

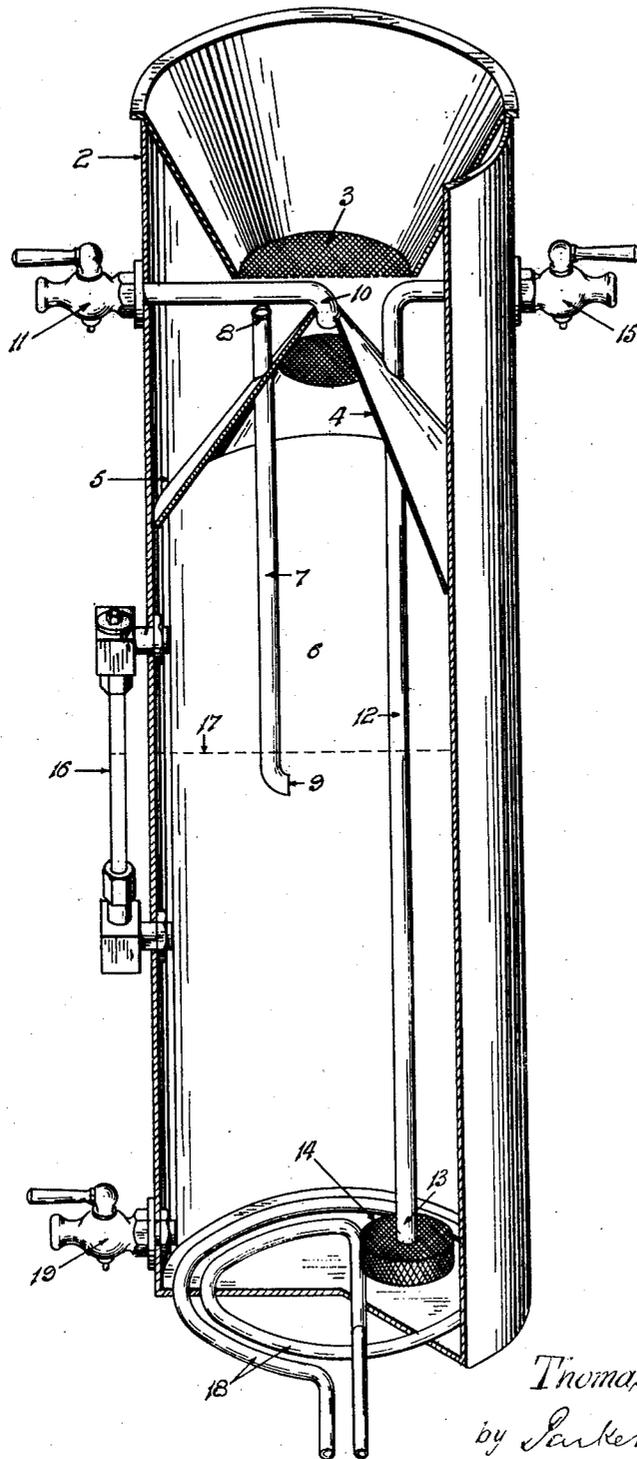
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OIL SEPARATOR

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UNITED STATES PATENT OFFICE.

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OIL SEPARATOR.

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The present invention relates to separators for recovering clean lubricating or other oil from oil contaminated with water or solid impurities.

5 The object of the invention is to provide such an apparatus of simple construction which operates continuously with little attention.

10 The accompanying drawing is a partly sectioned view of a separator according to the invention.

2 indicates an upper receiver into which the impure oil is fed. The oil may be fed in through a sieve 3 which strains out relatively large particles of solid matter. The base 4 of the receiver is usually upwardly coned as shown, forming between the base and the side walls an annular gutter 5 into which further solid matter may settle.

20 Below the receiver 2 is a chamber 6 into which the liquid flows from the receiver, and which is placed under a head by the liquid in the receiver. Communication between the receiver and the chamber is effected by means of a conduit which may be a pipe 7 as shown. The upper end 8 of the conduit is preferably some little distance above the bottom of the receiver so as to leave the annular gutter 5 available for settlement of solid matter which is heavy enough to settle directly out of the oil. The lower end 9 of the conduit 7 is preferably turned horizontally and disposed about the mid height of the chamber, or otherwise well away from both the oil and water outlets.

35 In the chamber 6 separation of oil from the water and solid matter take place by gravity; the chamber being made of such capacity having regard to the volume of oil to be treated in a given time, as to allow appropriate time for the separation to take place. The oil floats towards the top of the chamber, which is preferably coned or otherwise narrowed; being in the example shown 40 the conical plate 4 which also constitutes the base of the receiver 2. From the apex of the cone an oil outlet pipe 10 extends outside the apparatus and is usually fitted with a terminal control cock 11. The final oil outlet is preferably at about the normal level

of the liquid in the receiver 2, that is, slightly above the end 8 of the conduit 7.

The water outlet 12 extends from the bottom of the chamber 6 and its lower end 13 is usually covered by a wire screen 14. This functions to arrest globules of oil which tend to be carried away with the water in case the apparatus is being operated above its normal capacity. The outflow end 15 of the outlet 12, is similar to the oil outlet, usually elevated to about the normal level of the liquid in the receiver 2, so that both liquids may be drawn off under a low head and without danger of creating a strong flow through the apparatus.

16 is a gauge glass arranged to show the common surface 17 of oil and water in the chamber 6. 18 is a heating coil. A drain cock or removable closure is fitted at 19 for periodically cleaning settled solid out of the chamber 6.

In making use of the apparatus the impure oil is fed into the receiver 2 passing thence by the conduit 7 and filling the chamber 6. In said chamber the oil separates to the top and the water and dirt to the bottom. It is found desirable to maintain a considerable body of water in the lower part of the chamber. With this object and also to prevent too great an accumulation of water, the surface of the water is kept in sight in the gauge glass 16 and preferably in such a position that water covers the lower end 9 of the conduit 7. The necessary quantity of water for this purpose may be charged into the apparatus before feeding of oil is begun. Oil is withdrawn continuously or periodically at 11 and water is similarly withdrawn at 15, the rate of flow of each being adjusted to keep the common surface of the liquids in the position last mentioned.

I claim.

An oil separator comprising a vessel, a conical partition dividing said vessel into an upper receiver and a lower separating chamber, a conduit whereby liquid in the receiver passes into the chamber and places the latter under hydraulic head; the upper end of the conduit being elevated above the lower

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portion of the conical partition whereby the lower part of the receiver forms a settlement space for solid sediment, an oil outlet from the chamber leading from the upper part of the conical partition, a water outlet from 5 the lower part of the chamber, both said outlets terminating at about the level of the upper end of the conduit, and means for regulating the flow through said outlets, the lower end of the conduit being spaced sub- 10 stantially below the oil outlet and substantially above the water outlet.

Signed at Johannesburg, Transvaal Province, Union of South Africa, this 24th day of December 1924.

THOMAS KITCHIN MASSICKS.