J. A. MILLER.

Mashing-Machine.

No. 162,248. Patented April 20, 1875.

Fig I.

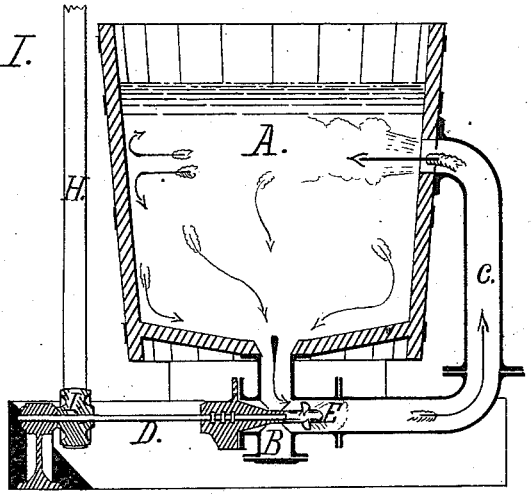


Fig II

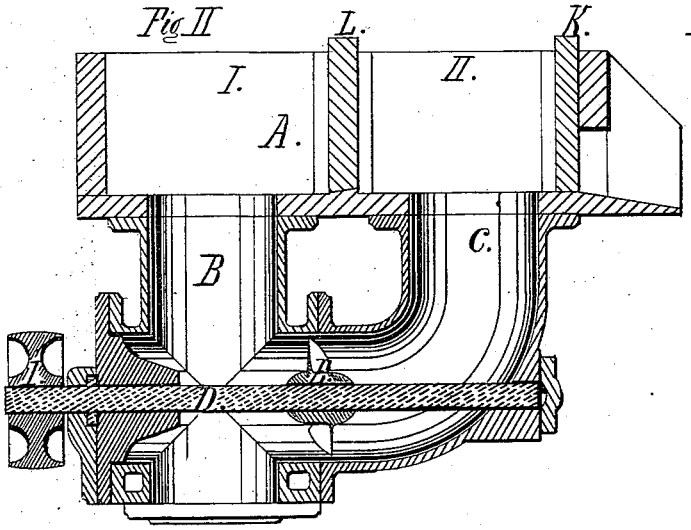
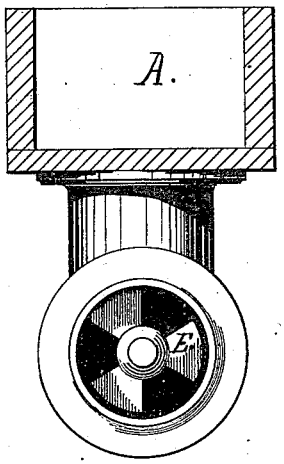


Fig III.



Witnesses

Henry J. Miller

Joseph A. Miller Jr.

Inventor

Joseph A. Miller

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOSEPH A. MILLER, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN MASHING-MACHINES.

Specification forming part of Letters Patent No. **162,248**, dated April 20, 1875; application filed March 26, 1874.

To all whom it may concern:

Be it known that I, JOSEPH A. MILLER, of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Machinery for Mashing and Washing; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to produce a simple machine which may be attached to a mash-tub, such as is used by brewers, or to a tank for washing tallow or other matter, and which will thoroughly stir, mix, and agitate the contents of such tub or tank, and yet leave the tub or tank free from any kind of machinery.

In the accompanying drawings, Figure I is a sectional view, showing the machine attached to a mash-tub, and Fig. II showing the same as attached to a washing-tank, Fig. III being a cross-section of the same.

Similar letters of reference indicate corresponding parts.

In the ordinary mash-tub the agitating machinery is placed within the tub, thereby greatly obstructing the same. Such machinery is also complicated in construction and necessarily costly, whereas in my invention the machinery is all outside of the tub, is simple in construction, not liable to get out of order, while the tub may be readily cleaned, and, if required, may be covered, which is not the case in the older machines.

My improvement consists in placing under the funnel-shaped bottom of a mash-tub a cross-shaped pipe, B, and within the same a propeller, E. To one of the arms of this pipe the bearing-block for the propeller-shaft is secured, and to the opposite arm the pipe C is fastened, which may form an elbow, and return to the bottom of the tub near its side, or preferably may ascend upward and open into the tub on its side, as is shown in the drawing.

When the tub is filled with water and mash, and motion is imparted to the propeller, the mass in the pipe C is violently forced into the tub, and the mass in the tub flows down the pipe B to the propeller, which thoroughly churns and agitates the same, and the violent discharge from the pipe C, together, keep the whole in continuous agitation; and when the mash has been thoroughly mixed, and all particles have been thoroughly separated, so that all farinaceous matter may be easily extracted, the whole may be drawn off by the usual valve or gate placed on the bottom arm of the pipe B. The propeller may also be conveniently removed, and the whole may be thoroughly cleaned and inspected.

The same apparatus is conveniently adapted for mashing and washing minced tallow before the same is placed into the rendering-tank, and in that application I prefer a tank, as is shown in Figs. II and III, having the partition L and gate K, so as to divide the tank, when required, into two parts, 1 and 2. Into this tank tallow or other matter to be washed is placed. The partition L being raised, and the gate K closed, sufficient water is added, and motion imparted to the propeller, which, producing a violent agitation and peculiar scrubbing action both with its plates and the centrifugal action of the water and matter against the pipe C, forces the whole in continuous flow up the pipe C and down the pipe B. When, now, the matter has been sufficiently scrubbed and washed, the partition L is lowered, the gate K raised, and the material allowed either to run upon a perforated screen or into a tub having a perforated false bottom, and, while the screw-propeller is kept in motion, fresh water is run into the division I of the tank and down the pipe B until the whole is discharged. A gate may also be placed on the lower arm of the cross-pipe B, and the partition L being partly raised, and a perforated gate placed, instead of the gate K, in front of said gate, so that the dirty water may run off, and the partition L, acting as a scum-plate, will retain most of the dirty mass. When, now, fresh water is allowed to flow into the part I of the tank, and the dirty water allowed to flow off at K, the whole will in a short time be pure and clear, and may then be drawn off from the gate at the bottom of the pipe B.

The propeller is not intended to fit the pipe, but is to be of a less diameter than the inside

of the pipe; nor do I confine myself to a three-plate propeller, but also at times use more than one propeller on the same shaft.

The object of the propeller E is to scrub, mix, and disintegrate the mass subjected to its action, and not merely to act as a circulating-pump; and I do not claim the use of the propeller for moving the mass in a tank or tub from one part to the other.

Having thus described my invention, what I claim is—

The pipe B, connected with the bottom of a washing or mashing tub or tank, in combination with the propeller E, revolving within the pipe B, the other end of said pipe being connected, by the pipe C, with the tub or tank, so that the contents of the same will be subjected successively to the scrubbing, mashing, and mixing action of the propeller, substantially as and for the purpose herein set forth.

JOSEPH A. MILLER.

Witnesses:

FRANCIS A. DANIELS,

P. E. HAYES.