

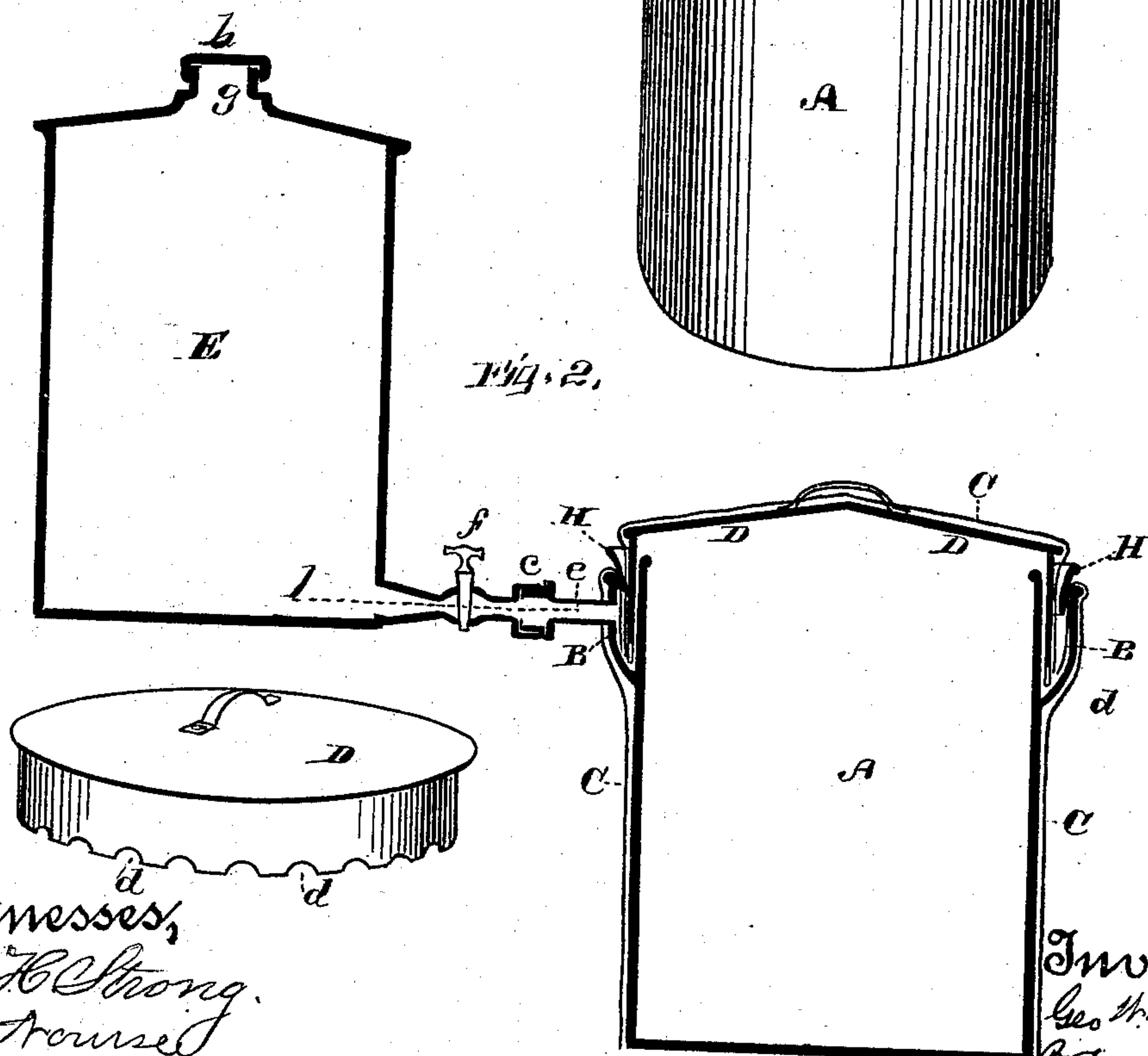
