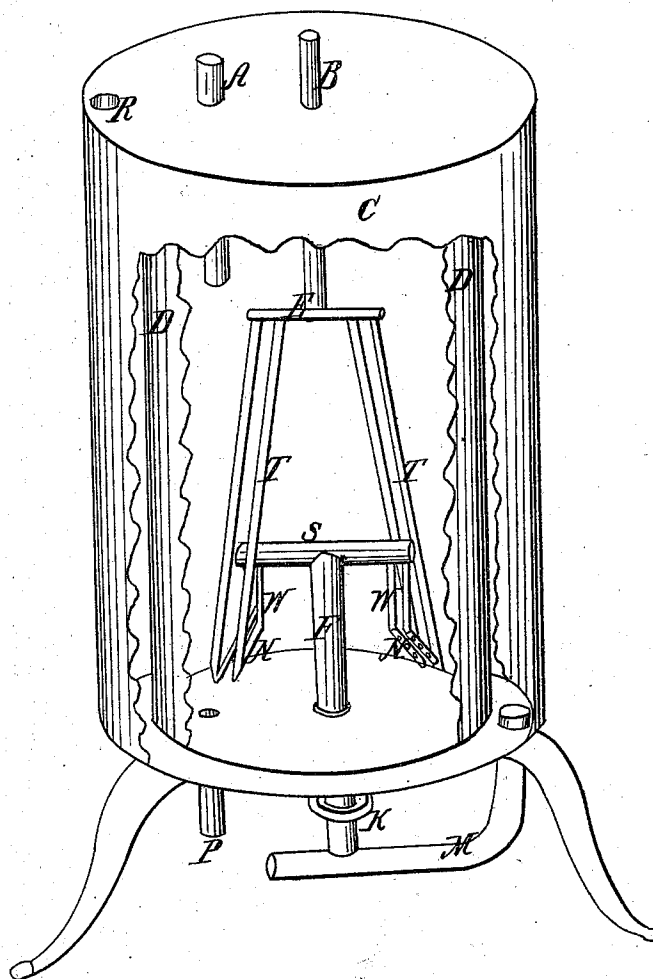


A. W. Gram,

Mash Tub.

No. 87,640.

Patented Mar. 9, 1869.



Witnesses;
S. M. Smith
E. H. Fox

Inventor;
A. W. Gram

UNITED STATES PATENT OFFICE.

ALONZO W. CRAM, OF ST. LOUIS, MISSOURI.

IMPROVED MASH-TUB AND VAPOR-COOLER.

Specification forming part of Letters Patent No. 87,640, dated March 9, 1869.

To all whom it may concern:

Be it known that I, ALONZO W. CRAM, of the city and county of St. Louis, State of Missouri, have invented a new and useful Machine for Cooling Mash and Condensing Vapor; and I do hereby declare the following to be a full and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, in which the figure is a perspective view of the machine, cut away in part to show the internal structure of the machine.

In the figure, C is a cylinder of metal. D D is another cylinder, placed inside the one C and made fast to it at the bottom.

A is a tube passing through the tops of both cylinders to the interior of D D, and is calculated to admit the vapor to be condensed.

P is another small tube, passing from the inside of D D through the bottoms of D D and C, and is intended to draw off the condensed vapor with.

R is a tube passing from the space between the two cylinders at the top of the cylinder C.

M is a pipe passing from the bottom of C, from between C and D D, underneath and in front of the machine, and is the pipe through which the cold air is blown to condense with.

F is a pipe passing loosely through the bottom of C and D D, and connects with M at the lower end, and at the upper end is connected permanently with the cross-tube S, which is connected with the tubes W W. These tubes have joints N N, which joints have holes, as seen at N, and may be closed when you wish to condense vapor, but left open when you wish to use the machine for cooling mash.

To these joints are connected the tubes T T, which connect to the cross-piece E, to which is connected the tube B, which passes through the top of the cylinder C. This whole series of tubes is caused to revolve by the wheel K, made fast to the lower end of the tube F.

Now, in order to condense vapor, blow air in at the tube M, which will fill the series of tubes W W, N N, F, S, T T, E, and B, also the cavity between the cylinders C and D D. In this case the holes at the joints N N must be closed, and the vapor is passed in at the tube A. When the machine is used in cooling mash the holes at the joints N N are opened, and the air is introduced, as before, through the tube M, and the series of tubes attached to F is set in motion by the wheel K and stirs the mash, at the same time cooling it.

Now, what I claim, and for which I ask Letters Patent of the United States to be granted me, is—

1. The construction of the revolving tubes S, F, N N, W W, T T, E, and B, as above described, and for the purposes set forth.

2. The construction of the two cylinders D D and C, in combination with each other and in combination with the tubes M, R, and A, as above described, and for the purposes set forth.

3. The combination of the cylinders C and D D, together with the series of tubes F, N N, W W, S, T T, E, and B, as above described, and for the purposes set forth.

ALONZO W. CRAM.

Witnesses:

S. M. SMITH,
C. H. POOR.