

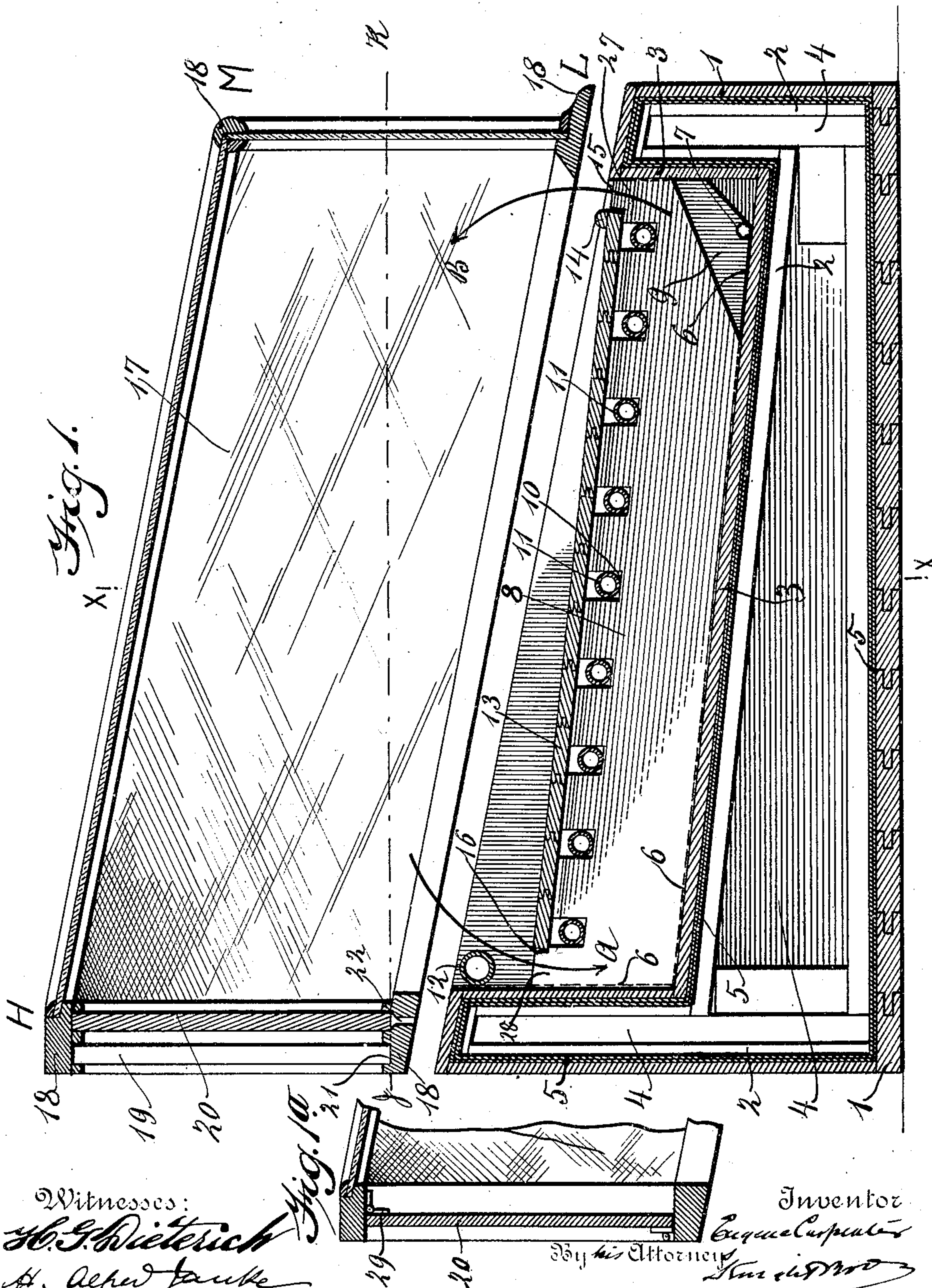
REFRIGERATING COUNTER.

APPLICATION FILED OCT. 5, 1907.

938,554.

Patented Nov. 2, 1909.

