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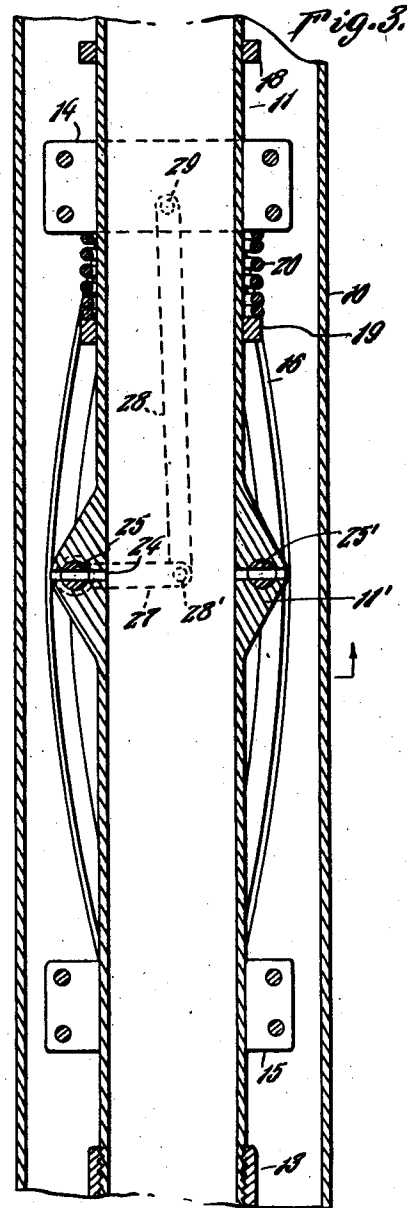
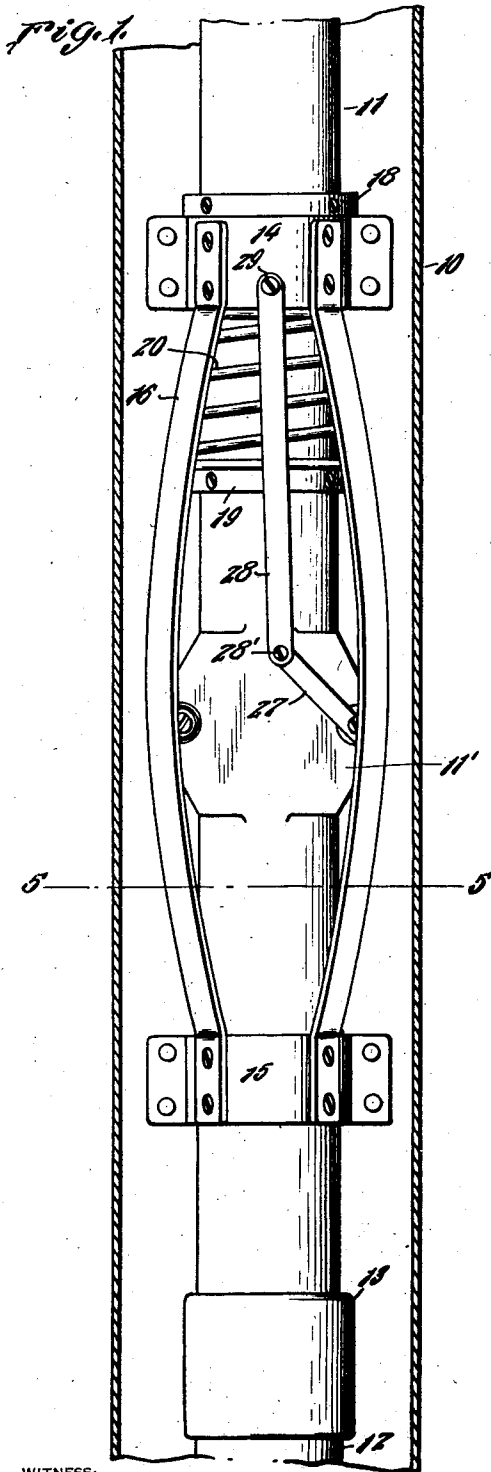
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L. C. ROSS ET AL

