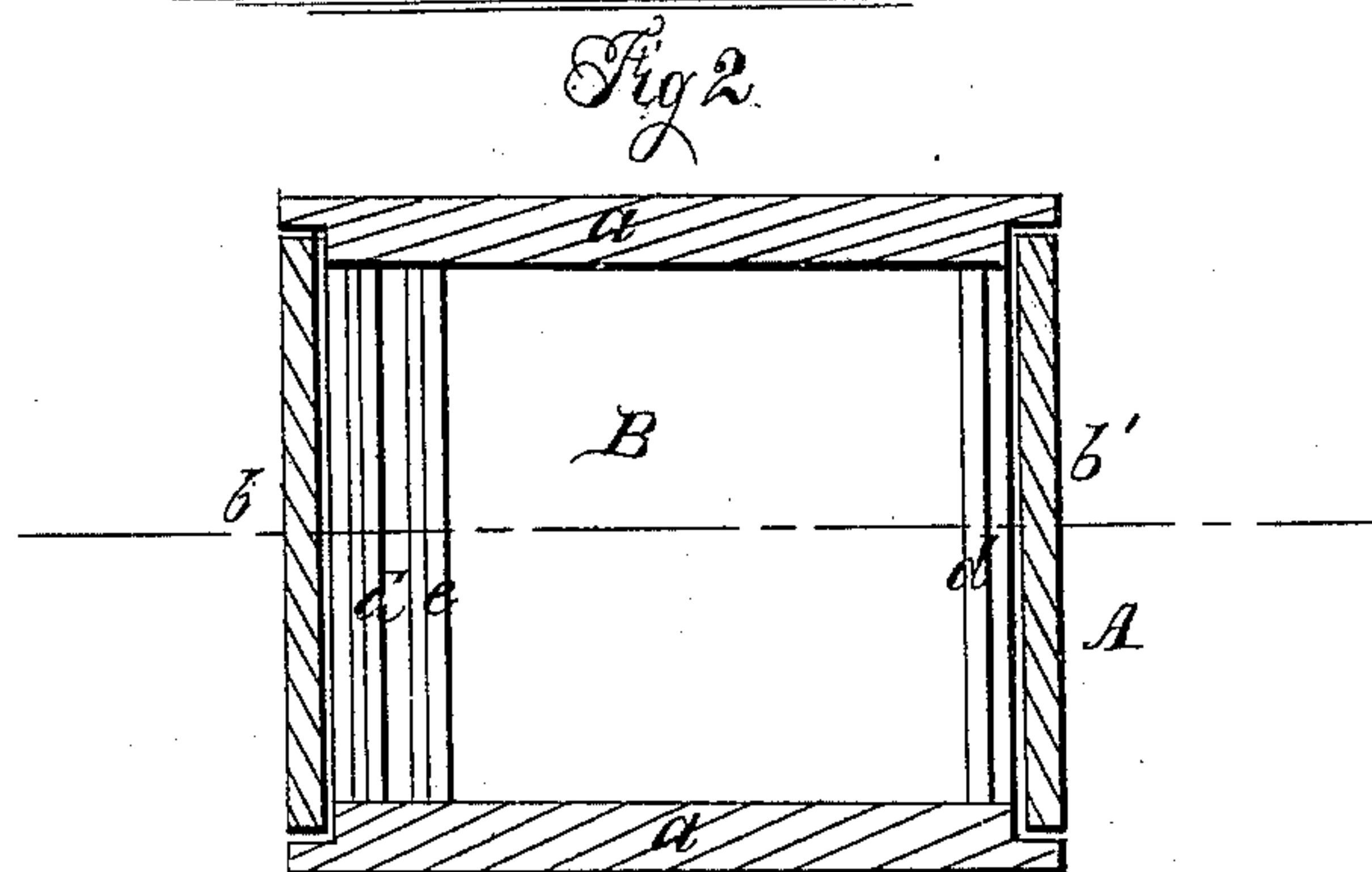
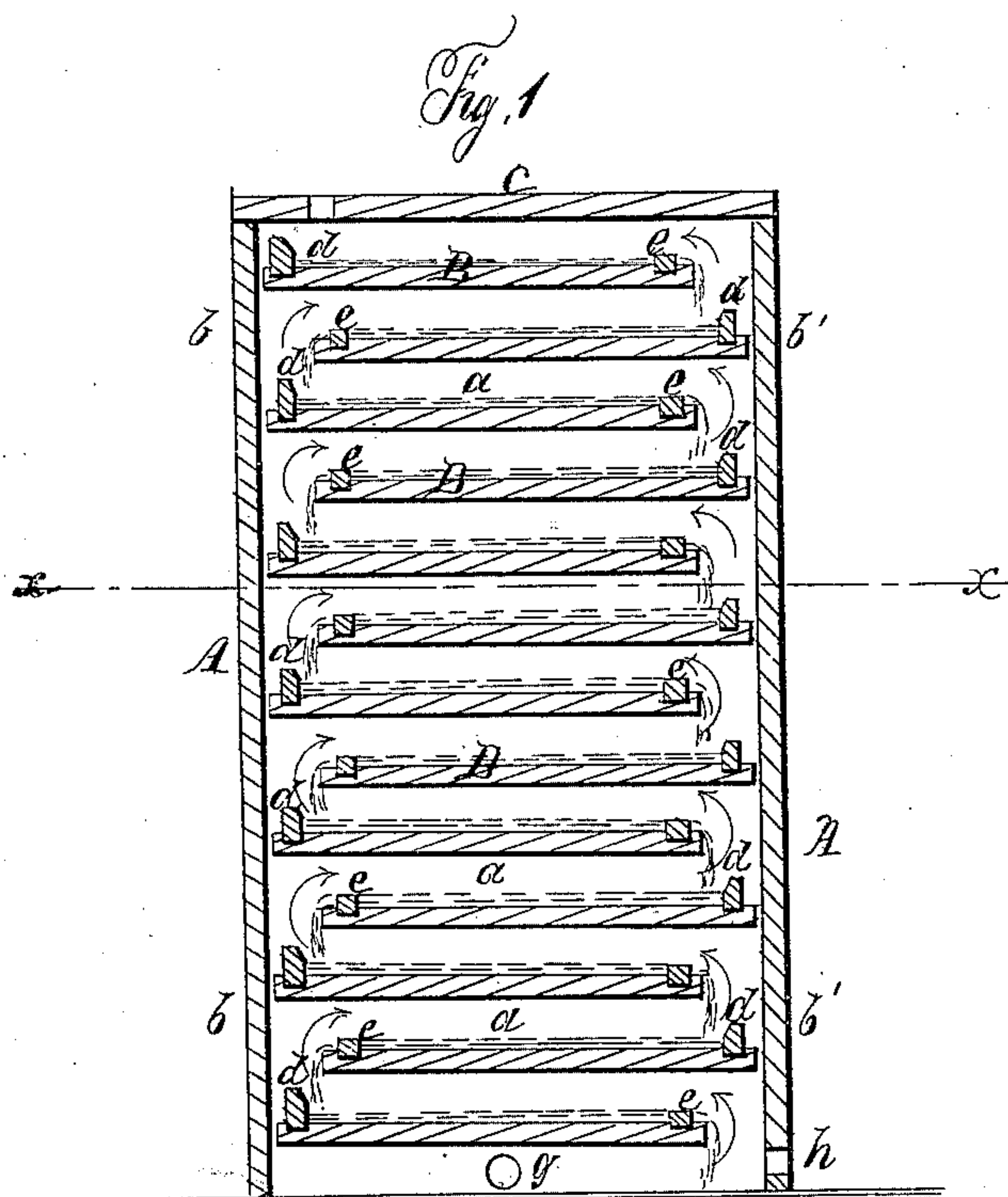