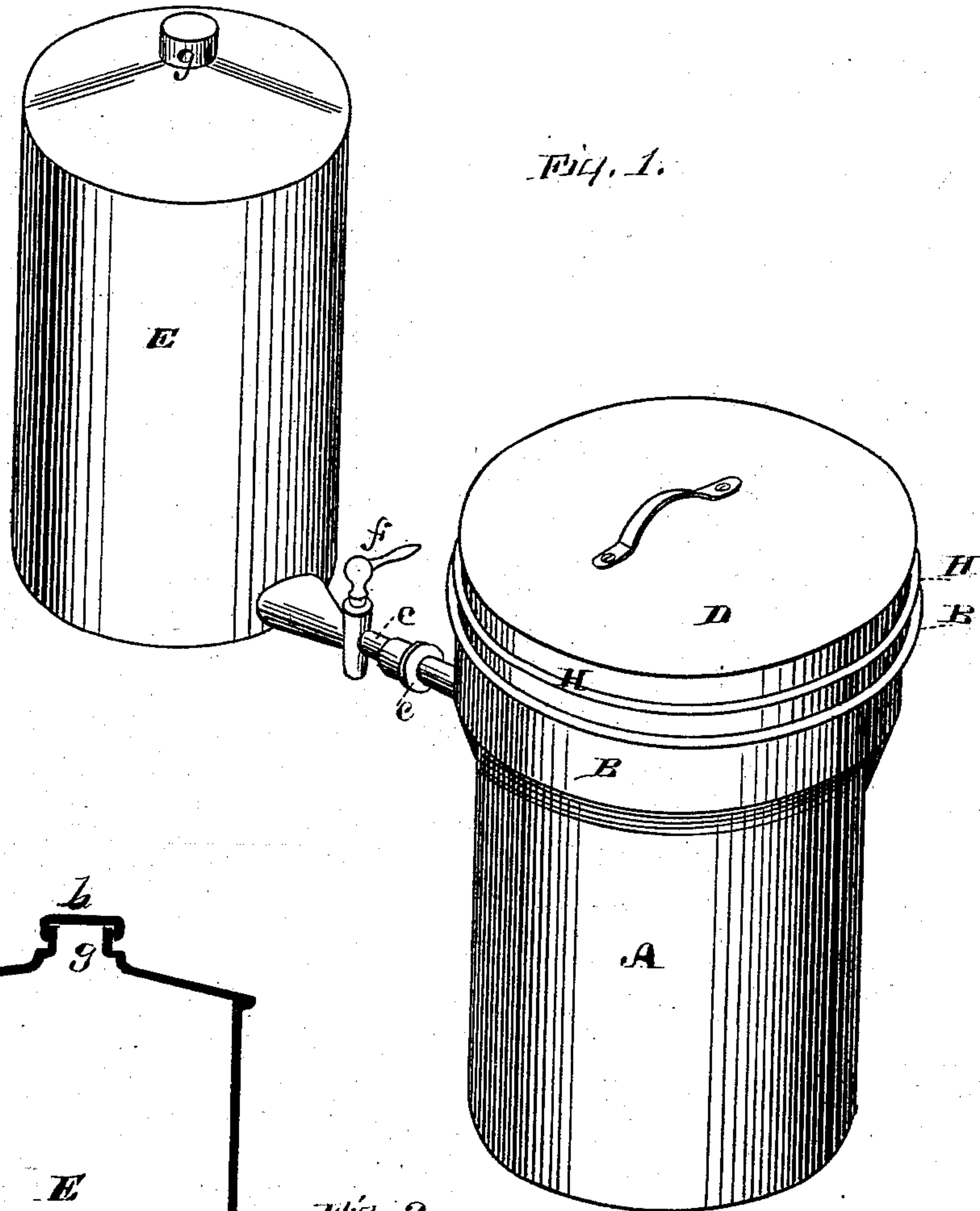
(No Model.)

