

(No Model.)

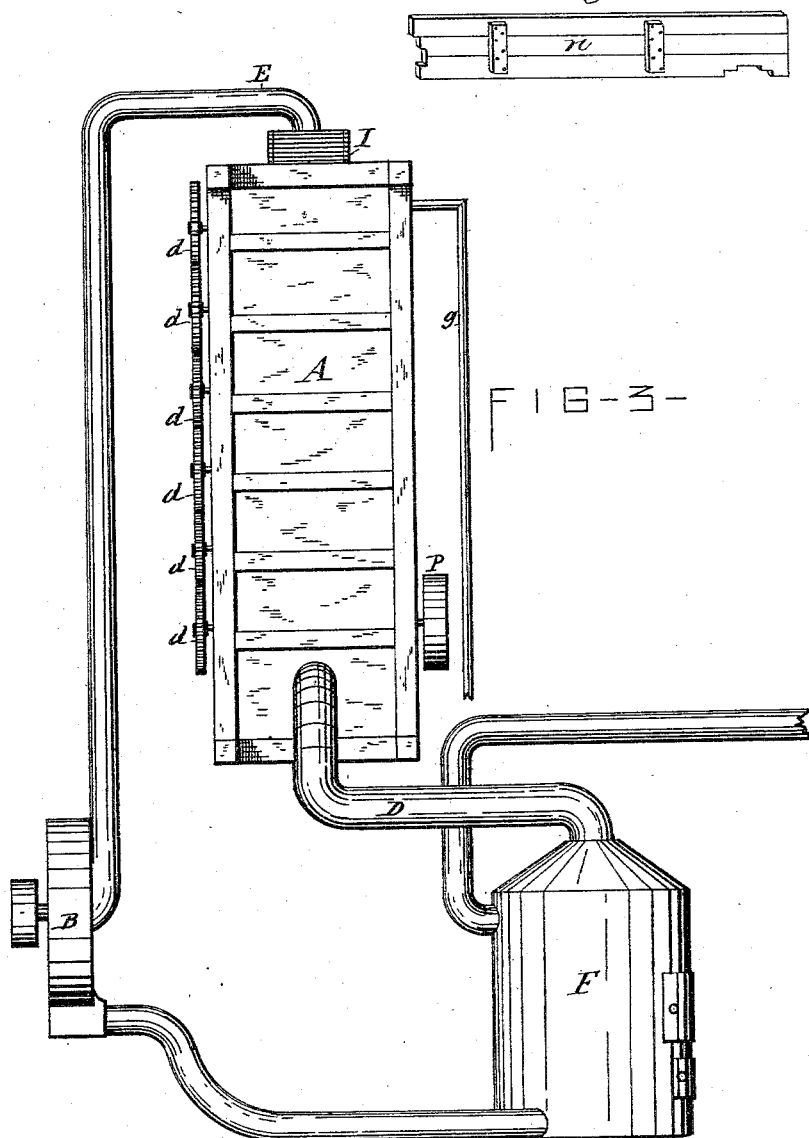
2 Sheets—Sheet 2.

A. FAIRCHILD.
DESICCATING APPARATUS.

No. 301,701.

Patented July 8, 1884.

Fig. 4.



WITNESSES —
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UNITED STATES PATENT OFFICE.

ABRAM FAIRCHILD, OF SYRACUSE, NEW YORK.

DESICCATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 301,701, dated July 8, 1884.

Application filed August 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, ABRAM FAIRCHILD, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Desiccating Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improved apparatus specially designed for drying salt; and it consists in a novel construction and combination of a series of endless chains arranged in different horizontal planes, and carrying metal pans having upturned end and side edges, and a case inclosing said devices, and provided with removable panels to afford ready access to said pans and their carrying chains for cleaning, repairing, or renewing the same, as may become necessary, all as hereinafter more fully described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of my improved desiccating apparatus, with portions of the side panels of the case removed to illustrate the interior arrangement of the same. Fig. 2 is a vertical transverse section of the same. Fig. 3 is an end view of the desiccator and the heating apparatus connected therewith, and Fig. 4 is a detached view of one of the removable panels of the desiccating-chamber.

