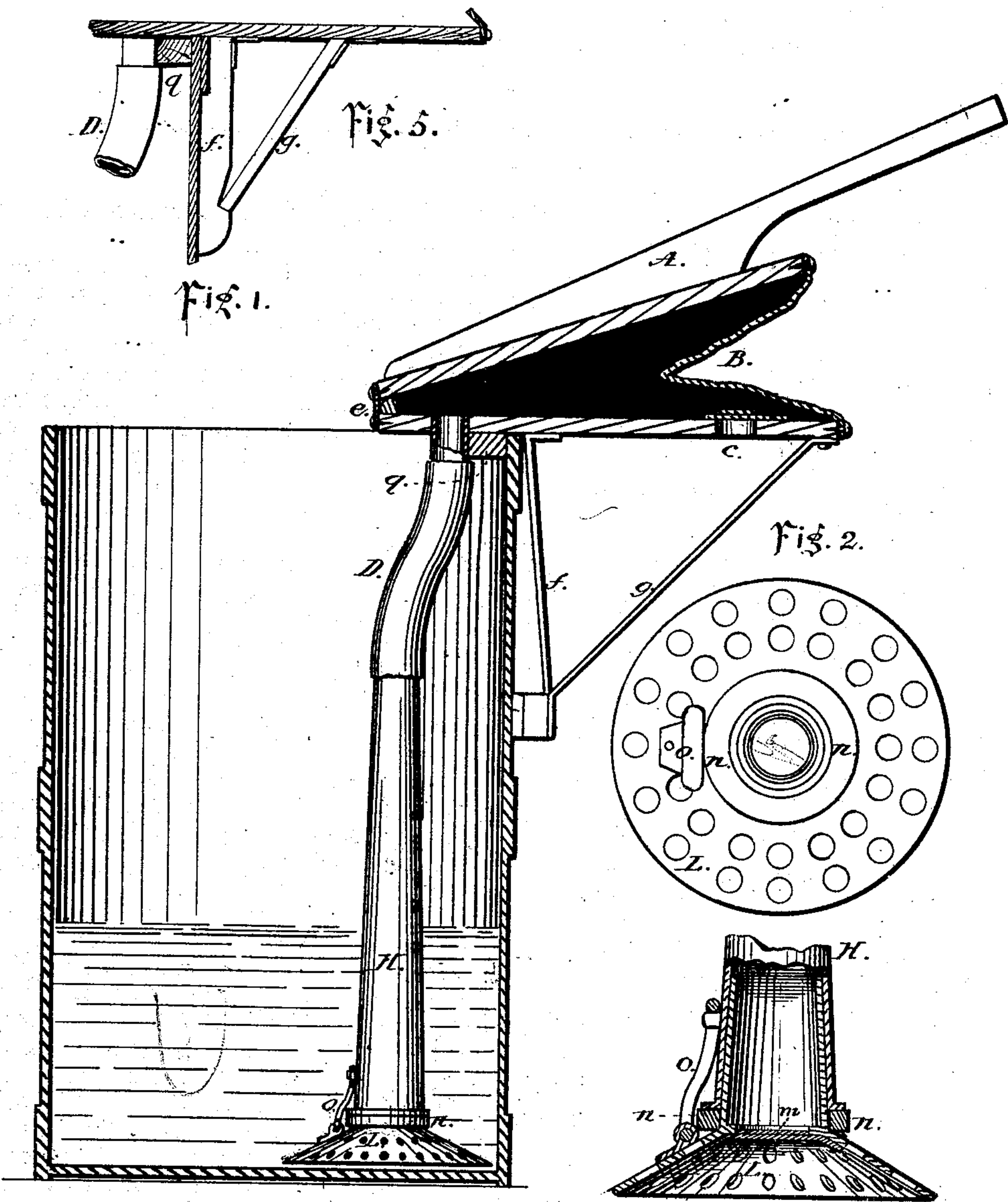


J. JONES, C. D. FAULKNER, H. K. FAULKNER & F. L. JONES.  
 Improvement in Milk-Coolers.  
 No. 127,608. Patented June 4, 1872.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MILK-COOLERS.

Specification forming part of Letters Patent No. 127,608, dated June 4, 1872.

### SPECIFICATION.

We, JONATHAN JONES, CHANDLER D. FAULKNER, FRANCIS L. JONES, and HORACE K. FAULKNER, residents of Utica, Oneida county, and State of New York, respectfully represent that they have invented an Improved Aerator and Milk-Cooler, for the purpose of removing the natural odor of the milk and cooling it for cheese-making; we therefore ask that Letters Patent may be granted to us therefor, reference being had to the drawing and figures marked thereon making a part of this specification.

