

(No Model.)

H. H. PALMER.

MILK COOLER.

No. 301,626.

Patented July 8, 1884.

Fig. 1.

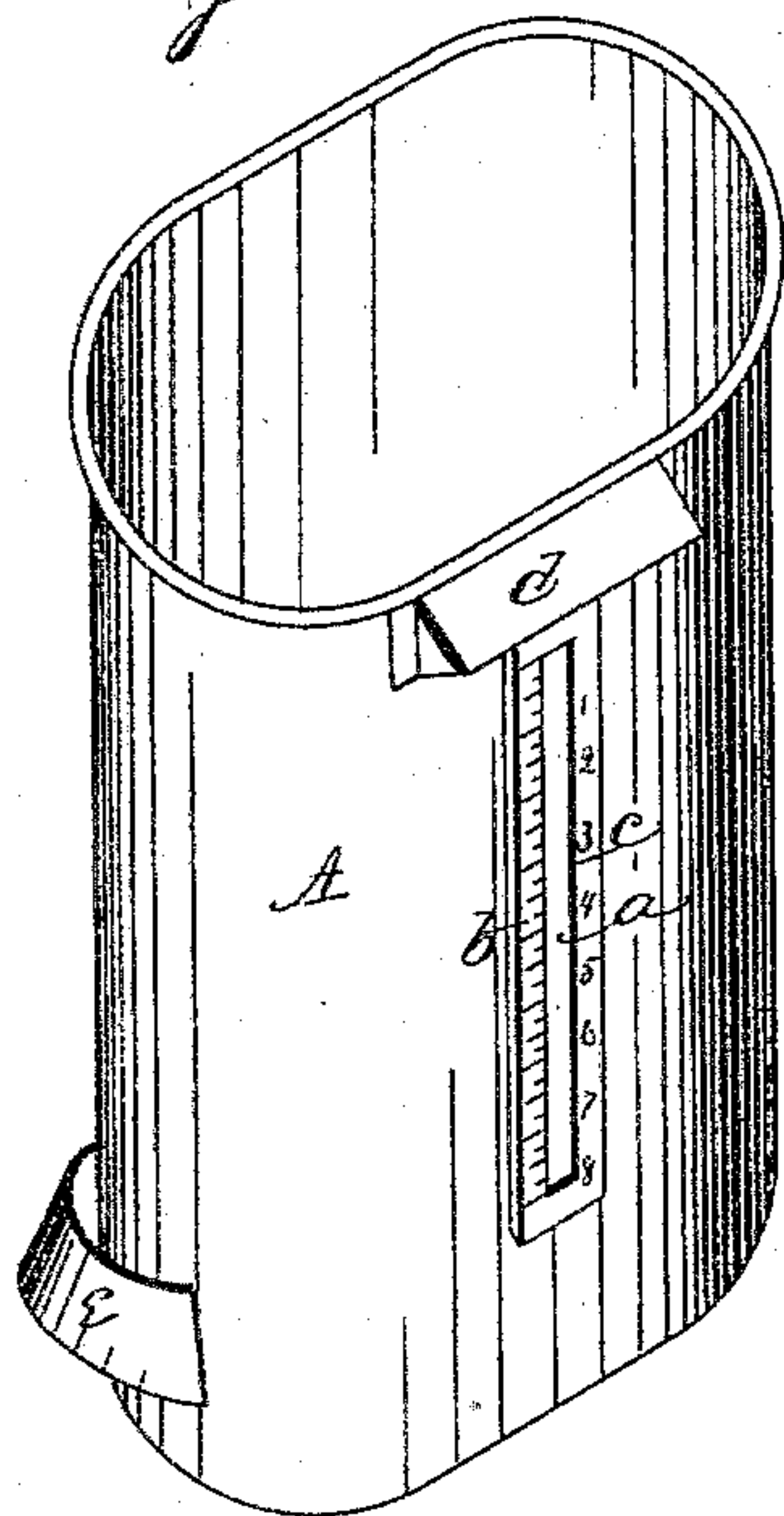


Fig. 2.

