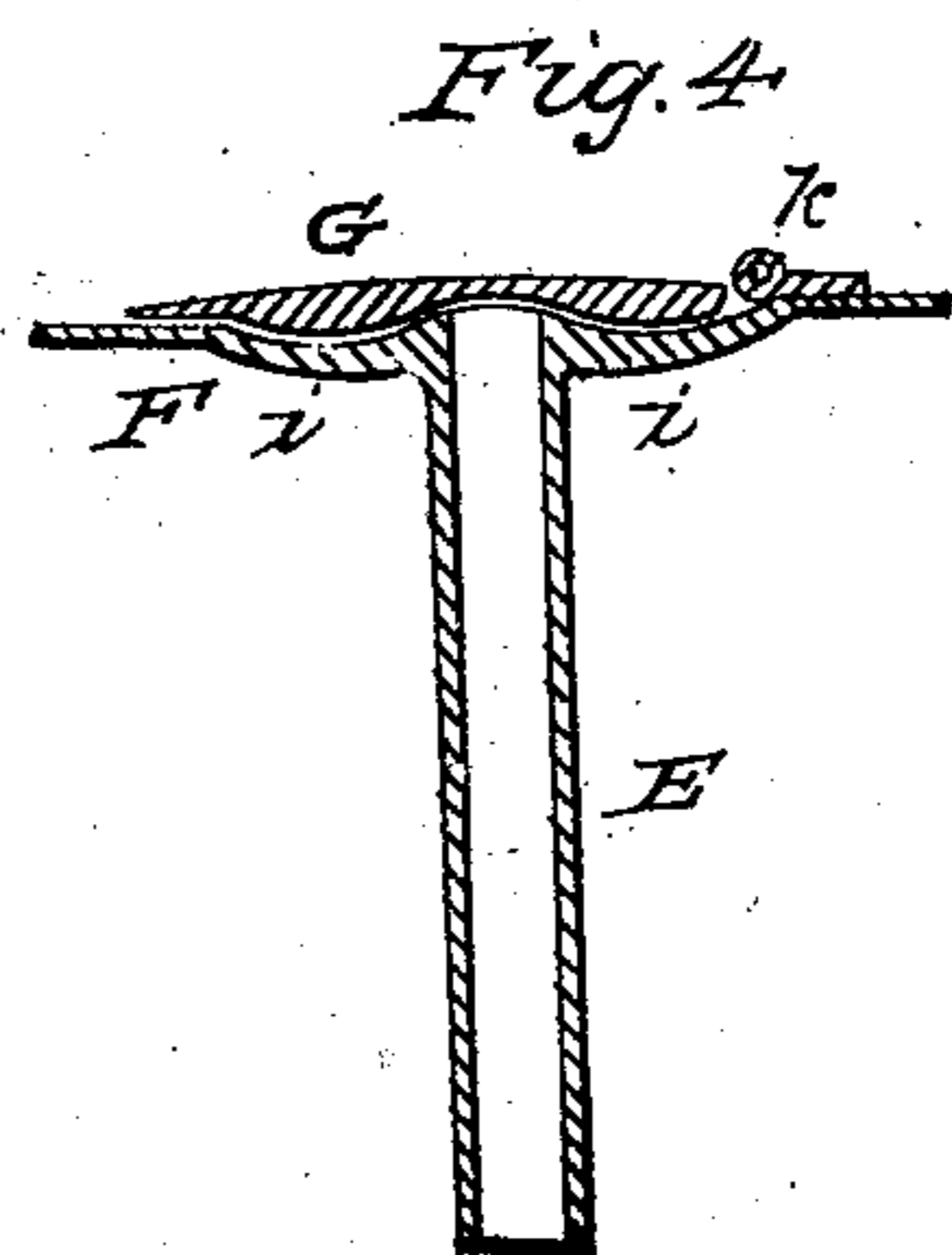
