Nov. 1, 1949. B. C. FERGUSON 2,486,639

OIL THIEF

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Fig. 1.

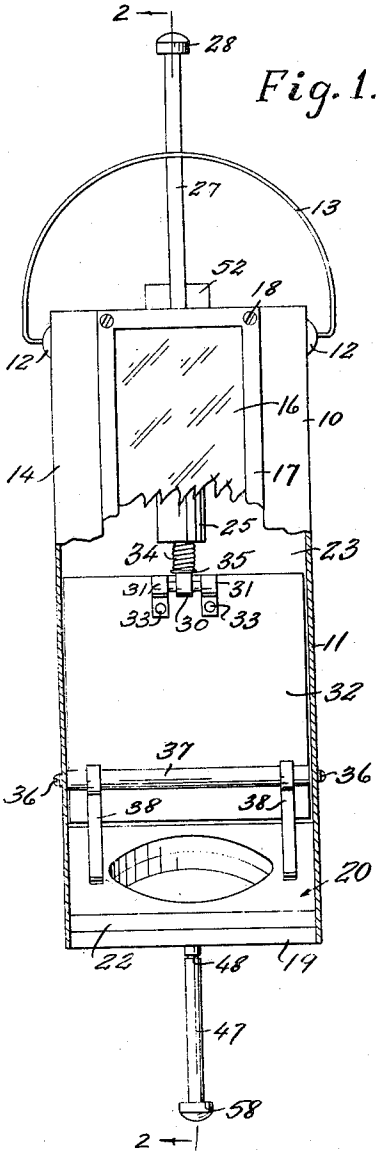
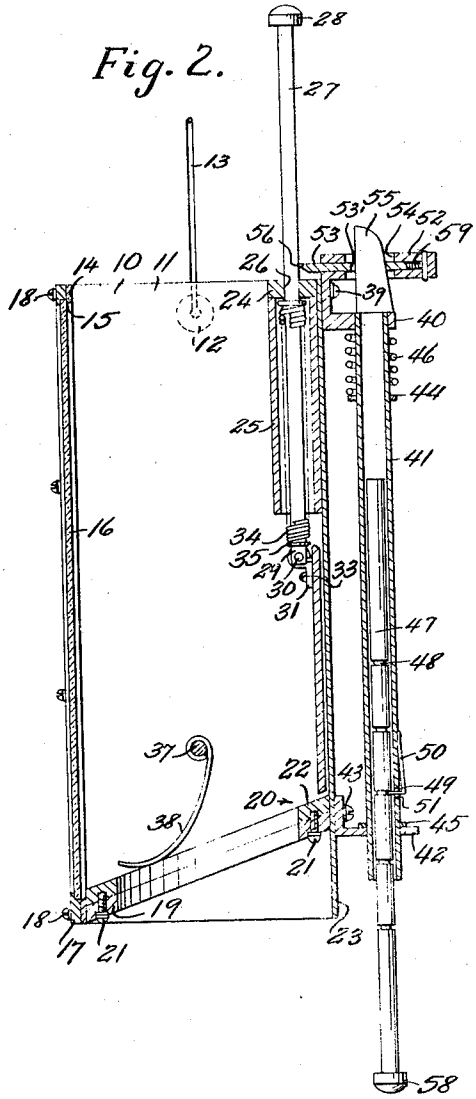


Fig. 2.



INVENTOR.

Bert C. Ferguson, Deceased,

by Charles W. Ferguson, Administrator.

BY Victor J. Evans & Co.

ATTORNEYS

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Fig. 3.

