June 27, 1950 B. F. HILL 2,512,744

OIL WELL VALVE

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Fig. 1.

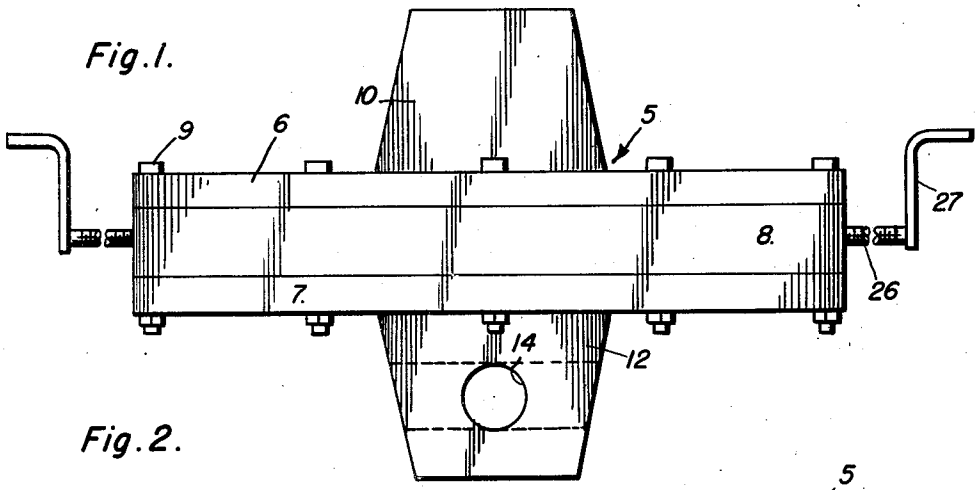


Fig. 2.

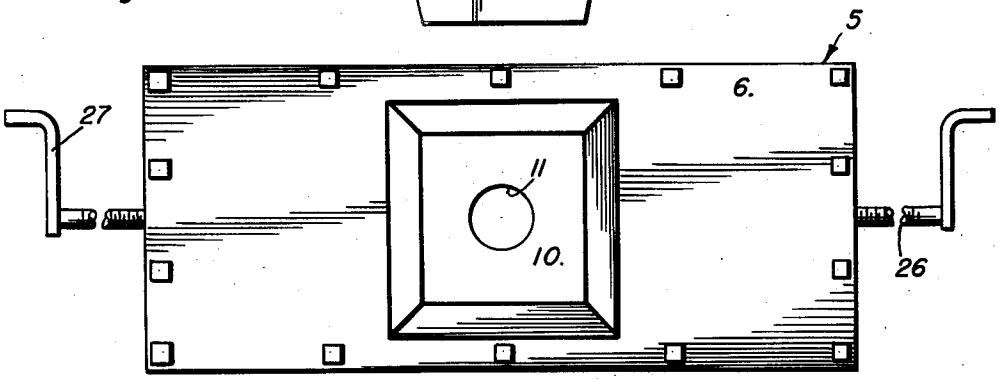
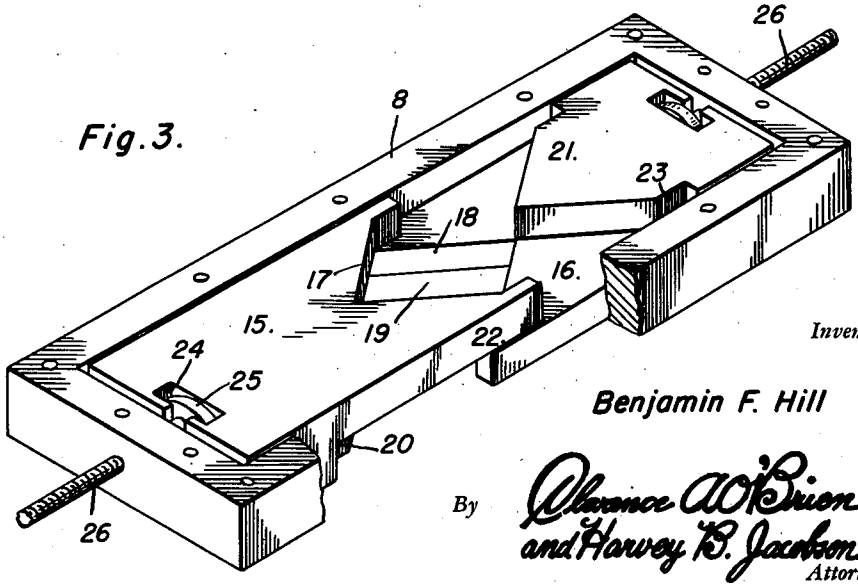


Fig. 3.



