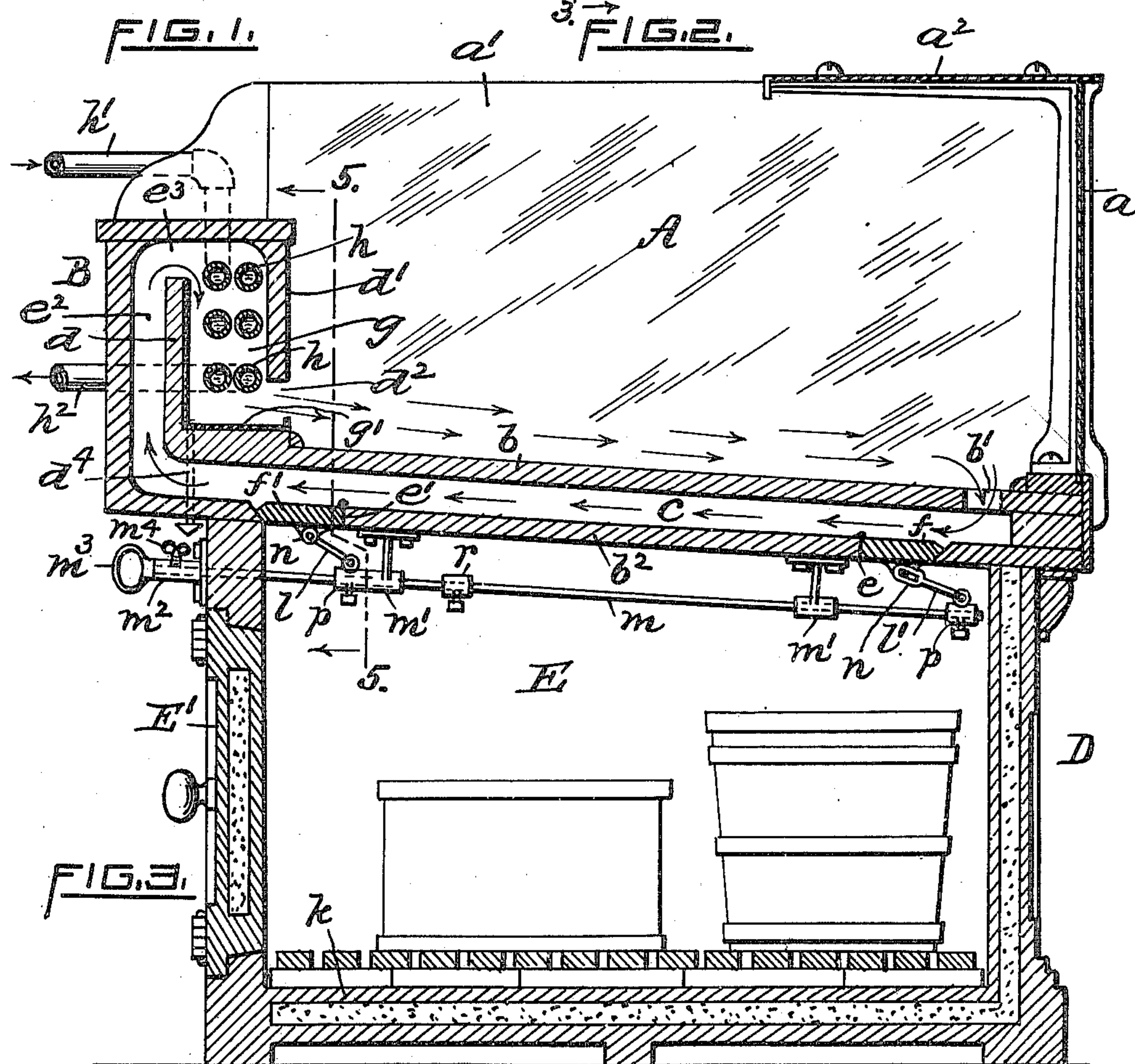
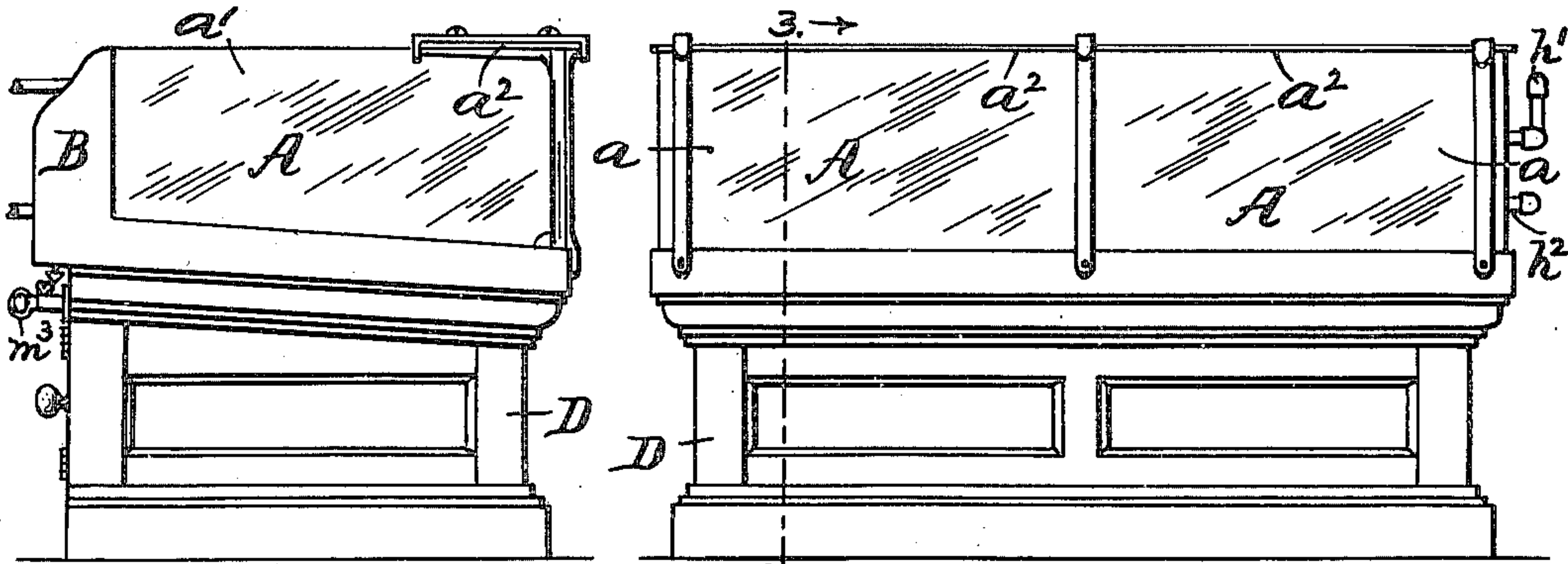