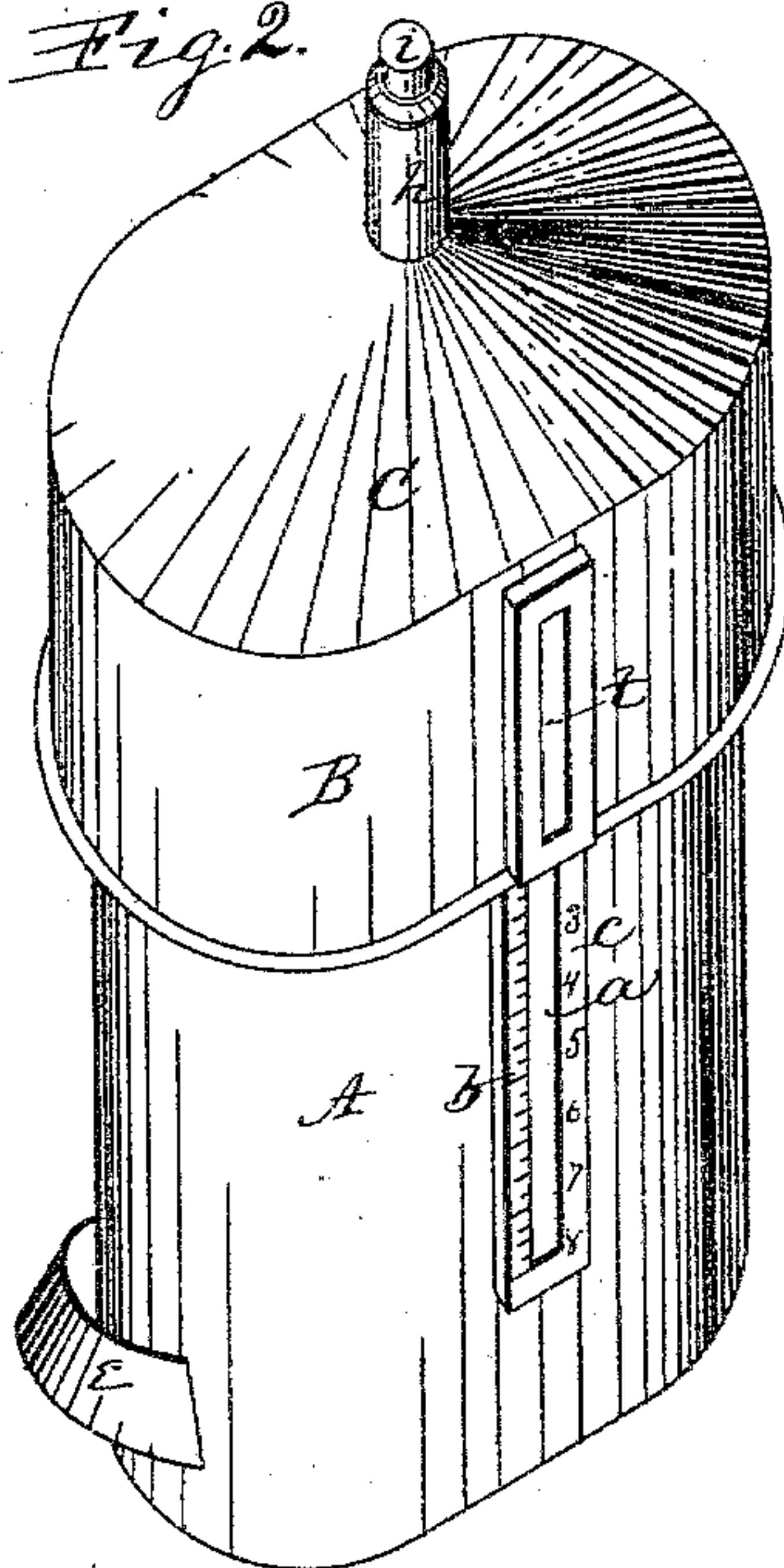


Fig. 3.