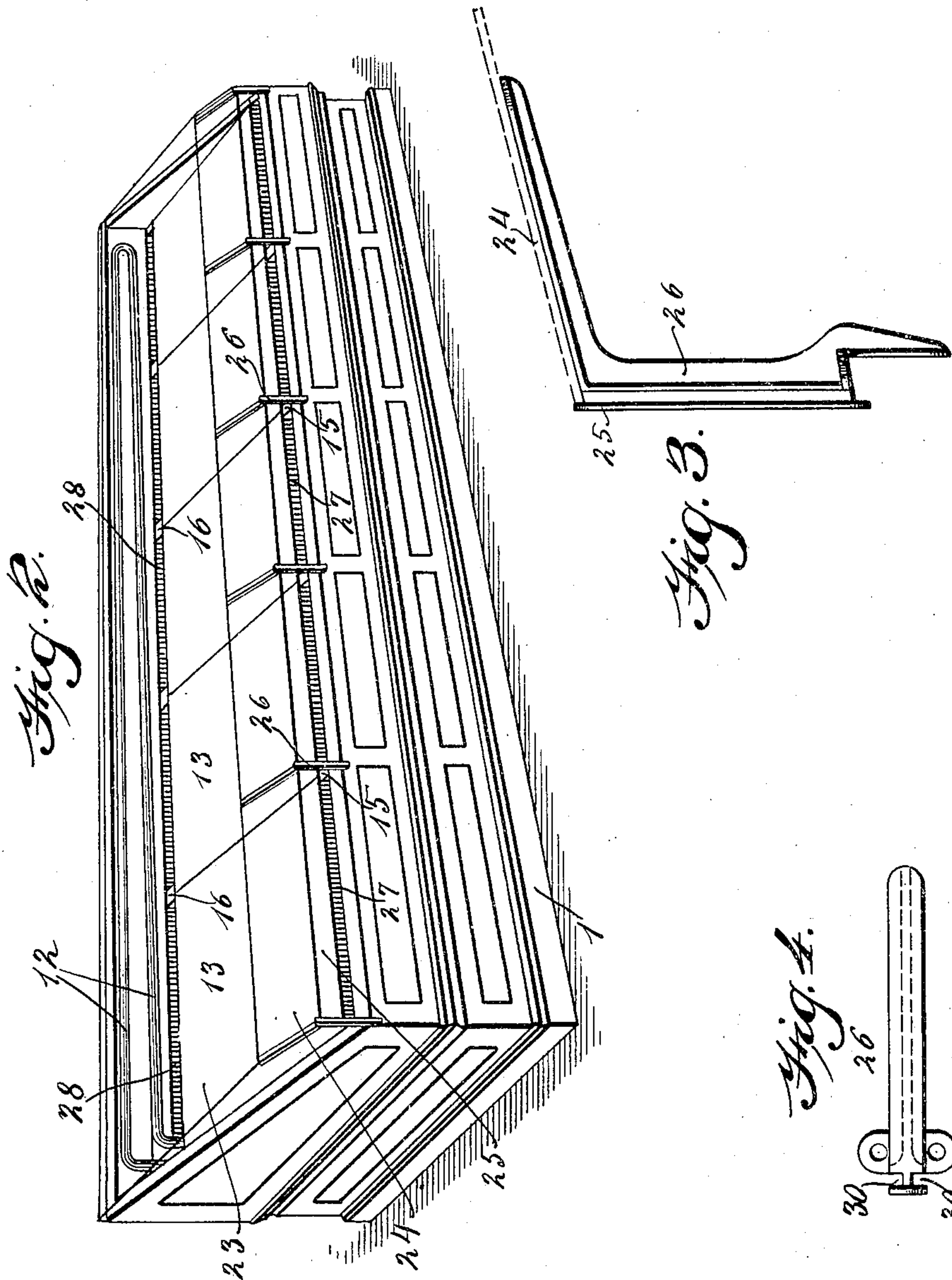
3 SHEETS--SHEET 1.



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3 SHEETS—SHEET 2.