J. B. MONETTE.
REFRIGERATOR COUNTER.
APPLICATION FILED FEB. 7, 1910.

985,620.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

C. L. Hannigan.
Calvin H. Brown

INVENTOR:

Joseph B. Monette.
By *Geo. H. Harrington*
Atty.

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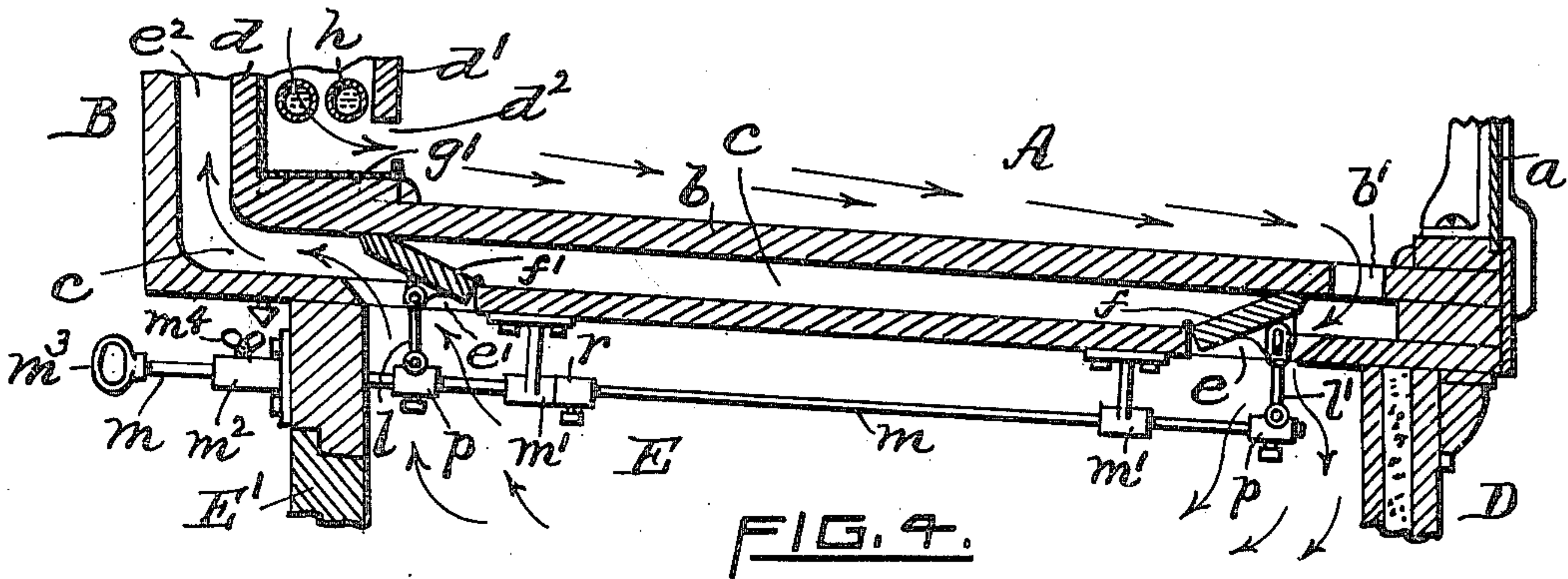