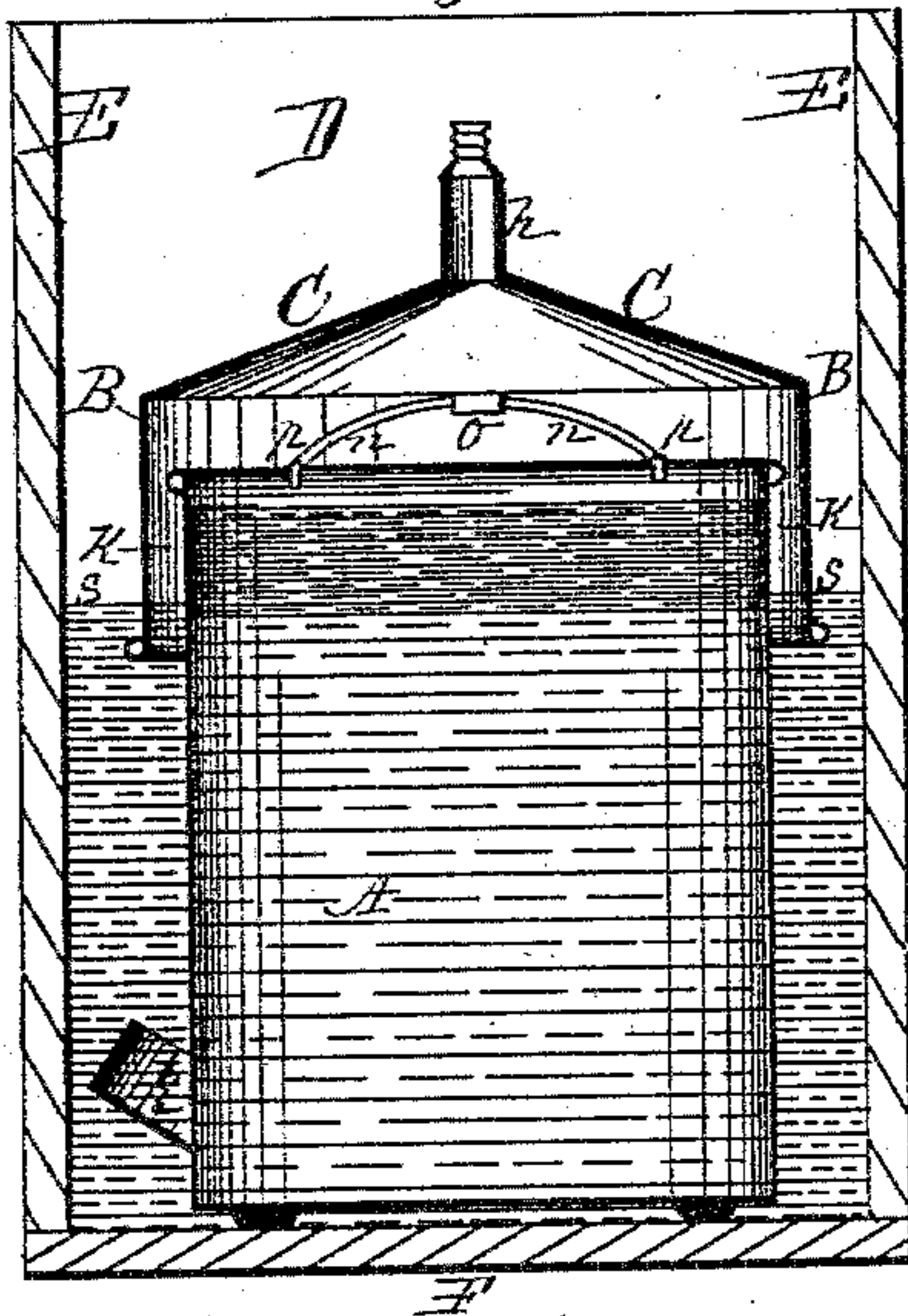


Fig. 4.

