June 20, 1939. J. E. SHAFFER 2,163,327

TUBING OIL SAVER

Filed May 20, 1937

Fig. 1

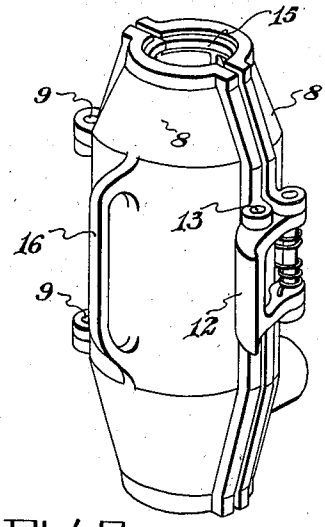
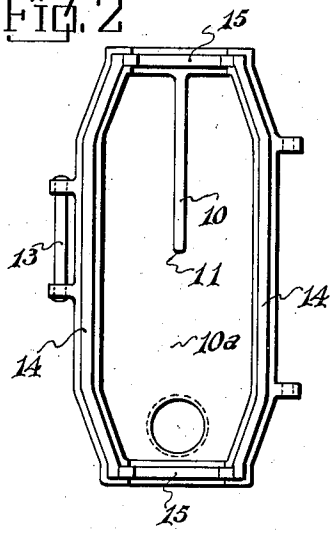


Fig. 2



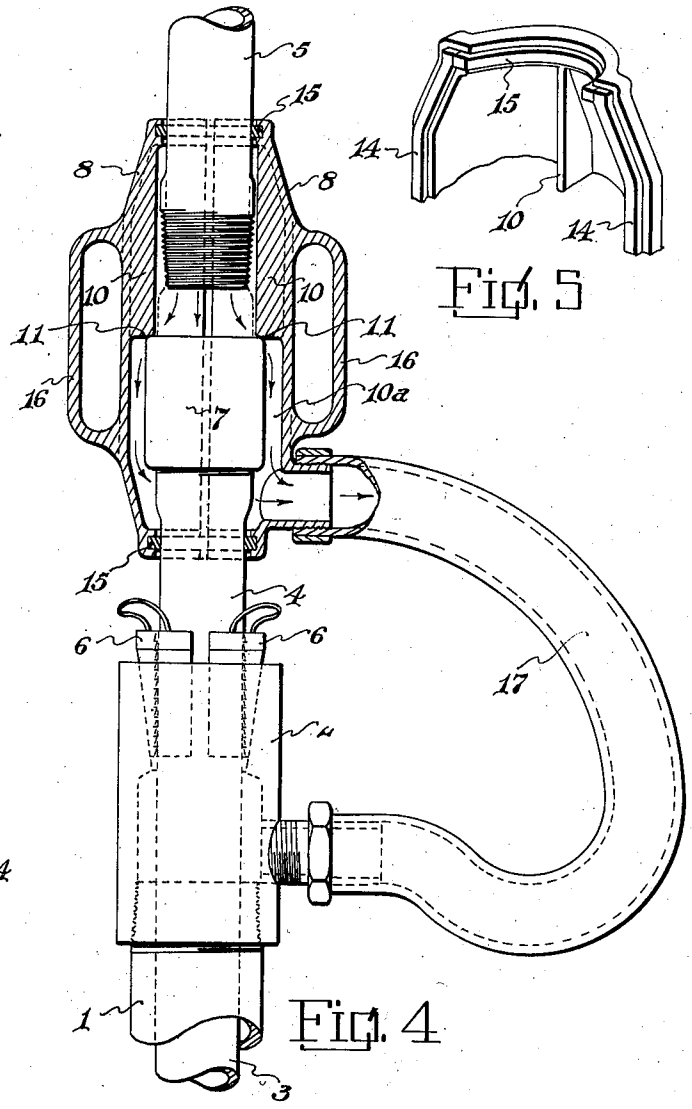


Fig. 4

Fig. 5

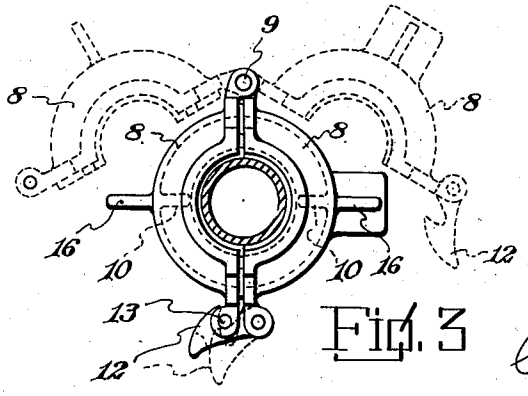


Fig. 3

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TUBING OIL SAVER

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2 Claims. (Cl. 166—16)

The invention relates to oil saving devices and particularly to means adapted to house adjacent tubing ends as the tubing sections are disconnected, and to collect the oil within the tubing section and convey the same to a point of discharge, thereby conserving the oil, and at the same time preventing the discharge of oil onto operators during the tubing disconnecting operation.

