

UNITED STATES PATENT OFFICE.

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MALTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 485,986, dated November 8, 1892.

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To all whom it may concern:

Be it known that I, JULES SALADIN, a citizen of France, and a resident of Nancy, in the Department of Meurthe-et-Moselle, France, have invented a new and useful Improvement in Malting Apparatus, of which the following is a specification.

My invention relates to a novel means for moistening grain during the process of malting and germination and for effecting the aeration of the grain for the purpose of promoting the germinating process.

The invention consists, to these ends, in combining with means for moistening the grain devices whereby air, gas, or a mixture of gases with or without air may be driven through the mass of the grain as it lies upon the floor, the apparatus being so arranged that the moistening of the grain may take place simultaneously with the aeration, either one or both being effected by those devices, which are used to turn the grain or stir it during the process of "flooring."

The invention consists in the parts and combination of parts hereinafter fully described, and then particularly pointed out in the claim.

To enable those skilled in the art to understand and practice said invention, I will proceed to describe in detail an apparatus in which the same is embodied in two different forms, one relating to the manual devices for stirring the grain and the other to the automatic mechanism employed for the same purpose.

The figure of the drawing is a sectional elevation of an automatic turning and stirring mechanism having my invention embodied therein.

In the said drawing the reference-letter C indicates a helix or spiral formed of a thin piece of sheet metal or other suitable material and mounted upon the mechanical stirrer or turning device of the kind used in malting establishments. This device consists of a shaft or arbor B, vertically arranged, which is turned by a worm-gear B', operated by a worm-shaft. (Not shown in the drawing.) The arbor or shaft B is bored or drilled out axially throughout the upper part of its length to form a chamber with which a tube B² has connection, said tube being introduced at its end

into a suitable opening from the chamber in the shaft. The chamber with which said tube communicates is supplied with air or other fluid or with a mixture of water and air or gas from a reservoir D, located at any convenient point. The tube B² is either flexible or is provided with a flexible section to permit the necessary movement of the arbor or shaft B. The reservoir D communicates with a pressure-reservoir, from which a suitable pressure is communicated, either by air or fluid under compression, to the interior of the flexible rubber tube B², communicating with the axial passage in the shaft.

I have shown in the drawing a series of discharge-terminals T, which have communication with a tube C', arranged to follow the spiral line of the helix C, close to the shaft. I prefer, however, to employ a spiral enlargement T', formed upon the helix C, close to the shaft and having an interior passage, which is filled with fluid from the passage in the upper part of the shaft. At suitable points in this enlargement T', I form small openings t, through which the contents of the interior passage are discharged, the openings being of such size and construction as to convert the discharging-currents to the form of a fine spray. I may employ two or more fluids with this construction, mingled together, or a mixture of a fluid, such as water, with air or with any suitable gases. In this manner grain throughout its mass will be thoroughly stirred and at the same time impregnated in all its parts with fluid injected by the devices described, the moistening being substantially uniform in every portion of the grain.

As the terminals or injecting devices which I employ for the injection or spraying of the liquids used are usually of very small diameter, it is well to employ only water which has been filtered or to apply a filter either in the tube or at some suitable point by which foreign impurities shall be removed from the water before it reaches the discharge-openings. Otherwise there will be danger that these openings will be constantly clogged, as substances which are usually not perceived by the eye will seriously obstruct these minute openings and will rapidly accumulate and soon block the same completely. Such a filter, if used, should also be easily detachable