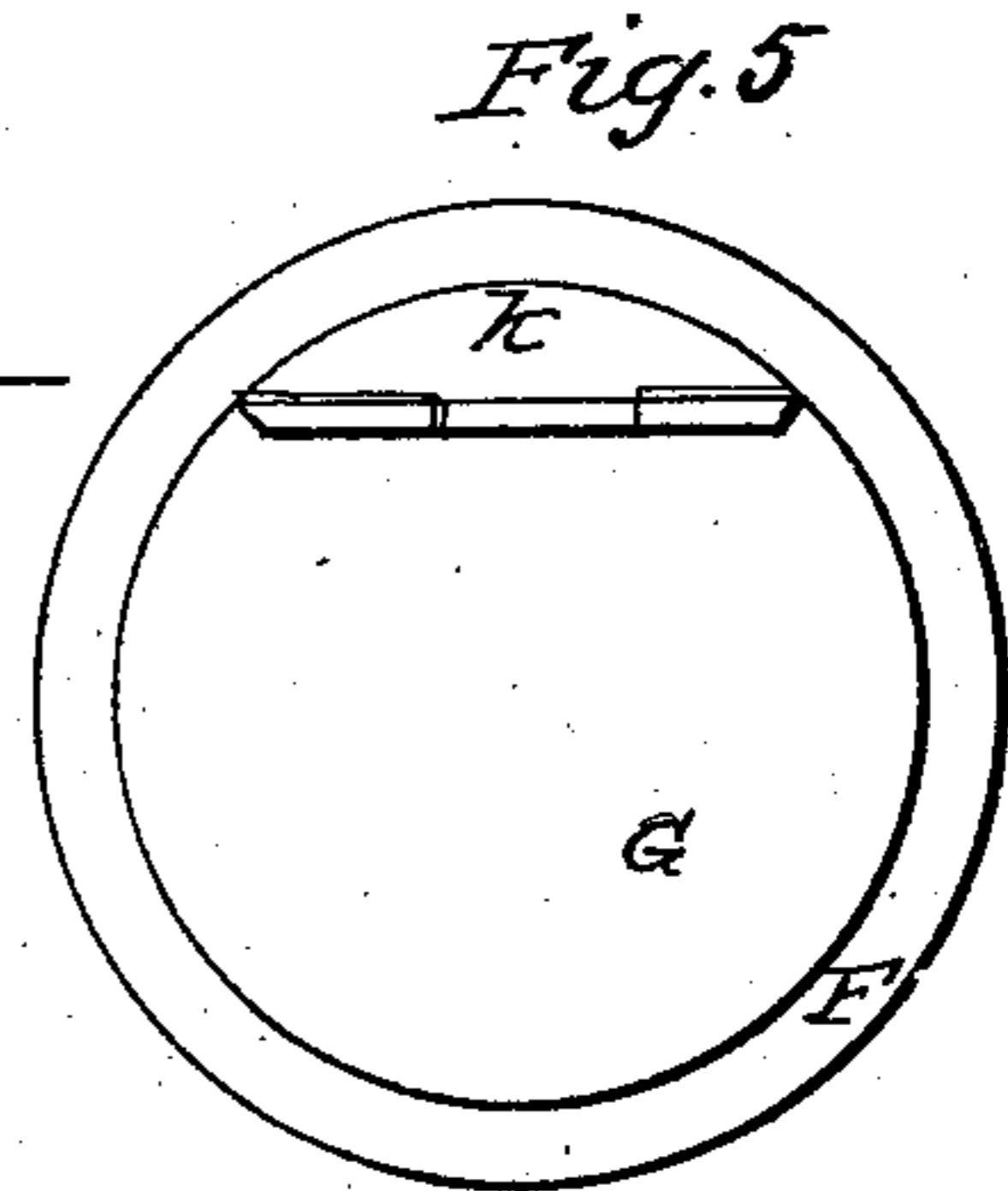
