Nov. 10, 1942. F. RÖCKE 2,301,707

RECTIFYING COLUMN

Filed Dec. 27, 1939 2 Sheets-Sheet 1

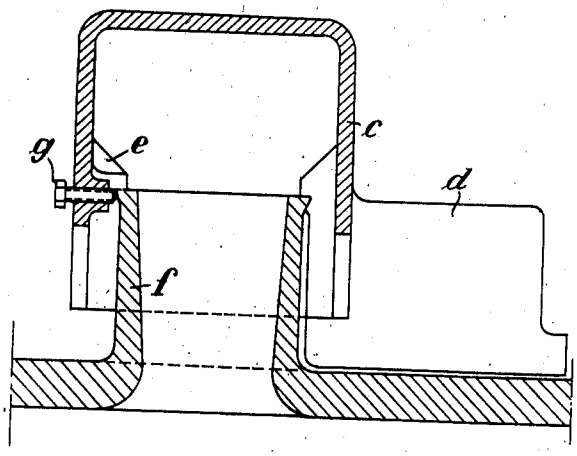


Fig. 1

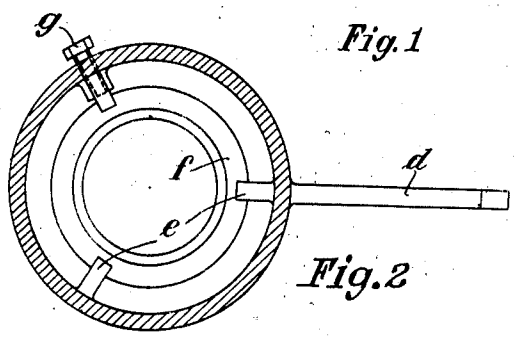


Fig. 2

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Fig. 3

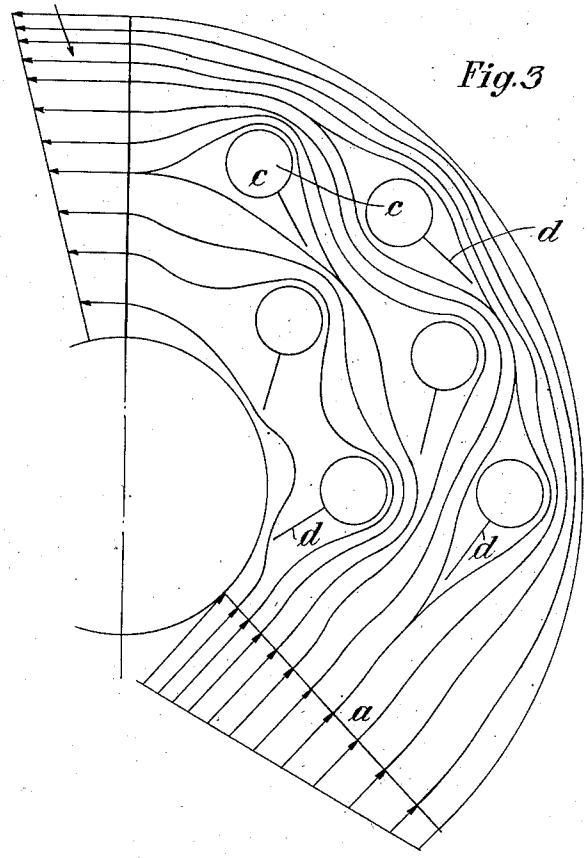
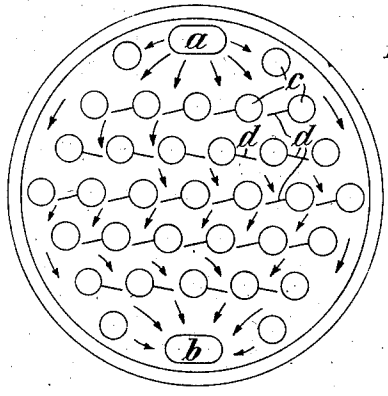


Fig. 4



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UNITED STATES PATENT OFFICE

2,301,707

RECTIFYING COLUMN

Fritz Röcke, Bitterfeld, Germany; vested in the Alien Property Custodian

Application December 27, 1939, Serial No. 311,225
In Germany January 19, 1939

2 Claims. (Cl. 261—114)

This invention relates to a rectifying column for mixtures of liquids.

According to former methods of carrying out the process with the aid of a column attempts have been made for obtaining as intimate a mixture as possible within the individual chambers of the column, that is as extensive an equilibrium of concentration as possible within the liquid phase on the one hand and the gas phase on the other hand. By such a method of operating there was, however, given up again an essential advantage of the known cross current principle, namely the possibility of increasing the efficiency by utilizing the differences of concentration within the liquid covering the various plates on the one hand and the vapor phase above the plate on the other hand.

The present invention concerns the problem to attain a simultaneous exchange between liquid and vapor upon the plates of a column by avoidance of the appearance of mixing within the phase of vapor as well as in that of liquid. This occurs, according to the present invention, by mounting on each plate guiding means which cause the liquid to flow in the desired direction.

The invention is illustrated by way of example in the accompanying drawings.

Figs. 1 and 2 illustrate by way of example a guiding means mounted at a bell in cross sections.

Figs. 3 and 4 diagrammatically illustrate arrangements of the invention on a plate.

As illustrated in Figs. 1 and 2, the guiding means, for example formed as sheets, is suitably mounted directly at the bell. The bell *c* is pivoted on the neck *f* of the bell by means of three supporting branches *e*. Guiding plates *d* are mounted to the bell, adjusted according to requirement by rotation of the bell and may be maintained in the desired position by means of the adjusting screw *g*. Said guiding plates *d* are adjusted so as to regulate the current of flow between the bells; if required, they may entirely stop the current of flow. For this purpose they are arranged close to the plate and project into the layer of foam above the liquid. In the case of Fig. 3, it is assumed that circular plates are employed; in this case inlet and outlet of the liquid are mounted in known manner adjacent to one another, but they are separated by a partition. The liquid flows in at *a* and strikes against the guiding plates *d* standing in contrary direction to the direction of the current. These guiding means are adjusted in such a manner that the particles of liquid are moved the more to the periphery the nearer they flow along the inner side of the plate. *c* are bells through which the vapor is allowed to enter from the chamber underneath. As illustrated in the drawings, the guiding plates are suitably mounted directly at the bells. Fig. 4 illustrates, for instance an arrangement according to the invention, of a plate over which the current of liquid is caused to pass transversely from the inlet *a* to the outlet *b*.

In each individual case the adjustment of the guiding means depends on the viscosity of the mixture to be rectified; it may be ascertained or corrected by a simple test, for instance with a coloured solution.

What I claim is:

1. A column for rectifying mixtures of liquids provided with plates arranged one above the other, adjustable bells being arranged upon said plates and guiding means affixed to said bells, the position of said guiding means regulating the flow of the liquids.

2. A column for rectifying mixtures of liquids provided with plates arranged one above the other, adjustable bells being arranged upon said plates and guiding means affixed to said bells, the position of said guiding means being oblique and transverse to the flow of the liquids and regulating said flow.

FRITZ RÖCKE.