

United States Patent Office.

ALEXANDER MACKEY, OF NEW YORK, AND EBERHARDT MÜLLER, OF
BROOKLYN, NEW YORK.

Letters Patent No. 67,662, dated August 13, 1867.

IMPROVED MODE OF RAISING THE GRADE OF RAW SUGARS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ALEXANDER MACKEY, of the city, county, and State of New York, and EBERHARDT MÜLLER, of the eastern district of the city of Brooklyn, in the county of Kings, and State of New York, have invented a new and improved Process of Raising the Grade of Raw Sugars; and we do hereby declare that the following is a full, clear, and exact description of the same.

This invention is designed for raising the grade of dry or comparatively dry raw sugar, by the removal therefrom of the molasses and other impurities which discolor the same, and to remove which it has heretofore been necessary either to boil and re-granulate the sugar, or else to partly dissolve it by reducing to a semi-liquid state before washing it, all attempts to remove by centrifugal force such impurities from the dry raw sugar by simple washing having proved failures in practice, from the fact that no provision has hitherto been made to retain the sugar in the centrifugal under such conditions as will insure the requisite cleansing or purifying action of such washing operation thereon.

To obviate the difficulty just mentioned is the object of this invention, which consists in subjecting the dry or comparatively dry raw sugar to the action, in a centrifugal sugar machine, of water, or what is technically termed "liquor," whereby, the sugar being held, as it were, in a wall of uniform thickness, through which the water or liquid is forced to pass by centrifugal force, the discoloring impurities which are interspersed between and coat the grains of the sugar are washed away therefrom, and the grade of the sugar is raised in a degree proportioned to the thoroughness with which such washing operation is performed.

To enable others to understand the nature of our invention, we will proceed to describe it.

Owing to the difficulty of retaining the sugar in the requisite position at the periphery of the ordinary centrifugal machine, it is preferred, in order to more successfully carry out our process, to employ some especial mechanical means or device for distributing the sugar to such periphery, such, for instance, as the apparatus set forth in our patent dated March 27, 1866, or that described in the patent of Alexander Mackey, bearing date June 18, 1867.

The dry raw sugar being placed in the machine, a few revolutions of the latter distribute the sugar to the periphery of the same, the cold water, or, in lieu thereof, the weak saccharine solution technically known as liquor, is forced into the machine by a suitable pipe or pipes, and by the centrifugal force exerted thereon by the machine, is thrown outward and drawn through the sugar massed at the periphery of the machine, as just mentioned, and, thoroughly permeating the sugar in its passage, washes away the soluble uncrystallized matter therefrom, and washes the surface of the grains thereof, and inasmuch as it is in such uncrystallized matter and upon the surface of the grains, and not within the grains themselves, that the greater portion of the impurities of raw sugar are present, it follows that the sugar is effectually purified or refined by the washing process to which it is thus subjected, the flow of water through or among the sugar being continued until the sugar is sufficiently washed. No definite rule can be laid down for the time required to complete the purification, as it will vary much with the original condition of the sugar, but no difficulty will be found by the experienced refiner in determining when the purification is completed, after which the flow of water should be stopped and the operation of the machine continued, until, as far as is practicable, the water is all thrown out from the sugar, which may then be removed from the machine. By thus washing the dry raw sugar under the conditions afforded by the operation of a centrifugal machine of suitable construction, we have obtained a quantity of first-quality sugar equal to from eighty (80) to eighty-five (85) per cent. of the raw sugar, while all that is generally obtained from the usual first boiling is only about fifty-five (55) per cent.; and, moreover, the expense of treatment of a given quantity of sugar by our process is but about one-third of that entailed by the old method.

What we claim as our invention, and desire to secure by Letters Patent, is—

Raising the grade of raw sugar by placing it in a dry or comparatively dry state in a centrifugal machine, and therein subjecting it to a washing operation, substantially as herein described.

ALEXR. MACKEY,
EBERHARDT MÜLLER.

Witnesses:

J. W. COOMBS,
G. W. REED.