O. PAUCKSCH.

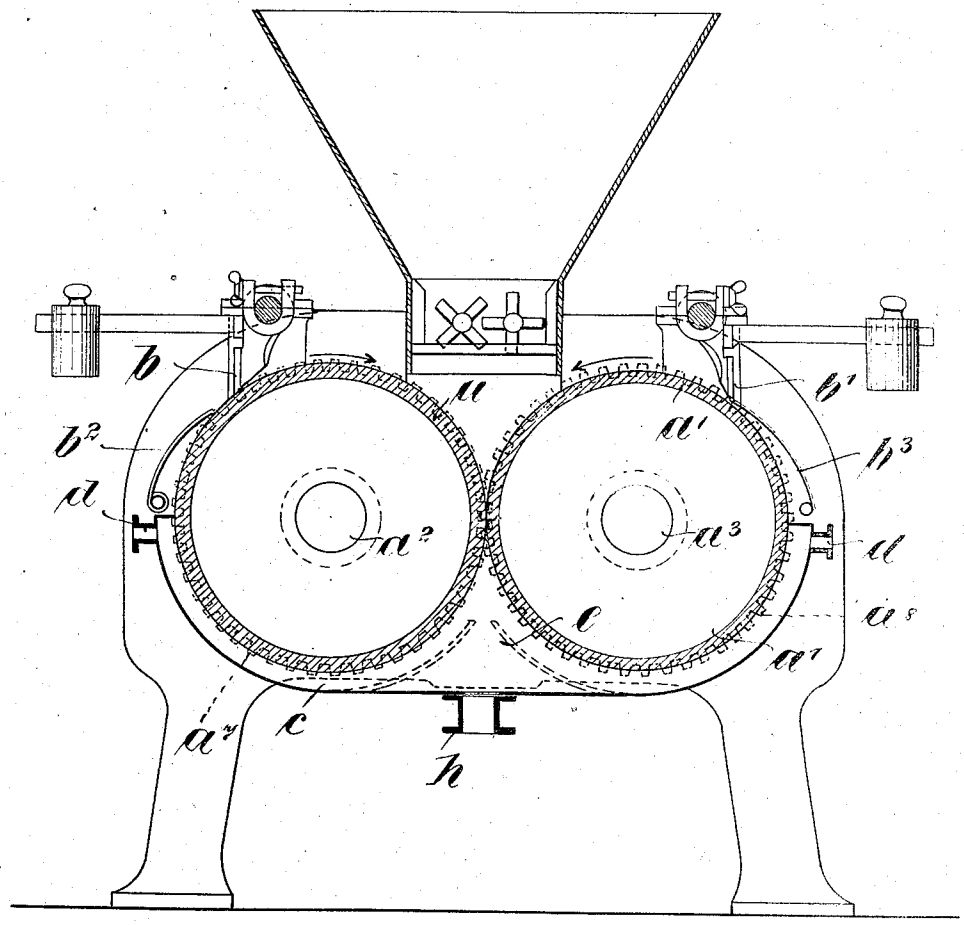
DESICCATING APPARATUS.

APPLICATION FILED JULY 18, 1908.

924,271. Patented June 8, 1909.

6 SHEETS—SHEET 1.

Fig. 1.



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6 SHEETS—SHEET 2.

