

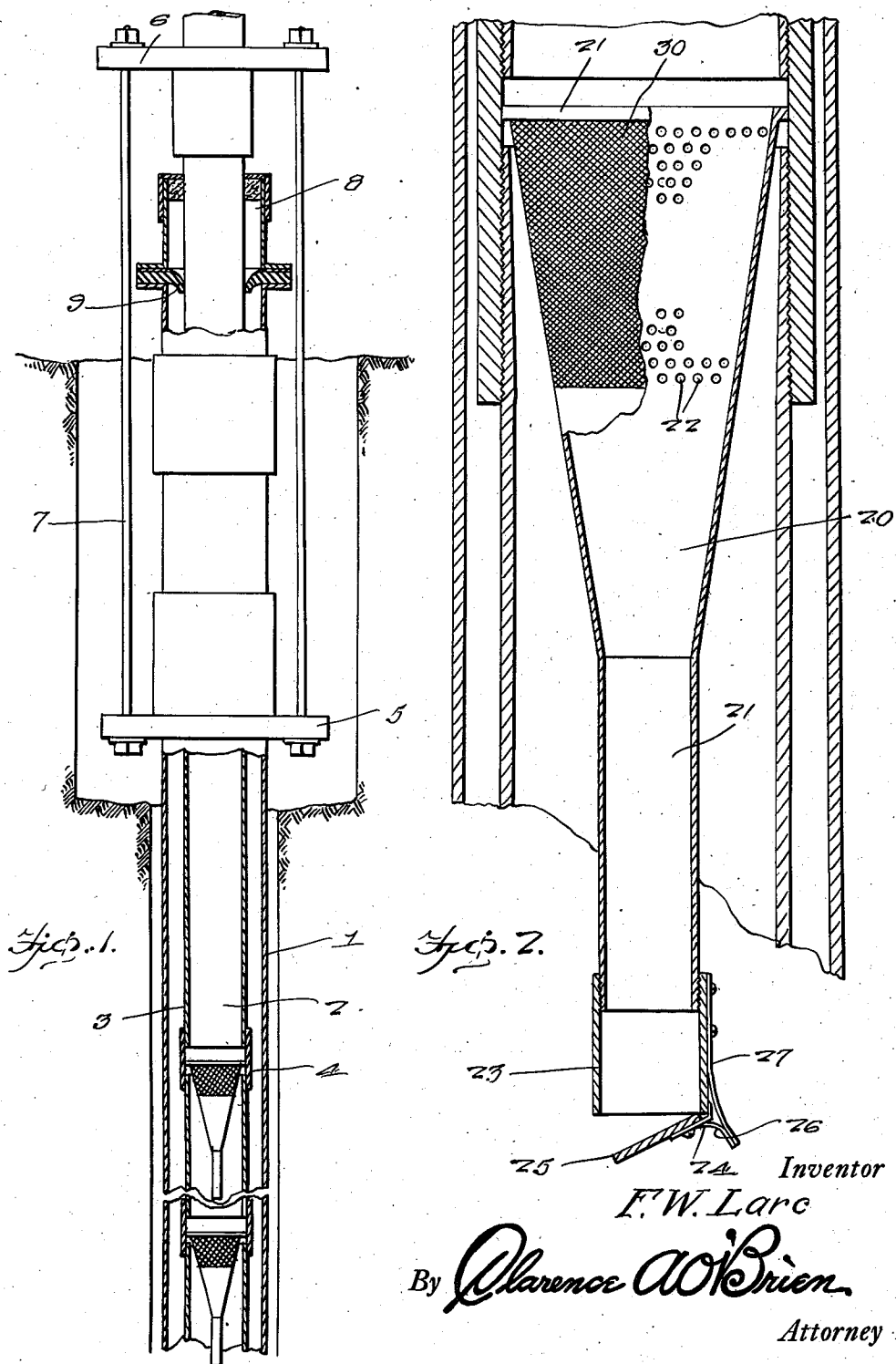
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CRUDE OIL CLEANER FOR OIL WELLS

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CRUDE-OIL CLEANER FOR OIL WELLS.

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My present invention has to do with the separation of salt water and bottom sediments from oil obtained from wells; and it has for its general object the provision of efficient means for collecting salt water and bottom sediments from crude oil.

Other objects and practical advantages of the invention will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:—

Figure 1 is a view partly in section and partly in elevation illustrative of the preferred embodiment of my invention in use.

Figure 2 is an enlarged fragmentary section illustrative of one of the collectors comprised in my invention, the said collector being designed to receive and hold salt water and bottom sediments while permitting the upward passage of clear oil.

Similar numerals of reference designate corresponding parts in both views of the drawings.

