

Dec. 31, 1935.

G. B. HEAD

2,026,036

OIL SAVER AND SUCKER ROD STRIPPER

Filed Oct. 1, 1934

2 Sheets-Sheet 1

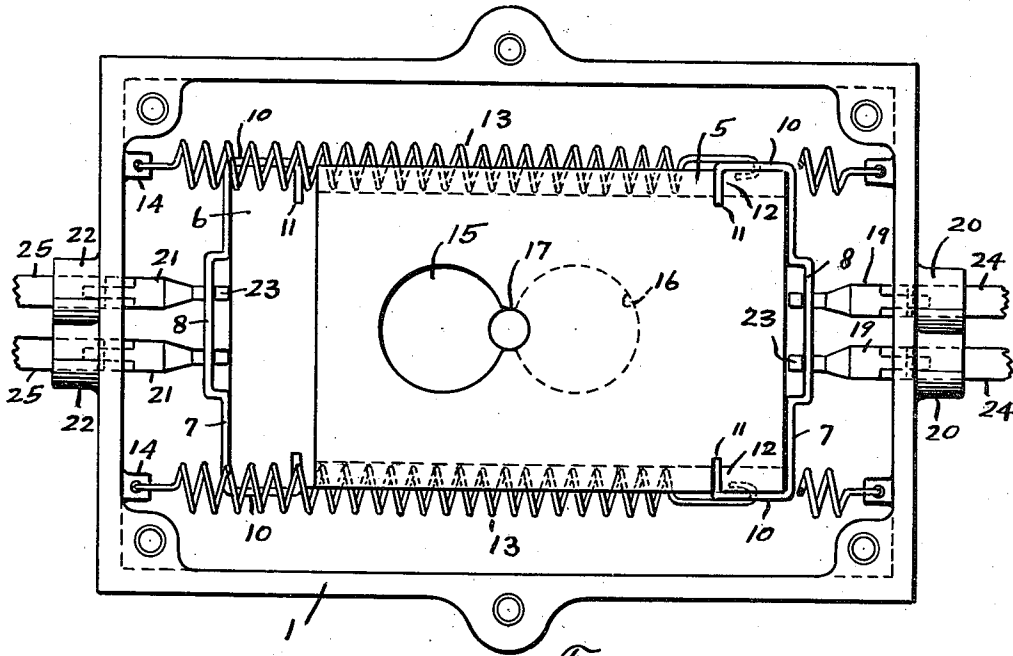


Fig. 1.

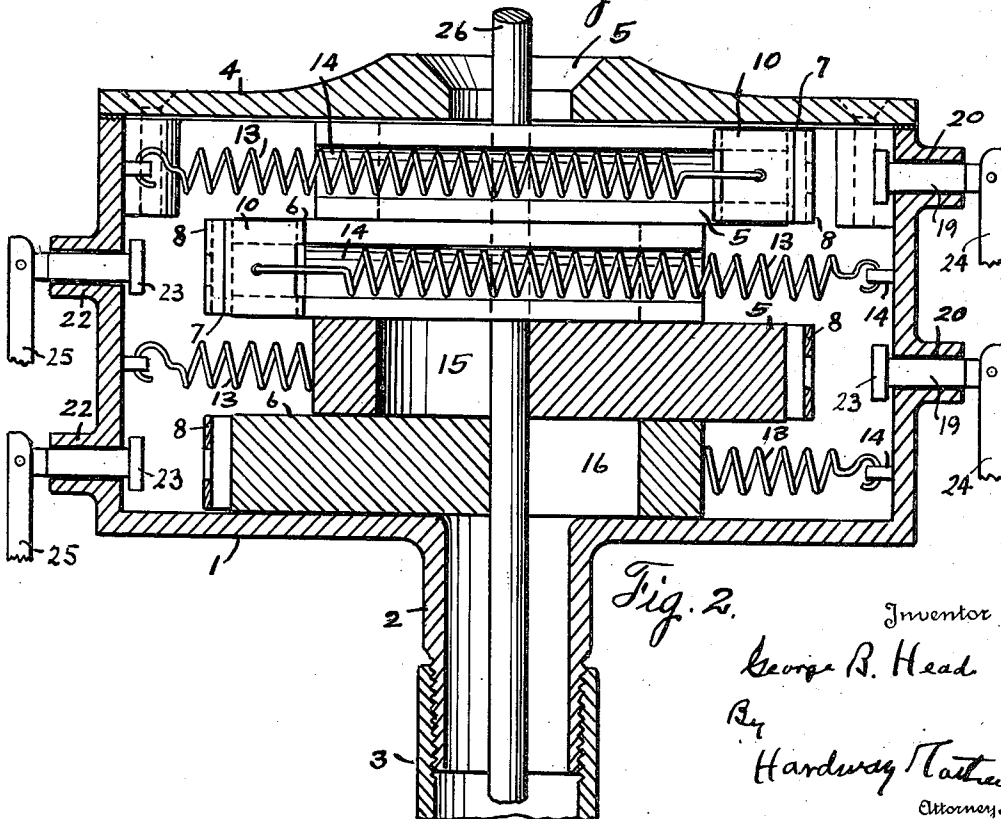


Fig. 2.