Witnesses:  
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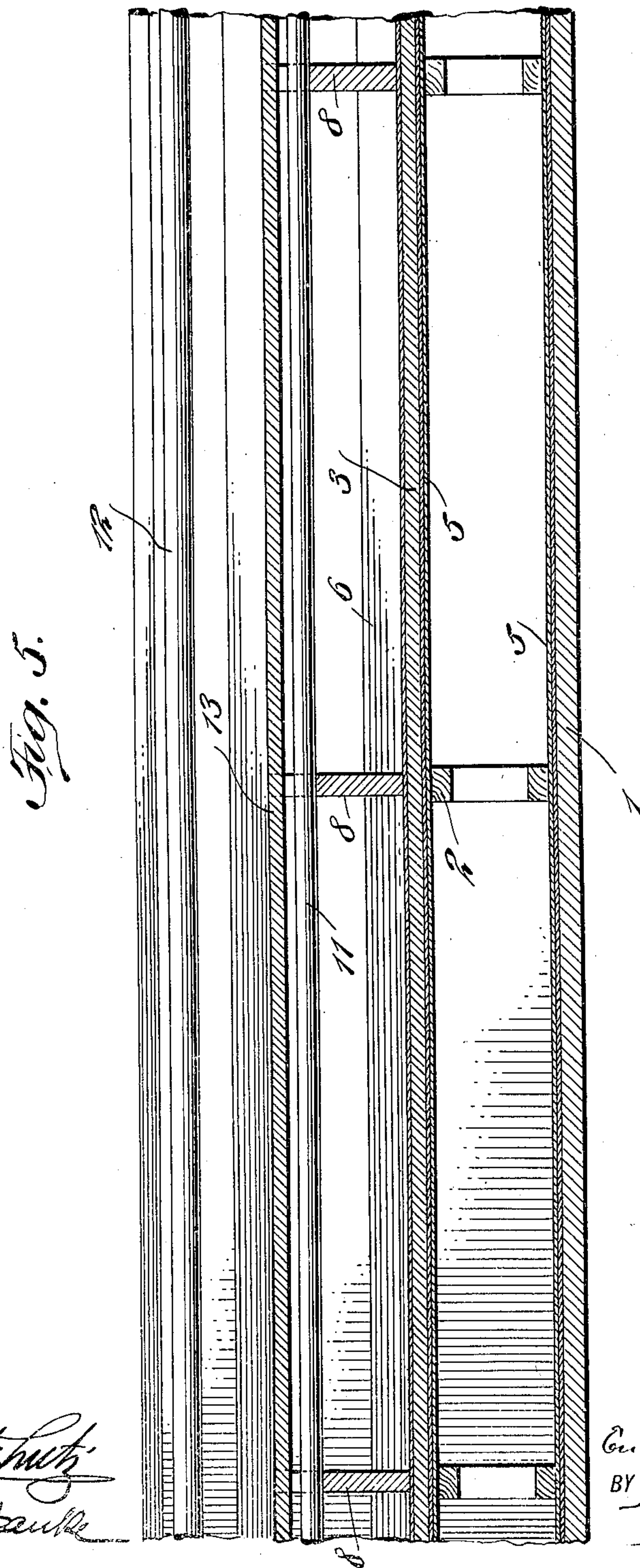
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# UNITED STATES PATENT OFFICE.

EUGENE CARPENTER, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE AUTOMATIC REFRIGERATING COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF NEW JERSEY.

## REFRIGERATING-COUNTER.

938,554.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed October 5, 1907. Serial No. 395,987.

*To all whom it may concern:*

Be it known that I, EUGENE CARPENTER, a citizen of the United States, and a resident of Newton, Middlesex county, Massachusetts, have invented certain new and useful Improvements in Refrigerating-Counters, of which the following is a full and clear description.

My invention relates in particular to a form of refrigerating counters such as for instance are used in large markets or similar places where provisions are sold and which serves at the same time for displaying the goods contained therein.

My invention is illustrated in the accompanying drawings in which,

Figure 1 is a transverse section through the counter showing the bottom and the top part separated. Fig. 1<sup>a</sup> is a modification of the door, shown in Fig. 1. Fig. 2 is a modified form of the counter shown in perspective view. Fig. 3 is a detail side view of the ribs holding the glass plates of the counter top. Fig. 4 is a plan view thereof. Fig. 5 is a longitudinal vertical sectional view of a part of the lower portion of the counter.

The particular advantages of my counter are that a perfect and constant air circulation is obtained owing to the manner in which part of the refrigerant is disposed, and the convenient manner in which the counter may be refilled and taken apart for cleaning purposes.

