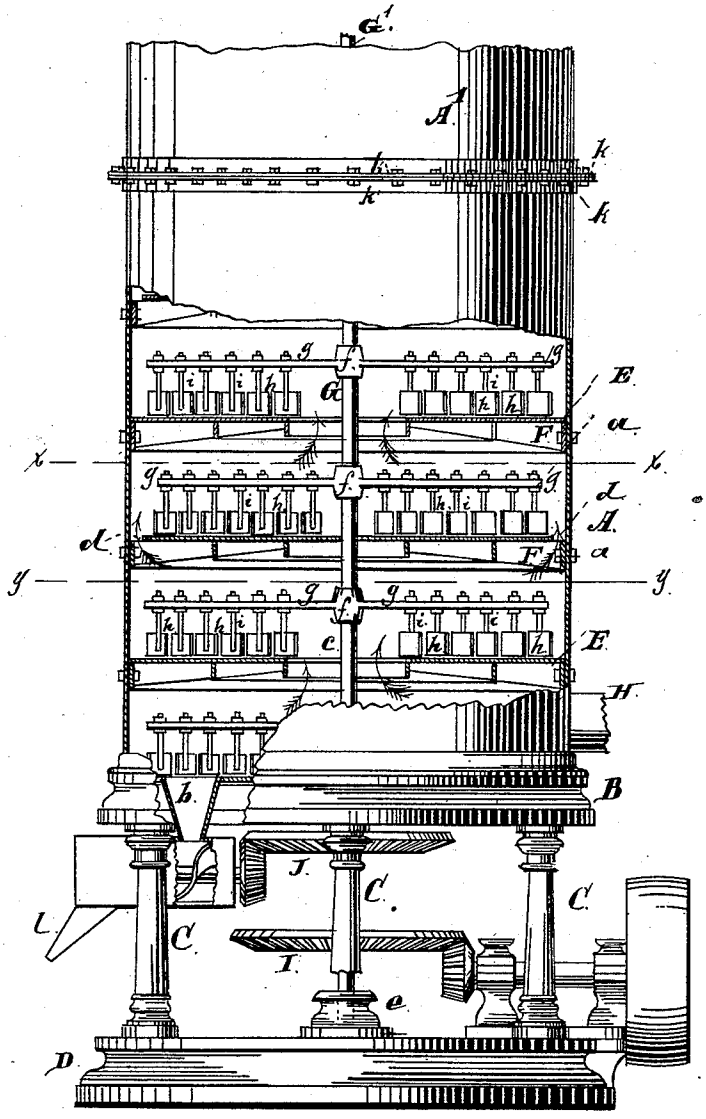
(No Model.) 2 Sheets—Sheet 1.

C. KIMPLEN.

DESICCATING MACHINE.

No. 281,888. Patented July 24, 1883.

Fig. 1.



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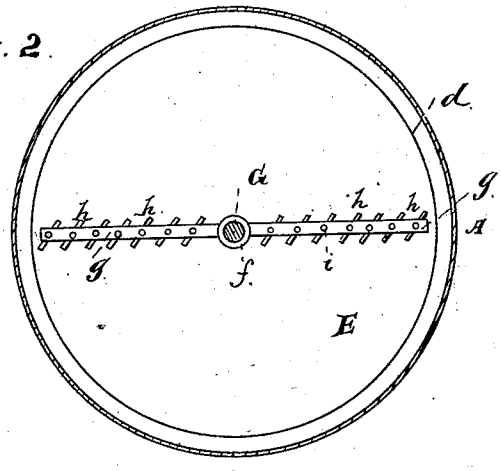
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Fig. 2.



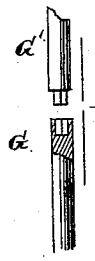
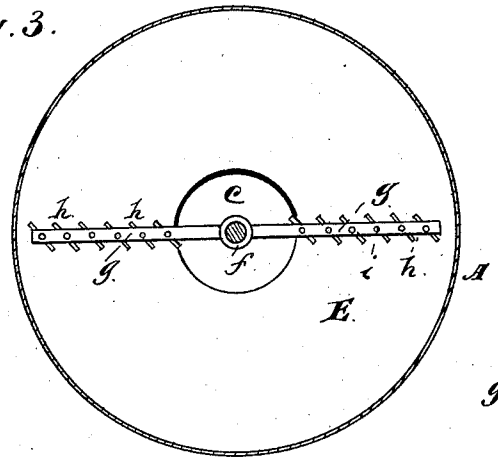


Fig. 7.

Fig. 8.

Fig. 3.



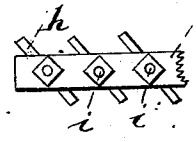


Fig. 5.

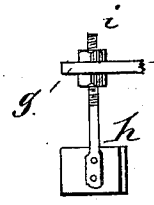
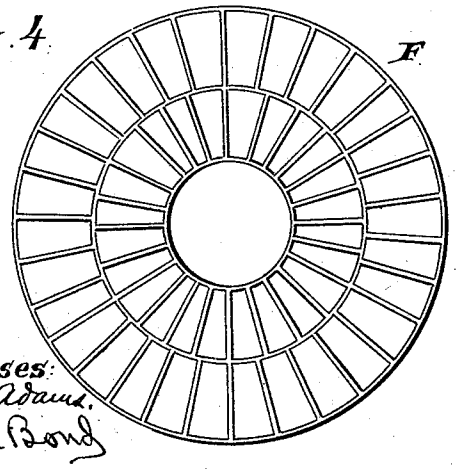


Fig. 6.

Fig. 4.



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UNITED STATES PATENT OFFICE.

CORNELIUS KIMPLEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND THE NORTHWESTERN FERTILIZING COMPANY, OF SAME PLACE.

DESICCATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 281,883, dated July 24, 1883.

Application filed January 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS KIMPLEN, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Desiccating-Machines, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation, some parts being shown in section. Fig. 2 is a horizontal section on line *x* of Fig. 1, looking down. Fig. 3 is a horizontal section at line *y* of Fig. 1, looking down. Fig. 4 is an under side view of the frame which supports the drying-floor. Figs. 5 and 6 are enlarged details. Figs. 7 and 8 are also enlarged details.

This invention relates to improvements in desiccating-machines; and it consists in a casing made in two or more sections, which can be secured together, each section having a series of drying-shelves arranged to deliver the material alternately at the edge and at the center, and a section of a rotating shaft on which are stirrers, which act to agitate the material on the shelves and to convey the material to the points of delivery—either the outer edge or the center of the several shelves—the several shaft-sections being adapted to be connected together to rotate as one device, as hereinafter described, and pointed out in the claim.

In the drawings, A is a circular casing, which may be made of sheet metal. It is supported upon a base, B, which base B, as shown, is supported upon pillars C, which pillars are supported by another base, D, or in any other suitable manner.

E are floors or shelves to receive the material which is being dried. They are located within the case A, one above the other, and may be placed at any suitable distance apart, ordinarily about sixteen inches. These floors can most conveniently be made of sheet metal, and each floor, as represented, is supported upon an open-work casting, F, which has at its outer edge a flange, *a*, extending downward, and each casting F is bolted or riveted within the casing and to the wall thereof, so as to furnish a firm support for the shelves E. The lower shelf, E, is closed at the center, except that it is there provided with an opening, through which the shaft which carries the stirrers passes, and in this shelf there is an opening, through which the dried material passes into a delivery-spout, *b*. The second shelf from the bottom has a large opening, *c*, at the center, and its periphery fits closely within the casing A. The third shelf, counting from the bottom, is closed at the center, except that there is an opening, through which the shaft above mentioned passes; but this shelf is somewhat smaller in diameter than the interior diameter of the case A, leaving a space, *d*, between the periphery of the shelf and the casing. The next shelf above is open at the center, and its periphery fits within the casing, and this construction alternates through the entire series of shelves.

G is a shaft supported in suitable bearings, one of which is shown at *e* in the drawings, and the other may be connected with one of the supports F, or may be provided in any other suitable manner. When two or more sections are used, suitable bearings are to be provided in each section for that portion of the shaft G in such section. At a little distance above each shelf, as shown, is a hub, *f*, suitably secured to the shaft G. Each hub is provided, as shown, with two arms, *g*, standing at right angles with the shaft.

h are stirrers, each of which, as shown, is secured to a short shank, *i*, which shank passes through one of the arms *g*, and is held in place by means of two nuts, one above and one below the arm *g*, so that the stirrers can be vertically adjusted at pleasure by means of the nuts. Each section of the casing is provided with flanges *k*, and the sections are secured together by bolts passing through the flanges. When two or more sections are used, the shaft is to be so constructed that when the sections are together, the several pieces of shafting will be connected so as to rotate together. This can conveniently be done by providing the upper end of one section of the shafting with an angular opening, into which the lower end of the next piece of shafting shall fit, which construction is represented in Figs. 7 and 8.

H is an inlet, through which hot air is to be forced into the casing A while the drying pro-

cess is going on. As represented, the drying material passes into the delivery-spout *b*, from which it passes into a short conveyer, and is discharged through the spout *l*. The shaft G, which carries the stirrers, may be rotated in any suitable manner. As shown, this is done by means of a beveled wheel, I, which is secured to the shaft.

J is another beveled wheel upon the shaft, which drives the conveyer. The stirrers for those shelves which are not provided at their centers with openings for the passage of the material are to be so arranged upon the arms *g* that they will carry the material being dried from the center to the periphery of such shelves, and the stirrers for the remaining shelves, which have openings at the center for the passage of the material, are to be so arranged that they will carry the material from the periphery to the center of such shelves.

The operation is as follows: The material to be dried is to be delivered upon the upper shelf of the series—preferably near the center thereof—which shelf is supposed to have at its center no opening for the passage of the material, but is somewhat less in diameter than the diameter of the case, so that the material can be discharged over its periphery. Then the shaft being in motion the material will be carried gradually to the periphery of this upper shelf, and, being discharged at the periphery, will fall to the next shelf, and the stirrers for this shelf, being properly arranged, will carry the material from the periphery toward the center, and the same will be discharged at the opening at the center of this shaft, and this operation will be continued and repeated until the dried material is discharged at the spout *b*. While the drying process is going on hot air is to be forced, in any suitable manner, through the inlet H into the casing A, and this hot air will pass up through the openings at the center and periphery of the respective shelves, heating the shelves, and also passing through the material as it falls from one shelf to another. The speed with which the shaft G rotates is to be adjusted according to the length of time required to dry the material.

Making the apparatus in sections, as described, will be found a very desirable feature of construction, as driers with any required number of shelves can be easily provided simply by increasing the number of sections used. The lower shelf may be connected with the base B, if desired.

In Fig. 1 the arrows indicate the upward course of the hot air, and the material being dried passes down through the openings through which the hot air ascends. In this figure I have also shown one full section of the casing with its shelves, shaft, and stirrers; also the lower end of a second section, A′, which also has its floors, shaft, and stirrers.

What I claim as new, and desire to secure by Letters Patent, is as follows:

In a desiccating-machine, a casing made in two or more sections, adapted to be secured together, each section being provided with a series of drying-shelves, rotating shaft, and stirrers, said shaft being provided with means for connecting with the shaft in an adjoining section, as set forth, all constructed and operating substantially as and for the purpose specified.

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