

A. DIERYCKX.
Mashing-Machine.

No. 225,213.

Patented Mar. 9, 1880.

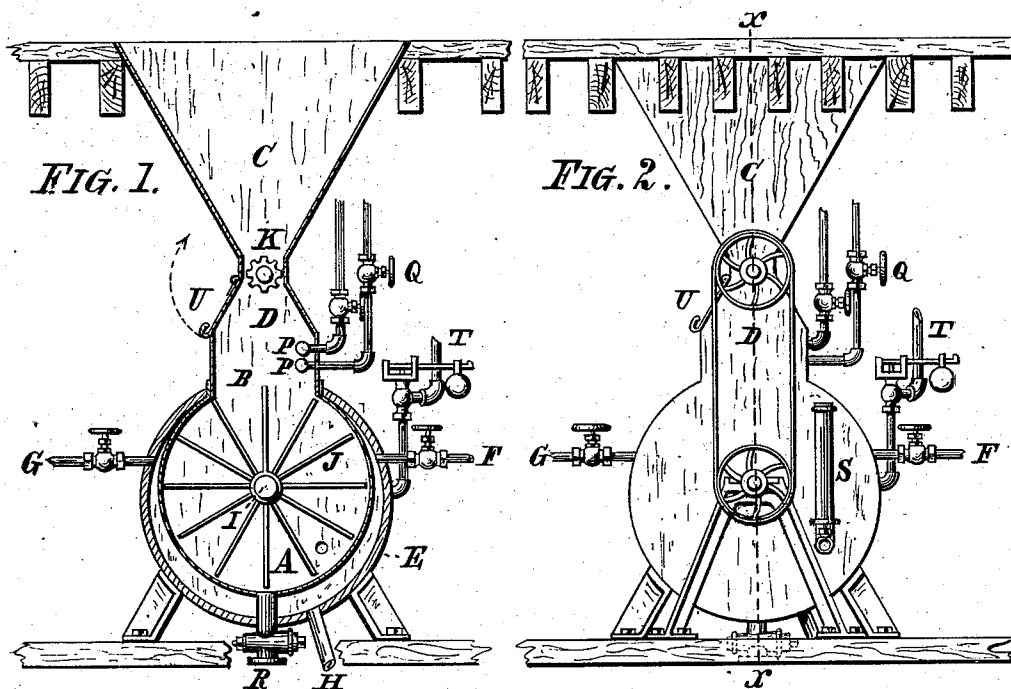
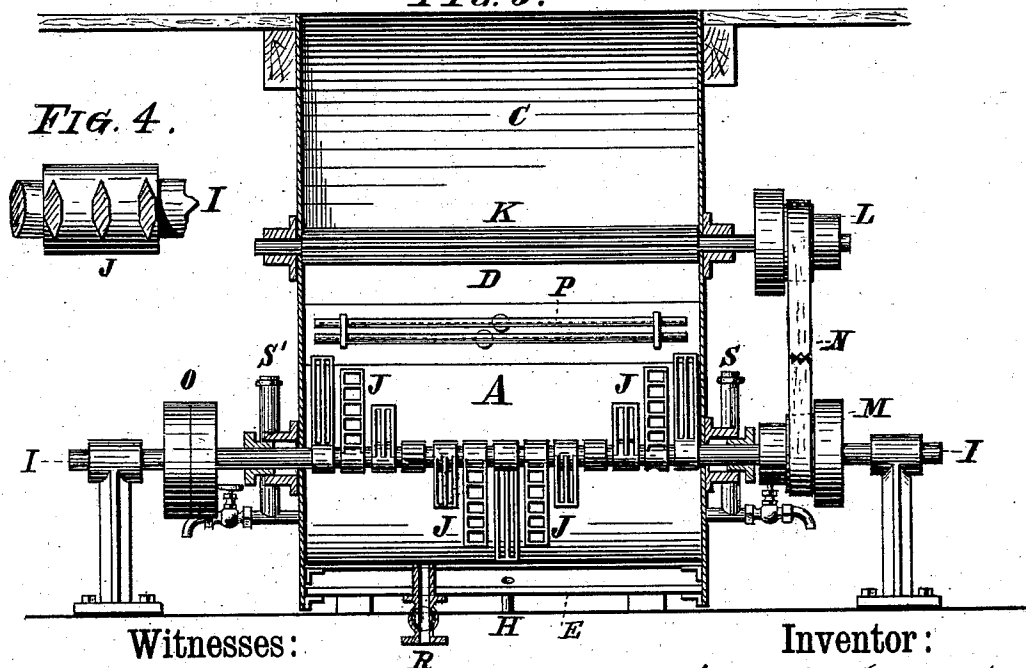


FIG. 3.



Witnesses:

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Attorney.

UNITED STATES PATENT OFFICE.

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MASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 225,213, dated March 9, 1880.

Application filed January 6, 1880.

