E. K. RICHARDS.

Process for Separating Saccharine Matters from Air.

No. 199,864. Patented Jan. 29, 1878.

Fig. 1.

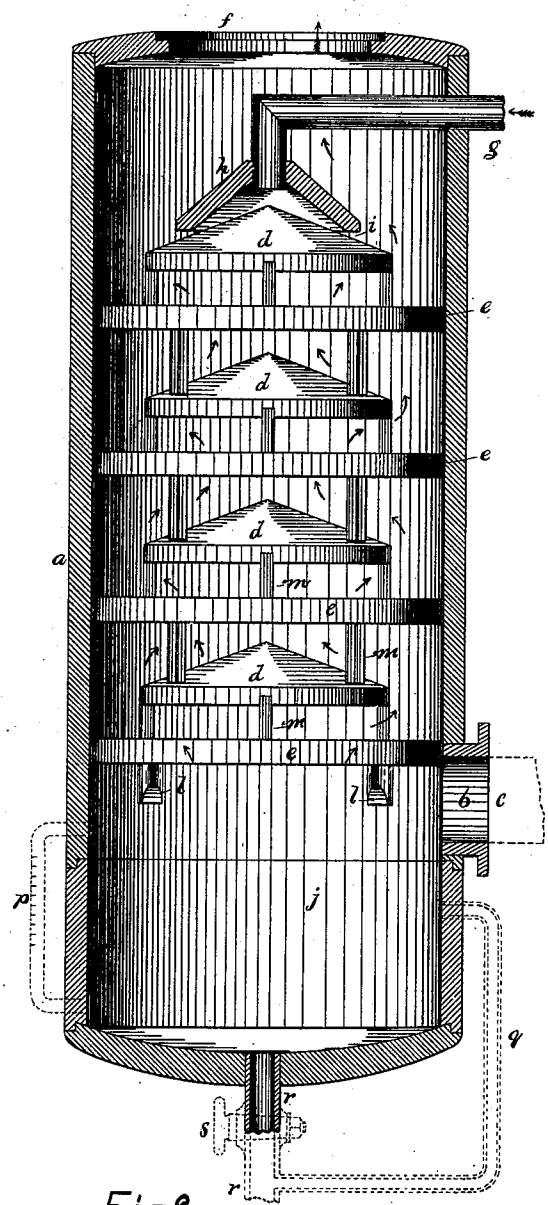
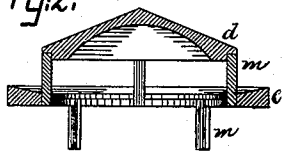


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD K. RICHARDS, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN PROCESSES FOR SEPARATING SACCHARINE MATTERS FROM AIR.

Specification forming part of Letters Patent No. **199,864**, dated January 29, 1878; application filed October 26, 1877.

To all whom it may concern:

Be it known that I, EDWARD K. RICHARDS, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented Improvements in Method of Separating Saccharine Matters from Air, of which the following is a specification:

This invention relates to apparatus for saving floating or other particles of sugar carried in the air issuing from sugar-drying machinery.

The invention consists in the process herein described of extracting the saccharine matters from the air issuing from the drying apparatus, as hereinafter described.

Figure 1 represents, in section, the apparatus by which to practice my invention, such apparatus showing an outer casing provided with shelves, to operate as hereinafter described; and Fig. 2, a section taken through one of the shelves.

In the drawings, *a* represents the case of my apparatus, made as a cylinder; but it may be of any suitable size and shape in cross-section. The opening *b* is to be connected, by pipe *c*, (see dotted lines,) with a sugar-drying apparatus—a well-known Hersey or other drier—and air forced or drawn through such sugar-drying apparatus will be forced through such pipe and opening into the case. Inside this case is arranged a series of water-spreading shelves, *d*, rising above wall-shelves *e*, the shelves *d e* being so made as to permit water on one to fall upon the other, and in so doing to cross passages between the shelves, through which the air blown in at *b* travels, as shown by the arrows, such air issuing from the case at *f* into a suitable chimney. Water is introduced to the case through pipe *g*, having at its discharging end a cone-shaped water-distributer, *h*, which, co-operating with the first of the water-spreading shelves, there being a narrow space, *i*, between the distributer and shelf, causes the water to be thrown out radially as a film or sheet. This water so thrown out strikes either the interior of the case or the shelf *e*, or both, and flows alternately from shelves *d* to *e* into the well *j*, arranged directly below the case, as shown in the drawing, or connected therewith by means of a suitable pipe. The descending water, meeting the ascending air, deprives it of all its saccharine matters. This water may be made to circulate from the well to the pipe *g*, and through the apparatus, for any number of times, and when sufficiently sweet may be used to melt the raw sugar.

The lowermost shelf *e* rests on lugs *l* at the interior of the case, and above that each shelf is supported, preferably, by legs *m* resting on another shelf.

The shelves *d*, instead of being conical, as shown in the drawing, may be horizontal or flat.

The well *j* will be provided with a gage, *p*, to determine the depth of water therein, and with an overflow-pipe, *q*, fitted to the outlet-pipe *r* below a stop-cock, *s*, therein. (See dotted lines.)

The Hersey drier, fully represented in the United States patents granted to Charles H. Hersey, has a rotating cylinder, within which is located a system of steam-pipes, while through the cylinder, by an exhaust-fan, is drawn a current of air. This air is forced from the drier into the case, as herein described.

It is considered unnecessary in this application to show in the drawing a sugar-drier.

The water used will be preferably warm.

I claim—

In the manufacture of sugar, the process herein described of separating saccharine matters from the air after its passage from a sugar-drying apparatus, consisting in passing such air through sheets or films of water, substantially as described.

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

EDWARD K. RICHARDS.

Witnesses:

G. W. GREGORY,

JNO. D. PATTEN.