May 26, 1925. 1,539,588

B. MÜLLER

DESICCATING VEGETABLE MATERIAL

Filed Sept. 19, 1923

Fig. 2.

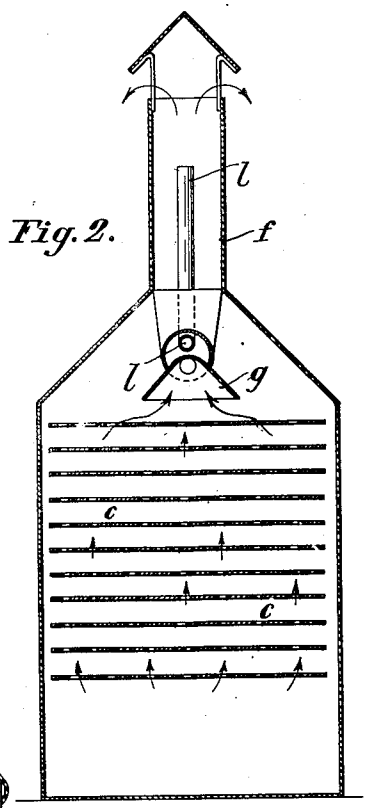
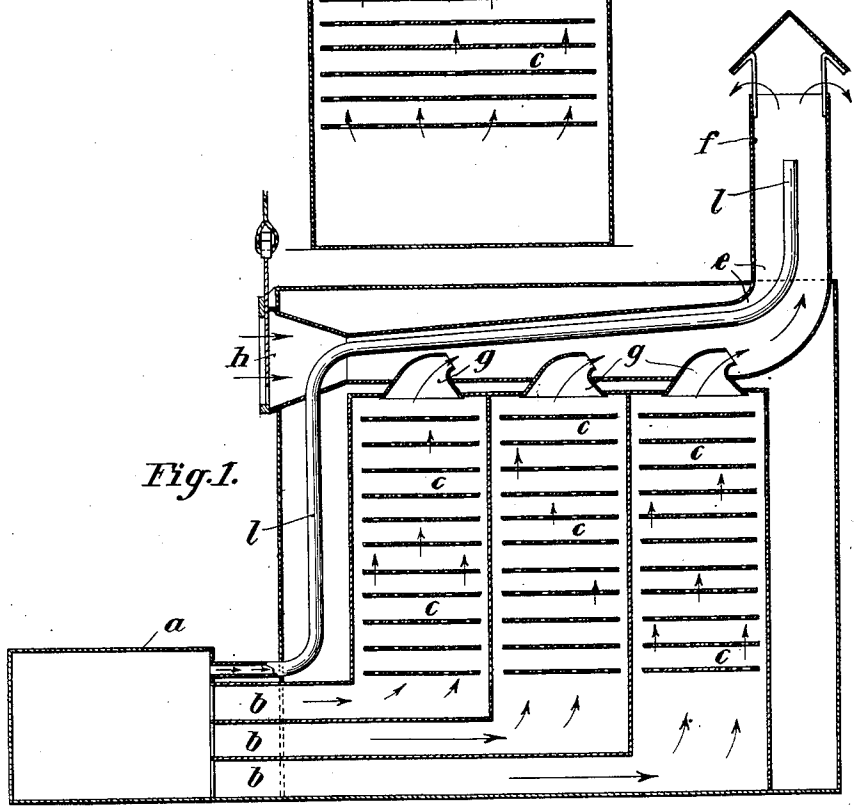


Fig. 1.



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UNITED STATES PATENT OFFICE.

BRUNO MÜLLER, OF BERLIN-NEUKOLLN, GERMANY.

DESICCATING VEGETABLE MATERIAL.

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To all whom it may concern:

Be it known that I, BRUNO MÜLLER, a citizen of Germany, and residing in the city of Berlin-Neukolln, Germany, 171 Weserstrasse, have invented certain new and useful Improvements in Desiccating Vegetable Material, of which the following is a specification.

This invention refers broadly to means for increasing the rate of flow of the air discharged from drying and desiccating chambers and the like, and it is particularly intended to increase the efficiency and output of that kind of drying and desiccating devices in which the movement of the drying air through the drying chamber is only effected by the natural upward flow of the heated air, and it is one of the important objects of my invention to provide for the rapid and forcible airing, venting, and discharging of water vapors in such pieces of apparatus without the necessity of employing special motive power for that purpose. Other objects and advantages of the invention will appear as the specification proceeds.