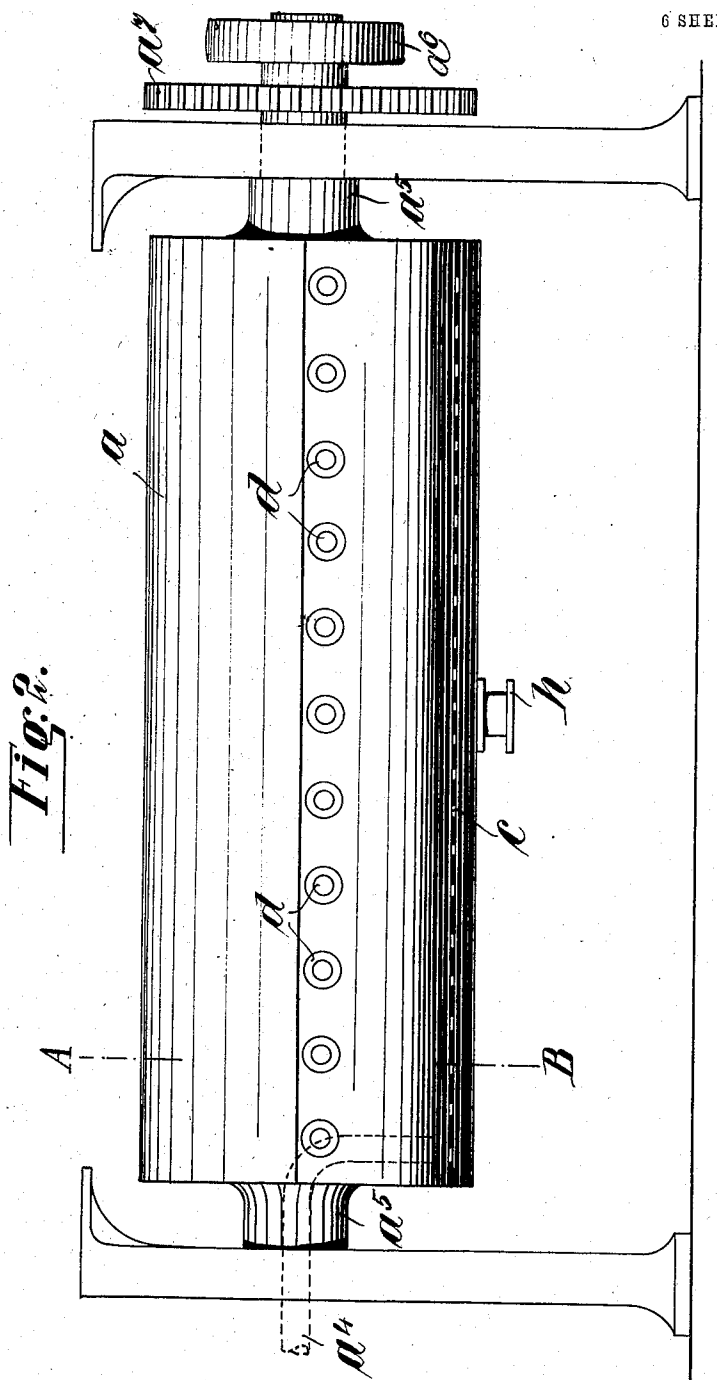


Fig. 2.

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6 SHEETS—SHEET 3.

