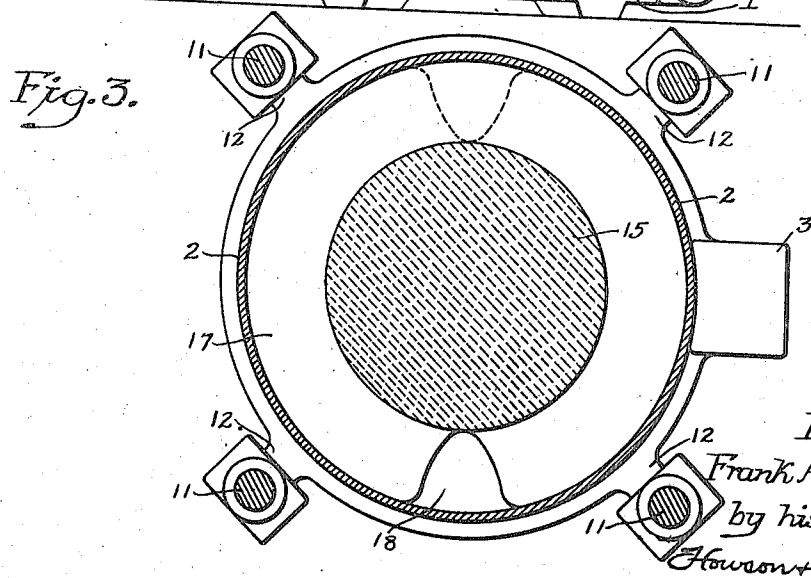
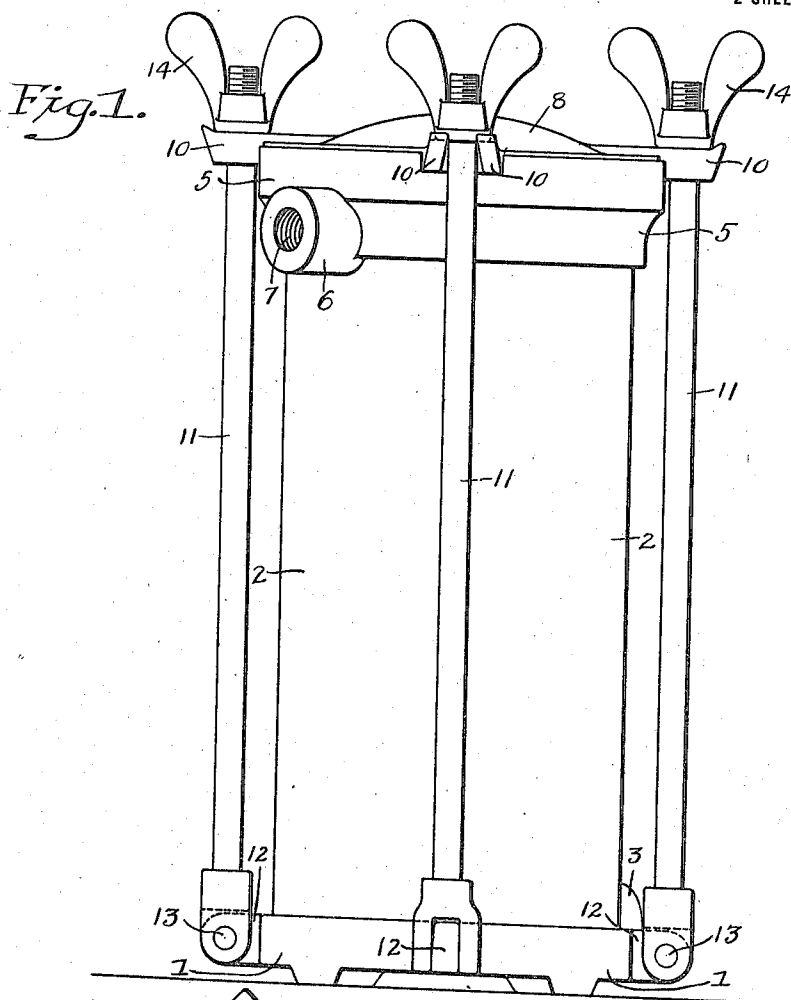


1,234,083.

