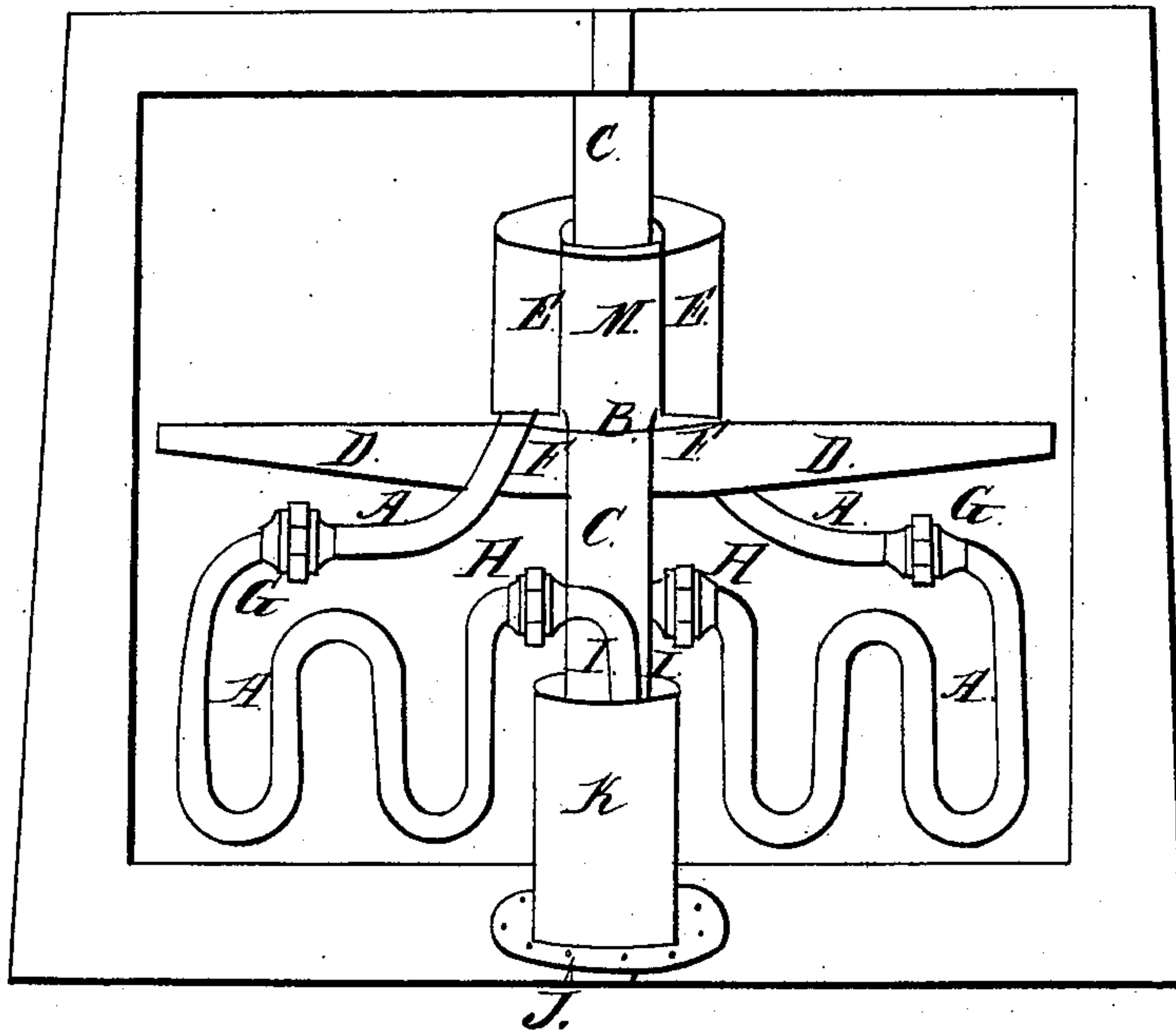


A. D. WARD.
MASH COOLER.

No. 1,850.

Patented Nov. 7, 1840.



Witnesses:
J. J. Anderson
R. G. Haskins

Inventor:
A. D. Ward

UNITED STATES PATENT OFFICE.