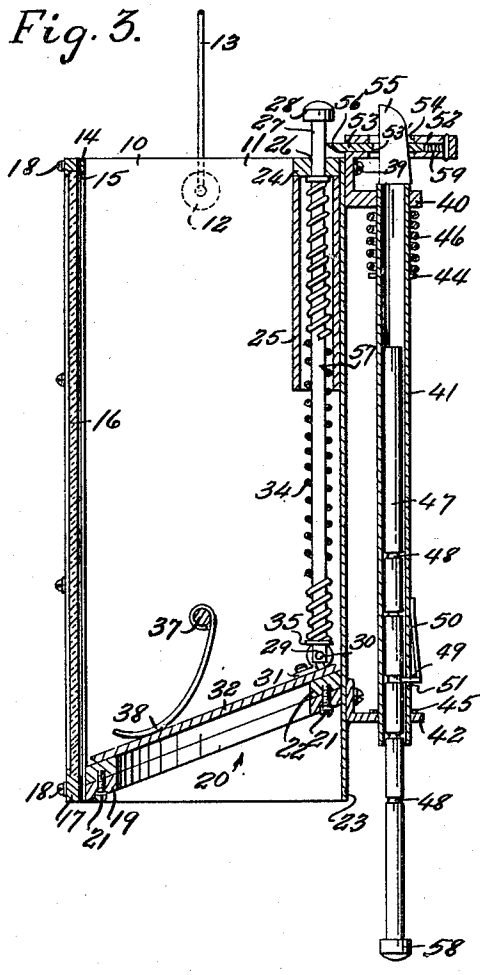
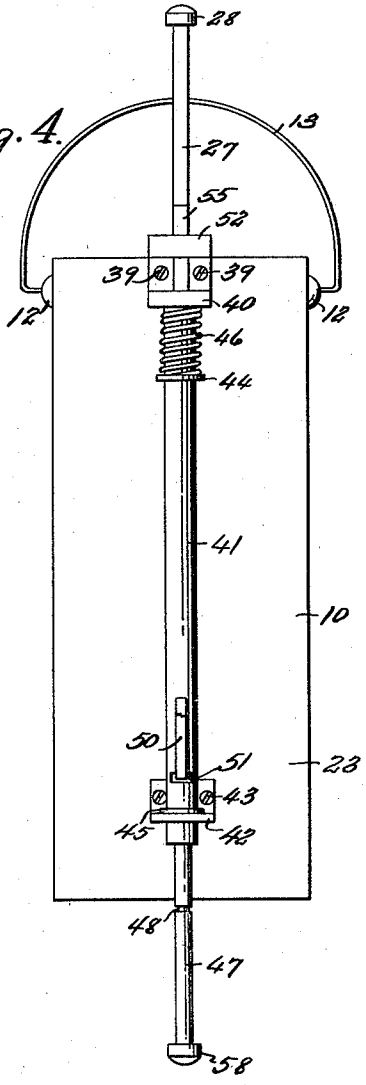


Fig. 4.



INVENTOR.
Bert C. Ferguson, Deceased,
by Charles W. Ferguson, Administrator.
BY Victor J. Evans & Co.

ATTORNEYS

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UNITED STATES PATENT OFFICE

2,486,639

OIL THIEF

Bert C. Ferguson, deceased, late of Oil City, Pa., by Charles W. Ferguson, administrator, Oil City, Pa.

Application October 24, 1947, Serial No. 781,819

3 Claims. (Cl. 73—425.4)

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This invention relates to improvements in "oil thieves" which are particularly used by oil gaugers in the oil fields for obtaining samples of oil in the bottom of oil tanks for the purpose of determining the amount of sludge or waste material or water found in the oil at the bottom of the tank.

An object of the invention is to provide an "oil thief" comprising a casing carrying an improved valve and control mechanism and so constructed that the valve mechanism does not extend beyond the confines of the casing to stir and agitate the liquid in the tank as it is lowered therein.

Another object of the invention is to provide a control mechanism for the valve that will positively close the valve so that the valve will not be rendered inoperative by debris in the oil which often occurs at the bottom of the tank.

Another object of the invention is to provide a control mechanism which can be adjusted so that the valve will be closed at any desired depth or height from the bottom of the tank.

A further object of the invention is to provide a spring device for the valve which will positively retain the valve in closed position once it has been closed by the control mechanism.