In the practice of my invention I produce an increase and reinforcement of the rate of flow of the escaping air by creating a violent aspiration preferably by means of a discharge pipe passing through the upper portion of the drying or desiccating chamber, provision being made to introduce fresh outside air into one side of said pipe which, after having been heated by the surrounding drying air leaves the other end of the discharge pipe, the suction produced in this manner facilitating the discharge of the waste air entering the discharge pipe from the drying or desiccating chamber. According to this procedure the fresh outside air is merely guided in the interior of the discharge room, and does not enter the drying chamber itself. The aspirating action for the escape of the waste air is further increased by providing nozzle shaped aspirators at the points of entrance of the waste air into the discharge pipe.

Drying and desiccating devices of the kind referred to among other uses are particularly to be employed advantageously in those cases where sun drying is not sufficiently efficacious to produce the desired output, while on the other hand the most careful drying is required, as for instance in the case of the drying of copra. Drying or desiccation in accordance with this invention is greatly approximating in efficiency the drying by insolation or sun curing. The apparatus preferably employed for the carrying out of the process according to my invention operates at reduced air pressure, thereby greatly increasing the vaporization of water, and in combination with a forcible admission of fresh air, so that the temperature is only slowly raised, and the final temperature of substantially 45 to 50 degrees centigrade, that is to say, the temperature obtained by insolation, is not exceeded by a judicious automatic regulation of the admission of air. Partial roasting or burning of the material is absolutely avoided, the resulting product, the copra for instance which has undergone the process, being rich in oil and snow white.

The invention will be further described with reference to the accompanying drawing in which Figure 1 shows by way of example and in diagrammatic manner a vertical longitudinal section through a drying apparatus embodying the principles of my invention, while Figure 2 is a vertical section at right angle to Figure 1.

The hot air produced in any suitable source of heat *a* by means of its upward pressure is distributed through the drying chambers *c* by means of the channels or passages *b*. On top of these drying chambers *c* an air conduit *e* is provided which extends through any part of the rear wall of the apparatus on the side of the source of heat *a*, and is adapted to carry a current of fresh outside air past the open ended tops of the drying chambers *c*. In view of the heat of radiation of the drying chambers the air in the conduit *e* becomes heated so as to produce a current of air which may still be increased by the introduction of hot air from a suitable source into the conduit *e* by means of the conduit *l*.

The conduit *e* is connected to the drying chambers *c* by means of hoods *g*. The hoods *g* have a nozzle shaped opening in the direction of flow of the air and opening into the conduit *e*, so that a suction or injector action and a partial vacuum is produced in the upper portions of the drying chambers *c*. The greater this underpressure, the higher will be the upward pressure of the drying air and in the same proportion the efficiency of the drying and desiccating plant will be increased. By means of slides at *h* in the

conduit *e* the velocity of flow of the current of air produced in this conduit may be increased or reduced, resulting in a corresponding variation of the amount of underpressure in the drying chambers, by which means the rate of upward pressure of the drying air may be correspondingly adjusted, so that in turn the entire process of drying or desiccation may be influenced and controlled in an adjustable manner.

It should, of course, be understood that my invention is not restricted to the particular form of apparatus and method of procedure herein shown and described as an exemplification, but it is susceptible of modifications and changes in accordance with the varying requirements of its application, and without deviating from the spirit of the invention as pointed out in the claims.

I claim:—

1. In a drying, desiccating and evaporating plant in combination, a plurality of supporting and enclosing means for the treatment of material, means for discharging waste air and vapors from said supporting and enclosing means, means associated therewith adapted for the introduction of fresh outside air into the current of waste air and vapors, heating means in the interior of said fresh-air-introducing means, and adapted to increase the draft in said fresh-air introducing means and in said waste-air-discharging means.

2. Drying apparatus, comprising a plurality of drying chambers, a casing surrounding said chambers, means for the discharge of waste air from said chambers, a fresh air conduit within said casing and communicating with said discharging means.

3. Drying apparatus, comprising a plurality of drying chambers, a heater communicating with said chambers, means for the discharge of waste air from said chambers, a fresh air conduit communicating with said discharging means, and a hot air pipe communicating with the heater and the discharging means.

4. In a drying apparatus a drying enclosure, substantially nozzle shaped venting means on said enclosure, a fresh air conduit, communicating with said venting means, and means to heat said enclosure.

5. In a drying apparatus, a drying enclosure, venting means on said enclosure, a fresh air conduit communicating with said venting means, regulating means for said conduit, and means for creating a suction in said conduit and in said enclosure.

BRUNO MÜLLER.