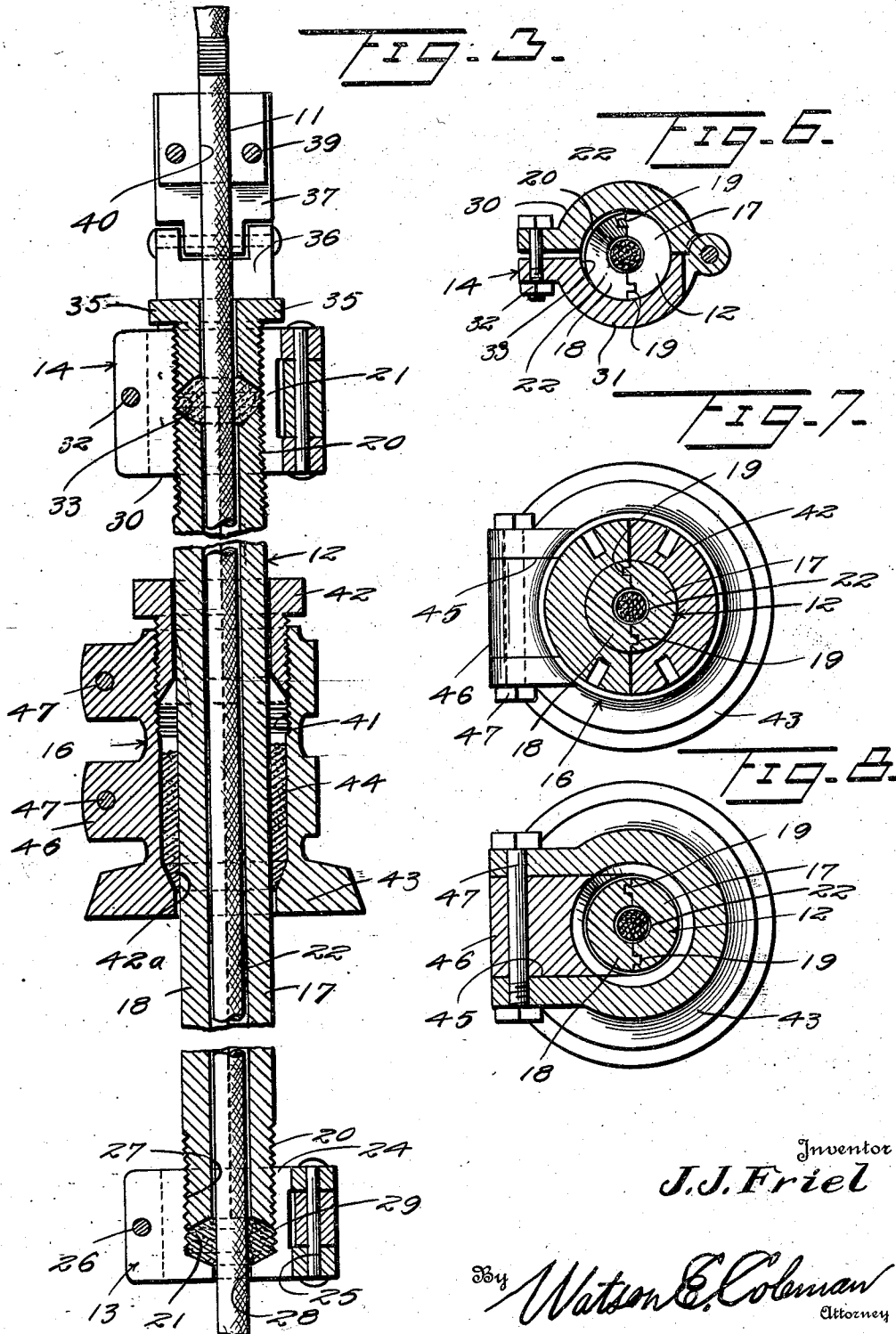
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UNITED STATES PATENT OFFICE.

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OIL SAVER.

Application filed April 3, 1926. Serial No. 99,667.