OIL SAVING ATTACHMENT FOR WELL TUBING

Filed April 19, 1926

2 Sheets-Sheet 1



WITNESS:

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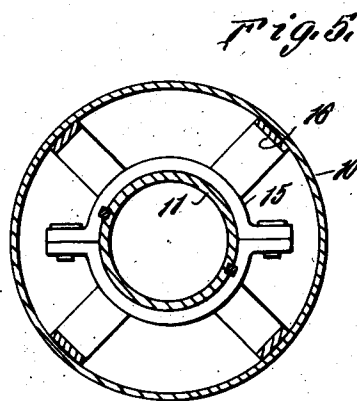
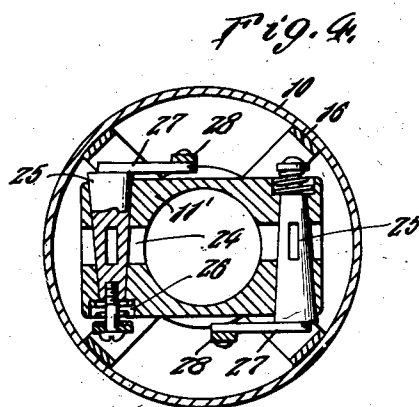
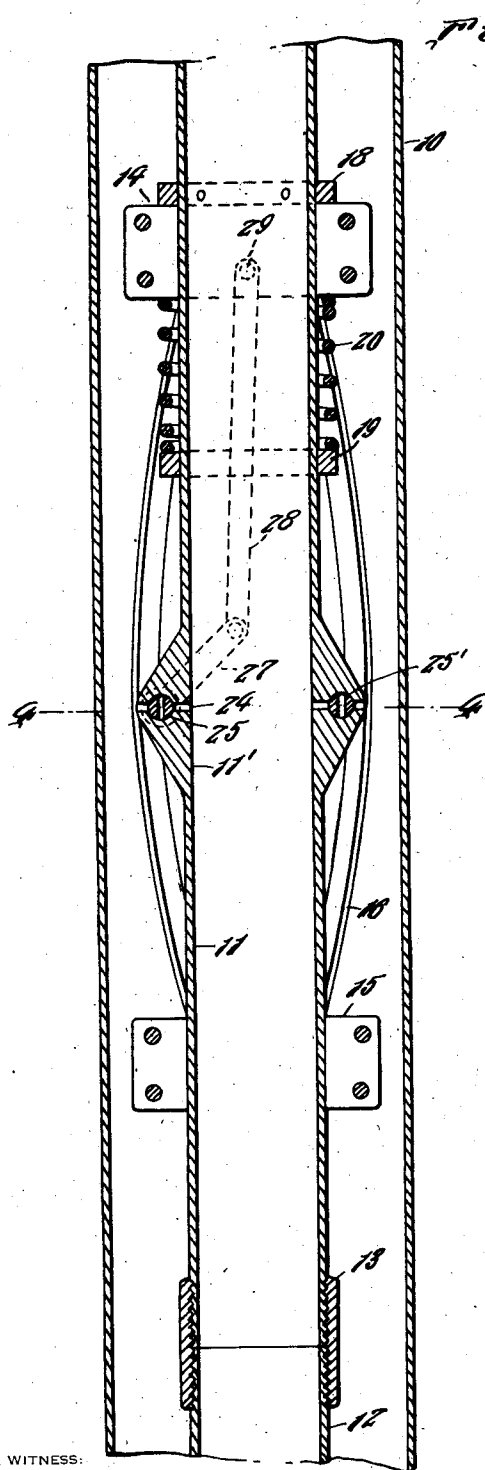
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OIL SAVING ATTACHMENT FOR WELL TUBING

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2 Sheets-Sheet 2



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WITNESS:

UNITED STATES PATENT OFFICE.

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OIL-SAVING ATTACHMENT FOR WELL TUBING.

Application filed April 19, 1926. Serial No. 103,099.

The object of this invention is to provide for saving oil in a well tubing when said tubing is "pulled" or drawn upwardly in the casing for the purpose of making repairs to operative elements or the like.

