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UNITED STATES PATENT OFFICE.

HENRY N. HEWLETT, OF OSCODA, MICHIGAN.

SALT-GRAINER.

SPECIFICATION forming part of Letters Patent No. 259,539, dated June 13, 1882.

Application filed April 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY N. HEWLETT, of Oscoda, in the county of Iosco and State of Michigan, have invented a new and useful
5 Improvement in Salt-Grainers, of which the following is a full, clear, and exact description.

This invention consists of improved contrivance of apparatus applied to salt-making vats for the employment of power for removing the
10 salt produced in the vats by the evaporation of salt-water. The said apparatus consists of reciprocating scrapers placed at intervals along the vat or grainer from end to end, and along an upwardly-inclined way at one end of the
15 vat, over which the scrapers are made to deliver the salt out of the vat, as will be hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in
20 which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of a graining-vat with my improved apparatus applied to it. Fig. 2 is a transverse section
25 of Fig. 1 on the line *x x*, and Fig. 3 is a detail of the scraping apparatus.

A represents a long vat or tank, in which the salt-water is evaporated by heat applied by coils of steam-pipe B or other approved
30 means, and out of which the grained salt is now delivered by hand, which involves a good deal of labor, besides frequent stoppage of the evaporating process. C represents an upwardly-inclined way, which I apply to one end
35 of the tank, with sides D, of about the same height as the sides of the vat, for the discharge of the salt over it by means of reciprocating scrapers E, which may be made to operate forward and backward along the bottom of the
40 vat and up the said inclined way by any approved means; but in this case they are suspended by arms F from rock-shafts G, journaled at H in boxes I, fitted to slide on rails J, located on the upper edges of the sides of the
45 tank. The said rock-shafts, together with their sliding boxes, are made to slide forward and backward along the vat by a bar, K, extending along over the shafts at about their middle, and pushing them forward by the shoulders L and backward by shoulders M, the bar
50 being worked by the lever N, to which the

power is applied by the driving-shaft O and a connecting-rod, P.

Those scrapers that work along the incline have a separate driving-bar, K', and it is connected to bar K by a rod, R, allowing the requisite articulation for working them in a different line. 55

It is desirable to have the scrapers swing up and pass over the salt when going backward, as indicated by the dotted lines in Fig. 3, and it is for this purpose that the shafts G, to which they are attached, are made to rock in their bearings I; and the shafts have a pin, S, extending up each side of the bar K, to be acted
60 upon by the pins T of bars K K', when said bar K goes back, to swing the scrapers up, as shown, and said bars K are provided with pins V to swing the scrapers upright when going forward. 65

The scraper-shafts also have a pin, W, to stop them in the upright position by contact with the under side of said bars K K' when the scrapers are upright. Without the pins T and V the scrapers might fail to act by clog-
70 ging with the salt. 75

From the upper end of the way C the salt is discharged upon a platform, X, from which the drippage flows back into the tank by the conductor Y, and also from which the salt is removed, as desired. 80

The scrapers have notches *a* in the lower edge for straddling the steam-pipes B of the coil.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 85

1. The combination of reciprocating scrapers E and an inclined discharging-way, C, with the evaporating and graining vat A, substantially as described. 90

2. The combination of reciprocating and oscillating scrapers E and an inclined discharging-way, C, with the evaporating and graining vat A, substantially as described. 95

3. The combination, with a graining or evaporating vat, A, having a steam heating-coil, B, of reciprocating scrapers E, having notches *a*, and straddling the pipes of the heating-coil, substantially as described. 100

4. The combination, with the graining-vat A, of scrapers E, rock-shafts G, and recipro-

cating bearings I for said rock-shafts, arranged on ways J upon the sides of the vat, substantially as described.

5 5. The combination of reciprocating bar K, having shoulders L and M, and pins T and V with the scrapers E, rock-shafts G, and stop-pins W, substantially as described.

10 6. The combination, with the vat A and inclined way C, of a series of scrapers in the vat and a series of scrapers on the said inclined way, substantially as described.

7. The series of scrapers on the inclined

way, and the operating-bar K', connected to the operating-bar K of the series of scrapers in the vat, substantially as described.

15 8. The combination of table X and conductor Y with the vat A, having discharging-scrapers, and the discharging-way C, substantially as described.

HENRY NEWMAN HEWLETT.

Witnesses:

VERNON E. RIX,

E. F. HOLMES.