W. WEIS.
Making Vinegar.

No. 65,458.

Patented June 4, 1867.



Witnesses:
Theo Fische
Wm Freun

Inventor:
Heidelin Weis
Per Mummel
attys

United States Patent Office.

WENDELIN WEIS, OF SAINT PAUL, MINNESOTA.

Letters Patent No. 65,458, dated June 4, 1867.

IMPROVED APPARATUS FOR THE MANUFACTURE OF VINEGAR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WENDELIN WEIS, of Saint Paul, in the county of Ramsey, and State of Minnesota, have invented a new and improved Apparatus for Making Vinegar; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of my invention.

Figure 2 is a horizontal sectional view of the same, the plane of section being indicated by the line *xx*, fig. 1.

Similar letters of reference indicate like parts.

This invention relates to improvements in the apparatus for making vinegar, for which Letters Patent were granted to me on the fifth day of March, 1867. The improvements consist in so constructing the apparatus that the vinegar can be made in a very short time, and with the aid of but one set of shelves, and that the shelves can be easily and quickly cleaned.

A represents a rectangular box, which is made of wood or other suitable material, and which consists of the vertical side-boards *a a*, end-boards *b b'*, and cover *c*. The box is of sufficient height to receive a required number of horizontal shelves B B, which are made of wood, and which are arranged one above the other with an open space between them, as is clearly shown in fig. 1. The sides of these boards B are let and firmly secured into the sides *a a* of the box, and the same thus form the connection for the said side pieces *a*, as the top and end pieces are movable. The size of the shelves defines the length and width of the box. Each shelf is not quite as long as the box A, and is arranged within the same so as to come close to one end-board, and leave a space between its opposite end and the other end-board. Thus, in fig. 1, the end of the uppermost shelf B is made to touch the end-board *b*, leaving a space between its end and the end-board *b'*. The next shelf touches *b'* and leaves a space at *b*, and so forth, the shelves leaving alternately spaces between their end and one of the end-boards of the box A. Along the end of each shelf B are arranged ridges *d* and *e*, the latter being at the free end of each shelf, and being lower than the former, as is clearly shown in fig. 1. The liquid from which the vinegar is to be made is fed from a reservoir, which may be stationed above the box A, through a hole, *f*, in the cover *c* of the box, upon the upper shelf B. In the same it rises to the height of the ridge *e*, and then flows upon the next shelf, in which the ridge *e* is on the opposite end to that on the upper shelf, so that the liquid will have to pass over the length of each shelf before it will drop upon the next shelf below. The course of the liquid is thus continued throughout the whole height of the box A. When the shelves are thus filled, the operation of making the vinegar begins.

Hot air is introduced in the bottom of the box A through a pipe, *g* and cold air through a pipe, *h*. The latter is for the purpose of regulating the temperature in the box. The air ascends in the box, passing in a zigzag line over and around the shelves, as is indicated in fig. 1, and is thus made to pass over the entire surface of the liquid on the shelves. The liquid flows in a zigzag line through the box A, and the air passing over its entire surface transforms it into vinegar. From the lowest shelf the liquid flows into a reservoir or other suitable receptacle. The end-boards *b b'* are removable, or hinged, so that they can be opened to permit the cleaning of the shelves.

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

The vinegar apparatus which is constructed so that the vinegar and the air pass in zigzag lines over and around shelves B in opposite directions to each other, and which is provided with hot and cold-air pipes, and with removable end-boards, or such that can be opened, all substantially as and for the purpose herein shown and described.

WENDELIN WEIS.

Witnesses:

G. SIEGENTHALER,
GOTTFRID SCHMIDT.