No. 625,809. Patented May 30, 1899.

C. SCHWAGER.

MALTING APPARATUS.

(Application filed Nov. 26, 1898.)

(No Model.)

FIG. I.

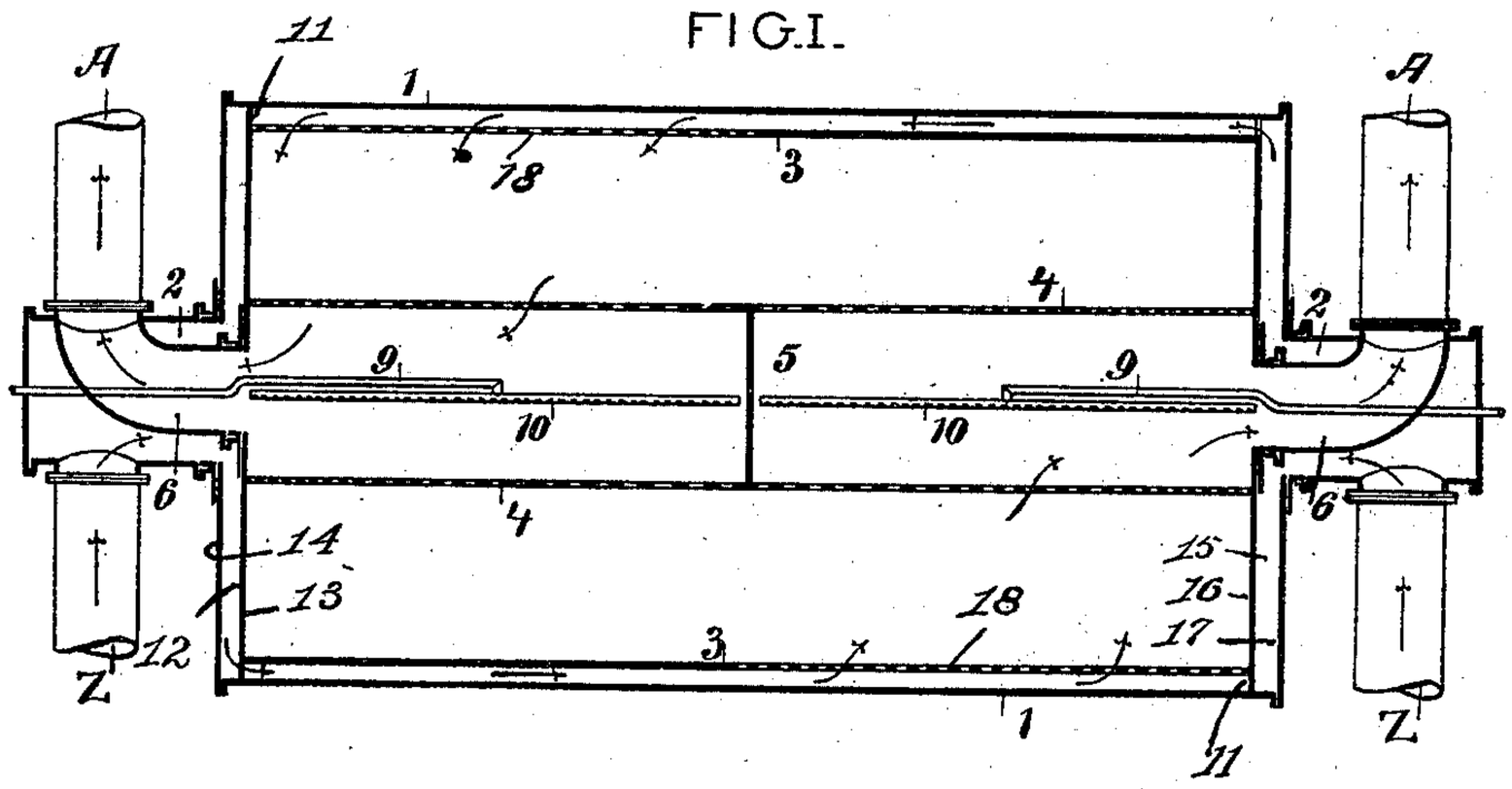
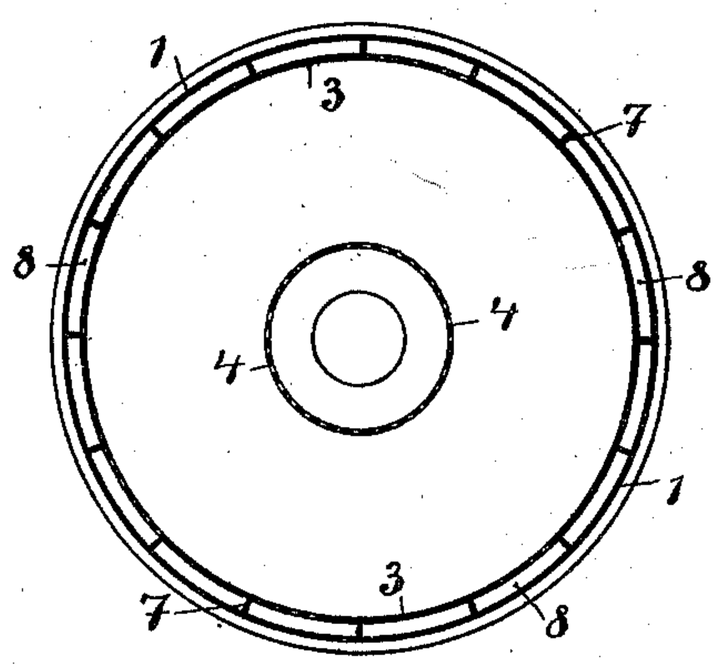


FIG. II.



