TSCHIRGI & KAMMULLER.

Beer Cooler.

No. 57,221. Patented Aug. 14, 1866.

Fig. 1.

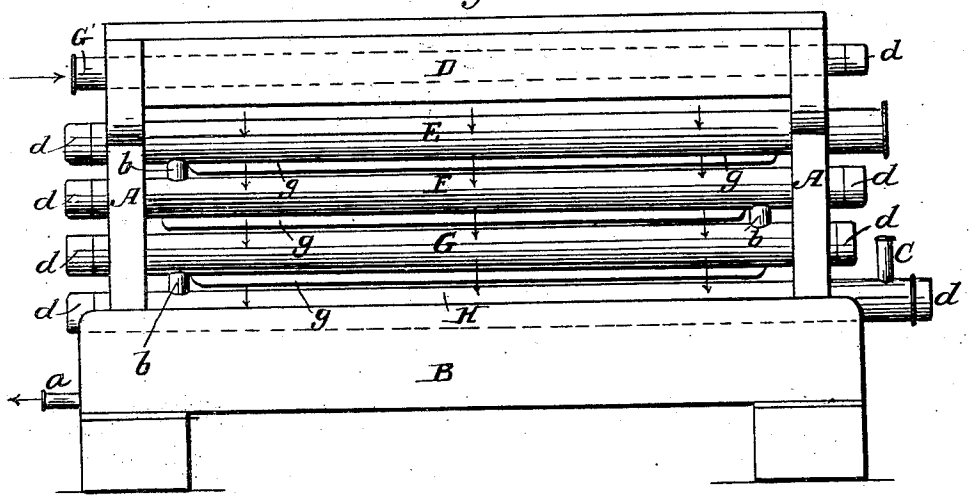


Fig. 2.

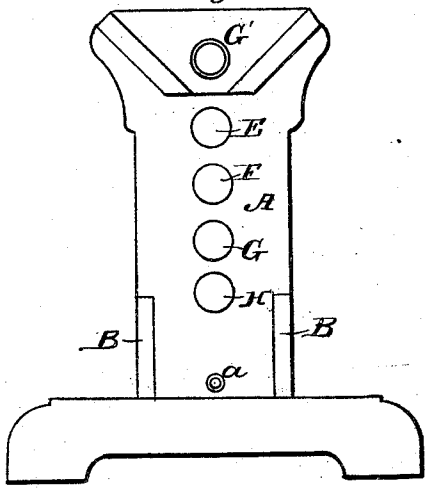
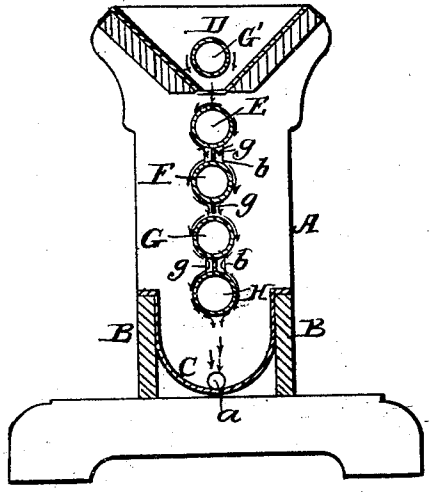


Fig. 3.



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UNITED STATES PATENT OFFICE.

MATHEUS TSCHIRGI AND LOUIS KAMMÜLLER, OF DUBUQUE, IOWA.

IMPROVED BEER-COOLER.

Specification forming part of Letters Patent No. **57,221**, dated August 14, 1866.

To all whom it may concern:

Be it known that we, MATHEUS TSCHIRGI and LOUIS KAMMÜLLER, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and Improved Beer-Cooler; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of one side of our improved beer-cooler. Fig. 2 is an elevation of one end of the cooler. Fig. 3 is a transverse section through the cooler taken in a vertical plane.

Similar letters of reference indicate corresponding parts in the three figures.

This invention relates to that class of apparatus for cooling beer on its passage from the cool-beds to the fermenting-tubs in which the beer is passed over the surfaces of a series of cooling-pipes through which cold water flows; and it consists in an improvement by means of which the beer is conducted from the surface of one pipe to that of another in a thin unbroken sheet, and finally discharged into a trough, from which it is conveyed to the fermenting-tubs, as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, A A represent two upright standards, which are secured together at suitable distances apart by means of longitudinal side pieces, B B, between which latter is a trough, C having a discharge-pipe, *a*, at one end leading off to the fermenting-tun.

At the upper part of the frame, and supported upon the upright standards A A, is another trough, D, having a series of small perforations through the center of its bottom for the purpose of allowing the beer to flow slowly from this trough upon the highest point of a horizontal pipe, E, which is arranged directly below the bottom of said trough and parallel with it.

F G H are pipes arranged in a vertical plane below the pipe E, over the surfaces of which the beer is compelled to flow in thin streams as it descends to the trough C. The four pipes over which the beer flows communicate with each other at *b b b*, for the purpose of allowing a stream of cold water to pass through them in a zigzag course. The hose which leads to a cold-water reservoir is connected to the pipe *c* of the lowermost pipe, H, and the cold water flows back and forward through the several cooling-pipes, and is discharged from the open end of the pipe E into a suitable receiver.

The several cooling-pipes are closed at their extremities by means of stopples *a a*, which can be removed at pleasure for the purpose of cleaning out these pipes when they become charged with sediment.

Each one of the pipes E F G is provided on its bottom side with a thin blade, *g*, which may be made equal in length to the trough C, from which the beer is first discharged. These blades are arranged in a vertical plane coinciding with the centers of the pipes, and they are nearly as wide as the spaces between the pipes, so that the beer will flow over both sides of said pipes and over both sides of the interposed blades, and pass from one pipe to another in thin unbroken sheets.

By employing the thin blades *g*, they serve as conductors, and also as partitions for preventing the stream of beer from flowing on one side only of the pipes E F G H. They conduct the beer from the lowest point of one pipe to the highest point of the next pipe, and they also prevent currents of air from passing between the pipes during the cooling process, which would be liable to produce acetification of the beer.

The cooling of the beer should be as rapid as possible, and the beer should be caused to flow continuously over the cooling-pipes, instead of trickling over their surfaces in drops, and for this reason we employ the straight-edge blades or fins *g*, as above described.

The beer flows into the trough C above the series of cooling-pipes, through a pipe, G′, having its sides finely perforated, and as the beer flows over the surfaces of the cooling-pipes a stream of cold water is caused to flow through them, as above mentioned.

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

Cooling beer on its way from the cool-beds to the fermenting-tun by causing the beer to flow in an unbroken sheet over both sides of a series of cold-water pipes, arranged one above another, and provided with thin blades *g*, substantially as described.

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