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2 Sheets-Sheet 2

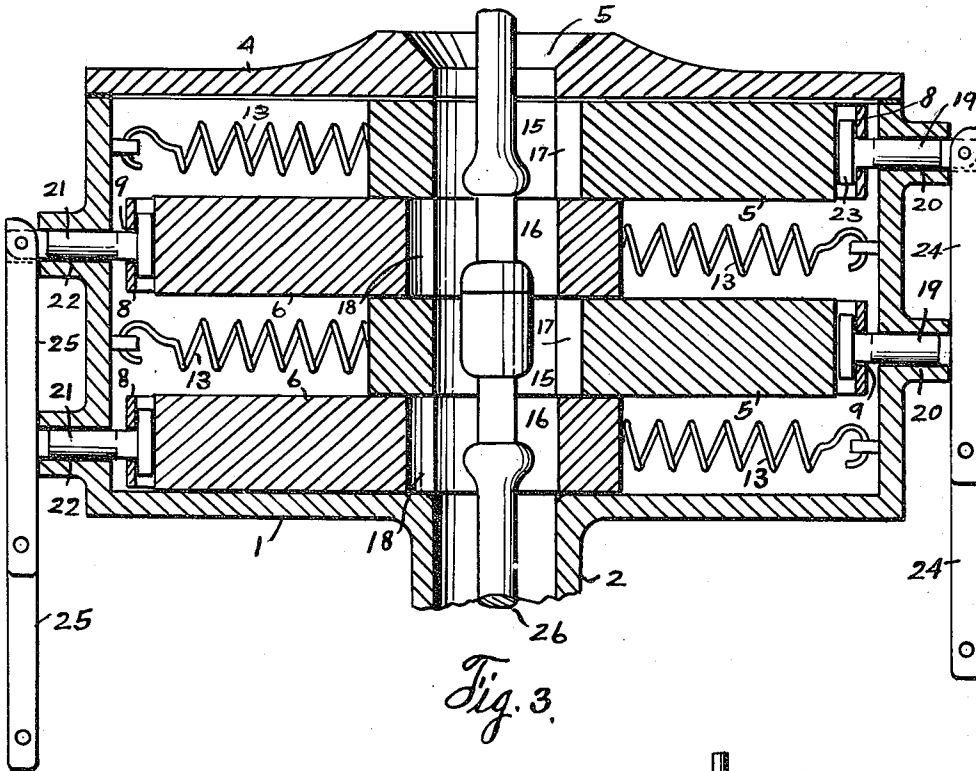


Fig. 3.

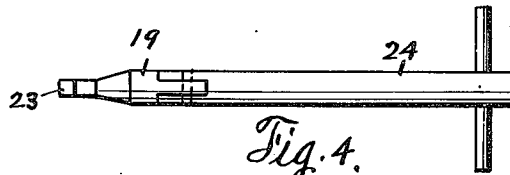


Fig. 4.

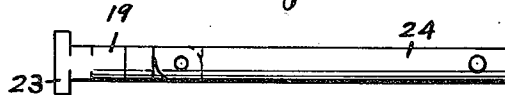


Fig. 5.

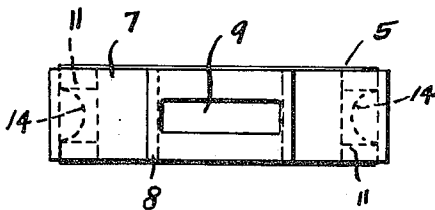


Fig. 6.

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UNITED STATES PATENT OFFICE

2,026,036

OIL SAVER AND SUCKER ROD STRIPPER

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8 Claims. (Cl. 166—15)

This invention relates to an oil saver and sucker rod stripper.

An object of the invention is to provide an apparatus adapted to be attached to the top of a well pipe or tubing for wiping the oil from a line or rod as it is withdrawn from the well, so that said oil will drain back into the well and not be wasted, and so that the line or rod will be cleansed of the oil and may be more readily handled, and for the further purpose of preventing the oil from draining on the derrick floor.