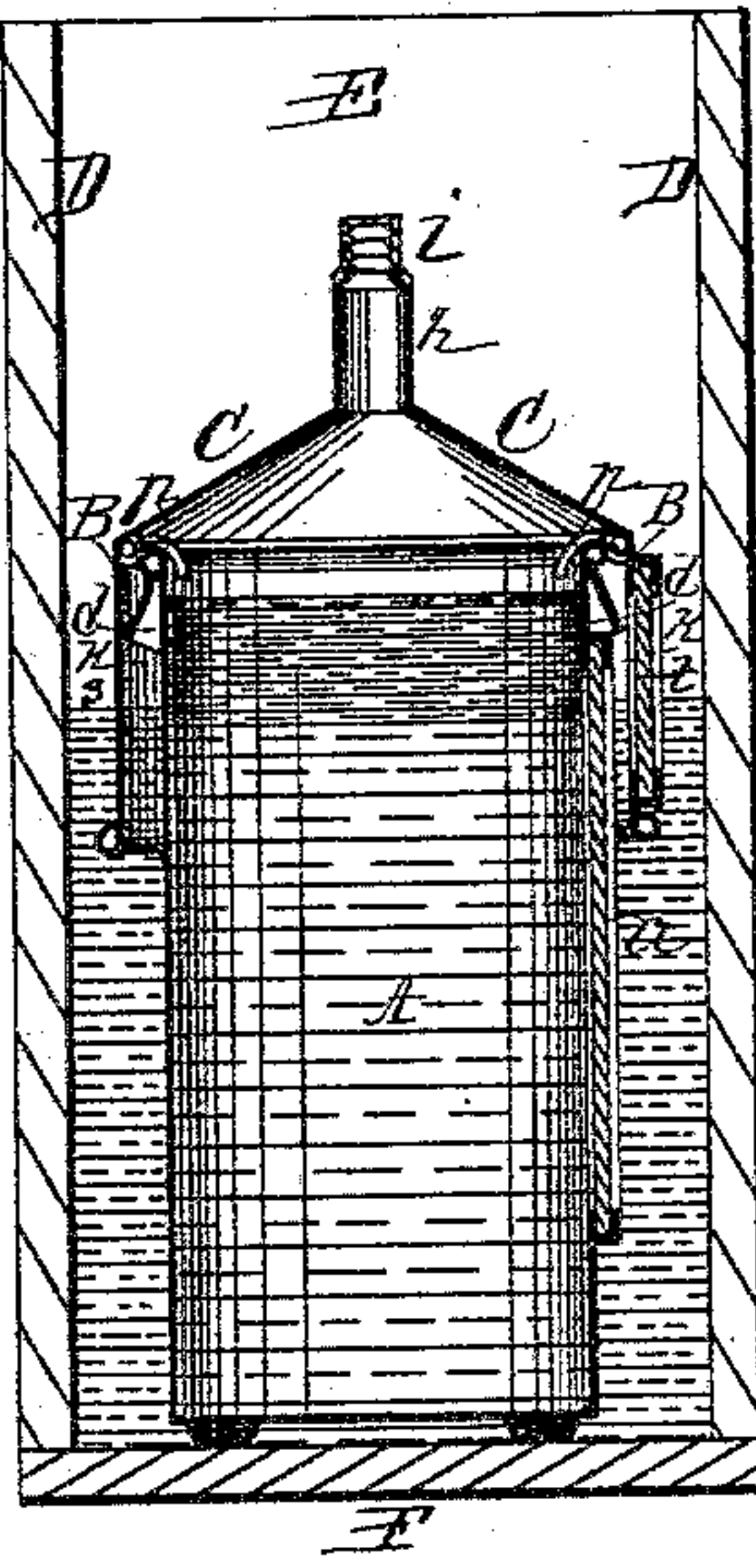
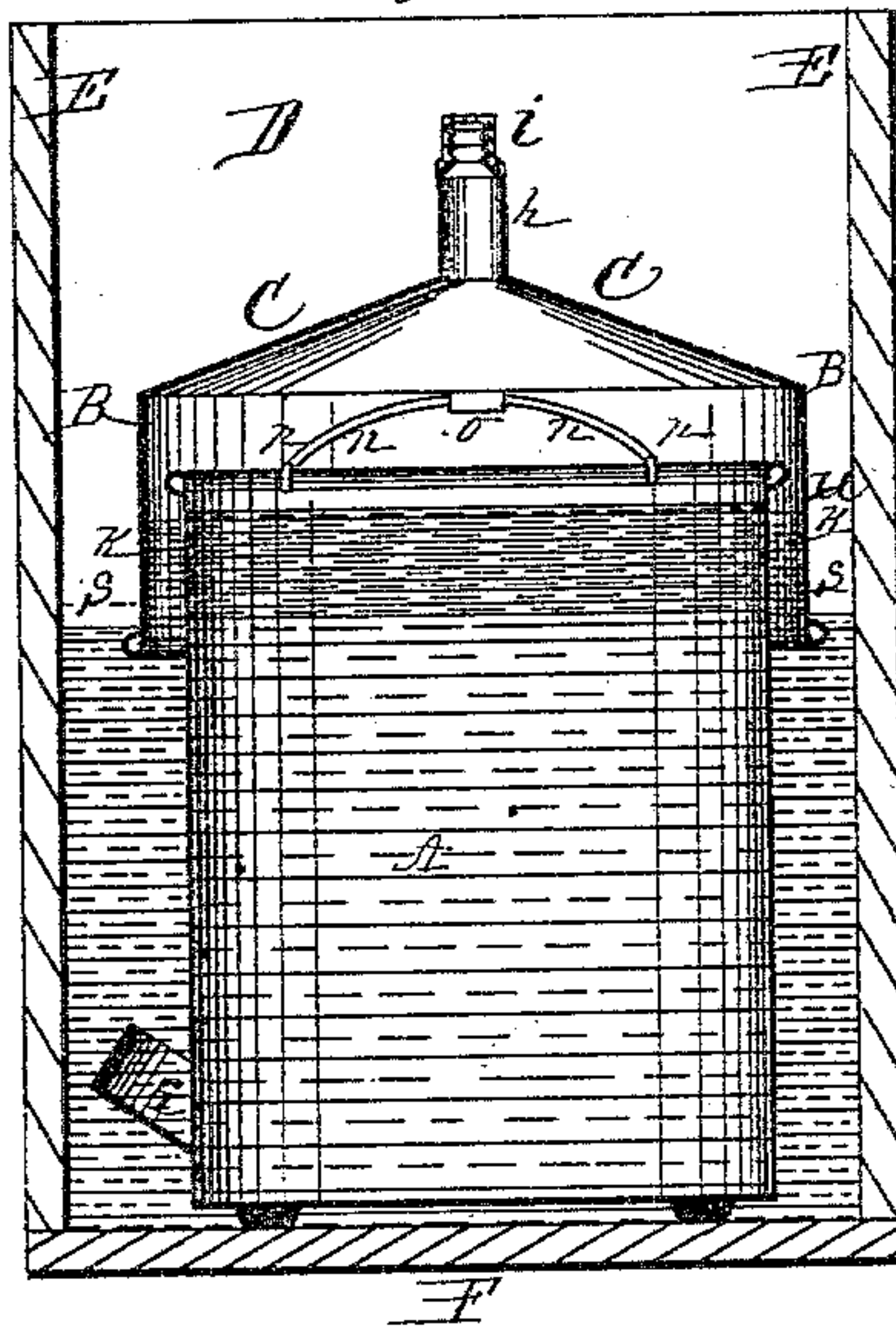