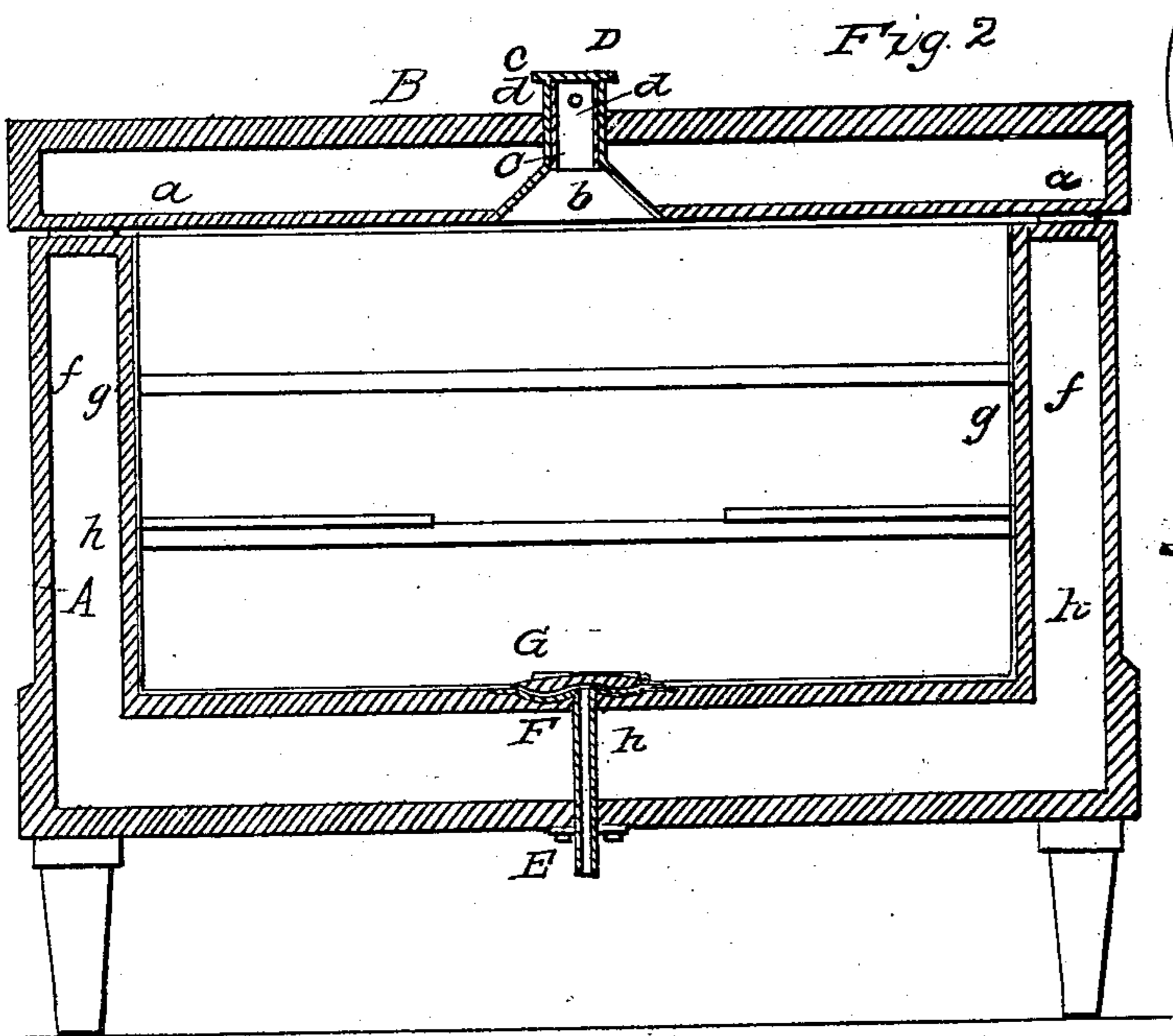