This invention relates to oil savers for use on cables of oil wells.

An important object of the invention is to produce a device of this character which effectively prevents the loss of oil and, what is more important, the spilling of this oil upon the deck of a derrick and which accomplishes these ends without applying friction to the cable line which would tend to roughen and finally destroy the same.

In the ordinary form of oil saver employed with cable lines, a packing is provided for the cable line of itself with the result that the cable in its reciprocation in the packing becomes worn and the various strands of the outer surface thereof broken so that they project and engage in the packing, rapidly rendering the same useless. Furthermore, the cable line by the breakage of its strands becomes weakened so that it may part and falling into the well renders an expensive and lengthy fishing operation necessary. Accordingly, an important object of this invention is to provide a casing for the cable line which in itself forms a packer and prevents capillary movement of the oil along the cable line, this casing being in turn operated through a packer which will prevent the passage of oil upwardly upon the casing.

A further object of the invention is to provide a device of the character just described which may be applied to the cable line without the necessity of threading the various portions thereof upon the cable line, thus eliminating necessity for disconnecting the cable line in such application.

Other objects and advantages will become apparent throughout the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a front elevation of an oil saver constructed in accordance with my invention;

Figure 2 is a side elevation thereof;

Figure 3 is a vertical sectional view thereof;

Figure 4 is a section through the cable clamp;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a section on the line 6—6 of Figure 1;

Figure 7 is a section on the line 7—7 of Figure 1;

Figure 8 is a section on the line 8—8 of Figure 1.

Referring now more particularly to the drawings, the numeral 10 generally designates the control head of an oil well and 11 the cable line passing therethrough which is to be packed. These cables are reciprocated through a fixed distance and in accordance with my invention, I secure about the cable a casing 12 of greater length than the distance through which the cable is to be reciprocated and having at each end thereof means, designated at 13 and 14, for packing the casing to the cable 11 at its lower and upper ends, respectively. Seated upon the control head and held in position thereon by set-screws 15 is a packer 16 for the casing. The position of the casing upon the line 11 is such that the packing elements 13 and 14 thereof at all times clear the lower and upper ends of the packer 16.

The casing 12 is in the form of a longitudinally split sleeve, the sections 17 and 18 of which are preferably provided with a tongue and groove connection at their edges, as indicated at 19 so that an oil tight connection between these sections may be formed. The ends of the casing are exteriorly screw-threaded, as at 20, and these upper ends have their walls inclined inwardly, as indicated at 21, so that the ends of the casing form one end of a packing gland, as will hereinafter more fully appear. The bore 22 of the casing is preferably of such size that the casing fairly closely fits the cable 11.

The lower packer 13 is also formed in two sections 23 and 24 pivotally connected to one another, as at 25, and having means, as at 26, whereby they may be secured in assembled relation about the rod. A further function for the securing means 26 will hereinafter appear. The sections, when in assembled relation, have a bore 27, reduced, as at 28, by an inclined shoulder to a size where it closely fits the cable 11. The larger portion of the bore is provided with interior threads for coaction with the threads upon the lower end of the casing 12 so that packing 29 disposed about the cable 11 and between the gland face 21 at the lower end of the rod and the inclined shoulder 28 of the lower packer may be compressed and

brought into firm engagement with the cable. When the packing has been properly compressed, the packer may be secured in adjusted position by further tightening of the securing elements 26.

The upper packer 14 is formed in two hingedly connected sections 30 and 31 which may be secured in assembled relation by a securing element 32. These elements combine when in assembled relation to provide a threaded bore 33, the threads of which coact with the threads at the upper end of the casing 12 and with the sections of a two part gland follower 35.