With the above and other objects and advantages in view, the invention consists in the novel details of construction, arrangement and combination of parts more fully hereinafter described, claimed and illustrated in the accompanying drawings in which:

Figure 1 is a front elevational view, partly in section and partly broken away, of an embodiment of the invention;

Figure 2 is a sectional view on the line 2—2 of Figure 1 and

Figure 3 is a sectional view showing the valve in closed position and

Figure 4 is a rear elevational view of the device, showing the control mechanism mounted thereon.

Referring more in detail to the drawings, the "oil thief" embodying the invention comprises the open ended hollow rectangular shaped casing 10 which, adjacent its top edge, is provided on its opposite side walls 11, with apertured bosses 12 which are adapted to receive the ends of the bail 13 therein. A rope or cable attached to the bail will lower the "oil thief" into an oil tank for the sampling of the oil therein.

The front wall 14 of the casing 10 is provided with a vertically disposed cutout 15 over which a piece of transparent material 16 such as glass or any suitable substitute therefor may be placed

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and retained in place by the frame 17 secured to the casing by screws 18. The material 14 permits the oil gauger to view the oil in the casing to determine the condition of the oil at the depth at which it was obtained in the tank being tested.

Secured to the inner surface of the walls of the casing 10 in an upwardly inclined relation to the bottom of the casing 10, is the fixed half 19 of the valve seat 20. Secured to the fixed half 19 of the seat 20 by screws 21 is the removable half 22 of the seat which may be removed and replaced as desired.

The fixed half 19 of the seat 20 has its front or lowermost edge fixed at the lower edge of the front wall 14, and its rear or upper most edge fixed to the rear wall 23 in an elevated position above the lower open end of the casing 10. The side edges of the fixed half 19 are also fixed in inclined relation to the side walls 11 of the casing 10.

The peripheral walls of the seat 20 are vertically inclined so that while the halves 19 and 22 are in inclined relation to the walls of the casing, the walls of the seat 20 are in vertical parallel relation with the walls of the casing.

The rear wall 23, at its upper edge, has a plate member 24 secured thereto in right angular relation therewith, and depending from the member 24 and fixed thereto, and to the rear wall 23, on its undersurface, is the tubular open ended housing 25. Slidably mounted in the housing 25 and in the opening 26, in the member 24, is the valve control rod 27, which is square shaped to prevent rotation thereof during the sliding movement thereof. The rod 27, at its upper end, is provided with the bottom or knob 28 and at its lower end is provided with the opening 29 to receive the pin 30 which carries the hanger brackets 31 secured on opposite sides of the rod 27 to the valve 32 by screws 33. A coil spring 34 sleeved on the rod 27 will engage the member 24 at its upper end and a collar 35 fixed to the rod 27 above the pin 30, at the lower end to exert sufficient pressure to force the valve into closed position, as shown in Figure 3.

Secured to the side walls 11 of the casing 10, by means of screws 36, is the transversely mounted rod 37, which is mounted above the valve seat 20 and carries thereon, in spaced relation to each other, the curved leaf springs 38. The springs are mounted on the rod 37, outwardly of the seat 20, so that when the valve 32 is in closed position, as in Figure 3, they will engage the valve and retain it in closed position. When the valve

is open, as in Figures 1 and 2, the springs will contact the removable half 22 of the valve seat 20.

Secured by screws 39 to the rear surface of the rear wall 23, adjacent the upper edge thereof, is the bracket 40, which supports the upper end of the tube 41. The lower end of the tube is supported by the bracket 42 fixed to the rear surface of the rear wall 23 adjacent its lower edge by screws 43. The tube 41 is slidably mounted in the brackets, and is retained in this relation to the brackets in the following manner. Formed on the tube adjacent the opposite ends thereof are the collars 44 and 45 respectively. A coil spring 46 sleeved on the tube engages the bracket 40 and collar 44 and exerting downward pressure on the tube, forces the collar 45 into engagement with the bracket 42. Thus the tube is retained in the brackets without slipping therefrom, during its sliding movement.