Similar letters of reference indicate corresponding parts.

A represents an erect rectangular case made steam-tight, with the exceptions of the herein-after-described necessary inlet and outlet for the substance to be treated and the requisite vent for the moisture expelled from said substance.

Longitudinally in the case A are arranged a series of endless carriers in the form of endless chains, *c c*, disposed in sets, one above the other, and carried by sprocket-wheels *b b*, fixed to shafts *a a*, which are extended horizontally across opposite ends of the case and journaled in suitable bearings on the frame of the case. Each of said shafts is provided on its end with a gear-wheel, *d*, meshing in that of the adjacent shaft, so that all the shafts *a a* are caused to rotate synchronously and suc-

cessively in opposite directions, one of the shafts being provided with a driving-pulley, P, which is connected with the motor by belt or otherwise.

To the endless chains *c c* are attached transversely narrow pans *e e*, formed preferably of copper or other metal adapted for the treatment of salt, said pans having both their end and side edges turned up to enable the pans to contain a thin stratum of salt, the turned-up side edges also serving to stiffen the pans and enable them to better sustain their weight and contents between the two chains *c c*.

An inlet, I, for the substance to be treated, is applied to the top of the case A, and an outlet, C, for the desiccated substance, is provided at the bottom of the case. As the aforesaid substance enters the case A through the inlet I, it falls into the pans *e e* of the upper endless carrier, which carries it along to the end of the case, where the travel of the endless chains around the sprocket-wheels *b b* tilts the pans and causes the substance under treatment to fall into the pans of the subjacent set of carriers. The latter, traveling in the opposite direction from the upper carriers, carries the aforesaid substance to the opposite end of the case, where it is again thrown into the pans of the next subjacent set of carriers, and in this manner the substance proceeds from end to end of the case alternately in opposite directions, dropping successively from carrier to carrier, and finally into the outlet C of the case. It will be observed that by dumping the substance from one carrier to the other said substance becomes thoroughly stirred and inverted, so that the portion which was at the top of the layer of substance on one carrier comes to the bottom of the layer formed on the succeeding carrier, thereby bringing every particle of the substance in direct contact with the heated pans for a sufficient period to expel the moisture therefrom. In order to insure a proper conveyance of the substance from carrier to carrier, I secure to the ends of the case inclined chutes *f f*, arranged to receive the substance as it drops from the pans of the upper carrier, and conduct the same to the pans of the subjacent carrier.

g g designate steam-pipes arranged under

the aforesaid carriers for heating the same; but the requisite heat for desiccating the substance under treatment I obtain chiefly by means of one or more hot-air furnaces, F, the hot-air ducts D of which are extended to and communicate with the base of the interior of the case A. A vent, E, is applied to the top of the case for the escape of the vapor expelled from the substance carried through the case by the endless carriers before described.

In order to accelerate the currents of hot air and vapor, and thus promote the desiccating process, I connect to the ventiduct E a suction-fan or the receiving-port of a blower, B, and extend the discharge-pipe thereof to the air-heating space or chamber of the furnace, as illustrated in Fig. 3 of the drawings.

The sides of the case A, I construct with removable panels *n n*, so as to obtain ready access to the respective carriers inside of the case when necessary.

I am aware that it is not new to arrange in a drying-chamber endless aprons and endless chains carried by revolving cylinders, drums, or wheels, and provided with pans or other suitable receptacles for the substance to be

dried, and I therefore do not claim such an apparatus, broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In combination with the series of traveling endless carriers arranged in different horizontal planes, the inclosing-case provided with removable panels at their respective carriers, substantially as and for the purpose set forth.

2. In combination with the case provided with removable panels, endless carrying-chains arranged in different planes, and pans secured transversely to said chains, and having turned-up end and side edges, substantially as described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 8th day of August, 1883.

ABRAM FAIRCHILD. [L. S.]

Witnesses:

FREDERICK H. GIBBS,
WM. C. RAYMOND.