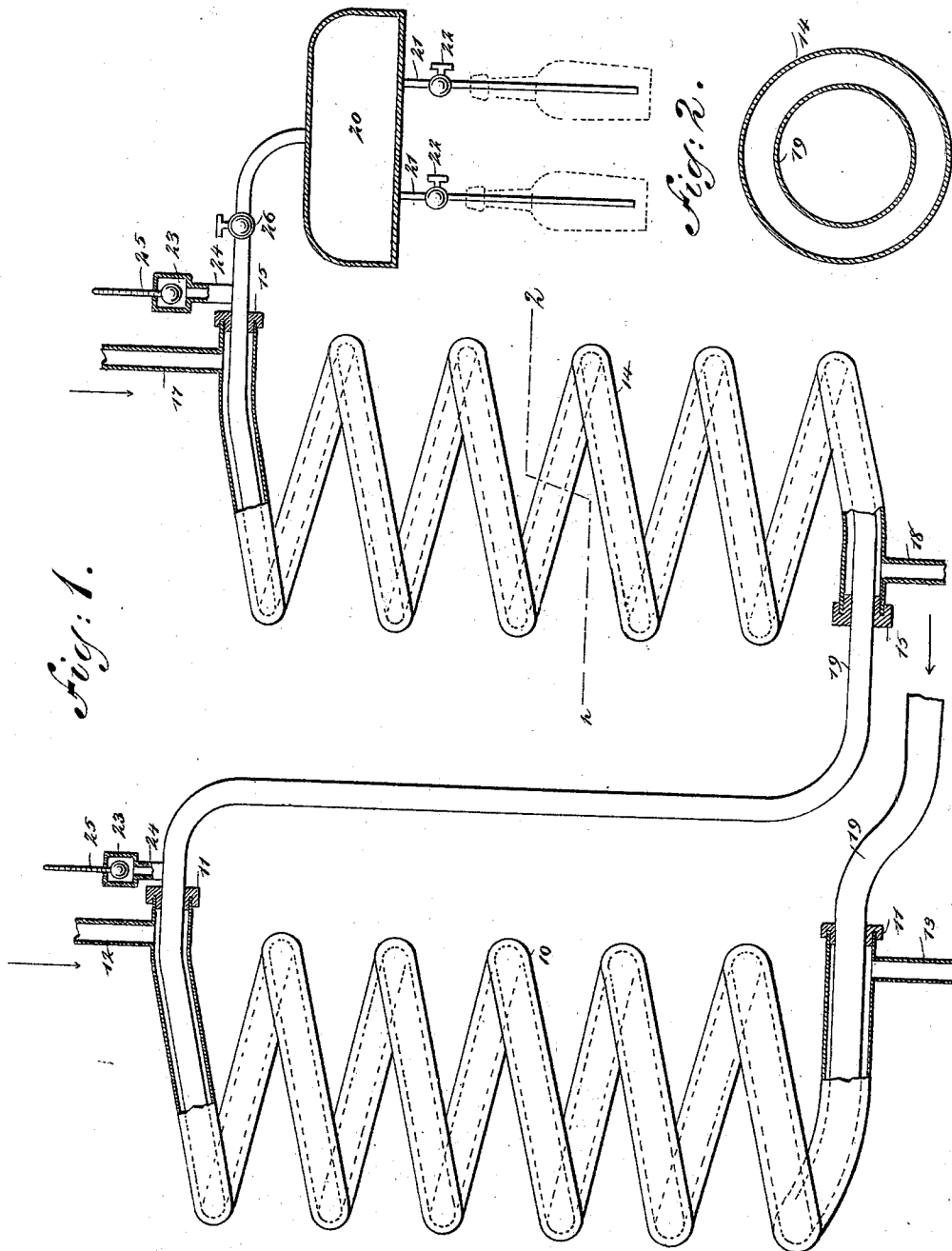


(No Model.)

A. O. MÜLLER & A. GIESEN.
APPARATUS FOR PASTEURIZING AND RACKING OFF BEER.
No. 519,193. Patented May 1, 1894.



WITNESSES:

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ADELBERT O. MÜLLER AND ANDREAS GIESEN, OF FREMONT, NEBRASKA.

APPARATUS FOR PASTEURIZING AND RACKING OFF BEER.

SPECIFICATION forming part of Letters Patent No. 519,193, dated May 1, 1894.

Application filed March 9, 1893. Serial No. 465,286. (No model.)

To all whom it may concern:

Be it known that we, ADELBERT O. MÜLLER and ANDREAS GIESEN, of Fremont, in the county of Dodge and State of Nebraska, have invented a new and Improved Apparatus for Pasteurizing and Racking Off Beer, of which the following is a full, clear, and exact description.

