

(No Model.)

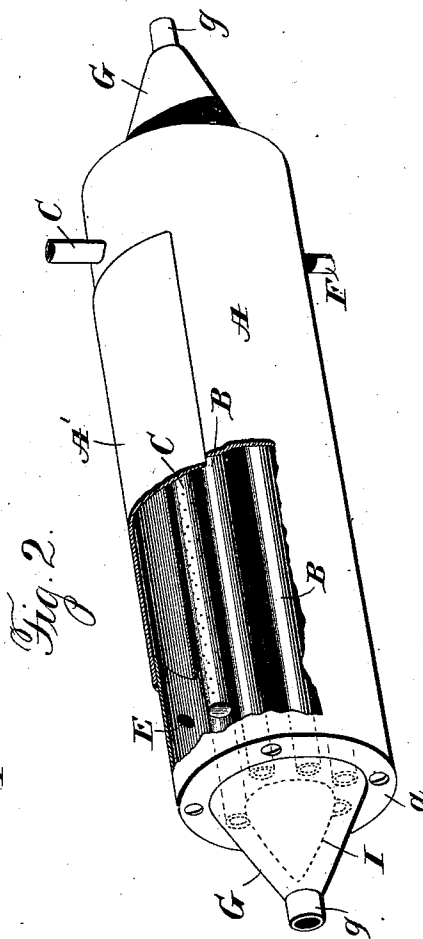
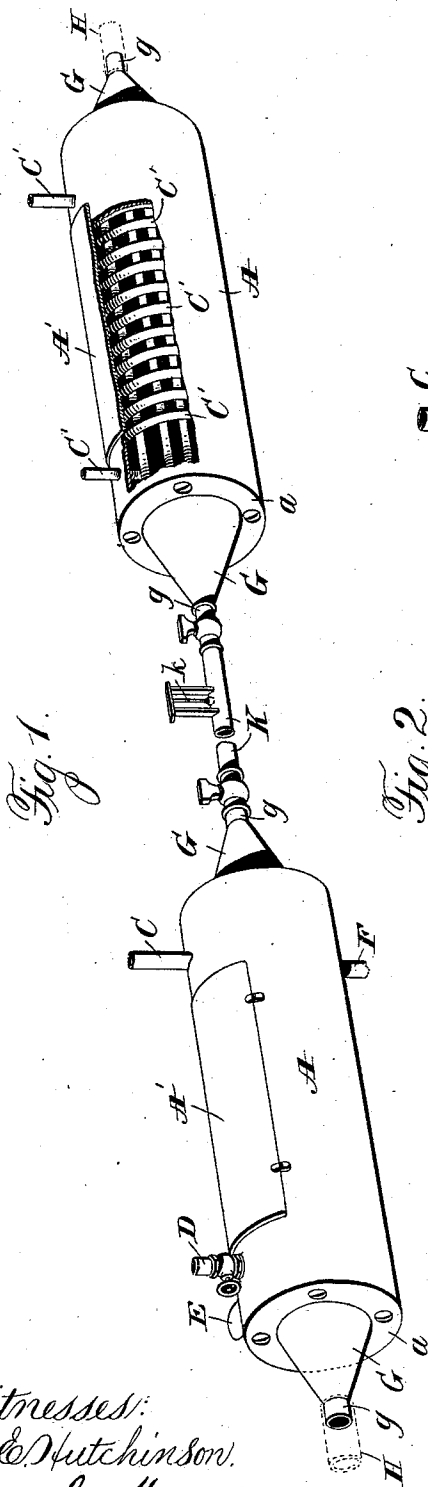
2 Sheets—Sheet 1.

J. H. KERSENBROCK.

HEATER AND COOLER FOR FERMENTED MALT LIQUORS.

No. 514,935.

Patented Feb. 20, 1894.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventor.
John H. Karambrock, by
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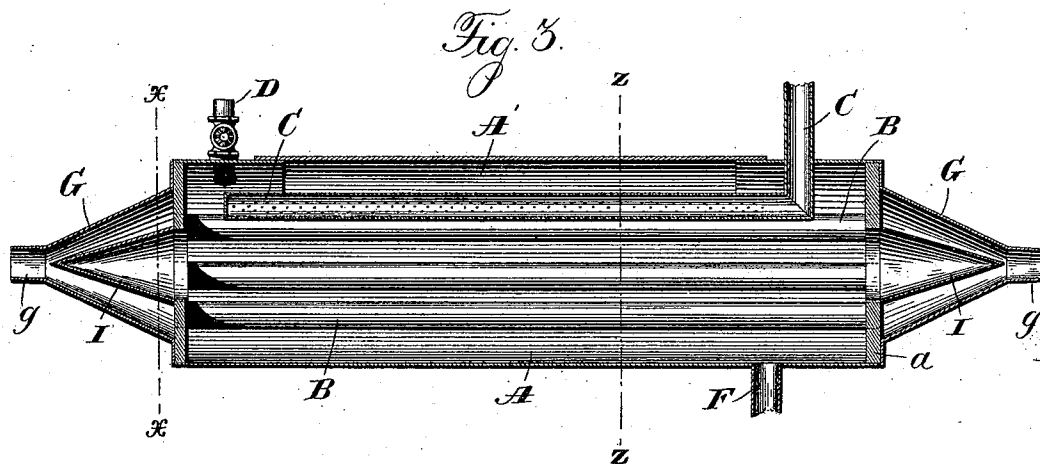


Fig. 4.

