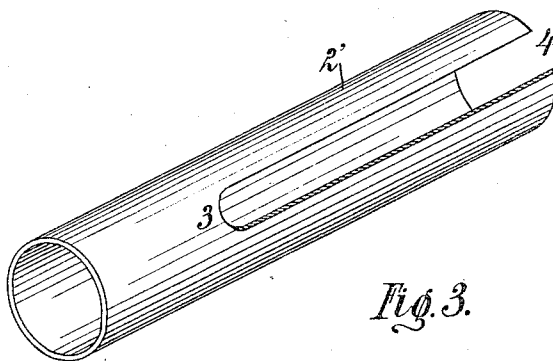
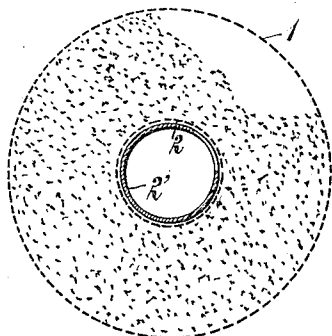
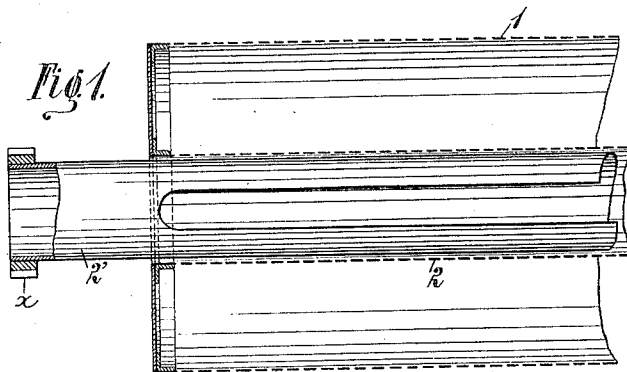


P. CHODOUNSKÝ.
 APPARATUS FOR THE GERMINATION OF GRAIN FOR MALTING.
 APPLICATION FILED JUNE 13, 1912.

1,051,196.

Patented Jan. 21, 1913.



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UNITED STATES PATENT OFFICE.

PETR CHODOUNSKÝ, OF BEZDĚKOV, AUSTRIA-HUNGARY.

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Specification of Letters Patent.

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Application filed June 13, 1912. Serial No. 703,565.

To all whom it may concern:

Be it known that I, PETR CHODOUNSKÝ, subject of the Austrian Emperor, residing at Bezdekov, in the Kingdom of Bohemia, Austro-Hungarian Empire, have invented certain new and useful Improvements in Apparatus for the Germination of Grain for Malting, of which the following is a specification.

This invention relates to improvements in apparatus for the aerating, drying, heating or cooling of grain in the process of malting and its object is to provide an improved apparatus by means of which the grain will be treated in a more uniform manner than by hitherto known devices.

In the rotary drums of kilns hitherto used in the malt industry the air for germinating, cooling, drying or heating the grain in the drum or kiln is pressed in or sucked out by a central tube. During this operation, the grain within the drum is unevenly distributed over the cross section of the drum so that it has been impossible to obtain uniform aeration and germination. At those points where the air was merely introduced and was not forced to permeate through the mass, there has been little or no cooling action effected, so that the grain has been superheated and thereby damaged. Then again without an efficient air circulation permeating the entire mass in a uniform manner there is apt to be mere heating action and no drying effect.

When the drum is used purely as a kiln for ventilating or drying the malt, the comparatively thin bed of malt on the top of the central tube soon becomes thinner and may eventually be entirely cleared away. It has been customary to provide these upper parts with removable plates or flaps so as to promote the permeation of the air in the lower parts. Such devices however, being subjected to great temperature differences, soon warp and become useless. Another drawback to these arrangements is that they are difficult to operate on account of the high temperatures employed.

The present invention consists in an arrangement of drum designed to overcome these objections and to meet all the requirements of germinating, drying and heating of the grain without necessitating or employing any elaborate or additional devices.

According to this invention, a freely ro-

tatable tube is arranged within the perforated inner tube of the known drum and this inner tube is entire with the exception of a longitudinal slot or its equivalent on that part of the tube which is arranged within the inner perforated tube of the drum.

The invention will be more readily understood from the following description of one suitable form shown by way of example in the accompanying drawings in which:

Figure 1 is a somewhat diagrammatic longitudinal sectional elevation of a drum or kiln. Fig. 2, is a cross section and Fig. 3, is a separate perspective view of the inner tube.

In carrying the invention into effect according to the form shown the usual form of perforated drum is composed of the outer perforated tube 1, and the inner perforated tube 2. Mounted within the inner perforated tube there is a rotatable tube 2' which has complete cylindrical walls with the exception of a slot 3, 4. The slot 3, 4, is arranged within the perforated tube 2, while the part projecting outside the drum in Fig. 1, has complete walls and on the outer end there is mounted a wheel α or like means for rotating the inner tube. The air is pressed in or sucked out of the tube 2'.

It will be understood that the slots 3, 4, may be formed as shown or it may be in the form of a row of holes or perforations. By means of this simple arrangement the following advantages are secured: *a.* The malt is quickly cooled or dried in a controllable manner as the entire air current may be directed with the full intensity as required at any particular part of the drum. *b.* The entrance of the air into those parts of the drum space in which there is no through draft is avoided and thereby there is no danger of the malt being super-saturated with oxygen and thereby damaged. *c.* In consequence of the rotatable arrangement of the inner tube, the malt may be aerated or cooled throughout the entire mass even when the drum itself is stationary. The grain is left in the drum at complete rest until matting sets in whereby a complete breaking up of the interior of the grains is attained. *d.* The completely controllable nature of the aerating device together with the fixed drum, prevents the formation of the striated or local germinating which has been

the characteristic disadvantage of the pneumatic malting process. *e.* The drying of the malt is effected more quickly and uniformly without damaging the germs or interfering with the normal changes as regards specific weight. There is also no ill effect on the health of the operator.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In an apparatus for the germination of grain for malting, the combination of a perforated drum, an inner perforated tube mounted in the drum and of a freely rotatable air pipe in the tube and fitting snugly the inner surface of the latter, said pipe having an opening to direct air through any

desired part of the perforated tube, substantially as described.

2. In an apparatus for the germination of grain for malting the combination of a perforated drum, an inner perforated tube mounted in the drum, a freely rotatable air pipe in the tube and fitting snugly the inner surface of the latter, said pipe having a longitudinal slot to direct air through any desired part of the perforated tube, and means for rotating the air pipe in either direction substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PETR CHODOUNSKÝ.

Witnesses:

JAN B. VOJÁČEK,
ADOLPH FISCHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."