H. C. Fowler.

Cooling Liquids.

No. 76181 Patented Mar. 31, 1868.

Fig. 1.

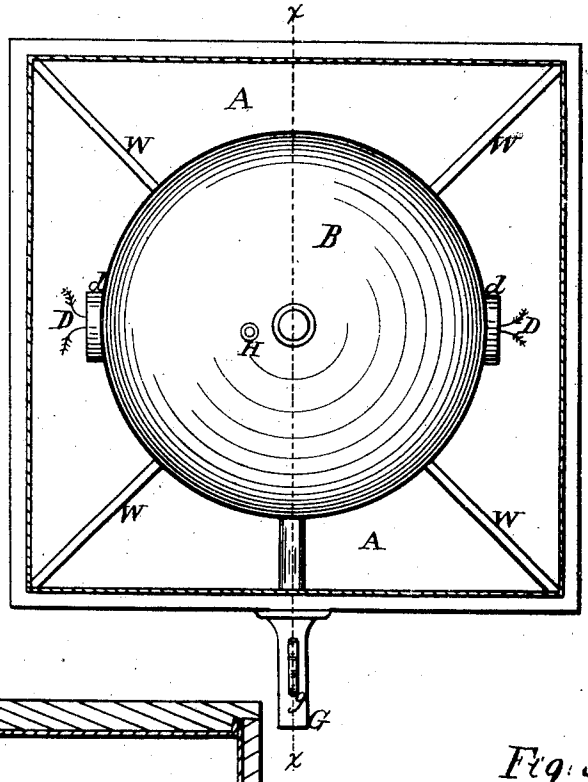


Fig. 2.

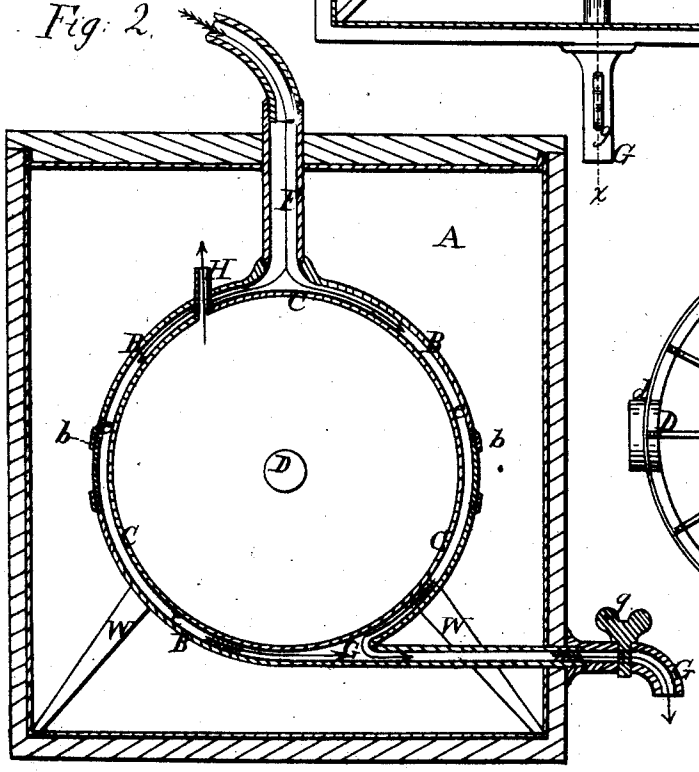
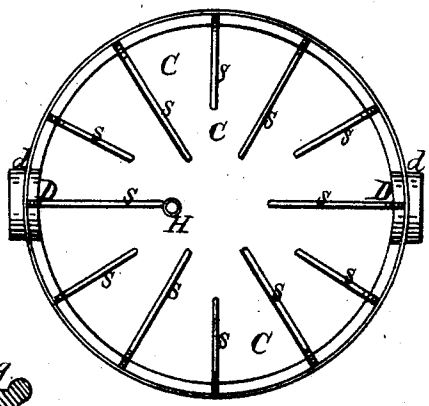


Fig. 3.



Witnesses: R. B. Stilson. — H. C. Young.

Inventor: Harvey C. Fowler.

United States Patent Office.

HARVEY C. FOWLER, OF GREAT BEND, PENNSYLVANIA.

Letters Patent No. 76,181, *dated March* 31, 1868.

