H. R. RANDALL.

APPARATUS FOR SEPARATING MALT EXTRACT FROM THE HUSKS OR REFUSE OF BREWER'S MASH.

No. 190,899. Patented May 15, 1877.

Fig. 1.

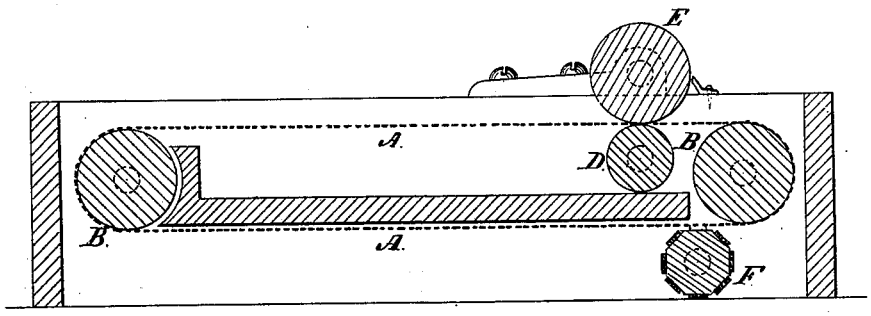


Fig. 2.

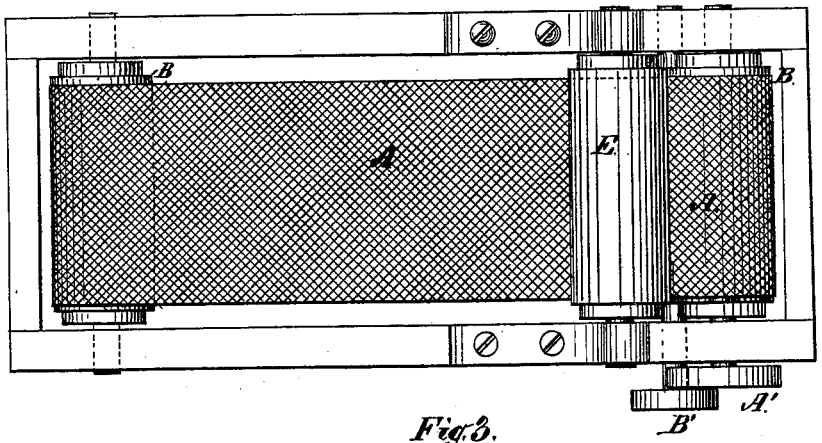
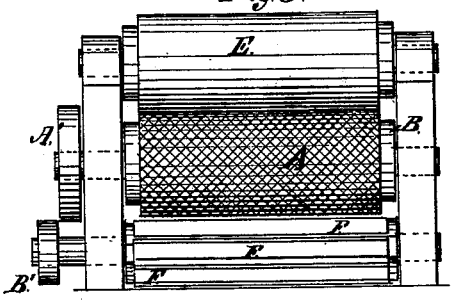


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY R. RANDALL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN APPARATUS FOR SEPARATING MALT EXTRACT FROM THE HUSKS OR REFUSE OF BREWERS' MASH.

Specification forming part of Letters Patent No. **190,899**, dated May 15, 1877; application filed May 9, 1877.

To all whom it may concern:

Be it known that I, HENRY R. RANDALL, of the city of Brooklyn, county of Kings, and State of New York, have invented certain Improvements in Separating Malt Extract from the Husks or Refuse of Brewers' Mash, of which the following is a specification:

This invention is designed for separating the malt extract or solution of glucose and dextrine resulting from the mashing process obtained by subjecting grain, malt, or starch bearing material to a mashing process; and its object is to separate such extract or solution from the husk or refuse cheaply, rapidly, and effectually, and by simple and easily-operated apparatus.

The invention consists of the combination of an endless revolving foraminous apron, a pair of pressure-rollers, a brush, and a receptacle for collecting and preserving the liquid portion which constitutes the malt extract, the whole constructed to insure the separation of the extract or liquid from the husks or refuse during the rotation of the apron and of the rollers.

Figure 1 is a central longitudinal sectional view of an apparatus employed in carrying my said invention into effect, and forming part and parcel of the same. Fig. 2 is a plan view, and Fig. 3 an end view, of said apparatus.

A is an endless apron of wire-cloth, having any requisite fineness of mesh, and supported at each end by rollers B, one of which constitutes a driving-roller to give movement to the endless apron A aforesaid, and which, for this purpose, may be furnished with a pulley, A′, or other suitable means of securing rotation.

Arranged within the apron, or, in other words, immediately underneath its upper side, is a pressure-roller, D, and coincident with this pressure-roller D, but above the just-mentioned upper side of the apron, is another pressure-roller, E. These two pressure-rollers D E are placed in such proximity that material carried thereto by the movement of the upper part of the endless apron between the said two rollers will carry any material placed upon the said upper part of the apron between said rollers, thereby subjecting the same to a great degree of compression. If desired, instead of a single pair of rollers, D E, as represented in the drawing, two or more pairs may be used, when it is desired to subject the material to several successive compressions. Arranged beneath the apron, but bearing upon the under side of the lower part of said apron, is a rotating brush, F. This rotating brush may receive its rotary motion by means of a pulley, B′, suitably attached thereto; or it may be geared either to one of the shafts of the rollers B D E, or be driven from an independent driving-shaft.

In carrying the invention into practice, the mash taken from the mash-tub, or apparatus in which the malt, grain, or other starch-bearing material has been subjected to the mashing process, is placed upon, or caused to pass upon, the upper part of the endless apron A; and the driving-roller supporting one end of the latter being rotated in the requisite direction, the endless apron is rotated continuously, its upper part traversing forward or inward between the rollers D E, and consequently carrying the mash placed upon the said apron between the said rollers, and subjecting them to such a degree of compression as to expel the extract or liquid. The extract or liquid flows down through the meshes or interstices of the endless apron, and is collected in any suitable reservoir arranged underneath the apparatus. The husks or refuse are carried through and between the rollers D E, and are either dropped off from the apron A as the latter passes around the driving-roller supporting one end thereof, or are swept off as the endless apron is carried around and in contact with the rotating brush F, the operation of the latter clearing the meshes of the wire-cloth apron A, so that as the latter are carried upward to receive the mash, as hereinbefore explained, the meshes thereof are clear and open to permit the ready passage therethrough of the extract or liquid as it is expelled from the husk or refuse.

It may be mentioned, in this connection, that a scraper, G, may be arranged in longitudinal contact with the roller E, to prevent the

mash from adhering to the surface of said roller during the operation of the apparatus.

What I claim as my invention is—

In an apparatus for separating malt extract or solution of glucose or dextrine from husks or refuse of mash, the combination of an endless revolving foraminous apron, a pair of pressure-rollers and a brush for cleaning the meshes of the apron, and a suitable receptacle for collecting and securing, for a commercial purpose, the liquid portion which constitutes the malt extract, substantially as described.

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Witnesses:
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