A further object is to avoid the waste of oil and the danger incident to allowing the oil in several thousand feet of well tubing to flow onto the surface of the ground when the well tubing is lifted under usual conditions.

A further object is to provide valve controlled outlet ports in a section of the tubing, the valves being normally closed, but caused to open automatically when certain elements carried by the tubing engage the wall of the casing, whereby the tubing moves relatively to the elements thus held and acts to open the valve or valves through which oil may flow back to the well.

With the foregoing and other objects in view, the invention consists in the novel construction and arrangement of elements described, illustrated and claimed, it being understood that modifications may be made within the scope of the claims, without departing from the spirit of the invention.

In the drawings forming part of this application,

Figure 1 is a vertical section through a well casing, showing the tubing and the valve controlling means in elevation.

Figure 2 is a vertical section through the casing and the well tubing and attachments.

Figure 3 is a view similar to Figure 2, the valves having opened because of the movement of the tubing relative to the collars with which the longitudinal springs are connected.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a section on line 5—5 of Figure 1.

The casing of the well is designated 10, a section of tubing is designated 11, and another section 12 has threaded connection with element 11 by means of coupling 13.

Keyed for slidable movement on section 11 of the tubing are collars 14 and 15, and rigidly secured to collars 14 and 15 are springs 16. Four of these springs are illustrated in the drawings, and in Figure 5 they are shown as engaging the inner wall of the well casing 10. Collars 18 and 19 are rigidly secured to tubing 11, and a coiled

spring 20 is interposed between collar 14 and collar 19, and when this spring 20 is expanded collar 18 is in engagement with collar 14, this being the position when the weight of the tubing holds the parts in the position of Figure 1, or Figure 2, in which the valves referred to below, are closed.

The section 11 of the tubing includes a body portion 11' provided with ports such as 24 adapted to be closed by plug valves 25 properly seated by springs 26, shown in Figure 4. Valves 25 are controlled by arms 27 and connecting rods 28 secured to collar 14 by the pivot members or screws 29. The connection at 28' is also a pivotal one.

The valve plugs 25 are provided with ports 25', and under normal conditions valves 25 are closed as shown in Figures 1, 2 and 4. When the tubing is lifted or pulled, the springs 16 engage the wall of the casing 10, and the collars 14 and 15, and rods 28 are held in a stationary position. The well tubing continues to move, so that there is a crank action on arms 27, and the valves 25 rotate in the valve body, until the valves are in the position of Figure 3, the ports 25' registering with the ports 24 in the body 11', so that an outlet is provided for the oil, and it is permitted to flow back to the well. During this operation, spring 20 was compressed, but normally aids in holding the parts in the position of Figures 1 and 2, wherein the valves 25 are closed.

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

1. In a device of the class described, a section of tubing for a well, said section having laterally extending ports, valves closing the ports, and means for automatically controlling the valves when the tubing is lifted, said means comprising collapsible devices for engagement with a well casing, collars connected with the expansible devices and surrounding the tubing, and means connecting one of the collars with the valves.

2. In a device of the class described, a section of tubing for a well, said section having laterally extending ports, valves closing the ports, and means for automatically controlling the valves when the tubing is lifted, said means comprising collapsible devices for engagement with a well casing, collars connected with the expansible devices and surrounding the tubing, means connecting one of the collars with the valves, and a spring surrounding the tubing and en-

gaging this collar and having one end fixed with reference to the tubing.

3. In a device of the class described, a section of tubing for a well, said section having
5 laterally extending ports, valves closing the ports, and means for automatically controlling the valves when the tubing is lifted, said means comprising collapsible devices
10 connected with the expansible devices and splined on the tubing, and means connecting one of the collars with the valves.

4. In a device of the class described, a section of well tubing provided with laterally

extending ports, rotary valves closing the 15 ports, collars splined on the tubing, arms connecting the collars with the valves for rotating the latter, longitudinally extending springs connecting the collars and movable
20 outwardly upon sliding movement of the collars, for engaging a well casing, collars fixed on the tubing, and an expansion spring interposed between one of the fixed collars and one of the splined collars.

In testimony whereof we affix our signatures. 25

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