A further object is to provide an oil collecting device, adapted to encircle the adjacent tubing ends in a manner whereby the ends can be separated and the oil discharged from the tubing at the broken connection, conveyed to a point of discharge, preferably into the well casing.

A further object is to form the oil collector from segmentally shaped members, adapted to be opened and placed in position around the tubing joint and provided with packing means for preventing leakage between the sections and at the same time allowing axial movement of the sections for the disconnecting thereof.

A further object is to provide a flexible discharge pipe connection between the collector and the casing head for discharging the oil into the casing of the well.

A further object is to provide the collector with a shoulder which rests on the collar of one of the sections for limiting the downward movement of the collector.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a perspective view of the collector.

Figure 2 is a view in elevation looking into one of the hinged collector sections.

Figure 3 is a top plan view of the collector showing the device open in dotted lines and the tubing sections in horizontal cross section.

Figure 4 is a view in elevation of a casing head, adjacent tubing sections and showing the collector applied thereto, and in vertical cross section.

Figure 5 is a detail perspective view of the upper end of one of the collector sections.

Referring to the drawing, the numeral 1 designates a conventional form of well casing and 2 the casing head carried thereby, which parts are stationary.

Disposed within the well casing 1 is a tubing string 3, formed from a plurality of sections 4 and 5; two of which are shown for purposes of illustration. When the tubing string is raised, it is necessary to apply tongs to the upper section 5 for rotating the same for the unscrewing operation, however the upper section usually contains oil, and if means is not provided to care for this oil, it is wasted and is sprayed or discharged on workmen at the end of the unscrewing operation of each section, as it is under a column of pressure. As the tubing string 3 is raised intermittently by the derrick in the usual manner, it is held against downward movement by the toothed wedge shaped slips 6, as clearly shown in Figure 4, and which slips wedge into the upper end of the casing head. As each upper section is raised the collar 7 of the next lower section is gripped for further raising the tubing string; all of which mechanism is old in the art.

The oil collector comprises hingedly connected sections 8, which are hinged together at 9, and are provided with registering ribs 10, which receive and entirely house the adjacent ends of the tubing sections 4 and 5. They are preferably provided with shoulders 11, which rest on the upper end of the collar 7, and prevent downward displacement of the collector on the tubing section. One side of one of the sections 8 is provided with a hooked latch 12 for latching over the shaft 13 on the other section.

The adjacent faces of the sections 8 of the collector are provided with packing strips 14, which engage each other and terminate in arcuate portions 15, which engage the outer periphery of the tubing sections 4 and 5, thereby preventing leakage between the sections. The latching device 12 is constructed in a manner whereby the packing strips are compressed when the latch is closed. Collector sections 8 are provided with handles 16 adapted to be grasped by the operator for handling the device for instance when placing the same around the tube, or for removing the collector from the tubes, as each tubing section is disconnected.

When the collector is placed in position on the adjacent ends of the tubing sections, and following the unscrewing operation the tubing section 5 is slightly raised, thereby allowing the oil within the tubing section 5 to flow downwardly into the enlarged chamber 10a of the collector around the collar, and thence through a flexible hose 17 and into the casing head 2 where it discharges the fluid into the well casing 1, around the tub-

ing string 3. This takes place below the slips 6. The draining operation is relatively quick, and after a slight lapse of time, the collector is opened, placed on the platform beside the casing, without disconnecting the hose 17, and then hoisting mechanism is attached to the collar 7 for raising the tubing string to a position where the next joint is above the casing head 2, and at which time slips 6 are placed in position and the collector placed around the joint for the second disconnecting operation. The above operation continues until as many sections are disconnected as desired.

From the above it will be seen that an oil collector is provided for use in connection with tubing strings, and constructed in a manner whereby oil collected at a joint, as it is broken will be conveyed to a point of discharge. It will also be seen that the device is simple in construction, the parts reduced to a minimum and can be cheaply manufactured and sold. The device has a further decided advantage in that oil is not discharged over the rig platform and operators and at the same time the fire hazard is materially reduced.

The invention having been set forth what is claimed as new and useful is:

1. An oil saver comprising hinged sections enclosing and spaced from the adjoining collar-end and plug-end of a drill string to form an annular closed chamber, the lower end of said chamber having a discharge-port below the collar, the upper end of each section having an interior integral longitudinally extending rib terminating at its lower end in a shoulder, and said shoulders seated on the upper free end of the collar.

2. A device as set forth in claim 1 wherein the section walls taper to form a reduced interiorly-grooved end about the plug-end, and a packing-ring in said grooved end adapted to permit a combined turning and sliding movement of the plug-end.

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