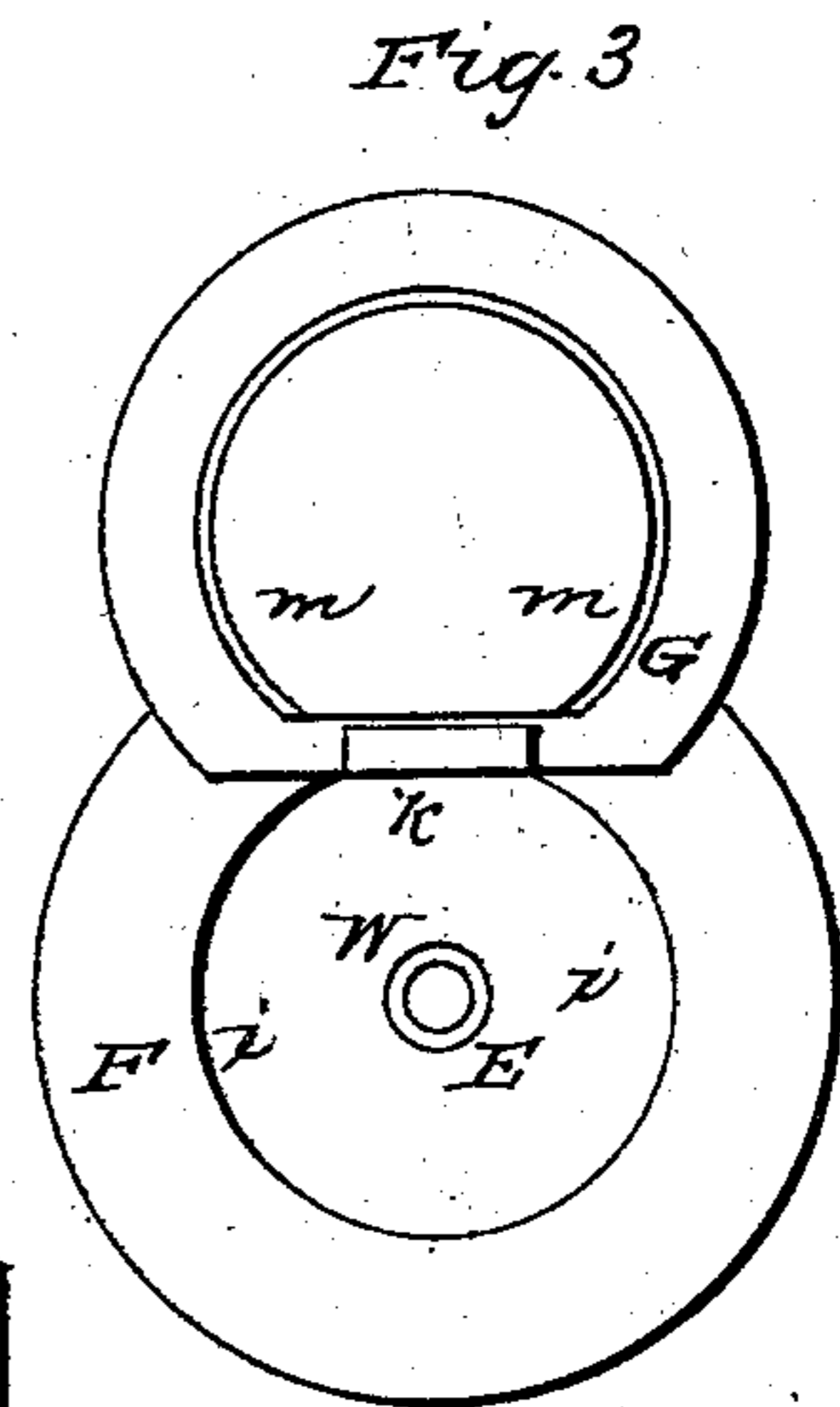