2 Sheets—Sheet 1.

G. W. DEITZLER.
EVAPORATIVE COOLER.

No. 271,813.

Patented Feb. 6, 1883.



Witnesses,
Geo. H. Strong.
L. A. House.

Inventor
Geo. W. Deitzler
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(No Model.)

2 Sheets—Sheet 2,

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Fig. 3.

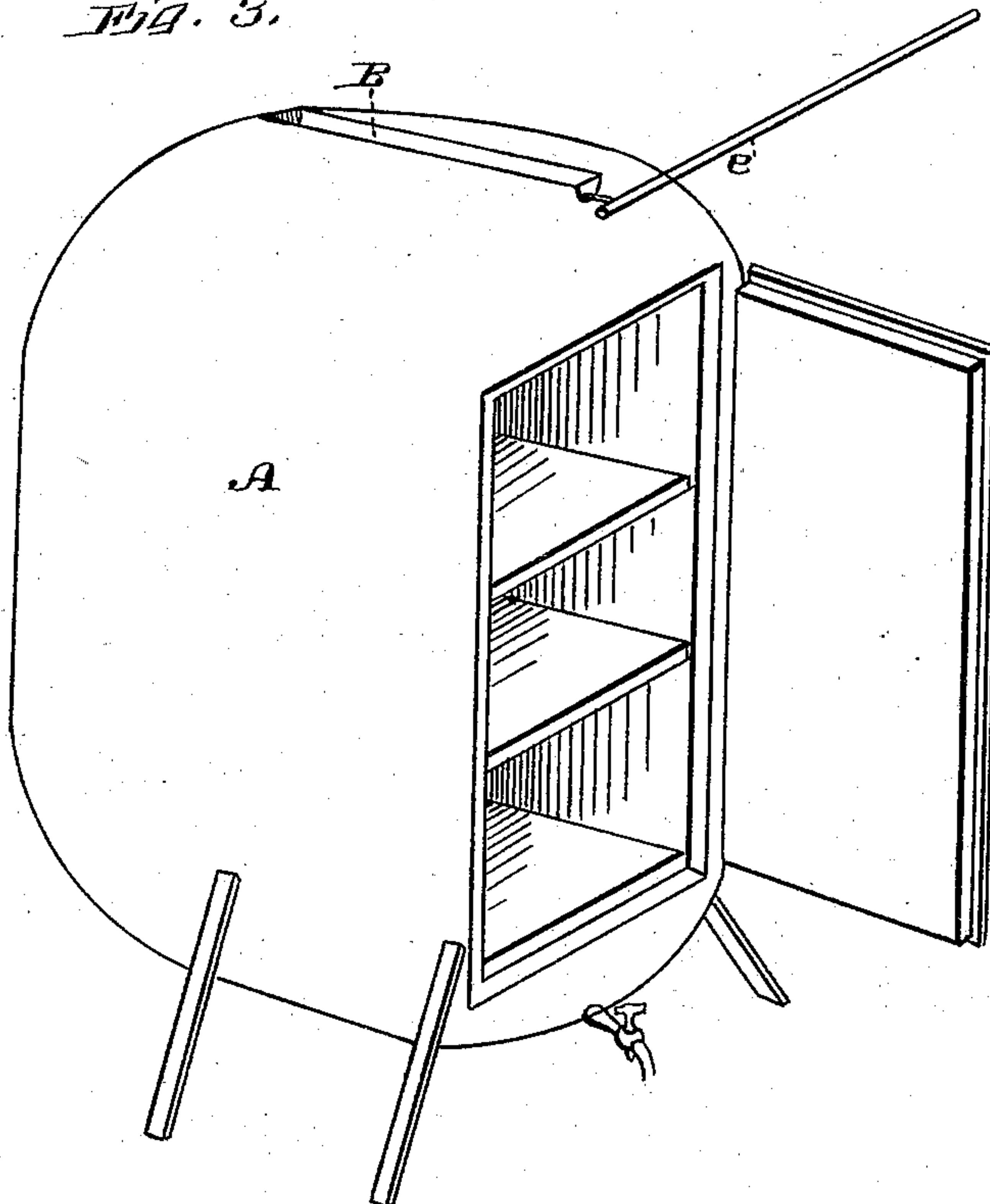


Fig. 4.

