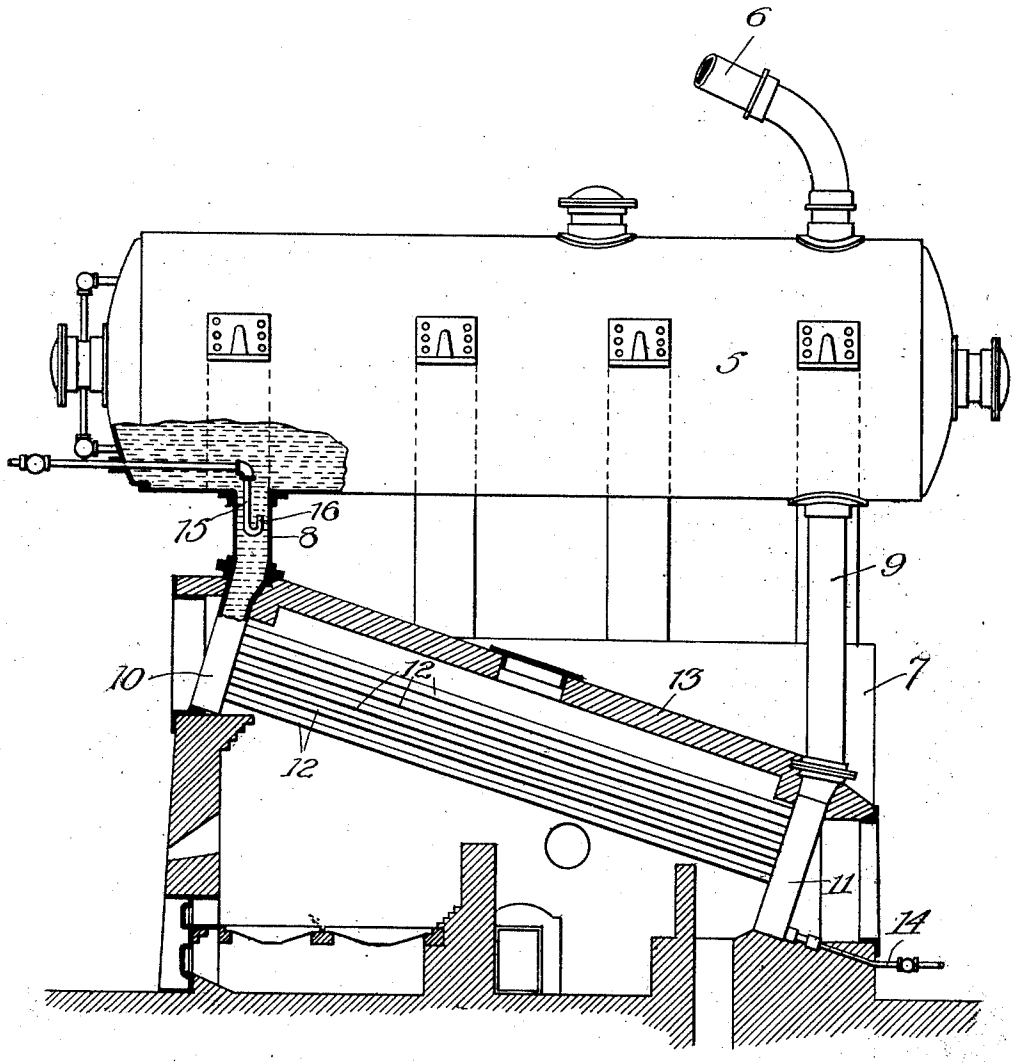
Nov. 15, 1927. 1,649,532

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DISTILLATION OF HYDROCARBON OILS

Filed Aug. 12, 1920



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Patented Nov. 15, 1927. 1,649,532

UNITED STATES PATENT OFFICE.

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DISTILLATION OF HYDROCARBON OILS.

Application filed August 12, 1920. Serial No. 403,079.

The present invention relates to the distillation of hydrocarbon oils, and particularly to such distillations as are carried out under pressure for the purpose of converting heavier hydrocarbon oils into lighter. It will be clearly understood from the following description of a specific embodiment thereof, illustrated in the accompanying drawing, in which a still suitable for use in connection with the invention is shown.

In the drawing the numeral 5 indicates a bulk supply container or drum, preferably lagged, which may be of the horizontal cylindrical type, provided with a vapor line 6 (broken away in the drawing), which is preferably an inclined lagged pipe in which condensation of heavier vapors takes place, the condensate returning to the still. The drum is mounted upon a furnace setting 7, and from points near opposite ends of its bottom depend pipes or legs 8 and 9, the latter being longer than the former.

These pipes 8 and 9 communicate with headers 10 and 11 respectively, and a plurality of banks or rows of inclined tubes 12, 12 connect the headers. These tubes are heated by the combustion gases from the fireplace, and a deck 13 placed over them protects the bulk supply container from the heat of the furnace. A circulation of the oil from the drum into and upwardly through the tubes takes place by thermal action. A draw-off pipe 14 communicating with the bottom of the lower header 11 provides for the removal of distillation residues.

In operation a suitable stock, for example, of the character of gas oil of, say, 32° Bé. gravity, is fed into the still, for example, through the vapor line, the tubes and headers being completely filled and the drum partially filled. The still is then fired, a suitable internal pressure of say, 4 to 6 atmospheres being maintained. The constant supply of oil to the drum maintains the oil therein at an elevated temperature, altho the drum itself is not directly heated. Steam or an inert gas such as carbon dioxide is injected in an upward direction in the short leg 8 by means of the pipe 15 having an upwardly directed tip or nozzle 16. The quantity of steam or gas introduced in this manner is not in general sufficient to materially increase the extent of vaporization of the liquid in the still, a suitable quantity being, for example 3 to 7% (calculated as condensed water,) of the distillate. If desired, however, larger quantities of steam may be introduced. The introduction of the gaseous material or steam in the upward direction in the leg or communicating pipe between the upper ends of the tubes acts positively according to the "air-lift" method to increase the normal rate of flow in the tubes resulting from the thermal effect of the heat applied thereto and likewise acts to reduce the amount of carbon deposition upon the interior of the tubes.

Altho the present invention has been described in connection with the details of a specific embodiment thereof, it is not intended that these shall be regarded as limitations upon the scope of the invention except in so far as included in the accompanying claim.

I claim:

The process of pyrogenetically distilling lower boiling point hydrocarbon oils from higher boiling point hydrocarbon oils which consists in passing a stream of oil upwardly thru a heated zone to a bulk supply maintained under pressure, and injecting 3 to 7% of steam upwardly into the oil between the heated zone and the bulk supply.

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