

UNITED STATES PATENT OFFICE.

FERDINAND F. MAYER, OF NEW YORK, N. Y.

IMPROVEMENT IN BLEACHING FATTY SUBSTANCES.

Specification forming part of Letters Patent No. 33,005, dated August 6, 1861.

To all whom it may concern:

Be it known that I, FERDINAND F. MAYER, of the city, county, and State of New York, have invented a new and Improved Process for Bleaching and Refining Fatty Substances, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention consists in the employment of brown oxide of lead, either pure or in composition with other substances, in the manner hereinafter explained and described, for the purpose of bleaching and refining fatty substances, such as linseed-oil, rape-seed oil, poppy-seed oil, animal or vegetable wax, palm-oil, tallow, &c.

For the purpose of bleaching and refining linseed-oil the proceeding is as follows: Sixty-four pounds of alum are dissolved in one hundred and fifty gallons of hot water in a bleaching-tank lined with lead or copper, such as generally used in oil-manufactories. One thousand gallons of the crude oil are then added, and are thoroughly incorporated with the solution of alum by strongly agitating under and with the influence of moist steam for the space of half an hour. The steam being then shut off, twenty-four pounds of brown oxide of lead, or any composition containing that number of pounds of brown oxide of lead, thinned with water are added, and the whole is stirred for the space of three hours, or until the oil has become sufficiently bleached. After this takes place one thousand gallons of hot water are poured into the tank, and the mixture is steamed and stirred until the color has turned white. The stirring is now discontinued; but the steam is kept up for another quarter of an hour, or until the separation of the oil from the liquor becomes discernible. Then the steam is shut off and the oil left to settle and cool, after which it is ready for use.

Instead of using the brown oxide of lead in combination with alum, it can be used with advantage either in combination with sulphuric acid or with acetic acid, in the following manner: One thousand gallons of linseed-oil are mixed in a tank, as above described, with twenty-four pounds of brown oxide of lead, or with a composition containing that number of pounds of brown oxide of lead, and the mixture is stirred for about a quarter of an hour. Thirty-two pounds of oil of vitriol, previously

diluted with seventy-five gallons of water, are then added and well stirred for about three hours until decoloration of the oil takes place. One thousand gallons of hot water are then added, and the whole stirred and steamed until the color of the mixture has become white. The stirring being then discontinued, the steaming is kept up for fifteen minutes more, after which the oil is left to rest over night. The acid liquor is drawn off on the next day and replaced by an equal volume of water, with which the oil is steamed until the separation of oil from the liquor commences. It is then left to rest and cool.

With diluted acetic acid or vinegar the process is essentially the same as with sulphuric acid, the only difference being the employment of forty gallons of vinegar (one ounce of which saturates forty grains of carbonate of potassa) in place of the thirty-two pounds of oil of vitriol.

For bleaching or refining palm-oil or bees-wax or any other fatty substance the process is essentially the same. The agents for palm-oil are taken in about the following proportions: brown oxide of lead, four and one-half pounds; alum, twelve pounds; brown oxide of lead, four and one-half pounds; oil of vitriol, six pounds; brown oxide of lead, four and one-half pounds; vinegar, eight gallons.

For the bleaching of wax either superheated steam or metallic vessels exposed to a fire must be employed to keep it in a proper state of liquidity. After the wax is melted it is mixed with some water and then with the smallest possible quantity of brown oxide of lead. The exact quantity is to be determined for each lot of wax by a preliminary trial. When the brown oxide of lead is thoroughly incorporated with the wax, muriatic acid or sulphuric acid diluted with their own weight of water are slowly added and the whole stirred and steamed or heated until complete decoloration has taken place. Both the steaming and heating are discontinued at the same time, and when the wax has become hard the acid liquor and sediment are removed and the wax heated with fresh quantities of water until perfectly free from acid.

In bleaching the oils it is not advisable to use muriatic or any other acid except those named above, the former principally on account of the formation of chloride of lead,

which is difficult to remove from the oil. The sulphuric or the acetic acid and the alum on the other hand are not only sufficient to bind all the oxide of lead formed by the reduction of the binoxide, but also to decompose any fatty salt of lead that could form.

Instead of the brown oxide of lead, red lead may be used, which latter is represented by the formula Pb_3O_4 or $2PbO + PbO_2$, while the brown oxide is represented by PbO_2 . In using red lead or any other composition containing brown oxide of lead, however, the quantity must be so arranged that the required amount

of pure brown oxide of lead is brought in contact with the fatty substance.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The employment of brown oxide of lead, either pure or in combination with other substances, substantially in the manner herein specified, for the purposes set forth.

FERDINAND F. MAYER.

Witnesses:

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