T. Williams and J. J. Yates,

Steam-Heater.

No. 74,469. Patented Feb. 11. 1868.

Fig 1

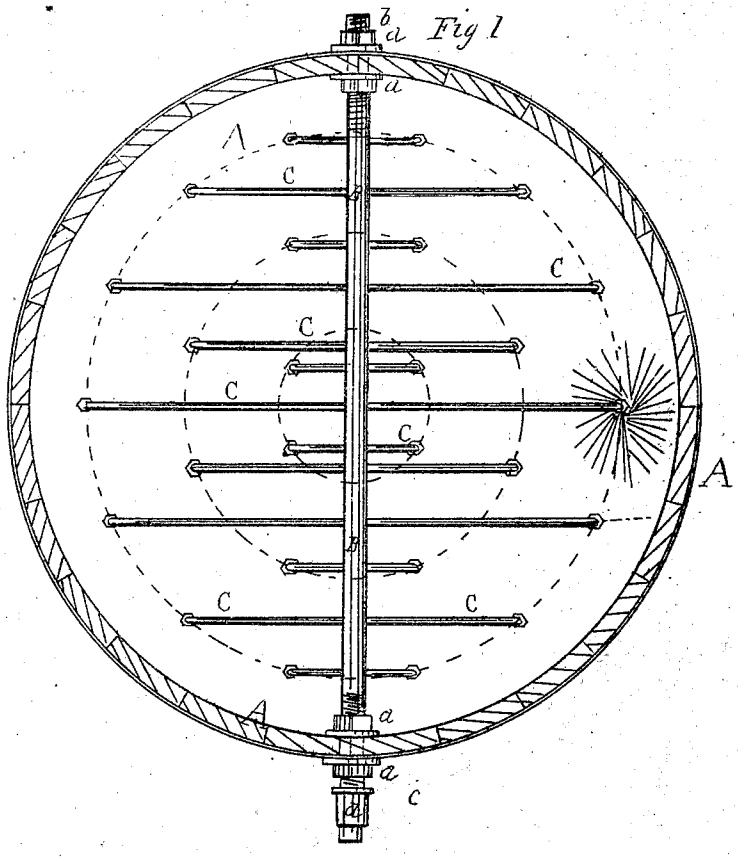
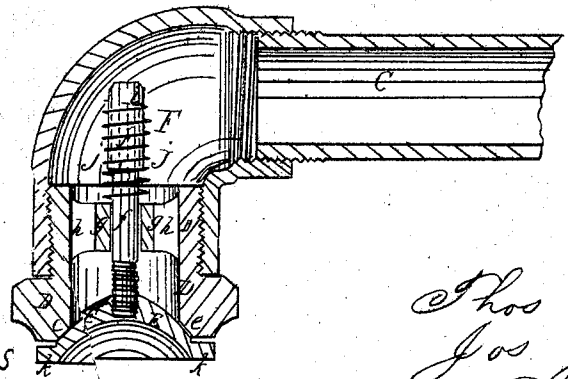


Fig. 2



Witnesses
Thos Tusche
J A Service

Inventors
Thos Williams
Jos J Yates
Per Munn & Co
Attorneys.

United States Patent Office.

THOMAS WILLIAMS AND JOSEPH J. YATES, OF NEW YORK, N. Y.

Letters Patent No. 74,469, *dated February* 11, 1868; *antedated January* 31, 1868.

IMPROVEMENT IN STEAM-HEATERS FOR BREWERS AND OTHERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, THOMAS WILLIAMS and JOSEPH J. YATES, of the city, county, and State of New York, have invented a new and improved Heating-Apparatus; and we 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, in which—

Figure 1 is a plan or top view of my improved heating-apparatus.

Figure 2 is an enlarged detail vertical section, taken through the end of a steam-pipe, and showing the valve which is arranged therein.

Similar letters of reference indicate corresponding parts.

This invention relates to a device for evaporating the liquors in whiskey-distilleries, and for other purposes in which liquids are to be heated by blowing steam into them.

The invention is designed to overcome the difficulties heretofore experienced, that when the steam was cut off, a vacuum was created in the steam-pipe, so that the material in the mash or other pan flowed into the pipe and clogged the same, thereby creating frequent annoyance and loss of time.

To overcome this difficulty, I have arranged a self-operating valve in each hole in the steam-pipe, so that the said hole will be closed instantly, as soon as the steam is cut off. I also, in place of the ordinary worm, have arranged a straight main steam-pipe, which passes directly through the tub or pan, and from which small pipes branch off, the ends of which are bent down and open, so that the steam escapes through the openings in these pipes. A valve is arranged in the opening of the pipe, and prevents the charge from entering the same.

It is not to be understood from the above that these valves may not be applied to the openings in the ordinary worms, as they would do as good service there as on the small pipes.

The object of the arrangement of pipes above referred to is, that the steam can, if the main pipe is opened, be made to pass through the same without entering the small pipes, thereby preventing too high pressure of steam in the large pipe in case one of the smaller pipes bursts.

A represents a mash or other tub. B, the main horizontal steam-pipe passing through the tub, as is clearly shown in fig. 1. It is arranged a little above the bottom of the tub, and is secured in position by means of lock-nuts *a a*. Its end, *b*, is made fast to the supply-pipe, while its opposite end, *c*, is or can be closed by a cap or cock, *d*. C C are small pipes which branch off from the pipe B, and the ends of which are so arranged that they are equally distributed above the bottom of the pan, so that the steam that escapes from their ends will be swept over the whole bottom of the tub, and through the entire mass of the liquid with which the tub is charged. The steam enters the pipe B at *h*, and then passes through the pipes C and into the tub, as long as the cap *d* is closed. As soon as that is opened, the steam will rush through the pipe B, without entering the branches C, until the supply is cut off or the cap again closed. The ends of the branch-pipes C are bent down, as is clearly shown in fig. 2, and into the same is screwed a short tube, D, having a bevelled lower edge, *e*, which forms the seat for a valve, E. The latter has a tapering body, so as to fit the bevelled seat, and is provided with a stem, *f*, as shown. The stem passes through a tube, *g*, which is held by arms, *h*, in the centre of the tube D. Between the upper end of tube *g* and a pin, *i*, on top of stem *f*, is a spiral spring, F, which tends to close the valve as soon as the pressure of steam upon the same ceases. A shoulder, *j*, is formed on the stem *f* above the tube *g*, and acts as a stop, regulating the downward motion of the valve; *i. e.*, when the shoulder strikes against the tube, the valve cannot be forced down further. The stem is screwed into the valve, and by that means the distance between the shoulder *j* and upper end of the tube *g* can be increased or diminished at will, thereby permitting the valve to be more or less opened. At the lower edge of the valve is arranged an annular horizontal flange, *k*, which breaks the inclined direction of the steam, into which the same is forced by the tapering form of the valve. Thereby a greater area is swept by the steam from one pipe, and still the bottom of the tub is touched, and may, if required, be thereby washed.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The heating-apparatus, consisting of the main pipe B and branch-pipes C, which are provided with self-closing valves E, substantially as and for the purpose herein shown and described.

2. The valve E, when constructed as herein shown and described, so that by lengthening or shortening the stem the amount of steam discharged during a given time may be increased or diminished at will.

3. Providing the steam-pipes in a heating-apparatus with self-closing valves, substantially as and for the purpose herein shown and described.

4. The annular horizontal flange *k*, when arranged around the lower part of the conical valve D, substantially as herein shown and described.

THOMAS WILLIAMS,
JOSEPH J. YATES.

Witnesses:
WM. F. MCNAMARA,
ALEX. F. ROBERTS.