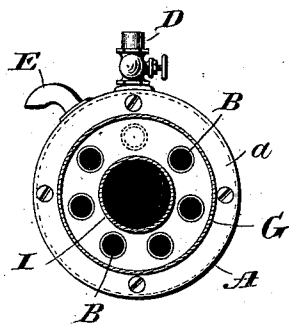
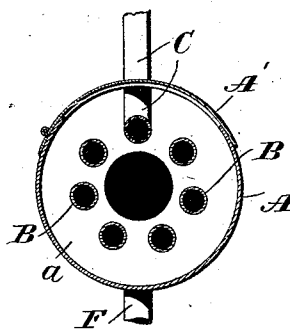


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN HERMANN KERSENBROCK, OF COLUMBUS, NEBRASKA.

HEATER AND COOLER FOR FERMENTED MALT LIQUORS.

SPECIFICATION forming part of Letters Patent No. 514,935, dated February 20, 1894.

Application filed May 11, 1893. Serial No. 473,871. (No model.)

To all whom it may concern:

Be it known that I, JOHN HERMANN KERSENBROCK, a citizen of the United States, and a resident of Columbus, in the county of Platte, and in the State of Nebraska, have invented certain new and useful Improvements in Heaters and Coolers for Fermented Malt Liquors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my apparatus as arranged for use. Fig. 2 is a perspective view of the heater employed, a portion of the side and end walls being removed to show the construction of the interior. Fig. 3 is a vertical longitudinal section of the same and Figs. 4 and 5 are cross sections upon lines xx and zz , respectively, of Figs. 2 and 3.

Letters of like name and kind refer to like parts in each of the figures.

My invention has for its object the treatment of beer under the Pasteur process of heating and cooling, and such invention consists in the construction of the heating and cooling mechanisms, substantially as and for the purpose hereinafter specified.

In the carrying into practice the process hereinbefore referred to, I employ a heater and a cooler which have substantially the same general construction so that a description of one will apply to the corresponding parts of the other.

The heater used consists externally of a plain cylindrical casing A which has each of its ends inclosed by means of a head a and contains a number of tubes B B that extend between such heads and have their open ends secured within the same, as in case of the tubes of a boiler. Such tubes are preferably arranged in a semi-circular form around the sides and lower portion of the interior of such casing so as to leave between the upper tubes a space into which is placed a pipe C which extends from near one end of the casing nearly to the opposite end of the same and from thence upward and outward as shown. The inner end of said pipe is closed and its body perforated so that when its outer end is connected with a steam supply and steam per-

mitted to enter, such steam will be discharged into and thoroughly and evenly distributed through and thus heat the body of water previously placed in the casing. For the escape of such steam as is not condensed, a pipe D is provided at or near the end of the casing opposite that at which said pipe C enters, while for disposing of additions to the volume of water in the casing by the condensation of steam, an overflow pipe E is placed in the upper portion of the casing at a suitable point, to carry off the excess. For cleaning purposes, a draw-off pipe F is provided within the bottom of the casing.

Fitted over and secured upon each head a is a funnel shaped cover G which at its outer end is provided with a nozzle g , that receives a pipe H, while within said cover is provided a conical part I that is secured upon said head, inside of the line of tubes and operates to form of the space between said cover and head a passage which has the form of a hollow cone and causes a liquid entering from said pipe H to be evenly and easily distributed to said tubes—or if such liquid is escaping from the latter, directs it into such pipe.

The mechanism employed for cooling the beer has the same general construction as that described, but in place of the perforated pipe C, there is provided a pipe C' which enters the casing A at its upper side, near one end, extends in a continuous coil, around the tubes B and B nearly to its opposite end and then emerges from the upper side of said casing, as shown.

In the use of my apparatus, one mechanism as described has its inflow nozzle connected with a beer supply and a second similar mechanism has its inflow nozzle h connected with the outflow nozzle of the former by means of a pipe K that extends between and has its ends secured upon said nozzles. The pipe C of the first mechanism is connected with a steam supply and the like pipe C of the second mechanism is connected with a supply of cold water, brine, ammonia, or other cooling liquid or gas, after which beer is, by any desired means caused to flow through the mechanisms—when, by the proper regulation of the flow of the heating and cooling me-

diums, said beer may be heated and then cooled to any desired temperatures, the mechanism employed being adapted to produce such changes of temperature in the most speedy and economical manner.

For the purpose of determining the temperature of the beer passing from the heating mechanism, a thermometer *k* is placed within or upon the connecting pipe *K* and for a like purpose a second thermometer may, if desired, be connected with the outflow pipe of the cooling mechanism.

The casings *A* and *A'* are, for convenience, each provided with a hinged or detachable section *A'*, but if desired such part may be omitted.

Having thus described my invention, what I claim is—

1. The beer heating or cooling mechanism in which is combined, a casing provided with a circular series of tubes that extend between and open through its heads, and means for conveying beer to said tubes comprising in part, two cone-shaped parts separated by

an annular space, and arranged one within and one without the line of said tubes, substantially as and for the purpose shown.

2. The beer heating and cooling mechanism, in which is combined the cylindrical casing, the tubes that extend between and open through its heads and are arranged in a line concentric with the axis of said casing, the conical covers which are secured upon and inclose the ends of said casing, the conical parts that are formed upon or secured to the said heads, within the lines of said tubes, and means whereby said covers are connected with a supply of and receptacle for beer, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of May, 1893.

JOHN HERMANN KERSENBROCK.

Witnesses:

P. M. BRUGGER,
G. W. PHILLIPS.