Inventor

Benjamin F. Hill

By Clarence A. O'Brien and Harvey B. Jackson

Attorneys

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Fig. 4.

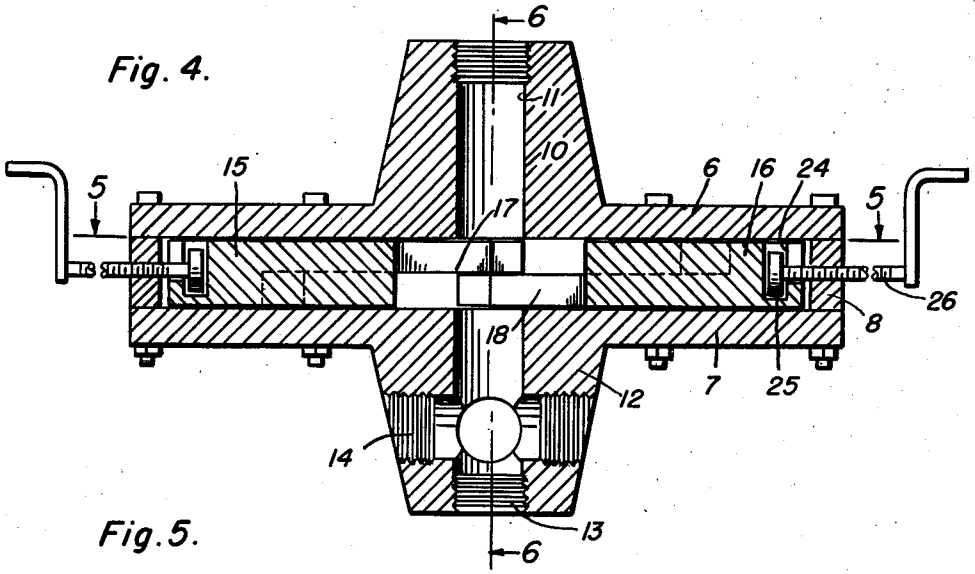


Fig. 5.

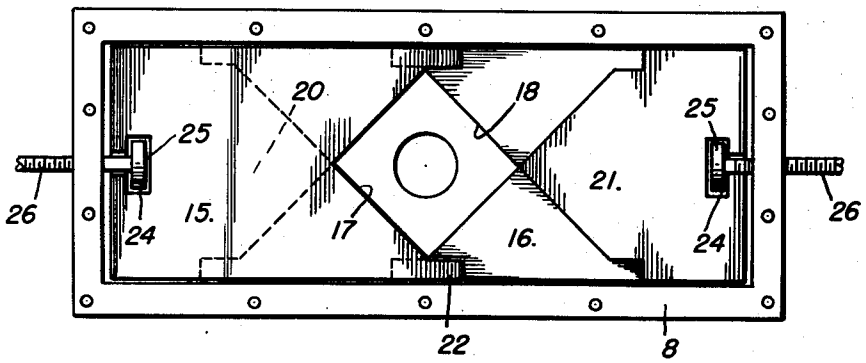
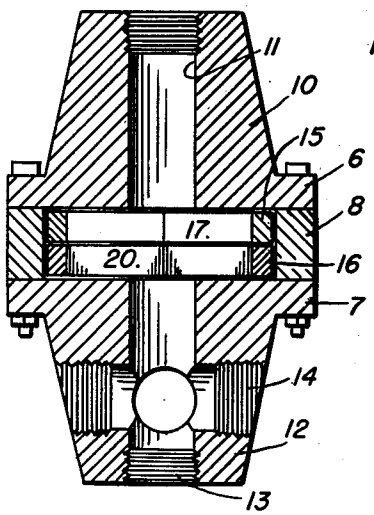


Fig. 6.



Inventor

Benjamin F. Hill

By Clarence A. O'Brien and Harvey B. Jackson

Attorneys

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UNITED STATES PATENT OFFICE

2,512,744

OIL WELL VALVE

Benjamin F. Hill, Tulsa, Okla.