In Fig. 1 of the drawings 1 is a casing of suitable material, preferably wood, braced throughout by ribs 2 and containing a compartment 3 disposed so that an insulating air space 4 is formed around it. The inside of the outer casing 1 and the outside of the inner compartment may besides be insulated with any kind of suitable insulating material 5 such as for instance paper, felt or the like. The inside of compartment 3 is lined with a suitable water-proof lining 6 preferably galvanized sheet metal thus forming a pan within compartment 3. The bottom of compartment 3 is slantingly disposed toward the front of the counter and is provided with a drain 7 at its lowest point to drain off moisture collecting at the bottom. Transversely to its longitudinal axis are provided within compartment 3 a suitable number of removable supporting walls 8 dividing the compartment into a suitable number of

sections communicating with each other 55 through opening 9 provided at the lower end of each wall so that the moisture collecting in the compartment may flow to drain 7 from all sections. At their upper edge walls 8 are provided with notches or recesses 10 in 60 which refrigerating pipes 11 containing the refrigerant are disposed so that these pipes are run in parallel to the longitudinal axis of the compartment and are supported by walls 8. At least one of the refrigerating 65 pipes 12 is disposed at the extreme top of the rear or high wall of the compartment and is preferably the first through which the refrigerant passes before passing through pipes 11 disposed in wall 8. Pipes 11 are covered 70 by floor 13, also slanting toward the front of the counter on which the goods to be displayed are placed and which may be provided with a lip 14 at its lower edge in order to prevent the goods from sliding from the 75 floor. In order to facilitate cleaning compartment 3 floor 13 is made preferably removable. At the lower end of supports 8 on the upper edge are provided the spacing lips 15 against which rests the floor 13 and this 80 floor 13 is sufficiently narrower than the compartment so that passage ways 27 and 28 respectively of suitable width are left between the floor and the lower and upper vertical walls of the compartment, upper passage 85 ways 28 being preferably wider than the diameter of refrigerating pipe 12, which is disposed directly above the passage way.

Compartment 3 is covered with a glass cover 17 (shown removed in Fig. 1) which 90 may be fastened tight to the upper edge of compartment 3 by any suitable well known means. The cover consists of a frame 18 for supporting the glass which protects the products displayed in the counter and is 95 preferably opened from the rear by means of doors 19 and 20 which may slide in grooves 21 and 22 respectively. These doors are easily and quickly opened and may be removed entirely on busy days with very 100 little loss of effectiveness of refrigeration. The doors are preferably hung on hinges 29 as shown in Fig. 1<sup>a</sup>, in which case they are preferably swung from the top so they will open by pushing same inside the glass 105 cover. The top of cover 17, as may be seen from the drawings, inclines forward, which follows the general outlines of the upper



edge of compartment 3, the particular purpose of which will be referred to later on.

It will be noted that there is a substantial drop from the upper rear edge of compartment 3 near which pipe 12 is disposed, to the rear edge of floor 13, representing the space occupied by the displayed goods which should never project above the top line of refrigeration J—K. The cover may have double glass panes but consists preferably of only one thickness as there is a tendency for moisture to accumulate between the two panes of glass thus concealing to a considerable extent the goods displayed.

The manner in which the counter operates is as follows: The pipe 12 disposed at the upper rear edge of compartment 3 cools the air surrounding it, thus increasing its weight so that the air will be sent down by gravity in the direction of arrow A through the opening 28 into the space underneath floor 13, which in turn will cause the air contained therein and cooled by pipe 11 to pass out through the passageway 27 at the lower end of floor 13 in the direction of arrow B. Thus the air in the counter is kept moving continually in the direction indicated by the arrows A—B, the moisture contained in the air being largely picked up by the pipes 11 so that the air is constantly kept dry as well as cold. At certain periods all the goods may be removed, floor 13 taken out, and the compartment be cleaned with soap and hot water, whereafter the latter may be easily drained off by means of drain pipe 7.

While I have shown and described a particular form of refrigerating counter I do not wish to limit myself to this one form since various modifications may be made thereon without departing from the spirit of my invention.

I have shown for instance in the modified form illustrated in Fig. 2 two refrigerating pipes 12 near the upper edge of the rear wall of the compartment. Furthermore the counter may be built without a removable cover 17 such as shown in Fig. 1. As may be seen in Fig. 2 the top glass panes 23 and 24 and the front panes 25 may be made removable in order to place goods into the counter for which purpose the front panes 25 are disposed slidingly in grooves 30 of brackets 26, while the top panes 23 and 24 may rest on top of brackets 26 and be lifted off if necessary. The advantage of this form is that the counter may be refilled from the front by removing one of the front panes while the products may be taken out through the rear door as described before.