To enable others skilled in the art to which our invention belongs to manufacture and use the same, we will proceed to describe its construction and operation.

Our aerator or milk-cooler consists of a bellows, of the usual form, having a valve at the bottom, which has extending from it a tube leading into an ice-box below. The bellows has also in its bottom an orifice opening into a tube which extends toward the bottom of the milk-can. This tube is composed partly of rubber and partly of metal. At the bottom of it is a conical strainer, which rests on the bottom of the can when the aerator is being used. The strainer has extending from it a tube, slightly conical in form, which fits into the tube extending from the bellows. A rubber ring encircles this tube, and has a bearing on the shoulder formed at the angle of the two cones. The tube extending from the bellows has a flange, which bears upon the rubber ring or packing. The conical strainer is attached to the tube extending from the bellows by a hook of wire. The bellows has a handle extending from it, which forms a lever, to be operated either by hand or other power. Just back of the orifice opening into the tube the bellows has a strip extending across its bottom. A bracket or brace is attached to the bottom of the bellows, the inner brace of which is fastened to the bottom of the same a short distance from the strip first mentioned. When the bellows is in position its foot rests against the side of the can, while the bottom of it rests on the edge, and is prevented from slipping toward the can or from the same by the strip and inner brace of the bracket. In connection with the bellows we use an ice-box,

situated at any convenient distance from the milk-can.

This box or refrigerator may be connected with the valve of the bellows by a tube attached to the bottom of the bellows. The ice-box may be arranged with perforations, to admit air from without, which passes over the ice in the bottom of said box before being conducted by the tube to the bellows; otherwise the tube, entering the ice-box at one side, may be continued in coils, which may pass through the ice, and open again through one side of the box.

When we wish to aerate or cool a vessel of milk we operate our apparatus as follows: After attaching our bellows to the sides of the vessel, and putting the tube having the conical strainer in its place, we connect our ice-box to the bellows by the proper tube, and then proceed to operate the bellows by the lever, arm, or handle of the same. By pressing down the top of the bellows we close its valve and force the air through the opening down the tube, through the valve at the bottom of the tube, and then, by way of the perforations in the conical strainer, into and through the milk. When the bellows is exhausted we release the handle, and the cold air from the ice-box is conducted through the tube on the outside of the can, to fill the vacuum lately formed by exhaustion. When the handle of the bellows is released the valve in the top of the strainer is closed by the action of the atmosphere on the milk in the vessel, and the milk is kept from ascending the tube into the bellows. By operating the bellows as described a short time the milk may be thoroughly purified and cooled of all unnecessary animal heat and odor.

Figure 1 is a transverse vertical section of can; Fig. 2, plan of conical strainer; Fig. 3, vertical section through strainer; Fig. 4, a detached view, showing the relation of ice-box to bellows.

A is the lever to operate the bellows; B, the bellows. *c* is the valve in the bottom of bellows. D is the India-rubber hose connecting tube H with bottom of bellows. *e* is the hinge of bellows, forming the fulcrum of the bellows-lever. *f g* is the bracket sustaining the apparatus against the can. *q* is the strip



across the bottom of the bellows. *o* is the hook to fasten together the strainer and the tube *H*. *n* is the rubber packing. *L* is the conical strainer; *m*, the valve opening into conical strainer *L*. *N* is the tube connecting the bellows with the ice-box. *P* is the ice-box.

We have shown in Fig. 5 a variation in the form of the bracket for supporting the bellows. We use this form in preference, as we get a uniform bearing on the side of the can, with the piece *f* forming the back of the bracket, which saves the can from being dented. We use this bracket so that the parts may fold against the bottom of the bellows to render it more portable. *m* is the valve at the upper part of the conical strainer *L*, which opens toward the bottom of the can, when the air is forced down by the action of the bellows, and closed again by the pressure of the atmosphere upon the milk when the handle of the bellows is lifted. The object of this valve is to prevent the milk from ascending the tube into the bellows while the same is being cooled. The conical strainer *L* serves as a footing for the tubes *D* and *H* while it rests on the bottom of the can, and at the same time, with its

perforations, diffuses the chilled air throughout the body of the milk in the can. Our arrangement of it facilitates the cleansing of the valve and its surroundings.

We are aware that it is not new to cool milk by forcing cold air up through it in finely-divided currents, and we do not claim, broadly, the combination of the bellows, tubes, refrigerator, and strainer, such being old.

*Claim.*

What we claim as new, and wish to secure by Letters Patent, is—

The bellows *B*, sustained upon the side of the can by the detachable bracket *f g*, in combination with the air-refrigerator *P*, tube *H*, valve *m*, conical perforated strainer *L*, jointed to the tube *H* and held by the hook *o*, substantially as and for the purpose specified.

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