F. A. PHILLIPPI.
COOLER.
APPLICATION FILED NOV. 24, 1915,

Patented July 17, 1917.
2 SHEETS—SHEET 1.



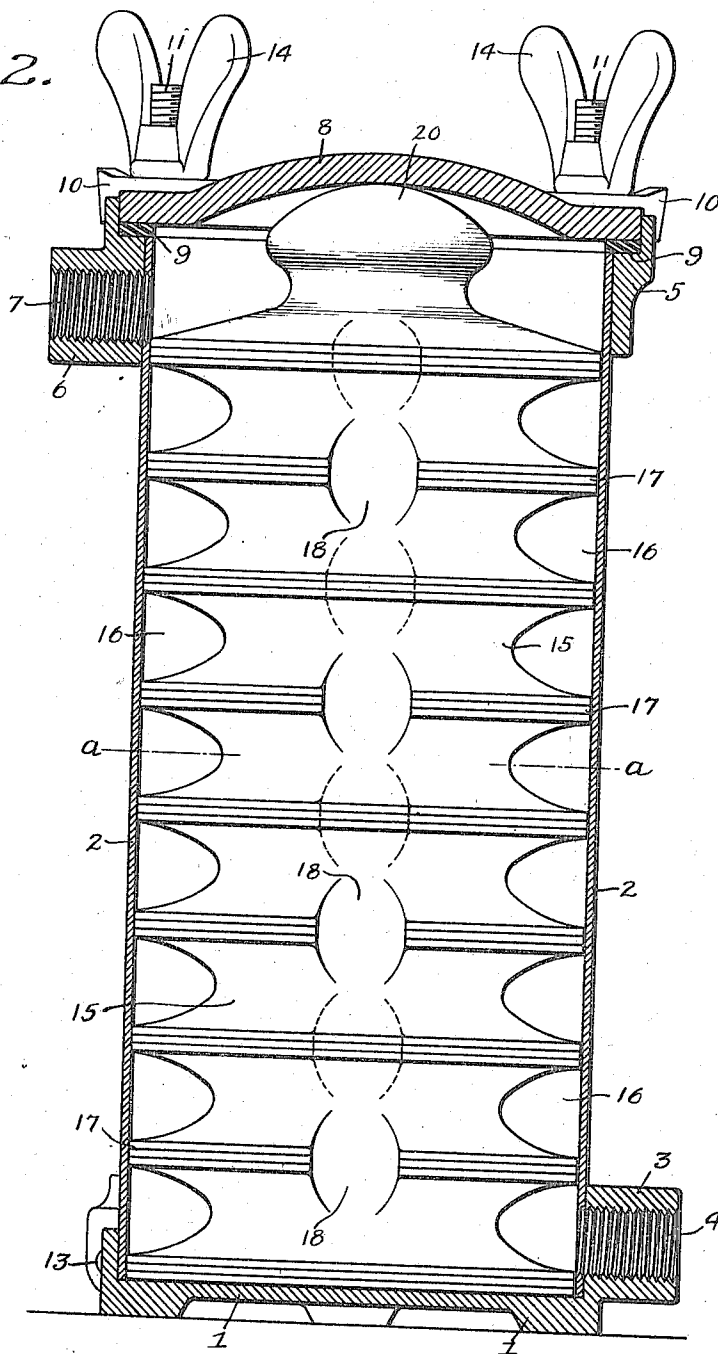
Inventor—
Frank A. Phillippi
by his Attorneys
Howson & Howson

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Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK A. PHILLIPPI, OF POTTSTOWN, PENNSYLVANIA, ASSIGNOR TO ADDISON R. MAY
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COOLER.

1,234,083.

Specification of Letters Patent.

Patented July 17, 1917.

Application filed November 24, 1915. Serial No. 63,242.

To all whom it may concern:

Be it known that I, FRANK A. PHILLIPPI, a citizen of the United States, residing in Pottstown, Montgomery county, State of Pennsylvania, have invented certain Improvements in Coolers, of which the following is a specification.

One object of the invention is to provide a compact, substantial, and easily cleaned cooler for liquids such as water, beer and the like, whose arrangement of parts shall be such as to cause a rapid and efficient lowering of the temperature of the liquid under treatment.

