Jan. 17, 1939. J. R. DAVIDSON 2,144,403

OIL SAVER

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Fig. 1.

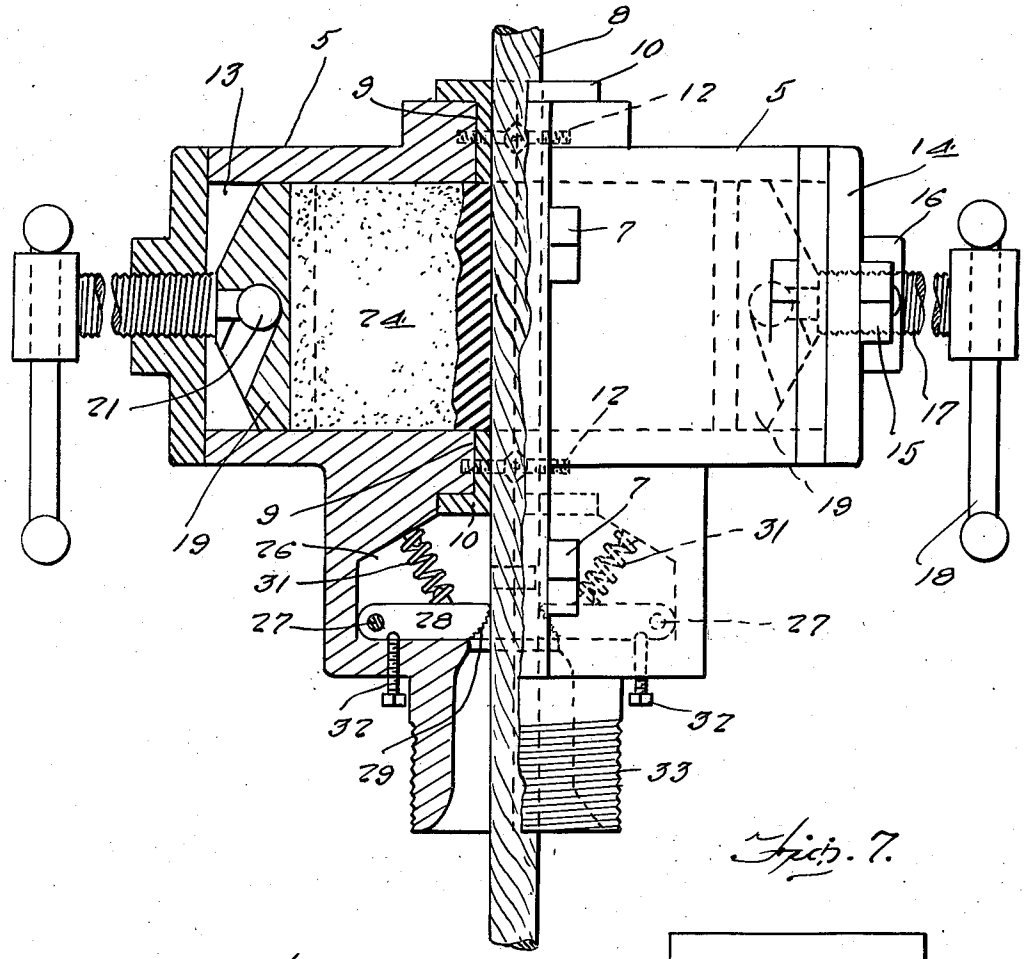


Fig. 7.

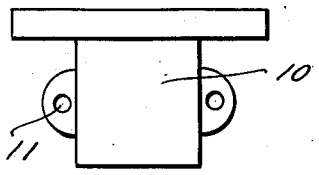
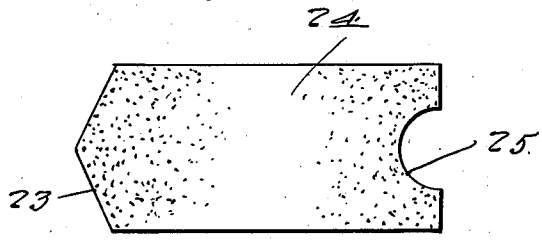


Fig. 6.



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Fig. 2.