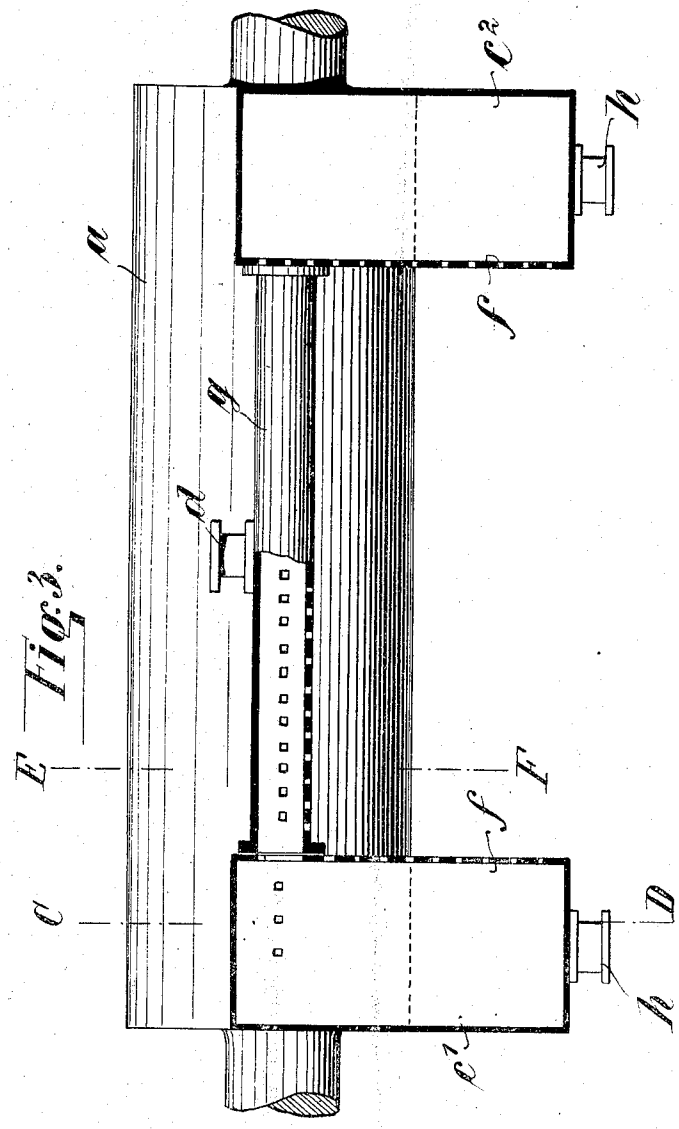


Fig. 3.

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6 SHEETS—SHEET 4.

Fig. 4.

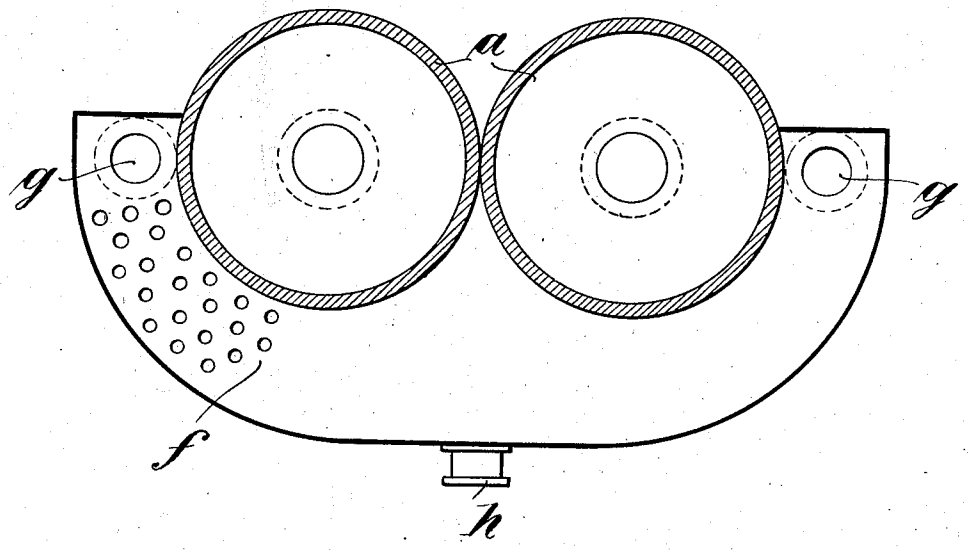
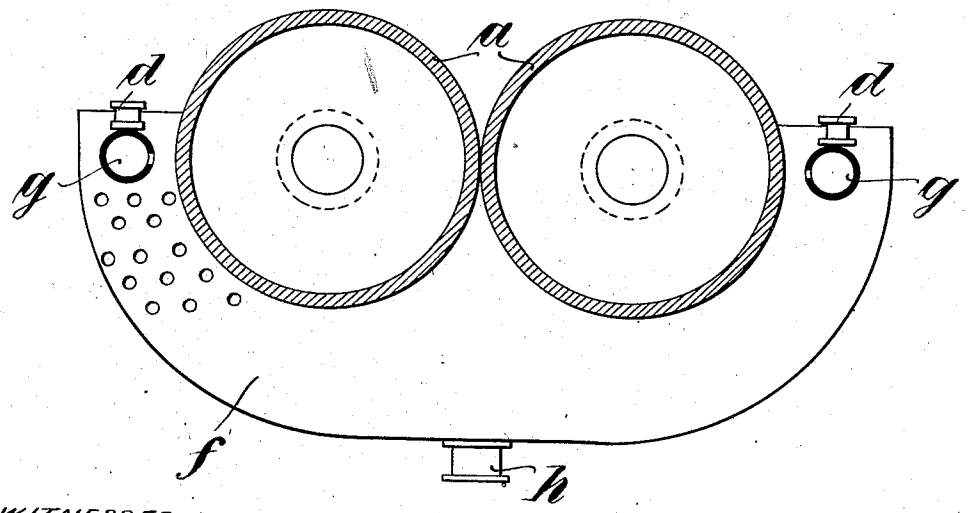


Fig. 5.