FIG. 4.

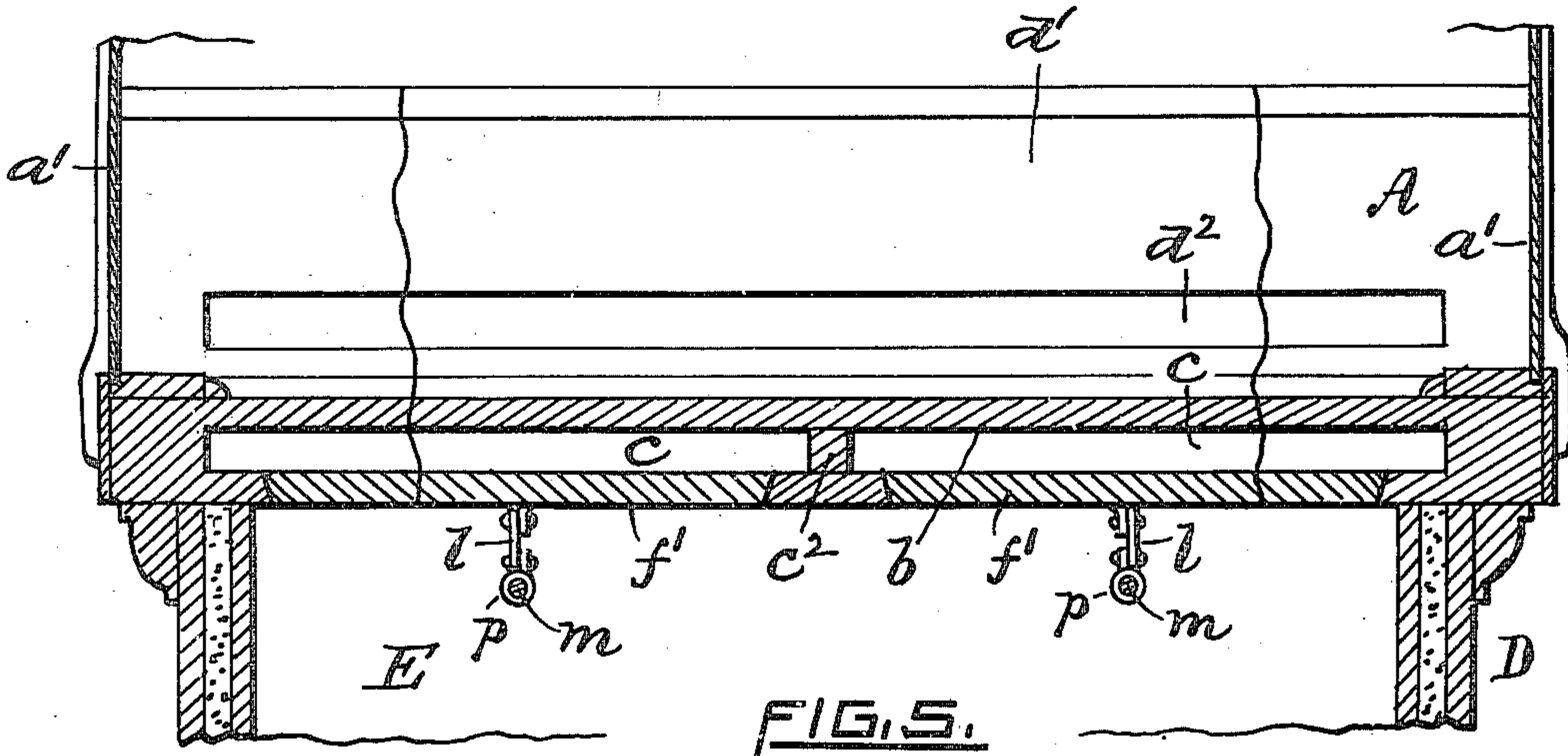


FIG. 5.