Slidably mounted for longitudinal adjustment in the tube 41 is the rod 47 which is provided with relatively spaced circumferential grooves 48 which are adapted to be engaged by the inturned end 49 of the spring latch 50 which is secured to the outer surface of the tube 41. The hooked end 49 extends through the opening 51 in the tube 41 to permit its engagement with the grooves 48 and retain the rod in fixed relation to the tube.

The bracket 40 has formed integral therewith, the housing 52 which extends outwardly of the casing 10 at right angles thereto, and carries the spring pressed latch or dog 53 slidably therein. The housing 52 is provided with an opening 54 and the latch is provided with an opening 53' to receive the trip 55. The trip 55 is mounted so its lower end is in alinement and engagement with the tube 41. Thus when the rod 47 moves the tube 41 upward, the trip 55 will be moved upwardly. This movement causes the knife edge 56 of the latch 53 to be disengaged from the notch 57 in the rod 27.

In use, the rod 47 is adjusted until the knob 58 on its lower end is the required distance below the lower edge of the casing. With the hooked end 49 of the catch 50 engaging in one of the grooves 48, the rod is held in fixed relation to the tube 41, and the knob 58 is positioned so that the oil can be sampled at the height desired above the bottom of a tank to be tested. The rod 27, by means of the knob 28, is raised upwardly against the pressure of the spring 34 until the latch 53, by means exerted thereon by the spring 59, has the knife edge 56 thereof engaged in the notch 57 in the rod 27. At this time, the valve is in open position, as in Figure 2. By means of a rope secured to the bail 13, the "oil thief" is lowered into an oil tank.

When the knob 58 engages the bottom of the tank, the rod 47 and tube 41, being in fixed relation to each other, is moved upwardly. This action causes the trip 55 to move upwardly and withdraw the latch 53 to release the knife edge 56 from the notch 57.

The expansion of the spring 34 will then force the valve 32 into closed position, as shown in Figure 3, and the spring 38 will retain the valve in this position. The "oil thief" is then withdrawn from the oil tank and the contents of the

"oil thief" may be observed through the material 16 to determine the condition of the oil therein.

When the oil sample is no longer needed, it is poured from the "oil thief," the "oil thief" is reset as previously described, and it is again ready for testing.

There has thus been provided a simply constructed and simply operated "oil thief" which will accomplish the purpose for which it has been designed in an expeditious and efficient manner.

It is believed that from the foregoing description, the operation and construction of the invention will be apparent to those skilled in the art, and it is to be understood that changes in the minor details of construction, arrangement and construction of parts may be resorted to, provided they fall within the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A device of the character described, for use in obtaining samples from the liquid contents of a fluid container, comprising an open ended hollow rectangular shaped casing, means on the upper end of said casing whereby said casing may be lowered into the liquid contents of the fluid container, a valve seat, comprising a fixed half secured to the casing in angular relation thereto adjacent the bottom thereof, and a removable half fixed to said fixed half, a valve for sliding engagement with the upper surface of the removable half of said valve seat, a valve control rod for opening said valve, means on said rod for closing said valve, means carried by the casing above the upper surface of the removable half of the valve seat and adapted to engage the upper surface of the valve for retaining said valve in closed position, a tube slidably mounted on said casing, a rod mounted for longitudinal adjustment in said tube, a latch slidably mounted on said casing for engagement with the control rod of said valve, and means engageable with said latch and said tube for disengaging said latch from said control rod when the rod in said tube is moved upwardly by contact of said rod with the bottom of the fluid container.

2. The invention as in claim 1, wherein said container is provided with means for observing the sample contained in said casing.

3. The invention as in claim 1, wherein said control rod is connected to said valve in pivotal relation therewith.

CHARLES W. FERGUSON,
Administrator of the Estate of Bert C. Ferguson, Deceased.

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