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6 SHEETS—SHEET 5.

Fig. 4.

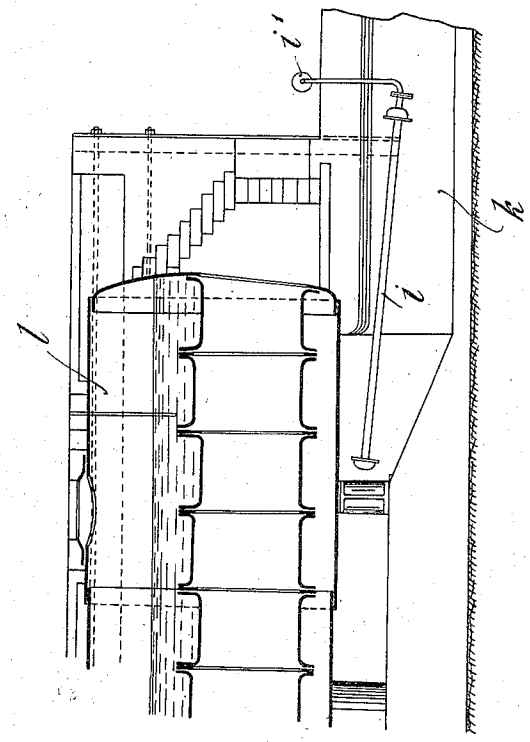
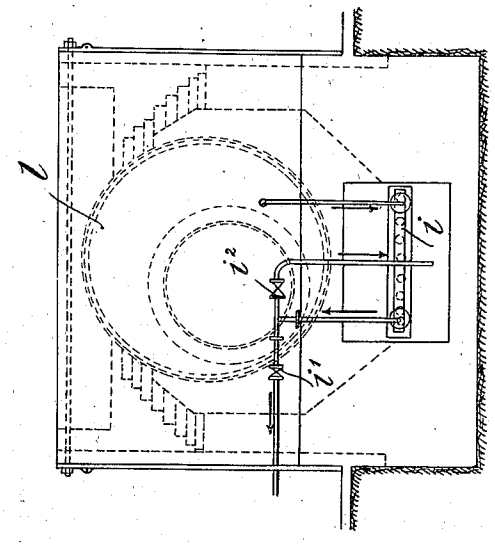


Fig. 6.



WITNESSES :

