

J. PLONY.
LIQUID COOLER.
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1,077,368.

Patented Nov. 4, 1913.

Fig. 1.

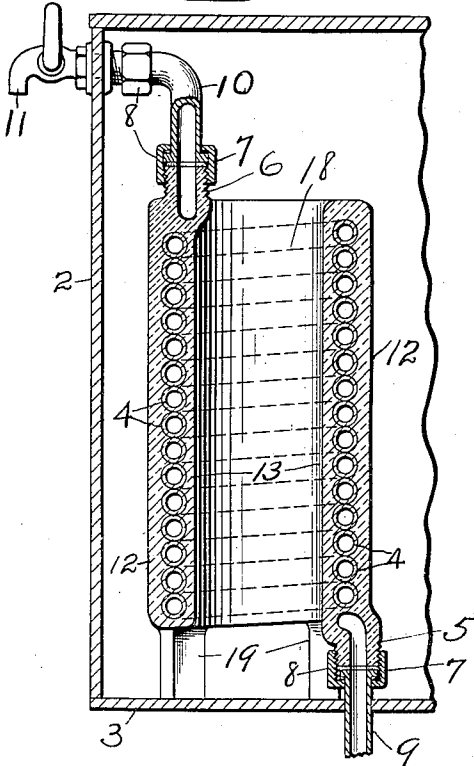


Fig. 2.

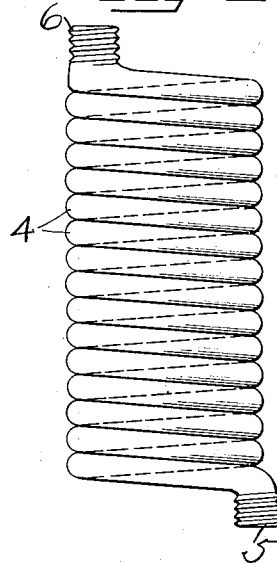


Fig. 3.

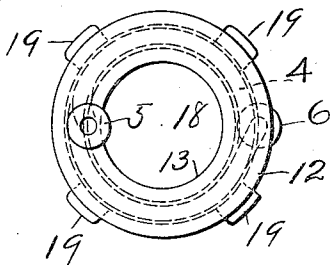
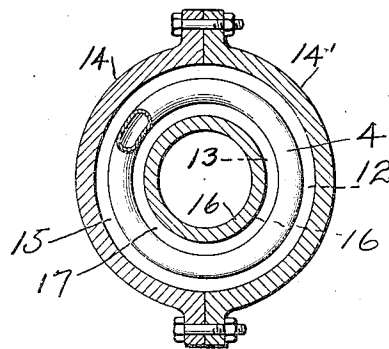


Fig. 4.



WITNESSES:

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LIQUID-COOLER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN PLONY, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Liquid-Coolers, of which the following is a specification.

This invention relates to improvements in liquid coolers, and the invention relates particularly to that class of coolers in which beer or other liquids, after leaving the kegs or barrels, is carried through coils which are submerged in ice-water.

The object of the invention is to provide a vitreous cooling device, to take the place of the usual metallic parts heretofore employed for the purpose, wherein the beer or other liquid is carried or forced through a spirally arranged passage, the interior of which is perfectly smooth, thereby permitting the ready and complete cleansing of the liquid passage.

A further object is to provide a substantially transparent cooling device, which permits of instant and accurate inspection of the liquid passages for detecting discoloration or dirt.

A further object is to provide a suitable vitreous support and protector for the liquid coil or passage, for preventing injury to the same when ice is applied to and removed from the box or chest in which the cooler is disposed, and a further object is to provide for combining the cooling coil and the protector and support into one inseparable part, which is equipped with simple and convenient means for connecting the cooling coil with the usual conducting pipes which carry the liquid to and from the cooler.

The various features and parts of the invention will be understood from the detailed description which follows, and by reference to the accompanying drawing, which forms a part of the specification, and in which—

Figure 1 is a sectional elevation of an ice box or chest, and of one of my improved coolers applied thereto. Fig. 2 is an elevational view of the vitreous coil before the protecting envelop is applied thereto. Fig. 3 is a top-plan view of the complete cooling device. Fig. 4 is a horizontal section; showing the method of combining the cooling coil and its envelop into one part.

In the drawing, 2 represents the vertical portion of the ice box or chest of a beer or

other liquid cooler, and 3 is the bottom portion of the same.

My improved cooler consists of a coil 4, which is preferably made of glass tubing, which is first made in the form shown in Fig. 2, in which the convolutions are in close contact with each other.

5 and 6 represent respectively the top and bottom terminals of the coil 4, which are preferably made of the same material as the coil, and are threaded for receiving the gland-nuts 7 which form parts of the usual unions 8.

9 represents a pipe which connects with the terminal 5, and then extends through the bottom 3 of the box, through which the beer or other liquid is carried from the barrels or kegs (not shown), which may be located in any suitable place. 10 represents another metallic pipe, one end of which connects with the top terminal 6 of the coil, while the other end connects in any suitable manner with a faucet 11. The parts 9, 10 and 11 may follow any of the usual constructions.

