

UNITED STATES PATENT OFFICE.

FRANZ O. MATTHIESSEN, OF NEW YORK, N. Y.

IMPROVEMENT IN PROCESSES OF REFINING SUGAR.

Specification forming part of Letters Patent No. **162,245**, dated April 20, 1875; application filed April 14, 1875.

CASE D.

To all whom it may concern:

Be it known that I, FRANZ O. MATTHIESSEN, of New York, N. Y., have invented an Improved Process of Refining Sugar, of which the following is a specification:

My improvement relates to a modification of that process of refining sugar whereby the entire sugar-mass is converted into coffee-sugar without leaving any fluid remainder in the form of sirup.

As I have invented several modifications of that process, for which I am about applying for patents, I shall, for convenience, designate the present application as Case D.

The modification to which the present application refers relates to the mode of treating the sugar-mass, produced by boiling the clarified sugar-liquor in the vacuum-pan, until the usual crystallization has taken place; and consists in conducting the final drying operation partially *in vacuo* and partially in the open air.

To facilitate drying, the sugar material is divided into small masses or spread over a large surface.

In one of the modifications of my process the sugar-mass is discharged from the vacuum-pan directly into a vacuum-chamber, wherein the concluding drying operation is at once performed.

In another modification the sugar-mass is allowed to cool and harden, and is then disintegrated prior to the concluding treatment *in vacuo*.

In either case there is some tendency of the sugar-crystals to adhere to each other.

I design preventing this by means of a me-

chanical agitator operating in the vacuum-chamber; but the present modification of my process affords a more simple and convenient expedient for overcoming this difficulty. Thus, after partial treatment *in vacuo*, I expose the sugar-mass to the air, and conclude the drying operation by the continued application of gentle heat. The material being thus easily accessible, the operator is enabled to effect the desired perfect segregation of the sugar-crystals by stirring the sugar-mass manually.

During that part of the operation conducted *in vacuo* the temperature need not exceed 120° Fahrenheit. In the open air a higher temperature may be applied, but should not, preferably, exceed 212° Fahrenheit.

The process of heating is prolonged until nearly all the water is expelled from the sirup, and the material operated upon is converted into a granular mass exhibiting the characteristics of coffee-sugar, the small portion of sirup present being adherent to the sugar-crystals.

I claim as my invention—

The improved process of refining sugar herein described, which consists in subjecting divided masses or thin layers of the sirup and crystallized sugar, produced by boiling the clarified sugar-liquor in the vacuum-pan, to gentle heat, and a consequent drying operation, conducted partially *in vacuo* and partially in the open air, substantially as and for the purposes set forth.

F. O. MATTHIESSEN.

Witnesses:

O. H. KRAUSE,
J. H. CUBBERLY.