

# UNITED STATES PATENT OFFICE.

JAMES A. MORRELL, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, JAMES H. WHEATLEY, L. P. WILLIAMS, AND GEORGE H. BAXTER, OF SAME PLACE.

## IMPROVEMENT IN GRANULATING SUGAR.

Specification forming part of Letters Patent No. **142,498**, dated September 2, 1873; application filed July 18, 1873.

*To all whom it may concern:*

Be it known that I, JAMES A. MORRELL, of New York, in the State of New York, have invented an Improvement in the Art of Granulating Sugar, of which the following is a specification:

On the 12th day of September, A. D 1871, I took out Letters Patent of the United States for an improved process of manufacturing, crystallizing, and refining sugars by the use of currents of air, impregnated or surcharged with electricity, passed through the cane-juice liquor, sirup, molasses, or melada while undergoing evaporation. In operating and experimenting under that process I have discovered that it is especially valuable in the process of evaporation, and that, in the crystallization of sugars evaporated by any known mode, the process may be facilitated, and the formation of glucose, in boiling the sirup, checked, if not prevented, by the introduction into the vat, vessel, or caldron in which granulation is induced, of a current or currents of induced electricity, the effect of which seems to be to prevent the suspension of granules of sugar, or particles subject to granulation, by the glucose contained in the sirup, and consequently in an increased production of sugar.

To enable persons skilled in the art to operate my improvement in the art of manufacturing sugar, I will proceed to describe one form of apparatus in which my improvement may be worked; but my claim herein will not be limited to this form of apparatus, since it is manifest that the process is not dependent upon any special form of apparatus, either for reducing the sugar or inducing the electrical currents, for these may be almost indefinitely

varied without departing from the principle of my invention.

The sirup being contained in suitable vats, vessels, pans, or caldrons, an electrical machine for evolving frictional or common electricity, conveniently placed, is then to be operated by any convenient power, and insulated wires, connected with the respective poles, are then to be lead into the sirup, and electrical currents through the sirups thus evolved.

Whatever may be the physical causes of crystallization, I believe myself to have been the first to employ, externally and artificially, induced currents of electricity, of any of the known varieties, as an element in the manufacture of sugar; and these currents need not be of frictional electricity, for other forms of electricity will produce the same effect; and though I have described a machine for evolving frictional electricity as a part of the described apparatus, I do not desire to have it understood that my process is limited to that form of electricity.

What I claim as my invention and improvement in the art of manufacturing sugar is—

The introduction into the mass of sirup undergoing granulation of an induced current or currents of electricity, such induced current not entering with a current of air, as covered by my Letters Patent of September 12, A. D. 1871.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAS. A. MORRELL.

Witnesses:

B. EDW. J. EILS,  
R. MASON.