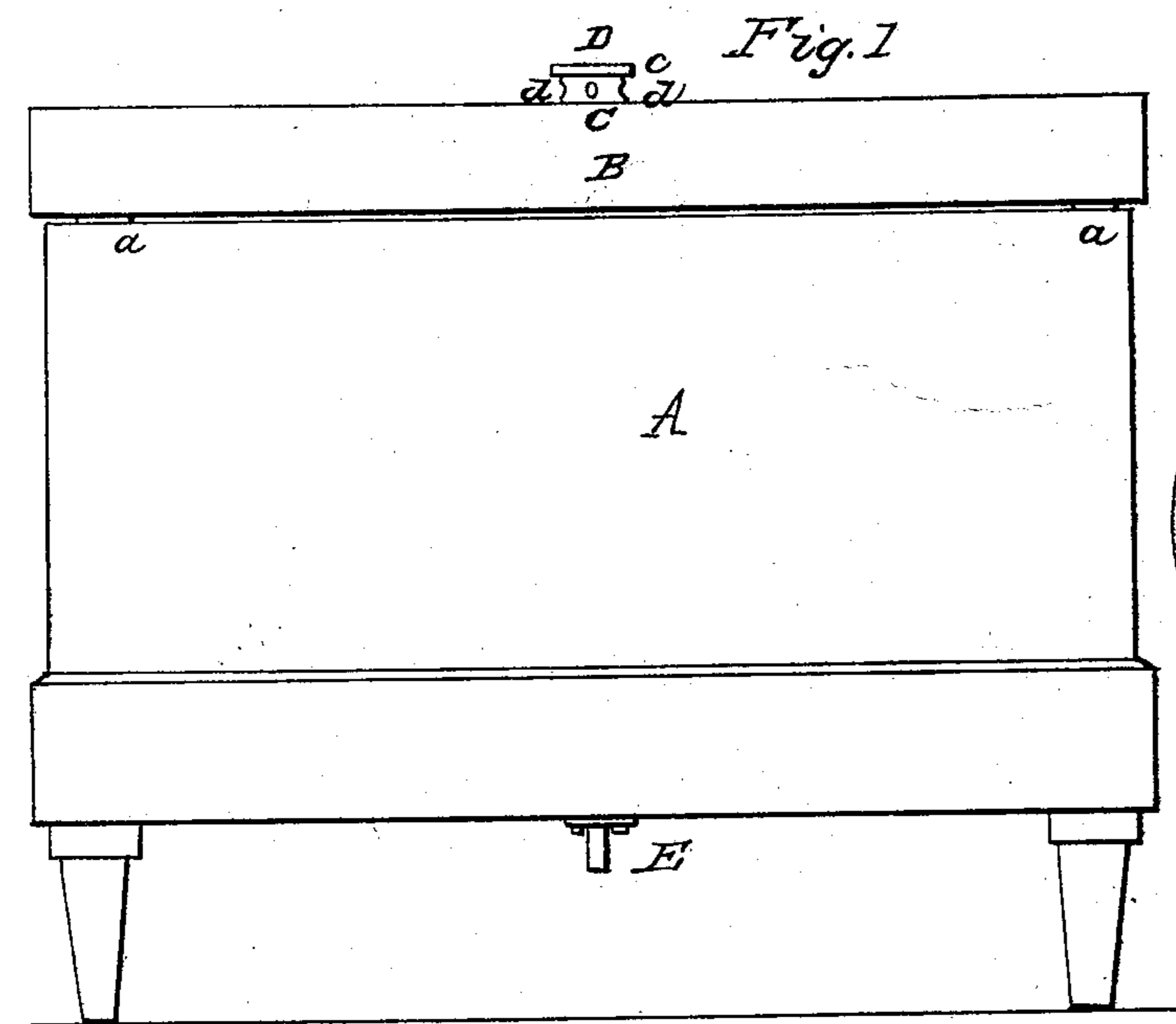