WITNESSES:

C. J. Hannigan.
Calvin H. Brown

INVENTOR:

Joseph B. Monette.
By Geo. H. Remington.
Atty.

UNITED STATES PATENT OFFICE.

JOSEPH B. MONETTE, OF PROVIDENCE, RHODE ISLAND.

REFRIGERATOR-COUNTER.

985,620.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed February 7, 1910. Serial No. 542,394.

To all whom it may concern:

Be it known that I, JOSEPH B. MONETTE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Refrigerating-Counters, of which the following is a specification.

My invention relates to improvements in refrigerating-counters, so-called; that is, semi-protected counters of the class employed in markets and stores for exhibiting provisions, the counters at the same time being provided with means for producing therein a continuous circulation of air having a temperature materially lower than that of the surrounding outer or normal atmosphere.

The present invention consists essentially in the improved construction and arrangement of parts, the same when combined being adapted to produce a refrigerating-counter possessing a greater degree of efficiency over others of this class. Moreover, the improved counter is simple in construction, comparatively inexpensive to manufacture, not liable to become accidentally inoperative, and the air circulation is both positive and continuous or automatic.

In the accompanying two sheets of drawings, Figure 1 represents an end elevation of a refrigerating-counter embodying my improvement. Fig. 2 is a corresponding front elevation. Fig. 3 is a transverse sectional view, in enlarged scale, taken on line 3 3 of Fig. 2, showing the construction of the counter and the normal circulation of the cooling or refrigerating air. Fig. 4 is a similar sectional view, showing portions of the device positioned and adjusted so as to circulate the air downward from the main or upper counter-chamber into the base-chamber; and Fig. 5 is a partial longitudinal sectional view of the counter, taken on line 5 5 of Fig. 3.

The general form, size and appearance of the refrigerating-counter exteriorly is or may be substantially the same as other structures of this class. In my improved counter, the same is provided with an upper casing or show-case proper having a main chamber A, whose front and end walls con-

sist of suitably mounted glass plates a and a^1 . It is also provided with a glass top plate a^2 , the latter, as drawn, covering only a portion of the chamber. The floor b of the latter is hollow, its front part having downward openings, b^1 , therethrough in open connection with the comparatively shallow, hollow portion or air-circulating passage c . The bottom member, b^2 , of said passage is or may be provided at or near the front and rear side walls with longitudinally extending ports, e , e^1 , respectively, and manually controlled valves, f , f^1 , fitting said ports.

A chambered housing B is located at the back side of the counter, the same extending upwardly and longitudinally of it, as clearly shown in Fig. 3. Within the housing are mounted a plurality of connected horizontal pipes, or coil, h , in which circulates the refrigerating or cooling medium conducted thereto from any suitable source of supply. As drawn, the cold brine or refrigerating fluid is introduced into the upper pipe h of the coil via inlet-pipe h^1 , and after circulating through the coil is returned to the source of supply via the bottom or discharge pipe h^2 . I prefer to provide the housing-chamber with a vertical partition d , thereby dividing it into the freezing chamber proper, g , containing said coil and an air duct e^2 in open connection at the bottom with said passage c , and terminating at the top in an opening e^3 discharging directly into the upper portion of the freezing chamber. A discharge opening d^2 is formed in the lower portion of the front wall d^1 of the last-named chamber. I prefer also to line the latter with suitable metal and at the same time provide a shallow, pan-like bottom adapted to prevent an overflow of drip-water therefrom into the main chamber A. A small drip-pipe d^4 is in open connection with the pan's base for obvious purposes.

The counter proper may be removably secured to or rest upon a cabinet-like base D, provided with a sub-chamber E; access to which is through a rear door E^1 , Fig. 3. The side walls, as well as the floor k , of chamber E are suitably lined and protected so as to insulate or guard the chamber from

the action of the normally higher temperature of the surrounding outer air.

