

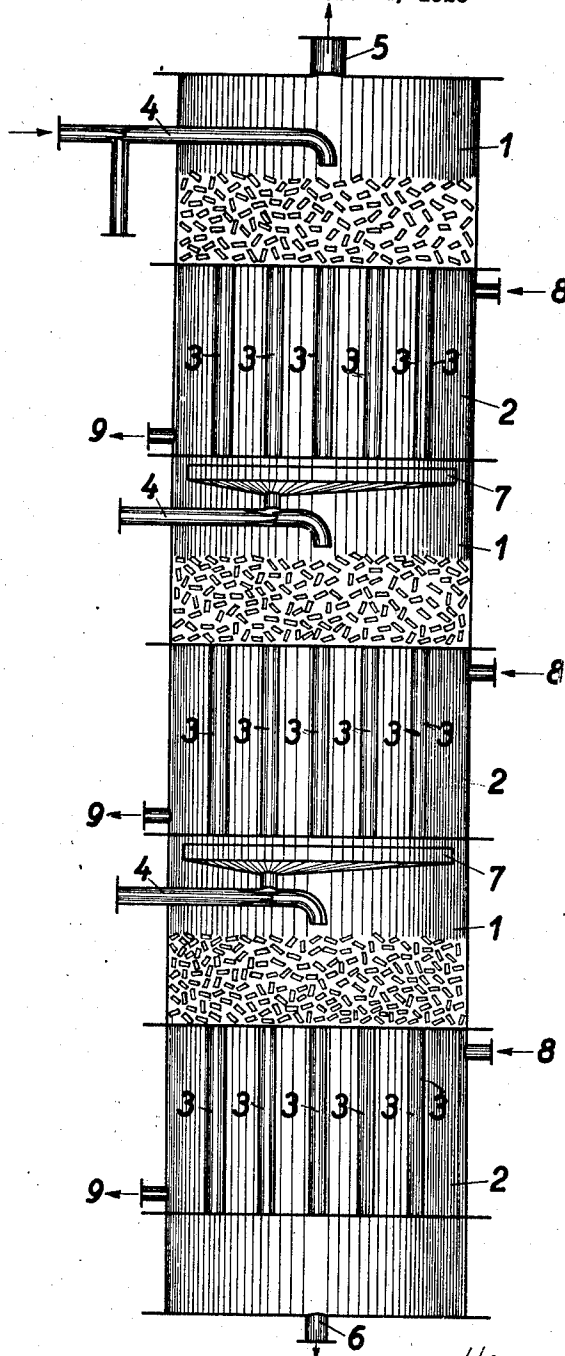
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METHOD OF DEODORIZING FATS AND FATTY OILS

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UNITED STATES PATENT OFFICE

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METHOD OF DEODORIZING FATS AND FATTY OILS

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This invention relates to a method of deodorizing fats and fatty oils, which as is well known, is effected by treatment of the same with steam. When steam is directly introduced into a bulk of the fats or oils, a very long treatment and a comparatively large amount of steam are necessary for achieving the desired object. Attempts have been made to avoid this drawback by bringing oil and steam in minutely divided states into contact one with the other, and, if desired, by employing individual stages in the apparatus used, i. e. by effecting the treatment in successive steps. However, even with this method the object desired is not completely achieved, because the distribution of the oil is not fine enough and there is not a sufficiently great surface of the oil exposed to the desired action of the steam.

These drawbacks are avoided by the method according to the present invention, whereby it is made possible to remove instantaneously the unpleasant smell and taste of the oil with the employment of the smallest possible amount of steam.

According to the invention, the oil or fat, pre-heated if desired (it should be in a freely liquid state), is atomized by means of a steam-nozzle supplied with superheated steam, and introduced into a space in which a reduced air-pressure prevails.

The steam, carrying the odors, is drawn off by means of a vacuum conduit, whilst the oil, in the form of drops, flows down into the next compartment provided with heating-bodies, where it is freed (by heating) from the still adhering moisture, which latter is returned in vapour-form into the upper-stage and is likewise drawn off by the vacuum. The oil, on the contrary, trickles down and is introduced in a finely divided state by means of a steam-nozzle into the next following stage, where the same cycle of operations is repeated and so on.

Since by atomizing distribution of the oil a considerably larger surface is obtained than in the methods employed hitherto, the steam employed is enabled to act instantaneously upon the minutest particles and to remove all those constituents which become volatile at

the temperature attained by the action of the steam, thus effecting a high economy with regard to the length of the treatment and the amount of steam required.

Apparatus for carrying the method into effect is illustrated, by way of example, in the accompanying drawing.

The apparatus consists of a number of stages 1 and of heating-stages 2, which constitute "heating bodies" interposed between the former and provided with heating-tubes 3. The oil is atomized in each one of the stages 1 by means of steam-nozzles 4 of injector form fed with superheated steam as above stated. The oil accumulates after leaving the heating stages 2 in trays 7. 5 is a conduit through which the steam is continuously drawn off to a vacuum pump, or other vacuum-producing device. The steam coming upwardly from a stage 1, into the next higher heating stage 2, can pass around and over the tray 7.

The purified oil leaves the apparatus through a pipe 6, whilst the heating-steam enters the heating stages 2 through a pipe 8 and leaves the same through a pipe 9.

The term "fatty oil" is hereinafter employed to embrace both those which are normally solid (fats) and those which are normally liquid (oils).

I claim:—

1. A method of deodorizing fatty oils which comprises atomizing the same by superheated steam into a compartment in which a pressure below atmospheric is maintained, allowing the oil to flow over heating surfaces to vaporize moisture, and collecting the said oil, and repeating said cycle of operations until the said oil is sufficiently purified, and drawing off said oil, all while continuously maintaining a pressure below atmospheric in the treating vessel by drawing off the steam carrying vaporized impurities, from the top of said compartment.

2. A process of treating fatty oil containing impurities capable of being vaporized, which comprises atomizing the oil by a current of superheated steam, allowing the atomized oil to collect upon surfaces and to flow downwardly over heated surfaces, as a plu-

5 rality of stream in thin layers, collecting the
several streams and repeating such steps until
the oil is sufficiently purified, such flowing
and collecting operations being conducted in
partial vacuum and continuously withdraw-
ing steam and vapors from the upper part of
the treating vessel, whereby the partial vacu-
um is maintained in the treating vessel.

In testimony whereof I affix my signature.

HERMANN BOLLMANN.

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