

Nov. 15, 1927.

1,649,103

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APPARATUS FOR TREATING EMULSIFIED OIL

Original Filed Oct. 23, 1920

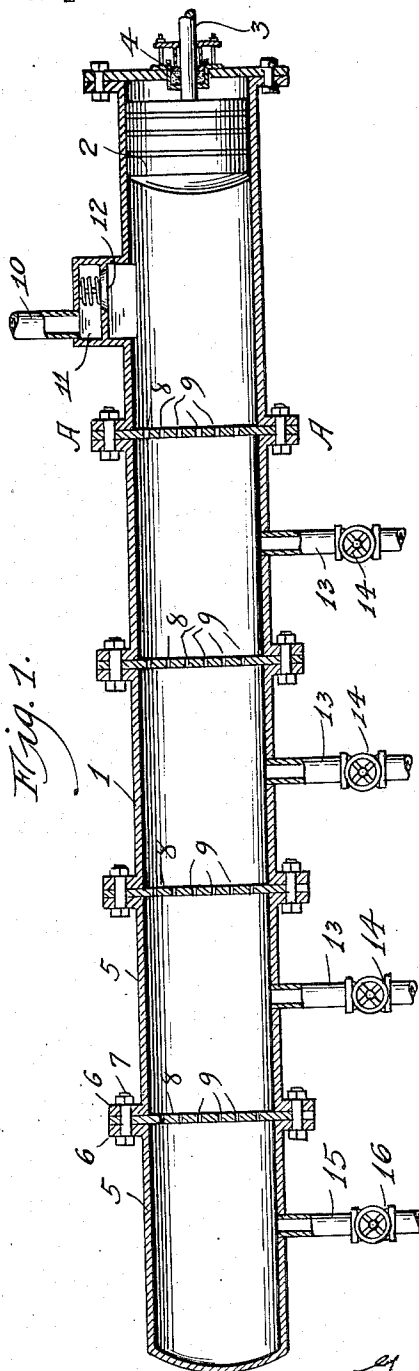


Fig. 1.

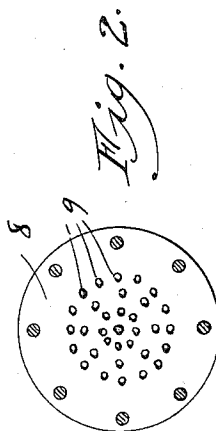


Fig. 2.

Witness,

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UNITED STATES PATENT OFFICE.

GUSTAV EGLOFF AND HARRY P. BENNER, OF CHICAGO, ILLINOIS, ASSIGNORS TO
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APPARATUS FOR TREATING EMULSIFIED OIL.

Application filed October 23, 1920, Serial No. 419,055. Renewed February 15, 1927.

This invention relates to an apparatus for treating emulsified oil and refers more particularly to the de-emulsifying or dehydration of such emulsified petroleum products as emulsified California or Mexican crudes or emulsified bottom settlings.

The object of the invention is to mechanically dehydrate the oil by causing it to pass through a plurality of sets of foraminated plates. These plates are spaced apart and seated in a cylinder in which reciprocates a piston.

In the drawings:

Fig. 1 is a view partly in section and partly in plan of our improved apparatus.

Fig. 2 is a sectional view taken through line A—A of Fig. 1.

Referring in detail to the drawings, 1 designates the treating chamber which in the present instance takes the form of an elongated cylinder in one end of which is mounted a reciprocating piston 2. This piston 2 is provided with piston rod 3 extending through suitable stuffing box 4, which piston rod is reciprocated through any suitable driving mechanism which is not shown inasmuch as it forms no part of the present invention.

The chamber 1 may, if desired, be formed in sections 5, having cooperating flanges 6 secured by the bolts 7. Between the flanges is interposed a foraminated plate 8, having a plurality of apertures 9 as shown more clearly in Fig. 2. This manner of connecting the sections 5 permits detachment of the plate 8. If desired, these apertures may be increased in number in each plate or of decreasing size in the plates farthest remote from the piston 2.

Oil is introduced into the chamber 1 through the inlet line 10, valve chamber 11 and spring valve member 12. The oil may be fed in under sufficient pressure to cause it to enter the treating chamber. As the

piston moves forwardly, it compresses the oil through the foraminated plates 8, the orifices becoming successively smaller in succeeding plates as previously described. As the emulsion is broken, the oil and water will stratify, and the water may be drawn off through the pipe 13 controlled by valve 14 while the dehydrated oil may be drawn off through the pipe 15 controlled by the valve 16. The oil may be introduced into the treating chamber at atmospheric temperature or as a modified method of carrying out the process, the oil may be heated to a temperature of say, 200 degs. F. or as a still further modification of the process, the oil may be cooled to a temperature just above the freezing point of water. The pressure used may vary from 25 pounds to several hundred pounds per square inch.

We claim as our invention:

1. In an apparatus for treating hydrocarbon oil, the combination with a chamber, of a reciprocating piston mounted therein, a plurality of spaced foraminated plates through which the oil is forced by the piston, the orifices in the plates being of successively decreasing size from the inlet side of the chamber.

2. In an apparatus for treating hydrocarbon oil, the combination with a chamber, of a reciprocating piston mounted therein, a plurality of spaced foraminated plates through which the oil is forced by the piston.

3. In an apparatus for treating hydrocarbon oil, the combination with a chamber, of a plurality of detachable spaced apart foraminated plates, said plates having apertures therein of decreasing size from the inlet of the chamber, a piston reciprocably mounted in said chamber to force oil through the orifices in said plates.

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