ALLEN D. WARD, OF MINERVA, KENTUCKY.

MODE OF COOLING THE MASH USED IN THE PROCESS OF DISTILLATION, &c.

Specification of Letters Patent No. 1,850, dated November 7, 1840.

To all whom it may concern:

Be it known that I, A. D. WARD, of Minerva, in the county of Mason and Commonwealth of Kentucky, have invented a new and useful Machine for Cooling Mash in Distilling Operations, which I call a "Mash-Cooler"; and I do hereby certify and declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings.

Taking the ordinary form of the "mash rake," which is sufficiently indicated by the annexed drawings with the exception of the teeth of the same (which cannot be shown as they stand immediately behind the prongs of the serpentine pipes lettered *a*,) at the junction of the shaft *c*, and cross beam *d*, on the top of the latter and attached to it, that is to say the cross beam *d*, at the point lettered *b*, is placed a circular water receiver (*e*); to this receiver (*e*) then, on either side at the point (*f*) are attached pipes *a*, *a*, *a*, communicating therewith, which said pipes *a*, *a*, *a*, after descending in a standing position beneath the beam *d*, take almost a horizontal direction toward either extremity of said beam to the points marked *g*, *g*, where they are connected at said points by couplings (*g*) (*g*,) with two other serpentine pipes which are also lettered *a*, *a*, of the form and fashion indicated by the drawings, which two latter serpentine pipes *a*, *a*, operating as they do in front of and against the teeth of the ordinary mash rake, are extended in this serpentine form, adapting themselves to the teeth of the rake almost back to the shaft *c*, to other couplings lettered *h*, *h*, immediately under the upper receiver *e*, where they (the serpentine pipes *a*, *a*, *a*,) are again connected by said couplings *h*, *h*, with two other pipes, still *a*, *a*. These last pipes are then attached to the shaft *c*, at the points indicated by the letter *i*, running down said shaft on either side into a second receiver *k*. At the bottom of said latter receiver *k*, the water is intended to be discharged at the point indicated by the letter *j*.

It is necessary to remark in conclusion that the shaft *c*, so far as it passes through the upper receiver *e*, is surrounded by a cylindrical tube *m*, attached as the receiver *e*, itself is to the beam *d*, as well to protect

the shaft from the action of the water as to prevent its interference with the rotary motion of said shaft.

The operation of the machine is this: The water being conveyed into the receiver *e*, from any part of the distillery by pipes, is thence carried by the pipes *a*, *a*, attached to the bottom of said receiver *e*, at the points indicated by the letter *f*, to the second other serpentine pipes *a*, *a*, at the first couplings *g*, *g*, thence from these latter points *g*, *g*, along said serpentine pipes *a*, *a*, as is in the drawings shown, back toward the shaft and very near to it, where it is conveyed into other pipes still *a*, *a*, at the second couplings *h*, *h*, thence down these last pipes *a*, *a*, (which said latter pipes are attached to the shaft (*c*) at the point indicated by the letter *i*) into the second receiver *k*, from which receiver *k* it is discharged at the bottom of the mash tub at the point indicated by the letter *f*, said receiver *k*, being attached to the bottom of said mash tub, where it has a hole for the egress of the water. Now the said mash rake beam *d*, being put into rotary motion, the said serpentine pipes *a*, *a*, through which the water is to pass, entering, from the first receiver, *e*, at the points indicated by the letter *f*, acts upon the mash almost in the same manner as the teeth of the mash rake, a continual stream of cold water passing through said serpentine pipes, which said mash rake beam is in motion down to the second receiver *k* from whence *a*, before shown it passes out at the bottom of the mash tub at the point *f*, to which said receiver *k* is attached. These serpentine pipes *a*, *a*, it will be perceived, can be taken off or retained at pleasure, when the operation of mashing is going on. I may besides state that they can be made as flat as you please to facilitate their easy passage through the mash.

My claim is then in this instance for,

Combining the serpentine pipes (*a*) (*a*) and the receivers (*e*) and (*k*) to the shaft of the ordinary mash rake in order to cool mash speedily, in warm seasons, after the mere operation of mashing is accomplished.

ALLEN D. WARD:

Witnesses:

SILAS S. DOBYNS,
J. T. ANDERSON.