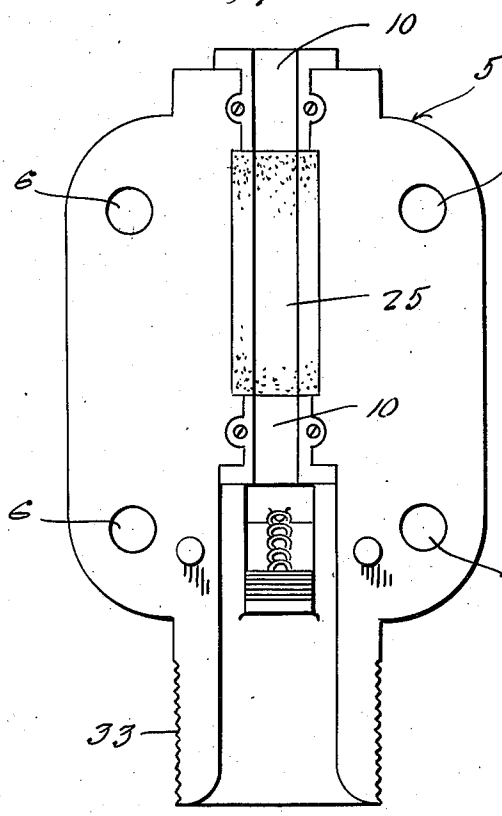


Fig. 3.

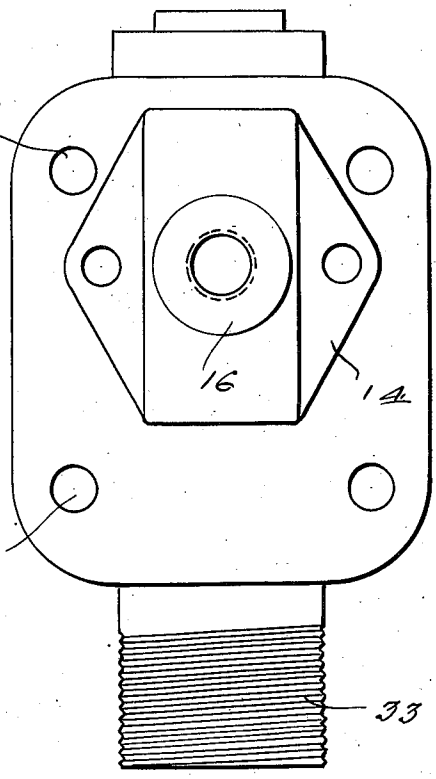
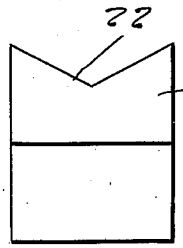


Fig. 5.



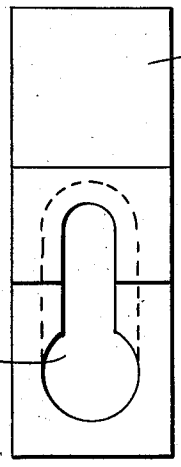


Fig. 4.

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OIL SAVER

James R. Davidson, Rodessa, La.

Application October 28, 1938, Serial No. 237,581

5 Claims. (Cl. 166—14)

This invention relates to oil savers of the type used on cables, rods, and the like in connection with oil and gas wells to prevent waste of production during the drilling and flushing of the wells; and the invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:—

Figure 1 is a view partly in section and partly in elevation showing the improved oil saver,

Figure 2 is an elevational view of one of the sections of the split housing forming part of the invention,

Figure 3 is a view of a section of the split housing and viewing the same from the side opposite to that shown in Figure 2,

Figure 4 is an edge elevational view of a follower,

Figure 5 is a top plan view of the follower,

Figure 6 is a top plan of a packing, and

Figure 7 is a side elevational view of a bushing.

Referring to the drawings by reference numerals it will be seen that in accordance with the present invention, the same, in the preferred embodiment thereof comprises a split casing, the complemental sections or halves of which are indicated by the reference numeral 5. The sections 5 are provided with bolt holes 6 to accommodate bolts 7 through the medium of which the sections are secured together.

The sections 5 are suitably formed at their inner or meeting faces to provide openings for the passage of the pull rope or drill line 8, and arranged within the openings 9 provided to accommodate the pull rope or drill line 8 are flanged bushings 10 as shown.

The bushings 10 are provided with apertured lateral ears 11 to accommodate pins 12 through the medium of which the bushings are secured within the openings 9.

The bushings 10 are disposed, as shown, at the top and bottom of a packing chamber 13, and are preferably of bronze. Said bushings 10 will serve to prevent the wire cable 8 from coming into rubbing contact with the casing of the oil saver thus preventing formation of sparks which usually results from the rubbing contact of the wire cable 8 with the steel body or casing of the oil saver. Thus the bushings 10 are a safety feature as will be apparent.

The outer ends of the packing chamber 13 are closed through the medium of plates 14 bolted to the casing as at 15 and provided with threaded bushings 16 for threadedly receiving screws 17. Screws 17 on their outer ends are provided with suitable handles 18 as shown.

The screws 17 are provided for advancing and retracting followers 19 that have a sliding fit within the opposite ends of the chamber 13.