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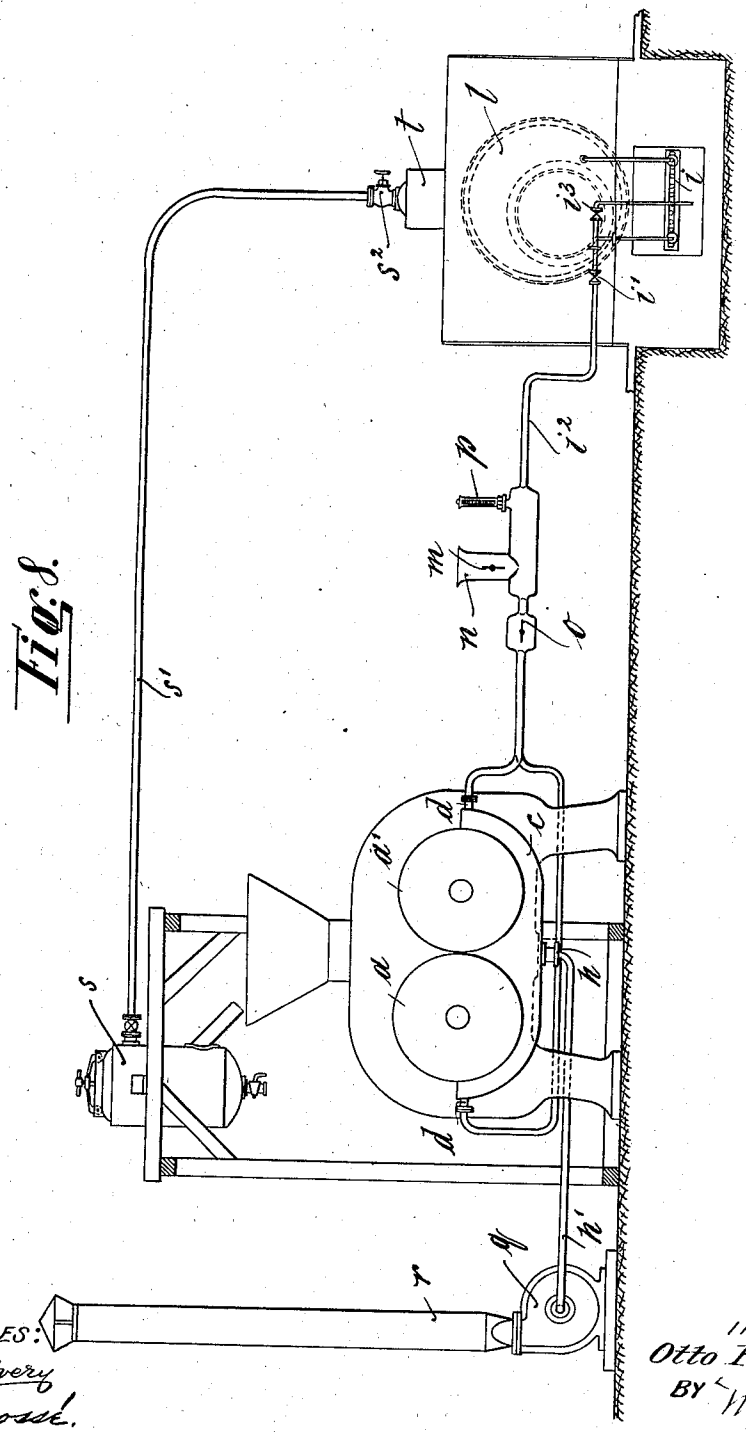
APPLICATION FILED JULY 18, 1908.

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6 SHEETS—SHEET 6.

Fig. 8.



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UNITED STATES PATENT OFFICE.

OTTO PAUCKSCH, OF BERLIN, GERMANY.

DESICCATING APPARATUS.

No. 924,271. Specification of Letters Patent. Patented June 8, 1909.

Application filed July 18, 1908. Serial No. 444,234.

To all whom it may concern:

Be it known that I, OTTO PAUCKSCH, a subject of the King of Prussia, residing at Berlin, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in Desiccating Apparatus and the Like, of which the following is a specification.

My invention relates to improvements in machines for drying potatoes, cereals and all other materials of the kind and in particular to that class of machines which are provided with a box, casing or the like underneath two heated drums, said box or casing having the object, to prevent the steam evolved by the action of the hot drums on the moist material passed between them from escaping, and to draw off this steam, so that it will not come into contact with the dried material. According to my present invention, means are provided to expose the material passed between the drums, while it is still adhering to the circumference of said drums and before it leaves said box to hot and dry air. This air enters through pipes near, or at the top of the box and is drawn off, together with the steam, through a suction pipe at the bottom of the box. By the action of this hot air all moisture is removed from the external surface of the material, which is in contact with the steam evolved, and the drying effect is consequently much increased.

In carrying out the invention it is not necessary that the box extend under the whole length of the drums, as said box can also be constructed in several divisions with perforated side walls and the hot air can be blown through a perforated pipe against the material adhering to the drums. This air will also be removed, together with the steam, by the suction in the divisions of the box.