IMPROVED APPARATUS FOR COOLING LIQUIDS.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HARVEY C. FOWLER, of Great Bend, in the county of Susquehanna, and State of Pennsylvania, have invented a new and useful Apparatus for Cooling Liquids; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top view of my refrigerating-apparatus, with the outer cover removed.

Figure 2, a central vertical section thereof on the line *x x* of fig. 1.

Figure 3, a top view of the interior shell of the cooler, removed from the ice-chest.

Similar letters indicate like parts in all of the figures.

The nature of my invention consists in the combination of an extended cooling-space, formed over and about the walls of an inner chamber by an enclosing outer wall or shell, with an ice-chest surrounding said outer shell, and having communication with the interior of said inner chamber.

In the accompanying drawings, A represents an ice-box or chest, which may be of any suitable size and form. B, a thin sphere of metal, glass, rubber, or other suitable material, made in two hemispheric sections, fitted closely together by a water-tight joint, *b b*, fig. 2, and supported centrally within the ice-chest A by the legs W W, or other suitable contrivance. C, a second hollow sphere, placed concentrically within the first, and made of such a size relatively thereto as to leave a narrow concentric space or chamber, *e*, fig. 2, between the two. The inner sphere, C, is provided with enlarged openings, D D, arranged diametrically opposite each other, and which are fitted with collars, *d d*, projecting outwardly through the exterior shell B into the ice-chest A. These collars form a close joint with the outer shell, so that the concentric chamber *e* remains water-tight. The chamber *e* is provided with an inlet or supply-tube, F, fitted into the outer shell B, projecting upwardly therefrom above the top of the surrounding ice-chest A, and also with a discharge-tube, G, extending from its lowermost point out through the side or bottom of the ice-chest, and fitted with a suitable cock or faucet, *g*. I usually make the supply-tube one-half larger than the discharge-tube, so that the cooling-space *e* shall momentarily be completely filled. An air-tube, H, is also fitted in the top of the inner chamber B, and extends therefrom up through the concentric cooling-space *e*, and, with a tight joint through the outer shell B, into the ice-chest. Ribs or flanges, *s s*, are formed on the outer surface of the inner shell, either radially, as illustrated in fig. 3 of the drawings, or otherwise, as may be found desirable for the purpose of diffusing and retarding the flow of liquid over the same. These ribs terminate before reaching points immediately opposite the inlet and outer apertures of the concentric cooling-chamber *e*, so that the flow of liquid into and from the same is uninterrupted. The ribs *s s*, or their equivalent, may be formed, if preferred, upon the inner surface of the outer shell, or upon both.

The operation of my apparatus is simply and singularly effective. The ice-chest A of the apparatus being filled with ice, the thin outer and inner walls of the concentric cooling-chamber *e* become icy cold—the outer walls, B, from direct contact with the ice, and the inner walls, C, from the passage of the cold air and ice-water from the ice-chest A, through the openings D D, (see blue arrows, fig. 1,) into the inner chamber C.

With the apparatus thus arranged and filled with ice, if wine, beer, or other liquids be introduced through the upper tube F, as indicated by red arrows, fig. 2, it will fall upon the spherical corrugated or ribbed surface of the inner wall C of the cooling-chamber, and be diffused throughout the same, and coming in immediate contact with the cold inner and outer walls in a thin spray or sheet, will be instantaneously cooled thereby, so that by the time it reaches the discharge-tube G, its temperature will be reduced to a very low point, without the possibility of becoming flat and insipid by exposure to the atmosphere.

I contemplate in this my invention the use of any form of cooling-chamber, *e*, having an extended dispersing surface, represented by the top or dome of the inner sphere, which I have herein described and illustrated, and placed opposite and vertically beneath an inlet-aperture, and forming one side of a narrow cooling-space or chamber, which extends radially from said aperture, and is provided with a suitable discharging-aperture, whether said chamber be enclosed between walls or surfaces disposed in spheroidal or conoidal forms, or between such as have a pyramidal or otherwise polygonal form.

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

My improved apparatus for cooling liquids, consisting substantially of a narrow refrigerating-space, extending radially from and beneath an upper inlet-aperture, and communicating with an outlet-aperture, said space being enclosed between concentric or parallel walls surrounding a central cold-air chamber, which communicates with an outer enclosing ice-chest.

I claim also the combination of diffusing flanges *s s* with the inner surface of the upper or lower walls of the refrigerating-space, *e*, of my apparatus, substantially in the manner and for the purpose herein set forth.

HARVEY C. FOWLER.

Witnesses:

ANDREW MCCALLUM,

P. B. STILSON.