To all whom it may concern:

Be it known that I, ADOLPH DIERYCKX, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements on a Mashing-Machine; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to mash-tubs for distilling purposes; and it consists in the peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already referred to, Figure 1 is a transverse sectional elevation. Fig. 2 is a side elevation. Fig. 3 is a longitudinal sectional elevation in line *x x* of Fig. 2; and Fig. 4 is a sectional view of the wings or agitators.

Like parts are designated by corresponding letters of reference in all the figures.

A in these drawings designates the mash-tub. It is of cylindrical form, and placed with its longitudinal axis in a horizontal position. Its upper part is open at B to communicate with a hopper, C, by means of a neck, D. This mash-tub is surrounded by a jacket, E, also of cylindrical form, but placed eccentric to the tub A, so as to produce a space between said jacket and tub that is wider on the lower than on the upper sides. This space serves as a heating-compartment for the mash-tub, it being in communication with a steam-generator through the inlet-pipe F. It is furthermore provided with an exit-pipe, G, leading off the exhaust-steam, and with a discharge-pipe, H, to drain the apparatus of condensed water. Within the tub A is placed a shaft, I, having a series of open wings or beaters, J, spirally disposed, said beaters having a sectional area, as shown in Fig. 4, to facilitate their passage through the mash. Into the neck D is placed a fluted roller, K, corresponding in length with that of said neck, and also with the mash-tub. It is rotated at a slow gait by means of a pulley, L, receiving motion from a pulley, M, placed upon the shaft I, by

means of a belt, N, the shaft I being rotated by means of pulleys or other similar contrivance, O, in any suitable manner. Within the neck D, and below the fluted roller K, are placed a series of supply-pipes, P, perforated throughout their entire length, they being provided with suitable stop-cocks Q to regulate the admission of water into the mash-tub. Into the lower part of said tub is placed a discharge-pipe, R, provided with a suitable stop-cock, as shown, to empty the tub of its contents when the mashing process is completed. On the sides of the apparatus are placed test-tubes S S', to facilitate the examination of the contents of the tub during mashing and saccharification, and to ascertain the degree of heat of the mash in the interior by means of a thermometer.

In operation the meal is introduced into the tub A from the hopper C, through the fluted roller K, in fixed and predetermined quantities, which may be varied by changing the belt on the cone-pulleys L M for those shown. At the same time warm or cold water, or both, are turned on to furnish a supply of liquid issuing in fine sprays from the pipes P, which sprays, meeting the descending meal in the neck D, mingle with and dilute the meal, which then drops into the tub to be thoroughly agitated by the wings or beaters J.

It will be readily observed that by the introduction of steam through the supply-pipe F the contents of the mash-tub are raised to and kept at the proper temperature during the mashing and saccharification processes, after which the same are drawn off through the discharge-pipe R. Any water of condensation accumulating in the steam-chamber is drawn through the waste-pipe H.

One of the most important features, aside from the general construction of my improved mashing apparatus, is that on account of the introduction of the fluted roller K the supply of meal is perfectly graduated and delivered in fixed quantities, which may be varied by changing the speed of said roller.

It will be readily observed that the delivery of the meal to the mash-tub in fixed quantities takes place in the following manner: The roller K, fitting the neck D on all sides, obstructs the passage between the hopper and

the tub. Now, as this roller revolves its flutes above its horizontal center line pass through the hopper and fill with meal, while those below the horizontal line, being toward the neck, cannot retain said meal, which therefore drops by gravitation into the apparatus. Thus a continuous feeding takes place, the quantity of which increases with the number of revolutions of the roller in a given time.

Another very essential feature is the introduction of the water in fine sprays through the pipes P, which practice has demonstrated to be the most successful manner of delivering the water, and the dilution being accomplished in the neck of the apparatus, superior results are obtained, which are in full accord with the theories of Pasteur and Payen, the highest authorities in this branch of the sciences.

Mashing-machines having revolving beaters and a spray of water for producing the dilution of the meal and means for gradually raising the temperature of the saccharifying mass by means of steam have heretofore been used, in which these features were more or less combined. I do, therefore, not broadly claim such combination of devices for attaining the various results described; but

I do claim as new and desire to secure to me by Letters Patent of the United States—

1. In a mashing-machine, the single-fluted roller K, operating within the neck D of the mash-tub A, said roller being rotated at a slow speed by the pulleys M L and belt N, and closely fitting said neck on all sides, substantially as and for the purpose stated.

2. In a mashing-machine, the combination, with the cylindrical mash-tub A, having the neck D and a steam-jacket, as described, of the fluted roller K, placed, operating, and closely fitting within said neck, the shaft I, having the spirally-arranged agitators J, and the water-supply pipes P, located in the contracted portion B of said tub A, and provided with a series of small apertures, as and for the object stated.

3. The combination, substantially as described, of the tub A, surrounded by a steam-space, the revolving agitators, and the test tube or tubes S, whereby the contents of said tub can be examined during the operation of the apparatus, as described.

In testimony that I claim the foregoing as my invention I have hereto set my hand and affixed my seal in the presence of two subscribing witnesses.

A. DIERYCKX. [L. S.]

Attest:

MICHAEL J. STARK,
HATTIE L. WALKER.