The chamber E may be utilized at all times for containing butter, lard, cheese, etc. When desired, however, the cooling air from the freezing chamber may be deflected downward from the chamber A into chamber E, the air in such case completing its circulation by passing from the latter chamber via open ducts e^1 , e^2 , and e^3 into the freezing chamber again, as clearly indicated in Fig. 4. The means represented for operatively controlling the said valves f , f^1 may be described as follows: A rod m located in chamber E and disposed transversely of the counter, is mounted in bearings m^1 , secured to the underside of the floor b^2 ; its free end extends through the rear wall and an outer bearing m^2 and terminates in a handle element m^3 . Each valve is hinged and adapted so that when it is dropped or closed a free, open passage c is provided for the flow of air as indicated in Fig. 3. Each valve is jointed to a link, which in turn is jointed to a collar p , adjustably secured to the rod. In order to provide for variations in the angular movements of the connections, the front link, l^1 , may be slotted. A dog or stop r , adjustably secured to the rod, may be employed, if desired. The valves may be secured in a partly open position through the medium of the set-screw m^4 . In lieu of making each port to extend singly longitudinally of the counter, it, as well as the valve, may be divided into two or more members or sections, as indicated in Fig. 5. If desired, the chamber c itself may be correspondingly divided by means of a partition c^2 , as shown in said figure. Assuming now that a circulation of refrigerating fluid, as cold brine, is maintained in the coil or piping h , and that the lower ports, e , e^1 , are kept closed by the respective valves (see Fig. 3), the manner of operation is substantially as follows: The air as it flows outward from the bottom discharge-opening d^2 of the freezing chamber g into the main cooling chamber A has a relatively low temperature and is comparatively dry, and also heavier than the outer surrounding normal air. The outflowing air circulates along the base of chamber A by gravity and enters the base passage c . During its forward movement the air becomes somewhat warmer by mingling with the said normal air of higher temperature in the chamber A and at the same time absorbs more or less moisture from it; the result being to lower the temperature of air in the chamber. The latter temperature is obviously higher than that of the air flowing from the discharge-opening d^2 . The thus cooled air passes from

chamber A via the bottom opening b^1 into the said base air-duct c and flows uninterruptedly therein to and into the vertical flue e^2 , and discharges into the top of chamber g ; the air in its passage through the latter chamber is relieved of its moisture by contact with the outer surface of the pipes h , so that it again flows from the discharge outlet d^2 in a cold, dry condition, as first stated. The moisture thus absorbed or extracted collects on the pipes in the form of frost, as is well known. The arrows in Fig. 3 clearly indicate the course of the air circulation.

By simply pulling the rod or rods m outward, as represented in Fig. 4, thereby closing the passage c and uncovering the ports, the cold air will be diverted through front opening b^1 and adjacent port e into the sub-chamber E; from the latter the moving air passes upward through the rear port e^1 and into the freezing chamber g , as before stated. In this case, the air operates to cool provisions, etc., in the main counter chamber A, and at the same time is utilized to decrease the temperature in the lower chamber E.

I claim as my invention and desire to secure by United States Letters Patent:

1. In a counter of the character described, provided with suitably mounted glass protecting plates constituting walls arranged to form the main chamber proper adapted to receive and display therein provisions or other articles to be refrigerated, and having a hollow or chambered bottom wall or floor part communicating with the main chamber, the combination therewith of a housing constructed to form a casing chamber located along one side of and communicating with the main chamber, piping disposed in the casing chamber adapted for the circulation therein of a suitable liquid refrigerating medium for cooling the air immediately surrounding the piping, and an air duct communicating with the said hollow part of the main chamber's base and the upper portion of the casing chamber containing said piping, whereby cooled air flowing from the last named chamber into the main chamber passes from the latter via its hollow base into the casing chamber to be recooled, thus producing an automatic circulation of air.

2. In a refrigerating-counter having glass side and top plates arranged to form a main or refrigerating-chamber proper, and a hollow floor part forming the bottom of and being in open communication with said chamber, the combination therewith of a casing forming a chamber located immediately above said floor and provided with an air-inlet passage in open communication

with the discharge end of the floor-chamber and the upper portion of the casing-chamber, an opening leading directly from the lower portion of the last-named chamber into the main chamber, and piping disposed in the casing-chamber adapted for the circulation of a liquid refrigerating medium.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOSEPH B. MONETTE.

Witnesses:

GEO. H. REMINGTON,
CALVIN H. BROWN.