Another object of the invention is to provide an apparatus of the character described that will permit a swab attached to the end of a cable or line, to pass through said apparatus for swabbing the well, and should the swab be blown out by internal pressure or be withdrawn, the apparatus is of such construction that it will close the well.

Another object of the invention is to provide an apparatus of the character described having wipers arranged to clean the oil from the cable or sucker rods, when the wipers are in active position, said wipers being so mounted as to allow the line or rod to move laterally while being withdrawn, and at the same time to maintain a close fit about the line or rod so as to wipe the oil, adhering thereto, therefrom.

Another object of the invention is to provide an apparatus of the character described that may be readily rendered inactive when a line or pump rod is being lowered into the well but which may be readily rendered active so as to wipe the oil from the rod or line while the latter are being withdrawn.

The apparatus, as illustrated is applicable particularly for the purpose of wiping the oil from pump rods or wire lines as well as for completely closing the well upon the complete withdrawal of the rod or line.

With the above and other objects in view, the invention has particular relation to certain novel features of construction, operation, and arrangement of parts, an example of which is given in the specification and illustration in the accompanying drawings, wherein:—

Figure 1 shows a plan view of the apparatus showing the cover plate removed and partly broken away.

Figure 2 shows a vertical sectional view of the apparatus shown in active position.

Figure 3 shows a vertical sectional view thereof shown in inactive position.

Figure 4 shows a plan view of an actuating lever employed.

Figure 5 shows a side view thereof, and

Figure 6 shows an end view of one of the plungers.

Referring now more particularly to the drawings wherein like numerals of reference designate

similar parts in each of the figures, the numeral 1 designates the casing having an outwardly threaded depending tubular neck 2 adapted to be connected to the upper end of the well pipe or casing 3. The casing 1 has a cover plate 4 detachably secured thereon having the central opening 5 therethrough which is upwardly flared.

Within the casing are the slidably mounted plungers 5, 5 and 6, 6. These plungers are superimposed one on the other as shown in Figures 2 and 3 and thus arranged in alternate relation. Secured to the outer ends of the plungers are the yokes 7. These yokes are fitted closely against the corresponding ends of the plungers and have the central portions 8 spaced outwardly from the corresponding plungers and formed with the transverse slots 9. The free ends 10 of the yokes are overturned and lie closely against the sides of the corresponding plungers and these overturned ends have the inwardly turned fingers 11 which engage behind the shoulders 12 whereby said yokes are secured to the respective plungers. On opposite sides of each plunger are the coil springs 13, 13, which lie in the side grooves 14 of the corresponding plunger. The springs of the plungers 5 are connected at one end to the corresponding ends of the yokes 7 and said springs are connected at their other ends to the lugs 14, at the opposite end of the casing 1 and likewise the coil springs of the plungers 6 are connected, at one end, to the overturned ends of the yokes 7 of said last mentioned plungers and their other ends are connected to the lugs 14 at the opposite end of the casing 1. The plungers 5, 5 will accordingly be urged by said springs in a direction the opposite of that of the plungers 6, 6. The plungers 5, 5 have the vertical openings 15, 15 therethrough and the plungers 6, 6, have the vertical openings 16, 16, therethrough and the openings 15 have the half round side-pockets 17, 17 and the openings 16 have the half round side pockets 18, 18.

There are the stems 19, 19, arranged to work through the end bearings 20, 20, at one end of the casing 1 and there are the stems 21, 21, arranged to work through the bearings 22, 22, at the other end of the casing 1.

The inner end of each stem has a cross head 23 shaped to be fitted through the corresponding slot 9 of the cross head 7 and the stem may then be given a quarter turn to engage the outwardly spaced portion 8 of the yoke as shown in Figures 1 and 3 whereby the stems 19 may be connected to the plungers 5 and the stems 21 may be connected to the plungers 6. Pivotally connected to the outer ends of said stems are the levers 24, 24, and 25, 25, respectively.

In order to render the device inactive, the levers 24, 25, may be pulled outwardly to place the springs under tension and then turned down-

wardly as shown in Figure 3 to lock said outward or inactive position. The openings 15, 16, are so arranged that they will be in vertical alignment when the plungers are in an outward or inactive position so that the sucker rod 25, or the cable or line, may be readily lowered, without interference.