N. WATERMAN.  
Refrigerator.

No 5,793.

Patented Sept. 19, 1848.



# UNITED STATES PATENT OFFICE.

NATHANIEL WATERMAN, OF BOSTON, MASSACHUSETTS.

## REFRIGERATOR.

Specification of Letters Patent No. 5,793, dated September 19, 1848.

*To all whom it may concern:*

Be it known that I, NATHANIEL WATERMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Refrigerators; and I do hereby declare that the same are fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1, denotes a side elevation, and Fig. 2, a vertical central and longitudinal section of my improved refrigerator.

The nature of my improvements consists, first, in ventilating the refrigerator through its top or lid; second, in making the top a closed hollow box or chamber to be filled with atmospheric air only, instead of having two lids, viz, an inner and outer one as refrigerators are usually constructed; third, in employing uncirculating or confined air as the nonconducting agent or medium between the inner and outer cases of the refrigerator instead of charcoal or other stuffing such as has been commonly used; fourth, in a peculiar valve or contrivance for letting off the waste water and fluid matters which may be discharged from the ice, or any meats or articles placed within the refrigerator.

In the said drawings A, exhibits the chest or refrigerating box constructed of two cases *f*, *g*, the one being placed or inclosed within the other and at such distance apart as to have an air space *h*, *h*, of about two or three inches in width entirely around the external surfaces of the sides, ends and bottom of the inner case, the said space being intended to hold and contain common air at the usual atmospheric density, or at such density as may be given to it. I find from actual experiment that there is no necessity for using charcoal, sawdust, or other nonconducting solid material as a stuffing for the space between the two cases, meats or other articles within the chest being preserved and the temperature or degree of cold being maintained for all practical purposes just as well without the stuffing as with the same. Such stuffing, when used not only makes the refrigerator of an unnecessary weight, and therefore renders it difficult to be handled, and moved about, but is liable should there be any leak through the inner case, to absorb in course of time more or less moisture and animal or vegetable

matters, the putrefaction of which not only communicates an unpleasant smell to articles placed in the refrigerator but tends to their injury.

The top or lid B, is a rectangular air tight box hinged to the case A, and made to fit closely down upon the same by means of strips of list *a*, *a*, or other proper material nailed or secured to the top of the case in such manner that when the lid is shut down the external air may be prevented from passing into the refrigerating chamber. In and through the said lid a ventilating cylindrical tube or chimney C extends, the same being made with a broad or trumpet mouth *b*, which opens downward as seen in Fig. 2. The said tube extends somewhat above the top of the lid and has a register valve affixed on its top, or in other words it has another and short cylindrical tube D, arranged within it, the external diameter of the tube D, being equal to or a very little less than the internal diameter of the tube C, or so as to allow the inner tube to fit closely within the outer one, and at the same time be capable of being readily turned around longitudinally within the same by the hand of a person when applied to a milled cap plate *c*, made to cover the top of the tube D, and extend over the tube C, as seen in the drawings. Each tube has several corresponding holes *d*, *d*, made through it, in such manner that when the inner tube is turned around far enough the holes of the one tube may be brought into such relation with those of the other as either to be entirely closed, or be opened so as to allow any foul air or gas that may accumulate within the refrigerator to escape through said holes into the external atmosphere. The capped tube D, with its holes, together with the holes made through the outer tube become what is usually termed a register by which any foul air or noxious gas may be suffered to pass out of the refrigerator, immediately after its formation, the size of the exit passages being regulated by turning the inner tube around so as to open or close them to the extent required.

I am aware that there is nothing novel in having a tube or pipe for the escape of foul air. Said tube or pipe has always so far as I have been able to learn, been inserted in or through the bottom of the refrigerator, or been made to pass out of the immediate vicinity of the same. When so placed it

operates to discharge the gas, and unpleasant effluvia, only to a limited extent. By arranging a register in the top or lid, or in the immediate vicinity thereof, I am enabled to effectually get rid of the evil which results from the accumulation of gas that may arise from any article in the chest. This gas when suffered to remain for some time in contact with the various matters in the chest, impregnates them more or less with the flavor or odor of the article from which it may have escaped. From this cause it is often found that butter, milk or fruits or other substances placed in the refrigerator become tainted with the effluvia of meat or other decomposing material.