The casing 1 is preferably formed in conventional manner of sections connected by couplings, and in the said casing 1 is disposed a conduit 2 made up of sections 3 and couplings 4. The conduit 2 is preferably maintained in the casing 1 by the means best shown in Figure 1, the said means being made up of a head 5 fixed to the casing 1, a head 6 fixed to the conduit 2, and longitudinal rods 7 interposed between and connected to the said heads 5 and 6. I would also have it understood that I prefer to equip the casing 1 with a stuffing box 8 and with an annular packing member 9 of rubber or other appropriate material, the said stuffing box and the rubber packing annulus receiving the conduit 2. These means manifestly are adapted to prevent oil from blowing out when my novel cleaner is placed in a well.

In furtherance of my invention a plurality of collectors are arranged one above the other in the conduit 2. In general the said collectors are similar in construction, and therefore a detailed description of the collector illustrated in Figure 2 will suffice to impart a definite understanding of all. By reference to Figure 2 it will be understood that the collector therein shown is made up of a downwardly tapered or cone-shaped hollow body 20, flanged at its upper end as designated by 21 for its retention in a cou-

pling 4 and between confronting end of conduit sections 3, and a tubular well 21 pendent from the lower end of the body 20. The body 20 is provided in its upper portion with a plurality of apertures 22 for the inward and upward passage of oil, and in this connection it will be appreciated that incident to the passage of oil through the apertures 22 the globules which contain salt water and bottom sediments will be broken with a view to facilitating the upward passage of clear oil and promoting the precipitation of salt water and bottom sediments to the tubular well 21. At its lower end the tubular well 21 is provided with a depending tubular extension 23, and hingedly connected at 24 to the lower end of the said extension 23 is a valve 25 on the hinged portion of which is a pendent arm 26. The said arm 26 is opposed to a depending spring strip 27 on the extension 23, said spring strip 27 having for its function to yieldingly maintain the valve 25 in closed position, and to permit opening of the said valve under the weight of a predetermined quantity of salt water and bottom sediments. Manifestly when the valve 25 opens under the condition indicated, the salt water and bottom sediments will be discharged back into the conduit 2.

As before indicated a vertical series of collectors are arranged in the conduit 2, and the upper of said collectors are provided on the upper portions of their bodies with exterior screens 30 of fine mesh. Any desired number of the collectors may be employed within the purview of my invention, and in this connection I would have it understood that when fifteen of the collectors are employed in a single conduit, for instance, the five uppermost collectors alone will be equipped with the fine wire screen.

In the practical use of my improvement it will be manifest that the oil will clean itself by passing through the apertures 22 of the collectors and through the interstices of the screen on the upper collectors. Incident to the said passage of the oil, the salt water and bottom sediments will be gathered or collected in the wells 21 and at intervals the salt water and bottom sediments will be discharged back into the conduit 2.

Because of the comparative heaviness of the salt water and bottom sediment, the same will pass by gravity from collector to collector until the salt water and bottom

sediment is finally discharged into the lower portion of the well.

Notwithstanding the practical advantages ascribed to my improvement, it will be manifest that the improvement as a whole is simple and inexpensive in construction and is well adapted in general to withstand the usage to which oil well appurtenances are ordinarily subjected.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear and exact understanding of the same embodiment. I do not desire, however, to be understood as confining myself to the specific construction and relative arrangement of parts as disclosed, my invention being defined by my appended claims within the scope of which structural changes and changes in arrangement may be made without departure from my invention.

Having described my invention, what I claim and desire to secure by Letters Patent, is:—

1. A crude oil cleaner for oil wells, comprising a conduit, and collectors arranged at intervals in the said conduit, each of the said collectors having a downwardly tapered hollow body with a foraminous wall and also having a well pendent from the lower end of the body and equipped with a normally closed valve yieldingly maintained in closed position and adapted to open under the weight of a collection of salt water and bottom sediment for the precipitation of said salt water and bottom sediment from the collector.

2. In a crude oil cleaner for oil wells, in combination, a conduit, and collectors for

salt water and bottom sediment arranged one above the other in said conduit, each of said collectors being in the form of a hollow body and having an apertured wall and also having a pendent discharge well of tubular form and means for permitting the escape of salt water and bottom sediment from said well at intervals.

3. A collector for use in an oil well conduit, comprising a downwardly tapered hollow body with apertures in its wall, and with means at its upper end for joinder to a conduit, a well carried by said body and pendent from the lower open end thereof, and a spring pressed gravitational valve normally closing the lower end of the said well.

4. A collector for use in an oil well conduit including a downwardly tapered hollow body open at its lower end and provided with foraminations in its wall, and a well pendent from the body and in communication with the lower open end thereof and having a yielding valve discharge at its lower end.

5. The combination of a well casing, a conduit arranged in and spaced from said casing, a stuffing box at the upper end of the casing, packing carried by the casing and engaging the conduit, and salt water and bottom sediment collectors arranged one above the other in the conduit and each having a downwardly tapered hollow body with passages in its wall and with means on its upper portion to hold it in the conduit and also having a lower well portion and yielding means connected therewith adapted to discharge salt water and bottom sediment back into the conduit.

In testimony whereof I affix my signature.
FRANK WILLIAM LARC.