Fig. 5.



Witnesses:  
A. O. Behl.  
J. A. Cobb.

Inventor,  
Henry H. Palmer  
Per. Jacob Behl.  
Atty.



# UNITED STATES PATENT OFFICE.

HENRY H. PALMER, OF ROCKFORD, ILLINOIS.

## MILK-COOLER.

SPECIFICATION forming part of Letters Patent No. 301,626, dated July 8, 1884.

Application filed December 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. PALMER, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Milk-Can, of which the following is a specification.

This invention relates to cans employed to set milk for the purpose of raising the cream.

10 The object of this invention is to remove a portion of the atmospheric pressure from the can containing the milk to facilitate the raising of the cream. To this end I have designed the can represented in the accompanying drawings, to be hereinafter more fully described, and in which—

15 Figure 1 is an isometrical representation of my improved can with the cover removed. Fig. 2 is an isometrical representation of my improved can complete. Fig. 3 is a lengthwise vertical central section of the tank containing water and of the can containing milk, with cover in place thereon, resting on its spring-supports, and screw-cap removed. Fig. 20 4 is a transverse vertical central section of the tank containing water and of the can containing milk, with the cover in place thereon, resting on its spring-supports and pressed to its lowest position. Fig. 5 is a lengthwise vertical central section of the tank containing water and of the can containing milk, with the cover in place, resting on its spring-supports, with screw-cap in place.

25 In the figures, A represents an open-end can, oblong in transverse section, and of any suitable dimensions. This can in this instance is produced from plate-tin joined and soldered in the usual manner of fitting up vessels of plate-tin.

30 At *a* is represented a glass or other suitable transparent substance, in plate form, fixed in the side of the can, and the wall of the case in which the transparent plate *a* is supported is graduated in equal divisions, as represented at *b*, and numbered from the top downward, as represented at *c*. Through this transparent plate *a* may be seen the depth of the cream upon the milk, and its depth determined by means of the graduated and numbered scale.