When it is desired to withdraw and break up the sucker rod in the well, the levers 24, 25, may be swung upwardly into alignment with the corresponding stems 19, 21, and their bearings 20, 22, as shown in Figure 2, and thereupon the coil springs will move the plungers inwardly, the inner ends of the levers moving inwardly through the bearings 20, 22. The pockets 17, 18, are arranged on opposite sides of the sucker rod so that the sucker rod will be received by these pockets on opposite sides and thereby closely surrounded by the plunger assembly and as the sucker rod is moved upwardly, the oil adhering to the surface thereof will be wiped off and drain back into the well.

When a coupling reaches the plungers or wipers 5, 6, the coupling will force the plungers outwardly permitting the coupling to pass through the said plungers without the necessity of the plungers being moved outwardly by the levers 24, 25. When the coupling has passed through the plungers, the plungers will close around the rod under the influence of the springs 13. The stems 19 will be disconnected from the yokes while the plungers, or wipers, are in operative position.

In case a cable is being used to operate a swab in the well, the wipers will act to wipe the oil from the cable as it is withdrawn, in the manner herein before explained. In case of withdrawal of the swab or in case the swab is completely blown from the well by internal pressure, the plungers or wipers will be actuated further by the springs 13 into such overlapping position that the passageways 15, 16, will be kept closed.

When the well is being pumped in the usual way the apparatus may be removed from the pipe or tubing as it is not needed during the normal operation of the pump.

As the rod or cable is withdrawn it will have a certain amount of lateral, or swinging movement, and the wipers are so mounted that they may move in the casing, with the rod or cable and will maintain a close fit therewith during the swaying movement of said rod or cable.

What I claim is:

1. An oil saver comprising a casing adapted to be connected to the upper end of a pipe in a well, alternately arranged plungers therein mounted to move radially in all directions and having openings to permit the passage of a rod, or line, vertically therethrough, said openings having side pockets arranged and shaped to fit closely about opposite sides of the rod, or line, in the openings, and yieldable means arranged to maintain the plungers in such position.

2. An oil saver comprising a casing adapted to be connected to a pipe in a well, alternately arranged plungers in the casing mounted to swing laterally and having openings and movable longitudinally into inactive position to align said openings vertically and also movable into active position, said openings having complementary side pockets arranged to assume a complementary position upon movement of the plungers into active position.

3. An oil saver comprising a casing adapted to be connected to a pipe in a well, an assembly of

slidable members therein having openings arranged to permit the passage of a line, or rod, vertically therethrough, and movable into active and inactive positions and movable radially in any direction when in either position, the assembly openings being shaped to snugly receive the line or rod therein when the assembly is in active position and to receive such rod or line loosely when the assembly is in said inactive position.

4. An oil saver comprising a casing adapted to be connected to a pipe in a well, an assembly of slidable members therein having openings arranged to permit the passage of a line, or rod, vertically therethrough, and longitudinally movable into active and inactive positions, the assembly being also movable laterally and openings being shaped to snugly receive the line or rod therein when the assembly is in active position and to receive such rod or line loosely when the assembly is in said inactive position and means for maintaining the slidable members yieldingly in such active position.

5. An oil saver comprising a casing adapted to be connected to a pipe in a well, an assembly of longitudinally slidable members therein having openings arranged to permit the passage of a line, or rod, vertically therethrough, and movable into active and inactive positions, the assembly openings being shaped to snugly receive the line or rod therein when the assembly is in active position and to receive such rod or line loosely when the assembly is in said inactive position, said assembly being mounted to swing freely, radially, in any direction and means for locking said slidable members in inactive position.

6. An oil saver comprising a casing adapted to be connected to a pipe in a well, wipers therein having openings arranged to permit the passage of a line or rod vertically through said wipers, said wipers being movable into active and into inactive positions, and also being mounted to swing radially the assembly openings being shaped to snugly receive the rod or line therein when the assembly is in active position and to receive such rod or line loosely when the assembly is in said inactive position.

7. An oil saver comprising a casing adapted to be connected to a pipe in a well, wipers therein having openings arranged to permit the passage of a line or rod vertically through said wipers, said wipers being movable longitudinally into active and into inactive position, the assembly openings being shaped to snugly receive the rod or line therein when the assembly is in active position and to receive such rod or line loosely when the assembly is in said inactive position, means for maintaining the wipers yieldingly in said active position and permitting the assembly to swing laterally and other means for locking the wipers in inactive position.

8. Apparatus of the character described comprising a casing adapted to be attached to the top of a well tubing, interfitting wipers therein having openings therethrough to receive a rod or cable, said wipers being movable longitudinally relative to each other into one position to align said openings and into another position to close said openings to close the well and yieldable means constantly tending to move the wipers into such well closing position and permitting the wiper assembly to swing laterally relative to the casing.

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