I claim:

1. A refrigerating counter having a stationary lower section and a removable upper section opening toward said lower section, an insulated compartment within said lower

section slantingly disposed and adapted to hold the refrigerating means, and an inclined floor disposed within said compartment at a suitable distance from the bottom to cover the refrigerating means and adapted to carry the objects to be refrigerated and having air passageways between its opposite edges and the respective vertical walls of said compartment, said removable upper section being inclined substantially in the direction of said floor.

2. A refrigerating counter, having a stationary lower section and a removable upper section, an insulated compartment within said lower section slantingly disposed and a supporting floor within said compartment for the objects to be refrigerated, and blocks supporting said floor, refrigerating pipes also supported by said blocks underneath said floor, said floor having air passageways between its two opposite edges and the respective vertical walls of said compartment.

3. A refrigerating counter, having a stationary lower section and a removable upper section, an insulated compartment within said lower section slantingly disposed and adapted to hold the refrigerating means and a floor, disposed within said compartment at a suitable distance from the bottom to cover the refrigerating means and adapted to carry the objects to be refrigerated, and having air passageways between its two opposite edges and the respective vertical walls of said compartment, and a refrigerating pipe disposed at a suitable height above one of the air passage ways and the floor and adapted to cause the air to circulate above said floor toward said refrigerating pipe and underneath said floor in the opposite direction.

4. A refrigerating counter, having a stationary lower section and a removable upper section, an insulated compartment within said lower section slantingly disposed and a supporting floor within said compartment for the objects to be refrigerated and blocks supporting said floor, recesses at the lower ends of said blocks, refrigerating pipes also supported by said blocks underneath said floor, said floor having air passageways between its two opposite edges and the respective vertical walls of said compartment.

5. A refrigerating counter having an insulated lower compartment, and a removable floor at a suitable distance above the bottom of said lower compartment adapted to carry the objects to be refrigerated and displayed, said floor having air passageways at its edges, refrigerating pipes suitably supported underneath said floor and upper refrigerating pipes disposed at a suitable height above one of said passageways, causing the air to circulate down from said upper pipes through said passageway underneath said



floor and up through the remainder of said passageways.

5 6. A refrigerating counter, having a stationary lower section and a removable upper section, an insulated compartment within said lower section slantingly disposed, and a floor also slantingly disposed within said compartment at a suitable distance from the bottom adapted to carry the objects to be re-  
10 frigerated and having air passage ways between its upper and lower edges and the respective vertical walls of said receptacle, blocks supporting said floor, refrigerating pipes also supported by said blocks under-  
15 neath said floor, and a refrigerating pipe disposed at a suitable height above said upper air passageway, causing the air to circulate above said floor from the lower edge to the upper edge and underneath said  
20 floor from the upper edge to the lower edge.

7. In a refrigerating counter of the character described, the combination with an outer casing, an inner waterproof compartment slantingly disposed and a floor in said  
25 inner compartment for carrying the objects to be refrigerated, blocks supporting said floor and forming a plurality of sections communicating at the lower ends, a drain pipe leading from the bottom of said inner  
30 compartment at the lower end, and refrigerating pipes disposed underneath said floor supported by said blocks.

8. In a refrigerating counter of the character described, the combination with an  
35 outer casing, an insulated inner compartment slantingly disposed, a floor in said

inner compartment disposed at a suitable distance from the bottom thereof and having an open passageway between its two opposite edges and the respective vertical  
40 walls, supports for said floor having spacing lips to gage the distance between said floor edges and the respective vertical walls.

9. A refrigerating counter of the character described, having an outer casing and  
45 an inner compartment slantingly disposed, and a supporting floor in said inner compartment for carrying the objects to be refrigerated also slantingly disposed at a suitable distance from the bottom of said com-  
50 partment and having an open space between its upper and lower edges and the respective vertical walls of said compartments and also having a lip at its lower edges, to retain the objects to be refrigerated.  
55

10. A refrigerating counter of the character described, having a lower stationary section and an upper removable section, an insulated waterproof compartment adapted to contain the refrigerating means, a floor  
60 within said compartment covering the refrigerating means and slantingly disposed for supporting the objects to be refrigerated, said floor disposed at a suitable distance below the level of the uppermost edge of said  
65 compartment to keep the objects to be refrigerated beneath said level.

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Witnesses:

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