A further object of the invention is to provide a cooler with novel means for causing circulation of the liquid, and which shall be so constructed as to permit of the convenient removal of the liquid directing element for purposes of inspection and cleaning.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which,

Figure 1 is a side elevation of a cooler constructed according to my invention;

Fig. 2 is a central vertical section taken through the inlet and outlet; and

Fig. 3 is a horizontal section on the line *a-a*, Fig. 2.

In the above drawings, 1 represents a flanged base casting to which is sweated or otherwise suitably connected a relatively thin cylindrical metal shell 2, there being a boss 3 integral with said casting and having a threaded passage 4 which through a suitable opening in the lower part of the casing 2 communicates with the interior thereof. Similarly sweated or connected to the opposite or top end of the shell 2 is an upwardly flanged metal collar 5 having a boss 6 provided with a threaded passage 7 also communicating with the interior of said shell through a suitable opening. The upper end of the shell or casing 2 is closed by a cover 8 fitting into the flanged end of the collar 5 and confining a body of packing material or gasket 9. This cover is provided with a series of forked lugs 10 designed to receive the upper ends of elongated bolts 11 pivoted or hinged by pins 13 to lugs 12 projecting from the base casting 1. The upper ends of these bolts are threaded for the reception of wing nuts 14 whereby the cover

8 may be drawn forcibly into engagement with the gasket 9 to seal the end opening of the casing.

Mounted within the casing or shell 2 is a baffle or liquid directing element 15 in the shape of an elongated, substantially cylindrical structure preferably made of glass, porcelain, stoneware or other vitreous material, although it obviously may be made of metal or other substance unaffected by the liquid passing through the cooler. This element is formed with a series of annular ribs 17 forming annular grooves or channels 16 and of such an external diameter as to closely fit against the cylindrical inner surface of the shell 2, to prevent passage of liquid between adjacent grooves or passages.

Each of the ribs 17 is cut away at one point to provide a passage 18 between adjacent annular passages, it being noted that the cutaway portions or openings of adjacent ribs are 180° apart.

The upper end of the baffle or liquid directing element has the form of a projecting knob 20 of such length that it is engaged by the cover 8 when this is drawn into its sealing position by the bolts 11 and wing nuts 14 so that movement of said element within the shell is prevented.

Under conditions of use the cooler as a whole is packed within a suitable heat insulated box and is surrounded by ice or other cooling medium, the passages 4 and 7 of its two bosses being connected by conduits to a source of liquid to be cooled and to a receiver for cooled liquid respectively. Any liquid entering the inlet 4, for example, passes therefrom through the adjacent groove 16 until on reaching the longitudinal passage 18, it flows into the next upper annular channel in which it divides into two currents flowing in opposite directions around the element 15. These two bodies of liquid after each passing half-way around the baffle element, unite and flow through the next higher longitudinal passage into the adjacent annular channel, and so on until they finally reach the annular cavity surrounding the knob 20 passing from thence into the outlet 7.

In thus circulating through the various channels defined by the grooves in the baffle element 15 and the inner surface of the shell 2, the liquid under treatment is brought into

contact with a considerable area of said inner surface, which is maintained at a low temperature by the cooling medium outside the same so that when such liquid is finally delivered from the outlet its temperature has been reduced to an extent depending among other things upon the number and dimensions of the channels 16 as well as upon the dimensions of the casing 2.

When desired, the cover 8 may be removed by backing off the wing nuts 14 and thereafter swinging outwardly the bolts 11 sufficiently to cause them to disengage the forked lugs 10. The baffle element 15 may then be removed by means of its knob 20, which is preferably formed to facilitate its being grasped.

I claim:—

The combination in a cooler of a substantially cylindrical casing having an inlet and an outlet; a liquid deflecting element in said casing consisting of a substantially cylindrical member having a projecting knob at one end and formed with a series of circular ribs forming substantially liquid tight joints with the interior surface of the casing, each of said ribs having an opening to permit of communication between the channels formed by the ribs; a cover for the casing engaging the knob of the deflecting element to hold the latter from movement; and means for normally holding the cover in position.

FRANK A. PHILLIPPI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."