35 At *d* are represented handles fixed to the

upper end portion of the can, by means of which it may be readily handled. A handle, *e*, is also fixed to the lower end portion of the can, by means of which the can may be readily tipped to empty its contents. For this 55 can I have produced a cover, which, in the main, consists of a vertical rim, B, and a conic cap, C, with air-tube *h* and screw-cap *i*. The vertical rim B of the cover in transverse section is substantially of the same form as the 60 can, but of greater dimensions, to freely receive the upper end of the can in such a manner as to leave a space, *k*, between the can and rim of the cover, which extends downward over the can. The cap portion C of this 65 cover is of conic form, having its greatest height in its center, and the outer edge of its base is secured to the upper edge of the rim portion B, in the usual manner of joining like parts in the tin-working art.

70 From the apex of the conic-formed cover C rises an air-tube, *h*, communicating with the interior of the cover. The upper end of this tube is provided with an air-tight screw-cap, *i*, or other suitable air-tight stopper or valve.

75 At *n* are represented spring-bars, of a suitable curved form, having their center portions at *o* securely fixed to the inner angle on the sides of the cover formed by the vertical rim B in its junction with the conic cap C. 80 From their point of connection with the cover the arms of these springs extend along the sides of the cover in a down-curving manner, having their depending free ends *p* suitably curved, producing a foot of hook form to en- 85 gage the upper edge of the can, to support the cover in its elevated position, as shown in Figs. 3 and 5, but capable of being depressed on the top of the can, as represented in Fig. 4, in which operation the springs will be 90 brought to or nearly to a line parallel with the plane of the upper end of the can.

At *t* is represented a transparent plate, of glass or other suitable material, fixed in the vertical rim of the cover, through which may 95 be seen the height to which the water rises in the space *k* between the can and cover when the cover is permitted to rise after having been pressed down upon the can.

At D are represented sides, and at E are 100



represented the ends, and at F is represented the bottom, of a water-tank, suitably joined together, producing a tank rectangular in transverse section, and of suitable dimensions to receive the cans in a proper manner.

In use the milk is placed in my improved cans in the usual manner. The cans are then set in the tanks, which are then filled with water to a proper height, as shown at s. The cover, with the screw-cap removed, is then placed in position on the can, with the curved feet of the springs resting on the upper edge thereof, and the lower edge of the cover descending into the water in the tank. The cover is then pressed down upon the can, as shown in Fig. 4, which operation will force a portion of the air contained in the can and cover to escape through the air-tube *h*; and while the cover is held in this depressed position the screw-cap *i* is fixed in place on the air-tube, after which the pressure is removed from the cover, and the action of the springs will cause the cover to rise to the position shown in Fig. 5. This upward movement of the cover will operate to enlarge the air-space within the can and cover, and to this extent will operate by expansion to rarefy the air contained within the can and cover. This expansion of the air within the can will cause the water contained in the tank to rise within the space *k* between the can and cover, as represented at *u*, to restore the equilibrium between the water and the external atmosphere, and to this extent will remove the atmospheric pressure from the milk contained within the can. The removal of the atmospheric pressure from the milk contained within the can will cause the air contained in the milk to rise, and with its ascension will be carried the cream contained in the milk, as has been

well established in the use of the air-pump for the purpose of raising the cream on milk.

It will be noticed that by reason of the oblong form of my improved can in transverse section I obtain greater radiating-surface in proportion to the contents of the can than can be obtained in a cylindrical can. It will also be seen that the gases arising from the milk in the process of cooling will condense on the under surface of the cover, and by reason of its conic form such condensations will be carried over the edge of the can to mingle with the water contained in the tank.

I claim as my invention—

1. The combination, with a can, of a removable cover to embrace the open end of the can in the manner described, said removable cover having an air-outlet opening provided with an air-tight stopper or valve, and spring-supports to engage the can, substantially as and for the purpose set forth.

2. The combination, with a can, of a removable cover to embrace the open end of the can, substantially as described and shown, said cover constructed with a conical top, an air-outlet opening provided with an air-tight stopper or valve, and spring-supports, substantially as and for the purpose set forth.

3. A milk-can oblong in transverse section, a removable cover of sectional conformation substantially the same as the can, to embrace its open end, said cover provided with an air-outlet opening having an air-tight stopper or valve, and spring-supports, substantially as and for the purpose set forth.

HENRY H. PALMER.

Witnesses:

JACOB BEHEL,  
A. O. BEHEL.