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UNITED STATES PATENT OFFICE.

CONRAD SCHWAGER, OF CHARLOTTENBURG, GERMANY.

MALTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 625,809, dated May 30, 1899.

Application filed November 26, 1898. Serial No. 697,507. (No model.)

To all whom it may concern:

Be it known that I, CONRAD SCHWAGER, a subject of the Emperor of Germany, and a resident of Charlottenburg, Germany, have invented certain new and useful Improvements in Malting Apparatus, of which the following is a specification.

This invention relates to malting apparatus in which a rotary drum is used, with means for causing a circulation or passage of air therethrough; and its object is more especially to so arrange the air passages and ducts that the whole bulk of the malt may be more equally and uniformly reached and treated by the air. Usually the air has been introduced at one end and exhausted at the other end, and since in its passage through the drum it pursues the shortest or easiest way between its entrance and outlet a large part of the contents of the drum has been insufficiently supplied with air-current. To obviate this inconvenience, the present invention consists in a construction by which air is introduced simultaneously from both ends of the drum, caused to traverse the bulk of the malt, and again exhausted at both ends of the drum.

In the annexed drawings, Figure 1 is a longitudinal section, and Fig. 2 a cross-section, of a drum provided with this construction for causing the air-currents to follow the course desired.

The drum consists of the exterior cylinder 1, closed at the ends by heads and journaled to revolve on or about the stationary tubes 2 2, which communicate with the interior of cylinder 1, of the interior cylinder 3, closed by two heads and journaled to revolve on or about the stationary tubes 6 6, which lie within the tubes 2 2 and communicate with the interior of cylinder 3, and of the perforated cylinder or tube 4, concentric with and fixed in cylinder 3 and dividing the latter into an outer annular chamber for receiving the malt or grain and a central tube which serves as an air-passage.

The cylinders 1 and 3 are connected together by partitions 7, which lie each in a plane containing the axis of the cylinders and extend the whole length of the cylinder 3 and from the exterior of the latter to the interior surface of cylinder 1. These walls 7 thus divide the annular space between the cylinders 1 and 3 into a plurality of longitudinal passages 8. These passages 8 are each closed at one end only, as shown at 11, but the closures 11 are alternately at the one and the other end of the drum, so that the passages 8 communicate alternately with the space 12 between the heads 13 and 14 at one end of the drum and the space 15 between the heads 16 and 17 at the other end of the drum. Under each passage-way 8 the cylinder 3 is perforated with small perforations, the area of the perforated part 18 extending along the passage-way for half its length, or thereabout, from its closed end 11. The central tubular part 4 is divided transversely by a solid partition 5, which divides the interior of the part 4 into two compartments of equal length, or substantially so.

10 10 represent perforated pipes extending along the two compartments, respectively, of the tubes 4, and 9 9 are pipes communicating with said perforated pipes 10 for supplying water to them for irrigating the malt.

It will be obvious that with the above-described construction the air may be passed through the malt as follows: Entering at both ends at *z z*, it passes through the tubes 2 2 into the spaces 12 15 and into the passages 8 8 from alternate ends. From the passages 8 it passes through the perforated parts 18 of drum 3, that from space 12 passing into the right half of the drum 3 and that from space 15 into the left half of drum 3. Traversing the malt it passes into the two compartments of tube 4, through the perforated wall thereof, and thence right and left through the tubes 6 6 to outlets A. The air may also follow the above-described course, but in the contrary direction, entering at A A and passing out at *z z*.

I claim as my invention—

1. The combination with a malting-drum of air passage-ways extending along the wall of said drum alternately from the one and other end thereof and having communication with the interior of the drum in the half of their length remote from the end whence they extend and a central perforated tube in said drum having a transverse partition dividing said tube into two compartments having communication respectively with air-ducts at each end of the drum for the purpose set forth.

2. The combination with a malting-drum consisting of concentric cylinders 1 3 of partitions 7 connecting cylinders 1 and 3 and dividing the space between them into longitudinal passage-ways 8 having communication alternately with the spaces 12 and 15 between the heads of cylinders 1 and 3, the cylinder 3 being perforated along part of the length of each passage 8 remote from its communicating space 12 or 15 respectively a central perforated tube 4 in said cylinder 3, a transverse partition 5 in tube 4, tubes 2 2 communicating with spaces 12 15 respectively and tubes 6 6 communicating with the two ends of tube 4 respectively.

In witness whereof I have signed this specification in the presence of two witnesses.

CONRAD SCHWAGER.

Witnesses:
E. L. GOLDSCHMIDT,
HENRY HASPER.