In a common refrigerator made with two covers or lids having a space between them, it becomes necessary to lift up both of said covers in order to get at the refrigerating chamber. This operation causes an escape of all the cold air between the covers whose place will be supplied with warmer atmospheric air. Of course when said covers are closed down the said warmer air, or that which may have taken the place of the cold air will increase or raise the temperature of the air in the chamber of the refrigerator. By making the lid an air-tight box, the air within it when the said lid is elevated will remain confined therein, and in most cases will suffer no injurious elevation of temperature while the lid is raised up.

A tube E, is made to extend through the bottom of the refrigerator, and be joined at its upper end to the middle part of a circular plate F, fastened down upon the floor of the refrigerating chamber. The said plate F, has a hole made through its center, and so as to allow water which may be in the refrigerator to run out of the same, and through the pipe E. For some distance entirely around the said hole the plate F, is depressed or has a shallow depression *i, i*, as seen in Fig. 2, and in Figs. 3 and 4, the said Fig. 3, being a top view of the plate F, and the said Fig. 4, being a vertical section of the same, and its flap or cover to be hereinafter described, the last two figures being drawn on an enlarged scale. Fig. 5, denotes a top view of the plate F, and its valve, the latter being represented as shut down upon the former. The said valve or flap is seen at G. It consists of a circular disk or plate, hinged to the plate F, as seen at *k*, and made in cross section, with a circular projection *m, m*, which shall be the counterpart of the circular depression extending around the hole *n*, of the plate F. The said projection when the valve or flap lies down flat upon the plate F, extending into the said depression or shallow groove

*i, i*, and below the level of the top of the hole *n*, and by so doing creates a capillary joint through which any waste water in the refrigerator will be drawn by capillary attraction and be discharged through the tube E. And while said water is so discharged it so extends around the hole *n*, and between the two plates F, and G, as to prevent the escape of any cold air from the refrigerator or the rush or entrance of any injurious quantity of warm air into the refrigerator and through the tube E.

The common goose neck or bent pipe generally inserted in the bottom of a refrigerator for the purpose of discharging the water and preventing the exit of cold air is liable to objections, as owing to its form and position it becomes very difficult to keep it clean, or to clean it when foul. It soon collects more or less matter which drops from meats or other articles placed in the refrigerator, and if not removed soon becomes offensive. The difficulty of cleaning the cesspool pipe or goose necks the bend of which is usually underneath the refrigerator causes servants to neglect the same. A refrigerator in order to preserve articles properly requires all its parts to be constructed in such manner that they can easily be washed and kept clean. With my improved capillary valve cesspool it is only necessary to raise and turn over the lid or flap G in order to enable a person readily to get at and wipe out with a cloth the internal parts of said valve and its seat. While when the common goose neck cesspool pipe is used, said pipe by reason of the air in the refrigerator being in close confinement, is more or less prevented from discharging water, the capillary attraction exerted by my improved valve assists in the discharge of the water, as it will act to a certain extent against the pressure of the atmosphere, or tendency of the confined air within the case to prevent the outward flow of the water.

What I claim as my invention is—

1. The arrangement of the ventilating apparatus or register in the lid or at the top of the chamber, as described.
2. The peculiar capillary valve cesspool as constructed with the circular shallow groove (in the seat plate) and its counterpart on the flap and made to operate in manner and for the purpose substantially as specified.

In testimony whereof I have hereto set my signature this sixteenth day of May, A. D. 1848.

NATH. WATERMAN.

Witnesses:

R. H. EDDY,  
S. W. WALDRON, Jr.