Our invention relates to improvements in beer racking and bottling apparatus; and the object of our invention is to produce an extremely cheap and simple apparatus through which beer to be racked or bottled may run in a constant stream, and which is adapted in case of bottling, to sterilize the beer and cool it to its proper temperature before delivering it into the receptacle prepared to receive it, and which is arranged so as to keep back the froth and deliver the beer into its receptacle or receptacles with no loss of carbonic acid gas.

To this end our invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in both the views. But we do not necessarily confine ourselves to this particular design.

Figure 1 is a broken side elevation with parts in section, and illustrates the general arrangement of the apparatus; and Fig. 2 is a detail cross section on the line 2—2 in Fig. 1, through one of the coils and the worm or beer pipe, the view being on an enlarged scale.

In carrying out our invention two or more similar coils are used, these being independent of each other, and one being adapted to contain hot water or steam so as to sterilize the beer passed through it, while the other is adapted to contain cold water, cold brine, or other cooling substance. The coils are arranged preferably in a parallel position and the coil 10, which is a spiral as shown in Fig. 1, is closed at its ends by caps 11 and is provided at its upper end with an inlet pipe 12 through which hot water or steam is supplied to the coil, and at its lower end with an outlet pipe 13. The coil 14 is similar to the coil 10, being also closed at its ends by caps 15

and it is provided at the top with an inlet 17 and at the bottom with an outlet 18, and this coil is adapted to contain matter which cools the beer, as hereinafter described. The continuous pipe or worm 19 connects with a beer supply and enters the lower end of the coil 10, passes upward through the same, then enters the lower end of the coil 14, passes through the same, and after emerging from the coil 14 it enters a vessel 20 from the bottom of which lead pipes 21, controlled by cocks 22 and adapted to deliver into the vessels to be filled, as clearly illustrated in Fig. 1. The worm is considerably larger at the point where it enters the coil 10 than it is where it enters the vessel 20, it being gradually reduced in size, as shown in the drawings, and consequently the beer which passes through it is caused to travel with a gradually increasing velocity, the froth turned back, and the clear liquid delivered into the vessel 20, bottles or other receptacles to be filled. At the same time, as the steam inlet 12 is located at a place where the diameter of the pipe 19 is already reduced, the beer flowing through the said pipe will be effectively heated. This feature is of the utmost consequence in racking off or bottling beer, and enables the operation to be very rapidly and economically performed without any loss of beer or carbonic acid gas and requires no skill in manipulation, these features being the most important of our invention. The worm is suitably packed where it enters and leaves the coils so the latter will not leak. Near the top of each coil is a casing 23 which connects with the worm 19 by a pipe 24 and each casing contains the bulb of a thermometer 25, the stem of the instrument extending upward where it may be seen, and by consulting the thermometers the temperature of the beer, as it leaves each coil, may be ascertained.

The worm or pipe 19 is provided at a point between the coil 14 and the vessel 20 with a cock or valve 26 by means of which the flow of liquid may be controlled.

When the apparatus is used, the hot water or steam is turned into the coil 10, a constant stream passing through the coil, the cold water or its equivalent is passed through the coil 14, and the beer is permitted to pass

through the worm or pipe 19 in an opposite direction from that of the heating or cooling material. The beer as it passes through the coil 10 is heated and sterilized and may be heated hot enough so that it is unnecessary to again heat it after it is bottled, and after the beer passes through the coil 14 it is sufficiently cool for bottling.

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

1. In a pasteurizing and racking off apparatus, a gradually reduced pipe through which the liquid is adapted to flow, to cause the liquid to travel with a gradually increasing velocity toward the delivery end and keep back the froth and means for heating and cooling, respectively, successive portions of the said liquid-conveying pipe, substantially as described.

2. In a pasteurizing and racking off apparatus, the combination, with a gradually reduced pipe through which the liquid is adapted to flow, of a plurality of independent pipes surrounding successive portions of the said liquid conveying pipe, said surrounding pipes being adapted to contain a heating and a cooling agent, respectively, substantially as set forth.

3. In a pasteurizing and racking off apparatus, the combination, with a gradually reduced pipe through which the liquid is adapted to flow, of a plurality of independent coiled pipes through which the said liquid conveying pipe passes successively, said coiled pipes being adapted to contain a heating and a cooling agent respectively, substantially as set forth.

4. In a pasteurizing and racking off apparatus, the combination, with a gradually reduced pipe through which the liquid is adapted to flow, of a plurality of independent coiled pipes through which the said liquid conveying pipe passes successively, said coiled pipes being adapted to contain a heating and a cooling agent respectively, and the inlets for the said heating and cooling agents being located at that end of each of the said coiled pipes which is next to the reduced end of the liquid conveying pipe, whereby the liquid and the heating or cooling agent respectively are caused to flow in opposite directions, substantially as set forth.

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Witnesses:

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