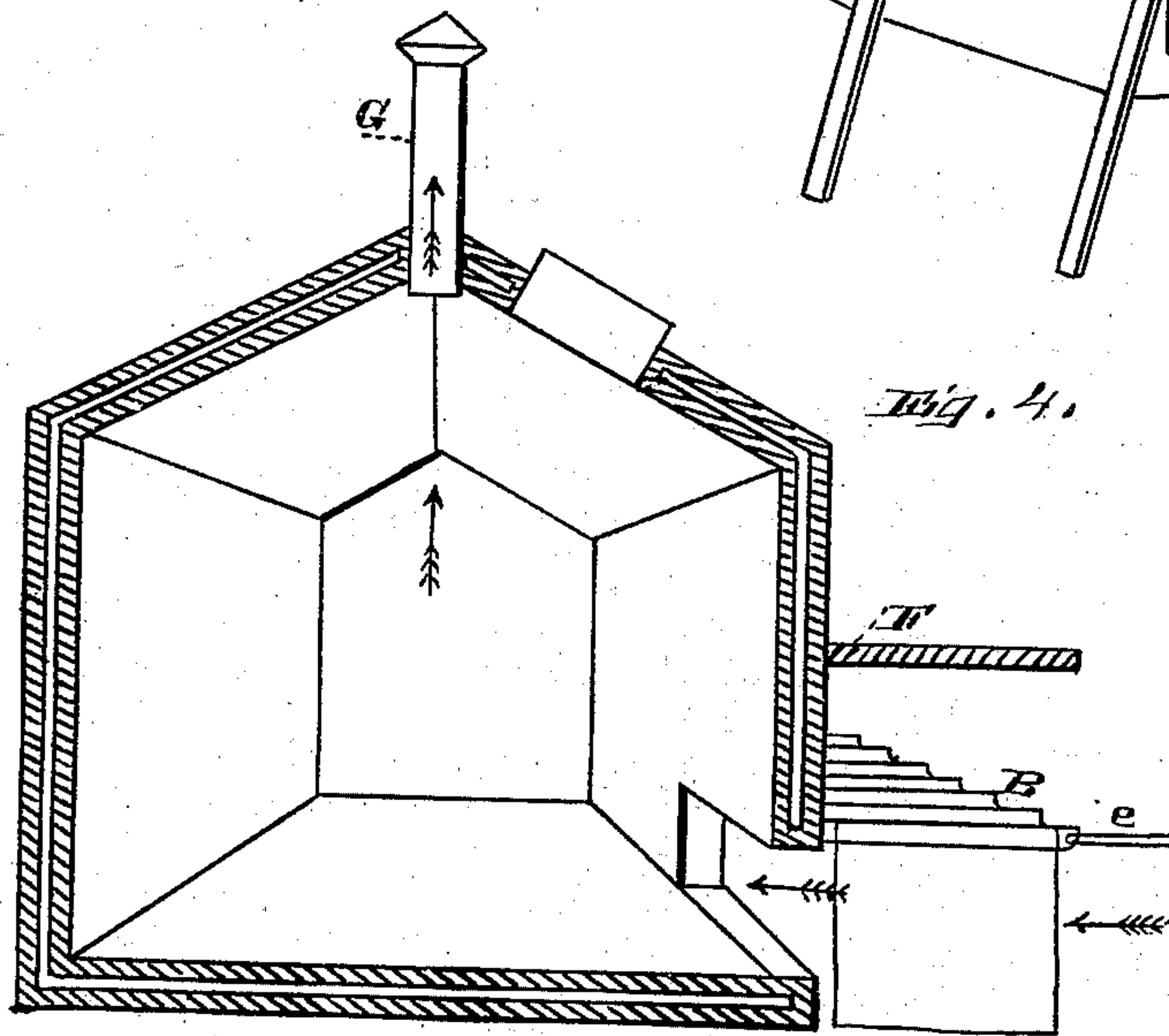
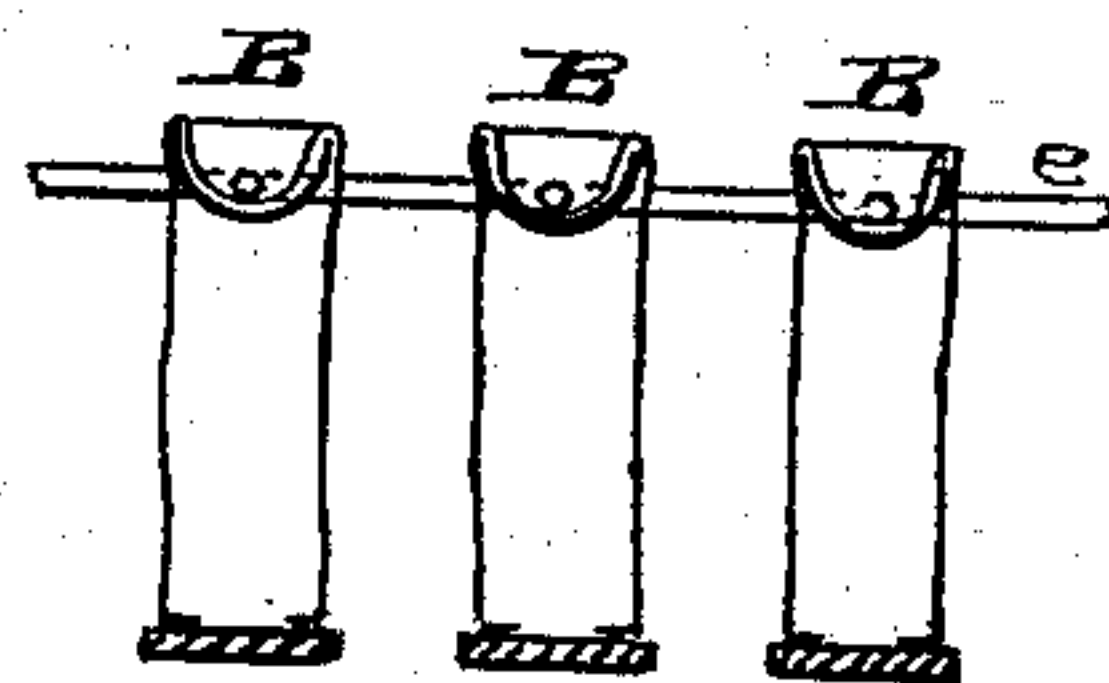