The section 30 has an upstanding ear 36 to which is pivoted a block 37 forming one-half of a cable clamp, the other half of which is formed by a cap 38 adjusted with relation to the block 37 by means of a U-bolt 39 or the like. It will, of course, be understood that the opening 40 provided may have its faces grooved after the manner of the usual cable clamp for coaction with the threads of the cable. When not in use, the cable clamp may be swung to the position, generally indicated at Figure 2, and in this position, will not interfere in any way with hoisting of the cable through the casing 12. This cable clamp forms a means for preventing relative movement of the cable and casing at all times during ordinary operations. Of course, when the cable is being drawn through the casing 12, there will be relative movement of the cable and the packings carried by the casing at the ends thereof, but this relative movement is such that the friction applied to the cable is distributed throughout the length thereof and not confined to one point, as is the case where the cable continually reciprocates through the packing.

The packer 16 has a bore 41 opening through its upper end of greater size than the casing and threaded to receive a two part gland follower 42. The lower end of this bore is reduced by an inclined shoulder 42^a to the diameter of the casing 12, the shoulder 43 forming the lower gland wall between which and the lower end of the follower 42, packing 44 may be compressed to properly engage with the outer surface of the casing 12. This packer has formed in its wall a vertical slot 45 of slightly greater width than the casing and through which the casing may be introduced to the bore of the packer. This slot is filled by a removable block 46 held in position by bolts 47.

In applying the device to a cable line, the upper packer 14 is first assembled about the cable line and is secured in proper position with relation to the cable line by means of the cable clamp. The casing is then assembled about the line and the upper end thereof threaded into the lower end of the packer 14. Packing is then placed in the

upper end of the packer 14 and the two part gland 35 inserted. The lower packer is then assembled about the rod, packing inserted therein from the upper end and the packer moved bodily upon the line and threaded to the lower end of the casing 12. The packer 16 for the casing, with the block 46 removed, is then placed in position upon the casing 12 and the block 46 inserted. Packing is then introduced in the packer from the upper end thereof and the two part gland 42 inserted. The packer 16 is then seated upon the control head 10 and secured in position by the set-screws 15 and the device is ready for operation. It will be noted that all of the above operations are performed without disconnecting the cable. It will also be noted that the packings in all of the packers 13, 14 and 16 may be renewed without shifting the position of the casing upon the cable line and without the necessity of releasing the casing so that it may move upon the rod line.

Particular attention is directed to the cooperative structure of the cable clamp and the upper packer 14. It will be seen that the gland 35 is of such length that it may be withdrawn entirely without having its movement obstructed by the clamp.

Since the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In an oil saver for cable lines, a casing surrounding the cable line and secured against longitudinal movement with relation thereto, means for packing the casing to the cable line at the lower end thereof and a packing gland through which the casing is reciprocable, each of said elements being formed in sections adapted to be assembled about the cable.

2. In combination with a reciprocable cable and a control head through which the cable reciprocates, a packer seated upon the control head, a casing slidably directed through the packer and surrounding the cable, means at the lower end of the casing for packing the casing to the cable and means at the upper end of the casing for securing the upper end of the casing to the cable, said casing being formed in two longitudinally extending sections and maintained in assembled relation about the cable by said packer and said securing means.

3. In an oil saver for cable lines, a longitudinally split casing adapted to be assembled about the cable line, means at opposite ends of the casing for holding the same in assembled relation and combining therewith to produce packing glands, one of said means including a clamp for engagement with the

cable and a packing gland for the casing adapted to be assembled thereabout.

4. In an oil saver for cable lines, a longitudinally split casing adapted to be assembled about the cable line, means at opposite ends of the casing for holding the same in assembled relation and combining therewith to produce packing glands, one of said means including a clamp for engagement with the cable and a packing gland for the casing adapted to be assembled thereabout, each of said means including hinged sections adapted to be assembled about the casing line and in their assembled relation having threaded engagement with the ends of the casing.

5. In combination with a reciprocable

cable and a control head through which the cable reciprocates, a packer seated upon the control head, a casing slidably directed through the packer and surrounding the cable, means at the lower end of the casing for packing the casing to the cable, means at the upper end of the casing combining with the casing to produce a packing gland including a part securing the upper end of the casing to the cable and a sectional follower for said gland and movable from the gland while said part is connected with the cable.

In testimony whereof I hereunto affix my signature.

JOHN J. FRIEL.