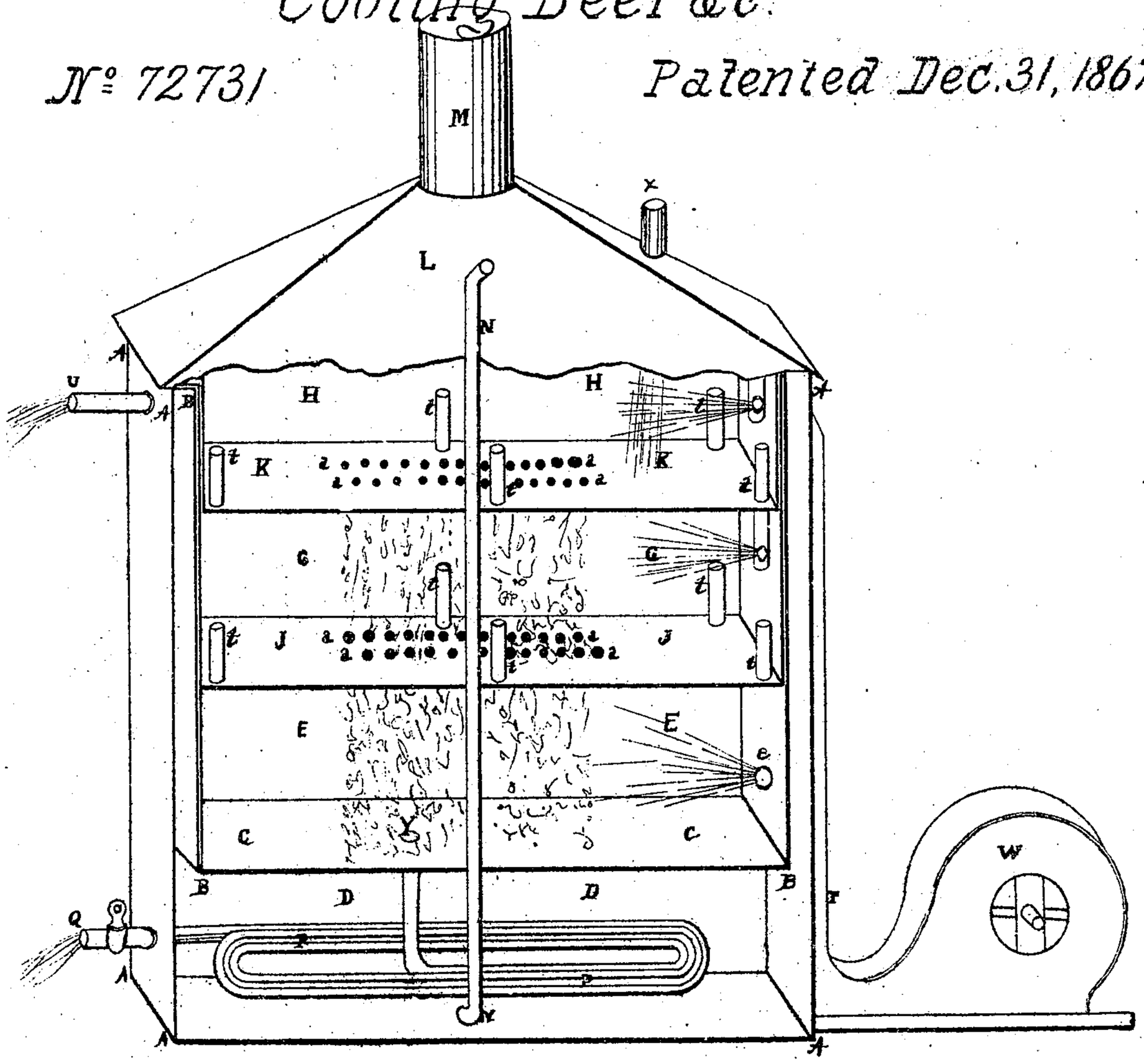
# P. H. Griffin.

## Cooling Beer &c.

No. 72731 Patented Dec. 31, 1867




Witnesses.

Rob Vanck DeWitt.

A. V. DeWitt.

Inventor.

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# United States Patent Office.