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. DEITZLER, OF SAN FRANCISCO, CALIFORNIA.

EVAPORATIVE COOLER.

SPECIFICATION forming part of Letters Patent No. 271,813, dated February 6, 1883.

Application filed June 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DEITZLER, of the city and county of San Francisco, State of California, have invented an Improved Evaporative Cooler; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention has reference to that class of coolers in which the reduction of temperature is produced by evaporation; and it consists essentially in devices and process for delivering water to the evaporating-surfaces automatically as needed, and so as to prevent waste.

Figure 1 is a perspective view of a butter-cooler. Fig. 2 is a vertical section of the same. Fig. 3 is a modification in perspective. Fig. 4 shows the application of the cooling device to a dairy or other room.

I do not restrict myself to any particular form, size, or position of said coolers or evaporating-surfaces.

In Figs. 1 and 2 I represent a vessel, A, which may be made of metal or other suitable material. A gutter or trough, B, for containing water, is attached to it at the top, and said vessel is surrounded with Turkish toweling or other bibulous material, C, the upper margin of which is turned down into said gutter or trough.

The cover D is made convex or funnel-shaped, and has a broad rim or flange extending down to the bottom of trough B, which supports the cover and prevents contact between the cover and the top of vessel A. By this construction any condensation of moisture upon the under side of the cover, as well as any gases in said vessel, will pass over into the water in said trough and out through the holes *d* in the lower edge of the rim of the cover, which holes will always be below the water-line, thus excluding air and dust from the vessel A.

I construct a water-tank, E, of suitable size, and connect it with the trough B by means of pipe *e*, having a faucet, *f*, and a union-coupling, *c*. The upper end of said water-tank has an opening, *g*, which is fitted with a screw-plug, *b*.