The cooling coil 4, as described, is preferably made of glass, but it may be made of any other suitable vitreous substance, for providing a transparent coil, having a clear and smooth interior for facilitating the free passage of the liquid, as well as, the ready and proper cleansing of the liquid passage. The coil 4 being made of vitreous material, which is more or less fragile, requires suitable and adequate supporting and protecting means for warding off the jars and strains incident to the use and care of cooling devices of the class, and to this end, I provide an envelop or covering preferably consisting of glass, or other vitreous material, the same as the coil 4, which comprises a cylindrical outer layer 12, and a similar inner layer 13, the said protecting layers preferably being applied in the following manner: After the coils 3 are made up, as shown in Fig. 2, they are each placed in a mold or hollow form 14—14' (see Fig. 4), in which the coil 4 is disposed concentrically, for providing a clear space, as 15, around the coil. The next step is to insert a cylindrical core, as 16, concentrically within the coil 4, in a manner to provide a clear space, as 17, between the core and the coil. The next step consists of pouring melted glass, or other similar vitreous ma-

terial into the hollow spaces 15 and 17, for casting or forming the protecting layers 12 and 13. After allowing the melted glass to cool and harden, the mold 14—14' and the core 16 may be removed. The coil 4 and its inner and outer supporting layers 13 and 12 will then be combined into one compact and inseparable part, as shown in Figs. 1 and 3.

The complete device when removed from the mold is in the form of a cylinder, having a comparatively large bore 18, which is open at both ends, and which may be filled with ice and water, the same as the space around the cooler. When the casting of the envelop is completed, the inner and outer surfaces are smooth, and very little dirt or slime will accumulate thereon.

By the foregoing method of covering or enveloping the otherwise fragile coil or tube 4, the latter is adequately protected and will withstand considerable rough handling and abuse, without danger of being broken or otherwise injured.

When clear glass is employed for both the coil and the envelop, the whole cooling device will be transparent, and any discoloration or dirt which gathers on the interior surface of the liquid passage may be readily detected, and as the interior of the coil is intended to be smooth, like the outer surfaces of the envelop, all dirt and stains may be readily and effectually removed, by forcing any suitable cleaning agent through the coil. The outer and inner surfaces of the vitreous envelop may also be readily and effectually cleaned without in any way disturbing the coil, and without requiring the removal of the device, and the whole device is therefore rendered highly sanitary.

By making the complete cooling device in one part, as shown and described, it is not liable to get out of order, and it will have sufficient weight to hold itself in place without any other securing means. But in order to aid in holding the cooler in place, I have provided a number of feet 19, which are preferably formed integrally with the outer protecting layer 12. These feet not only afford a broader base for supporting the cooler, but they also serve to hold the main body of the cooler a sufficient distance above the bottom 3 of the ice box, for permitting the proper flushing and draining of the box and cooler, without requiring the latter to be disconnected or removed.

After my improved coolers are made up and disposed in the ice-box, as described, ice and ice-water may be applied to the box, in the usual manner, and the beer or other liquid which passes through the coils 4 will be cooled substantially the same as in the old styles of coolers, where metallic coils only are employed.

The thickness of the vitreous envelop may

be varied to suit conditions, but the layers 12 and 13 need not be more than one-sixteenth to one-eighth of an inch in thickness. When the coolers are made as herein shown and described, the heat will penetrate the glass walls and effect the cooling of the liquid to the same, or to a greater extent than if the coils were made of block-tin, or like metal substances.

The enveloping parts 12 and 13 being cylindrical and also filling the winding crevices between the adjacent convolutions of the coil, renders the complete device strong and capable of withstanding an extremely low temperature, and also rough handling of the broken ice, as well as, the frequent tamping of the ice, without danger of breaking or injuring the device.

My improved cooler is extremely simple, strong and compact, and can be produced at a smaller cost than the well-known block-tin coils. It can be more readily and effectually cleaned, and when properly constructed and installed, it will outlast any of the metallic coolers known to me.

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

1. A liquid cooler, comprising a vitreous coil having screw-threaded terminals for connecting with supply and discharge pipes, and a vitreous envelop adhering to said coil for protecting and supporting the coil.

2. A liquid cooler, comprising a hollow vitreous cylinder open at its opposite ends, and a tubular coil embedded in the walls of said cylinder, the opposite ends of said coil provided with means for connecting with pipes which conduct the liquid to and from said coil.

3. A cooler comprising a transparent vitreous coil adapted for carrying liquid to be cooled, and a transparent vitreous protector completely enveloping said coil, said protector arranged in the form of a hollow cylinder capable of being submerged in and also filled with ice water for cooling the liquid.

4. A beer cooler, comprising a coiled tube arranged in the form of a cylinder, and a covering for said coiled tube, said covering consisting of vitreous material disposed on the opposite sides of said tube, the said material filling the winding crevices of said coil for rendering the said parts inseparable.

5. The combination of a cylindrical vitreous coil having a liquid passage there-through, and a support for said coil, said support comprising an envelop of vitreous material, said envelop completely inclosing and adhering to the said coil, said envelop having a series of integral feet at one end for supporting the weight of the coil and the envelop.

6. In a liquid cooler, a cylindrical coil

comprising a transparent vitreous tubing adapted for carrying liquid to be cooled, and a transparent vitreous sheathing enveloping and adhering to the said coil adapted for supporting and protecting said coil, said sheathing comprising a hollow cylindrical part capable of being filled with ice and ice-water for cooling a portion of said coil.

7. A liquid cooler, comprising a vitreous coil, and a vitreous envelop adhering to said coil for protecting and supporting said coil.

8. A cooler, comprising a transparent vitreous coil, and a transparent vitreous protector completely enveloping said coil.

9. A liquid cooler comprising a hollow vitreous cylinder, and a tubular coil embedded in the walls of said cylinder.

10. The combination of a hollow vitreous

cylinder, and a liquid cooling coil embedded in the walls of said cylinder.

11. A liquid cooler, comprising a vitreous coil, and a vitreous sheathing enveloping and filling the winding crevices of said coil for rendering said parts inseparable.

12. A cooler comprising a coiled tube arranged in the form of a cylinder, and a vitreous envelop for said tube, said envelop being in the form of a cylinder, the walls of said envelop completely inclosing said tube.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN PLONY.

Witnesses:

WM. C. ANDERSON,
HARRY DE WALLACE.