PATRICK H. GRIFFIN, OF ALBANY, NEW YORK.

*Letters Patent No.* 72,731, *dated December* 31, 1867; *antedated December* 14, 1867.

## IMPROVEMENT IN APPARATUS FOR COOLING BEER AND OTHER LIQUIDS.

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

Be it known that I, PATRICK H. GRIFFIN, of the city of Albany, State of New York, have invented a new and useful Apparatus, (for service in breweries or distilleries, or wherever applicable,) for Cooling Beer, or other liquors in large quantities; and I declare the following specification, with the drawing forming part thereof, to be a full and complete description of my invention.

The drawing represents my apparatus in perspective, the hither side being shown as removed to exhibit its interior construction.

A A represent a metallic box or chamber, having inner walls, B B, around its four sides, forming, from the horizontal partition C C upwards, a hollow space of a few inches, open to the lower compartment D, but closed at the top at A B. Above the partition C C the space within the walls is divided into other compartments, one above the other, E G H, by means of what may be called two large metal trays, J and K, dropping, the one within the other, their upper ends resting on the top A B of the chamber-wall.

The object of this arrangement is to permit these parts of the apparatus to be removed for cleansing and repairs, without breaking up any permanent fixtures of the apparatus. The whole is closed in by the movable dome, which is surmounted by a pipe or chimney, M.

The trays have, rising from their bottom plates, standing tubes, *t t*, open at top and bottom, and high enough to reach above any deposit of liquor in the chamber, and in the centre of the bottom of the trays arises a series of perforations, *a a*, for the passage of the liquor. From the bottom of the chamber E an opening, Y, communicates with a coil of tubing, P, placed in the lower chamber D, which, after a number of convolutions, passes outside of the box at Q. From near the bottom of the chamber D, through its side, passes out the pipe N, which rises above the walls of the box. At one end of the box, a tube or channel, T, is fixed from the top to the bottom of its wall, communicating, by tubes passing through the double wall, and opening in the tray-walls, with the compartments E G H, at *e e e*. This channel T communicates with blower W, to be driven by suitable power. The chambers may be increased, if requisite, as I do not limit myself to the number exhibited in the drawings.

The operation of the apparatus is thus: Through the tube N, water, of as cool a temperature as can be procured, is to be introduced, and the lowest compartment D, and the hollow walls of the apparatus, to be filled, flowing out from a pipe, U, near the top of the hollow wall. Through the pipe X, in the dome, the beer or liquor to be cooled is passed into the upper compartment H, partially filling it, whence it passes down through the holes *a a* in a shower into compartment G, from which again it passes down, in like manner, into compartment E, whence it further passes through the coil of tubing P, and so out at Q. Simultaneous with this operation, a blast of air from the blower W is driven into the compartments E G H, passing through the shower of hot liquid as it falls, and abstracting from it a large portion of its heat, which, with any uncondensed vapor from the liquor, passes off through the tubes *t t*, into the dome, whence, by the pipe M, it is conducted out of the building, so as to remove that dampness which is often so destructive to the interior of breweries and other buildings where evaporation of liquids, on a large scale, is carried on. To complete the cooling of the liquor, it finally passes through the coil of pipe P, where the cold water completes the cooling-process.

The employment of air in motion, over moisture, is well known in the cooling-process used in hot climates, and the difference in temperature of rain when falling in a still day or a windy one, exhibits the wonderful power of air to absorb and carry off heat. My apparatus is for the purpose of availing myself of the peculiar capacity of air for caloric, in cooling-operations on a large scale, by which, if successful, it is manifest great economy in time, as well as of expense, by dispensing with expensive surface-coolers, and in the cost of ice or cooling-mixtures, is effected.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of a series of chambers to receive and transmit the liquid to be cooled, in combination with each other, placed one above the other, as described, their floors being perforated so as to permit the liquid to fall in drops from the one to the other, being subjected in each chamber to a blast of air to facilitate cooling.

2. The combination of an apparatus, as described, with a surface-cooling apparatus, substantially such as the hollow walls, and the coil of pipe, described in the above specification.

P. H. GRIFFIN.

Witnesses:

RICH. VARICK DE WITT,

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