The operation of my invention is as follows: After closing the faucet *f*, I fill the tank E with water and then adjust the screw-plug *b*, making it perfectly air-tight. The faucet *f* is now opened, and the water runs over into trough B,

in which it rises a little higher than the top of pipe *e*, when it becomes effectually trapped by atmospheric pressure. The edges of the bibulous covering C being below the water-line in trough B, the water is carried over the rim of said trough by capillary force, thus saturating said covering, and when the water has been lowered in said trough by said capillary force to about the center of pipe *e*, as shown by dotted line *l*, air will naturally pass up into the tank E, which will again force the water into the trough, as at first, and in this way the operation will be repeated as long as there is any water in the tank at or above the dotted line *l*, the trapping and untrapping being wholly automatic. The toweling on the cover of vessel A will also be saturated by the same process.

Should water be drawn over faster than it is needed for the process of evaporation, the ring H may be inserted, as shown, and by pressing it down the flow of water may be regulated, and thus prevent dripping. It will now be understood that the evaporation of the moisture from the outer surface of vessel A will reduce the temperature within said vessel, in which milk, butter, &c., may be stored and preserved in the hottest weather without the use of ice or other cold-producing operation or process. By placing the apparatus in a current of air the evaporation will be increased and the cold augmented.

Fig. 2 is a modification of the cooler, and is designed for the storage of meat, &c., as in an ordinary domestic refrigerator. It is made of metal or other suitable material, flat on the sides and back and front, and of circular shape on top and bottom, with a door in front, as shown.

The whole of the structure is covered with bibulous material, for the purposes described, and on the top is a gutter or trough, B, in which the bibulous material is immersed and held down by any suitable means, and water is supplied to said trough through pipe *e*, as shown, and as described in Figs. 1 and 2. The inside of this refrigerator is fitted with shelves, and in the bottom is a compartment for cooling water or other liquids.

Fig. 4 shows a device for cooling the air of apartments. B Bare metal gutters or troughs, which are firmly arranged by any suitable

means, and of any desired length and distance apart. The pipe *e* connects the troughs and supplies them with water from a tank, all arranged, constructed, and operated as described, and as shown in Figs. 1 and 2.

The Turkish toweling or other bibulous material, *C*, is suspended over the troughs, being pressed down and held in the water by a wire or string stretched lengthwise through said troughs. The towels *C* are made taut, and held apart at the bottom by wooden strips of the same diameter as the trough. This device is placed in a housing, *F*, having ingress and egress ducts for the passage of air. The air which may be caused to pass over said moist towels will have its temperature greatly reduced, and may be forced to flow with great advantage into and through a dairy or other room by interposing such room between the housing *F* and the chimney *G*, as more fully described in Patent No. 247,020, granted to me September 17, 1881.

This device may be used, also, for evaporating saline and related solutions.

I am aware that cooling by evaporation is not new, and vessels covered by bibulous substances moistened by various means have been used for cooling butter, &c., and I do not claim broadly such process or apparatus; but

What I claim as new, and desire to secure by Letters Patent, is—

1. In a refrigerating or cooling apparatus, the chamber *A*, with the gutter or gutters *B*, and the surrounding porous or bibulous material dipping into the gutter, in combination

with the supply-tank and the pipe *e*, substantially as and for the purpose herein described.

2. In a refrigerating or cooling apparatus, the chamber *A*, with its surrounding porous or bibulous material dipping into the channels or gutters *B*, supplied with water automatically through the pipe *e*, in combination with the tapering ring *F*, whereby the supply of water for evaporation may be regulated, substantially as herein described.

3. In a refrigerating or cooling apparatus, the chamber *A*, with the surrounding porous material dipping into the water-supplied channel or gutter *B*, in combination with the convex or arched roof or cover *D*, with the rim or flange perforated at *d*, and extending into the channel or gutter *B*, said cover having a porous envelope which dips into the channel, substantially as herein described.

4. In a cooling apparatus, the automatic process of supplying water to evaporating-surfaces by means of the supply-tank *E*, the faucet *f*, pipe *e*, and gutter *B*, substantially as and for the purposes described and specified.

5. A means of supplying water automatically to evaporating-surfaces in a cooling apparatus, consisting of the supply-tank *E*, pipe *e*, gutter *B*, and faucet *f*, substantially as and for the purposes described.

In witness whereof I hereunto set my hand.

GEORGE W. DEITZLER.

Witnesses:

S. H. NOURSE,
G. W. EMERSON.