As clearly shown in Figures 1 and 4 the followers 19 are provided with key hole slots 20 to accommodate ball head-equipped shanks 21 provided on the inner ends of the screws 17 whereby to provide a quick detachable connection between the screws and the followers.

The followers 19 are provided with substantially V-shaped grooves 22 for receiving therein substantially V-shaped ribs 23 on the outer ends of packing elements 24 formed of rubber or other suitable material.

The packing elements 24 are provided with vertical concave grooves or seats 25 for engaging around the cable, rope or drill line 8.

Below the chamber 13 the sections of the casing are complementarily formed to provide a slip-chamber 26 in which are pivoted as at 27 slips 28.

The slips 28 have free jaw ends 29 adapted to have biting engagement with the rope socket, bars and swab on bottom end of wire line or cable 8 in a manner to hold the socket, bars and swab, or tools, from passing downward through the oil saver and tubing in the event the wire line or cable should break while being run into oil saver. By thus holding the rope the swab pulled thereby is held against dropping down into the well and consequently a "fishing" for the swab or pulling the tubing out of the well to recover the swab is obviated.

The slips 28 are yieldably urged into a position for engagement with the tools 8 through the medium of coil springs 31 suitably provided within the chamber 26 and engaging the slips 28 as shown.

For limiting movement of the slips 28 in response to the springs 31 there are threaded upwardly through the bottom of the chamber 26 stop screws 32 as shown in Figure 1.

Also below the chamber 26 the casing is suitably threaded as at 33 to attach to the well casing, tubing, pipe, or chamber containing the fluid which it is desired to pack off.

It is thought that a clear understanding of the construction, utility, operation and advantages of an oil saver embodying the features of the present invention will be had without a more detailed description.

Having thus described the invention what is claimed as new is:—

1. An oil saver embodying a casing having a

vertical passage therethrough for receiving a reciprocating element, and also having arranged in said passage vertically spaced bushings for guiding said reciprocating element and retaining the same out of rubbing contact with the casing; said casing also having an upper packing chamber, elastic packing blocks slidably arranged within the chamber for engagement with the reciprocating element, followers for the blocks, and operating screws for the followers, said operating screws having inner ends provided with ball-head equipped shanks, and said follower blocks having in one vertical face thereof key hole slots for receiving said heads and cooperating therewith to provide quick detachable connections between the screws and followers.

2. In an oil saver, a housing having a vertical passage therethrough for receiving a reciprocating element and also having a transverse packing chamber, packing means arranged in said chamber and accommodating the reciprocating element, said casing having beneath said chamber a slip-chamber and slips arranged in said chamber and having gripping faces for engaging said reciprocating element and for holding said element and oil saver against relative movement.

3. An oil saver embodying a casing having a vertical passage therethrough for receiving a reciprocating element, and also having arranged in said passage vertically spaced bushings for guiding said reciprocating elements and retaining the same out of rubbing contact with the casing; said casing also having an upper packing chamber, elastic packing blocks slidably arranged within the chamber for engagement with the reciprocating element, followers for the blocks, and operating screws for the followers, said operating screws having inner ends provided with ball-head equipped shanks, and said follower blocks having in one vertical face thereof key hole slots for receiving said heads and cooperating therewith to provide quick detachable connections between the screws and followers, said casing having beneath said packing chamber a slip chamber, spring-biased slips pivoted within said chamber at opposite sides of said vertical passage and having free ends to engage the reciprocating element.

4. An oil saver embodying a casing having a vertical passage therethrough for receiving a reciprocating element, and also having arranged in said passage vertically spaced bushings for guiding said reciprocating elements and retaining the same out of rubbing contact with the casing; said casing also having an upper packing chamber, elastic packing blocks slidably arranged within the chamber for engagement with the reciprocating element, followers for the blocks, and operating screws for the followers, said operating screws having inner ends provided with ball-head equipped shanks, and said follower blocks having in one vertical face thereof key hole slots for receiving said heads and cooperating therewith to provide quick detachable connections between the screws and followers, said casing having beneath said packing chamber a slip chamber, spring-biased slips pivoted within said chamber at opposite sides of said vertical passage and having free ends to engage the reciprocating element, and stop screws for said slips threadedly engaged with the bottom wall of said slip chamber to thread inwardly of said chamber for limiting swinging movement of the slips in opposition to the springs associated therewith.

5. In an oil saver a casing provided with an upper packing chamber and a lower slip chamber, packing means in the upper chamber, and slips pivoted within the slip chamber, the packing and slips being respectively arranged for engaging a reciprocating element; said casing being provided with a vertical passage therethrough for receiving a reciprocating element.

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