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PROCESS OF PURIFYING OLEAGINOUS SUBSTANCES.

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To all whom it may concern:

Be it known that I, FRANCIS M. TURNER, a citizen of the United States of America, residing at New York city, county and State of New York, have invented certain new and useful Improvements in Processes of Purifying Oleaginous Substances, of which the following is a full, clear, and exact description.

This invention relates to a process of purifying crude oleaginous substances, such, for instance, as cottonseed, cocoanut, sesame and peanut oils, the object primarily being to dispense with the filtration thereof, which is comparatively a more expensive and tedious method than the ultization of my process.

In carrying out my process, I proceed as follows:

I first take the crude vegetable oils as received from the presses and eliminate therefrom the foots (being the fine particles of meal which escape through the presses) by centrifugal extraction, or otherwise. The oil is then placed in a closed tank, together with a certain proportion of water, in some instances fifty per cent, more or less, depending upon the particular oil being treated. I then place the oil under vacuum and treat with steam or air to eliminate the volatile acids, and then subject the oil and water to steam under pressure, the pressure preferably being equivalent to about 274 degrees Fahrenheit. This is continued for a length of time varying from thirty minutes to two hours, that is to say, for a period sufficient to readily cause clarification of the oil, some oils requiring a greater or lesser period of steam compression to get to this stage. The mixture is then passed through a centrifugal oil separator of any well known type, and as a result a perfectly clear practically moisture-proof oil, free from mucilaginous and other impurities, is produced. This oil is now ready for the usual refining process to eliminate the fatty acids, etc.

By my process I have dispensed with the costly and comparatively tedious filtration steps heretofore employed and at the same time the oil is much clearer and brighter than when clarified by the filtration process, and is practically free from water, containing in no instance more than a tenth of one per cent of moisture.

Essentially this invention relates to the purification of the oil and not to the refining as generally understood. Refining as understood means, 1st, neutralization of fatty acids, generally by means of caustic soda and removal of the resultant soap; 2nd, bleaching effected by introduction of Fullers earth, carbon, etc., and removal by filtration; 3rd, deodorization or removal of volatile fatty acids effected by distillation under vacuum. When crude vegetable oils are treated as above they are termed refined oils. When copra (dried cocoa-nut meat) is subjected to pressure, oil and some other substances result, viz: oil, glycerin, mucilage or albuminous matter, particles of meal (commonly called "foots").

The presence of glycerin in the oil is not objectionable but the mucilaginous or albuminous matter must be removed in order to prevent fermentation and consequent rancidity and deterioration of the oil. The particles of meal, of course, are removed and mixed with the fresh supply of meats and repressed. This is generally accomplished, though imperfectly, by means of filtration.

This process is called clarification and is to be distinguished from refining which is another process altogether.

The process in my application is continuous and for the purpose of removing the albuminoids.

The process is intended to avoid the costly and imperfect method of filtration of oleaginous substances particularly vegetable seed oils especially the complete removal of the albuminous material which is the potent factor in inducing rancidity and deterioration of the oil. The albuminous substance is colloidal and same will pass through ordinary filter presses. By my invention the albumins are coagulated and their specific gravity is changed relative to the vehicle and their state and form is changed and they change from a liquid to a thickened, curd-like state and become insoluble in the vehicle in which they are carried. This is accomplished by the application of water and steam pressure at the proper pressure and temperature to effect this and then separating the mixture of water and coagulated albumins from the oil by centrifugal separating process resulting in oil that is entirely free from albuminous matter.

My process is also adaptable for the treatment of fats and the like, and in some instances, I may treat the oils or fats by steam

under pressure without the preliminary admixture of water therewith.

Having now described my invention, what I claim and desire to secure by Letters Patent is:—

1. The process of removing mucilaginous and other impurities from vegetable oils, which consists in subjecting the oil to steam under pressure approximating 274 degrees Fahrenheit, and then separating the water from the oil.

2. The process of removing impurities from crude vegetable oils and the like which first consists in eliminating therefrom the particles of meal, then admixing the residual oil with water, then subjecting the mixture to the action of steam under pressure, and finally separating the water therefrom.

3. A step in the process of removing albumin from vegetable oils and fats comprising subjecting the same under material super-atmospheric pressure to steam in the presence of a material quantity of water.

Signed at New York city, N. Y., this 2 day of March 1920.

FRANCIS M. TURNER.

Witnesses:
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MAURICE BLOCK.