

UNITED STATES PATENT OFFICE.

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MEANS FOR REMOVING YEAST FROM FERMENTING WHISKY-MASH.

No. 888,627.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OTTO G. LUYTIES, a citizen of the United States of America, and a resident of the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Means for Removing Yeast from Fermenting Whisky-Mash, of which the following is a specification.

My invention relates to an improved means for removing the yeast-containing foam from the surface of fermenting mash, and from the tank containing the same.

My invention has for its object a means whereby the foam may be removed easily and expeditiously by a single operator without being lifted over the edge of the tank or requiring any receiving apparatus or other equipment near the top of the tank.

I accomplish the objects of my invention by means of a vertical tube located within the tank, terminating at its upper end above the level of the mash in an open funnel, and connected through the bottom of the tank with a tubular extension to a runway for the foam to an apparatus for separating and recovering the yeast. The tube is made telescopic within the tank, whereby during the early part of the fermentation the funnel may be maintained at a level above the foam, and when it is desired to remove the foam, may be lowered through the foam to about the level of the mash. In connection with the tubular off-take for the foam I provide a fixed guide and a rotatable skimming device in the form of a board or paddle pivoted centrally of the tank and so positioned with respect to the off-take tube that upon a single complete rotation of the paddle all the foam on the mash will be forced and guided into the off-take. I have provided special means hereinafter to be described, for attaching and adjusting the skimming device and for guiding the foam to the off-take.

By means of my invention a single operator, by walking around the top of the tank carrying the free end of the skimmer with him, may, without any effort and in an insignificant space of time, completely clear the top of the fermenter of foam.

Having set forth the objects and nature of my invention I will now describe the same in detail in connection with the accompanying drawings, in which,—

Figure I is a view in sectional elevation, showing two or more alined tanks equipped with funnels, telescopic tubes and a common

drain according to my invention. Fig. II is an enlarged detail top plan view of my foam-removing apparatus. Fig. III is a detail view in elevation, showing the means for attaching the foam-removing paddle to the tank and for vertically adjusting the same.

Referring to the drawings, and particularly to Fig. 1, a number of tanks, 1, are shown as in communication through their bottoms with pipes 2, leading to drain 3, through which water passes to yeast-separating apparatus. Within the tanks and near the sides thereof, as shown in Fig. 2, are vertical telescopic tubes 4, connected at their lower ends with pipes 2, and terminating at their upper ends in a flared portion or funnel 5. The telescopic joint 6, of the tube 4, is suitably stuffed to prevent leakage into the tubes of the mash in the tanks 1, and the joint at the bottom of the tube 4 with the pipe 2 is also suitably packed to prevent leakage from the tank or tube at this point.

Referring to Figs. 2 and 3, there is shown a bar 7, adapted to be clamped as at 8 and 9 to the upper edge of the wall of the tank. Located centrally of the bar 7, is a rod or shaft 10, and pivotally mounted on suitable bearings 11 and 12 on the shaft 10 is a board or paddle 13. Suitable adjusting means as indicated at 10', are provided for determining the elevation of the paddle 13, or its position with respect to the supporting bar 7. Also supported preferably in suitable bearings on the shaft 10 is a guide 14, which, when the bar 7 is in place is adapted to be swung into the position shown in Fig. 2, and by means of a suitable retaining device, as for instance a spring latch 15, held in such position during the skimming operation. The paddle 13 is preferably jointed or of the shape shown in Fig. 2. By virtue of this jointed construction the outer end 16 of the paddle may be held snugly against the side of the tank.

Operation: Tanks of the character described are usually required by law to have a space of from five to twenty inches between the upper level of the mash and the top of the tank; this space is indicated in Fig. I. During the fermentation process, the tube 4 of my invention is so extended that the funnel portion 5 protrudes above the level of the mash, the sides of the tank being often temporarily heightened by the use of tins. During the fermentation the foam collects above the level of the mash. When the yeast is

ripe, or it is desired to remove the foam, the funnel 5 is forced down through the foam almost to the level of the mash. The bar 7 is then clamped in position as shown in Fig. 5 II, and the elevation of the paddles suitably adjusted according to the level of the foam. The guide 14 is then latched in place near the off-take 4. The operator then turning the paddle 13 back against the paddle 14, seizes the paddle 13, and holding the end 16 of the paddle snugly against the inside of the tank, walks with the paddle around the platform at the top of the tank. In revolving, the paddle forces in front of it the foam until the latter is brought to the funnel 5 of the off-take and is carried away.

The apparatus shown and described may be, of course, modified in many respects. The bar 7, and its attachments might be permanently fixed to the tank.

Various other means for adjusting the height of the guide and paddle, and other forms of its members might be used. These modifications are all apparent and fall within the scope of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is;

1. In a device of the character described, in combination with a tank, an off-take adapted to remove the foam from the surface of the liquid, a guide for the foam and a cooperating movable paddle.

2. In a device of the character described, in combination with a tank an off-take for foam, a bar extending across the top of the tank, a guide attached to the bar and disposed near the off-take, and a skimmer

pivoted to the bar adapted in conjunction with the guide to force foam into the off-take. 40

3. In a device of the character described, in combination with a tank a telescopic tube therein to conduct foam from liquid in the tank, a bar extending across the top of the tank, a guide disposed near the tube, and a skimmer pivoted to the bar adapted in conjunction with the guide to force the foam into the tube. 45

4. In a device of the character described, in combination with a tank an off-take adapted to be adjusted as to height, a stationary guide to the off-take, and a cooperating movable paddle. 50

5. In a device of the character described, in combination with a tank an off-take, means for adjusting the height of said off-take, a stationary guide, and a cooperating movable paddle, said guide and said paddle being composed of a plurality of pivotally connected members. 55 60

6. In a device of the character described, in combination with a tank an off-take, a bar or frame removably secured to the tank and of which the off-take is independent, a normally fixed adjustable guide secured at one end to the bar and at the other end to the tank and composed of a plurality of pivotally connected members, and a cooperating movable guide pivoted to the bar, substantially as described. 65 70

Signed by me at Baltimore, Maryland, this 12th day of November, 1906.

OTTO G. LUYTIES.

Witnesses:

W. W. POWELL,
L. H. LATHAM.