In the accompanying drawing showing my invention by way of example:—Figure 1 is a cross section on the line A—B of Fig. 2; Fig. 2 is a side elevation of the machine shown in Fig. 1, the scrapers used in practice to remove the dried material from the drums not being shown, in order to avoid complication. Fig. 3 represents another construction, in which the box underneath the hot drums is divided into two divisions connected together by a perforated pipe. Fig. 4 is a section on line C—D of Fig. 3 looking to the right. Fig. 5 is a cross section of Fig. 3 on the line E, F but looking toward the right, a portion of the wheel f being shown as perforated. Fig. 6 is an end elevation, Fig. 7 a longitudinal section of a boiler showing a pipe coil in the flue for heating the air to be conducted into the box underneath the hot drums, and Fig. 8 shows diagrammatically how the drying apparatus and air heating apparatus are connected together.

The drums a and a^1 are preferably heated by steam of about 150° C., which is introduced through the hollow hubs a^2, a^3, while the water formed by the condensation of said steam is drawn off through the pipe a^4 (Fig. 2) which passes through the hub at the opposite end, as shown at a^5. Said drums a, a^1 are rotated by a pulley a^6, or the like, connected with the hub a^2, the rotation of the one drum being transferred by spur-wheels a^7 and a^8 to the other drum a^1.

The material to be dried is introduced between the drums a and a^1 at the top, and is carried, by reason of its adherence to the slowly rotating drums, through the box or casing c up to the knives or scrapers b, b^1, by which it is removed, falling down along the plates b^2, b^3 into a suitable receiver underneath the machine. The box c, which incloses the bottom half of each of the drums a, a^1, is provided with openings d at the top, through which hot air is conducted. Said air, which is heated, for example, by being drawn through a coil i provided in the flue k of a boiler l, passes between the outer surface of the drums and the wall of said box to the middle, being there kept in contact with said drums by the plates e. At each end of the box there is a wall f, which prevents the hot air introduced at d from escaping at the sides, and enables it to be drawn off through the suction pipe h connected to the bottom of said box. In order to prevent the coil i from being destroyed by the heat when the drying machine is not in operation the cock i^1 in the pipe i^2 leading to the opening d is closed and the cock i^3 is opened whereupon atmospheric air continuously circulates through the coil i.

The air entering at d into the box c has a higher temperature than the material to be dried at the hottest part and is in most cases between 120–130° C. The temperature of the air entering the box can be regulated by opening or closing the valve m, as by so

doing more or less atmospheric air is drawn in through the socket *n*, which is mixed with the hot air coming from the coil *i*. By means of the valve *o* the passage of the hot air to the box *c* can be cut off or regulated.

p is a thermometer by which the temperature of the hot air can be read off.

In the construction shown in Figs. 3–5 in which the casing *c* of Fig. 1 is divided into two divisions c^1 and c^2, the inner side walls *f* are perforated and said divisions are connected by a pipe *g*, which is so perforated that the hot air entering said pipe at *d* is blown against the material adhering to the drum, said air and the steam developed being drawn off through the perforated side walls *f* into the box divisions c^1, c^2, to which the suction pipe *h* is connected.

In both constructions above described the suction outlet *h* is connected by a pipe h^1 with a blower *q* or the like, by which the hot air and steam is delivered into a pipe *r*. The material to be treated in the drying machine is preferably previously steamed in a boiler *s*, which is connected by a pipe s^1 with the steam dome *t* of the boiler *l*, a cock s^2 being interposed.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A drying apparatus, comprising in combination, two drums arranged beside and approximately in contact with each other and adapted to be rotated, a box inclosing the lower portions of said drums, hot air pipes at the upper part of said box, and a suction pipe at the bottom of said box, substantially as, and for the purpose set forth.

2. A drying apparatus, comprising in combination, two drums arranged beside and approximately in contact with each other and adapted to be rotated, a box inclosing the lower portions only of said drums, an apparatus for heating air, means for introducing the air thus heated directly into said box and means for drawing off the hot air and the steam evolved in drying, substantially as and for the purpose set forth.

3. A drying apparatus, comprising in combination, two drums arranged beside and approximately in contact with each other and adapted to be rotated, a box inclosing the lower portions of said drums, means to introduce hot air around the lower part of said drums, and means to draw off the hot air and steam evolved in drying, substantially as, and for the purpose set forth.

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

OTTO PAUCKSCH.

Witnesses:

HENRY HASPER,

WOLDEMAR HAUPT.