Application June 13, 1947, Serial No. 754,454

1 Claim. (Cl. 251—55)

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The present invention relates to new and useful improvements in valves for oil wells and embodying a valve housing connected to the tubing and casing of a well and embodying valve means for cutting off the flow from the well and while the cable remains in the hole.

An important object of the present invention is to provide a pair of overlapping sliding valve plates mounted in the valve housing and which may be operated from any desired distance from the well to effectively cut off the flow therefrom in case of fire, or for other purposes, and while the operator remains at a safe distance from the well.

A further object is to provide a device of this kind which is simple and practical in construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and install in operative position and which otherwise is well adapted for the purposes for which the same is intended.

Other objects, and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view.

Figure 2 is a top plan view.

Figure 3 is a perspective view showing the rectangular frame for the sliding valves.

Figure 4 is a vertical sectional view.

Figure 5 is a plan view with the upper valve plate removed and taken substantially on a line 5—5 of Figure 4, and

Figure 6 is a transverse sectional view taken on a line 6—6 of Figure 4.

Referring now to the drawings in detail, wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention the numeral 5 designates a valve body or housing generally and which comprises an upper valve plate 6 and a lower valve plate 7 of substantially rectangular shape and having an open frame 8 secured between the plates by bolts 9.

A pyramidal boss 10 extends upwardly from the upper plate 6 and is formed with a vertical passage 11 for threaded connection with a well tubing (not shown). A similar boss 12 extends downwardly from the lower plate 7 and is likewise formed with a vertical passage 13 for threaded connection with the well casing. Lateral passages 14 are also formed in the boss 12 for connecting the passage 13 with a plurality

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of tanks, the connections for the tank having the usual cut-off valve (not shown) therein.

The frame 8 forms a guide for an upper sliding valve 15 and a lower sliding valve 16 having their side edges closely fitting with the side edges of the frame and having their inner ends positioned in an overlapping relation with respect to each other. The opposed faces of the valves 15 and 16 are machined to provide a seal therebetween without requiring the use of gaskets or packing.

The inner ends of the valves 15 and 16 are formed with V-shaped notches 17 and 18 respectively to provide an opening 19 between the valves, the size of which is regulated by the horizontal sliding movement of the valves toward and away from each other.

The underside of the valve 15 is formed with a V-shaped head 20 and the upper surface of the valve 16 is formed with a similar head 21, the head 20 being adapted to seat in the notch 18 while the head 21 is adapted to seat in the notch 17 when the valves are moved inwardly into closed position to thus provide a liquid tight seal for the opening 19.

The side edges of each of the valves at the inner ends thereof are formed with tongues 22 which project inwardly beyond their respective notches to enter recesses 23 at the side edges of their coacting heads to provide a seal for the side edges of the valve.

The outer end of each of the valves is formed with a T-shaped notch 24 in which the annular head 25 of a feed screw 26 freely works to provide an operative connection between the valves and the screws. The screws 26 for the respective valves are threaded through the ends of the frame 8 and are provided at their outer ends with crank handles 27.

In the operation of the device, with the boss 10 connected to the well tubing and the boss 12 connected to the well casing oil rising in the casing may flow to the tubing through the opening 19.

When it is desired to cut off the flow of oil from the well, the screws 26 are turned to slide the valves 15 and 16 inwardly in the frame 8 to close the opening 19, the interfitting engagement of the heads 20 and 21 in the notches 18 and 17 of the respective valves tightly sealing the opening.

Having described the invention what is claimed as new is:

A valve of the class described comprising a housing including upper and lower rectangular

plates, each having a hollow boss projecting outwardly therefrom for attaching respectively to a well tubing and casing, a rectangular frame coextensive with the plates and secured at its marginal edges between said plates and separating the plates from each other to form a rectangular valve chamber therein, a pair of flat sliding valves mounted in the frame and having one end disposed in coacting opening and closing movement with respect to each other to control passage of fluid through the housing, said frame and valves being removably mounted as a unit in the housing, and operating means for the valves, said operating means comprising a pair of feed screws working in opposite ends of the frame and operable outwardly thereof, and a disk-shaped head at the inner end of each screw and engaged in a T-groove in the upper surface of each valve.

BENJAMIN F. HILL.

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