

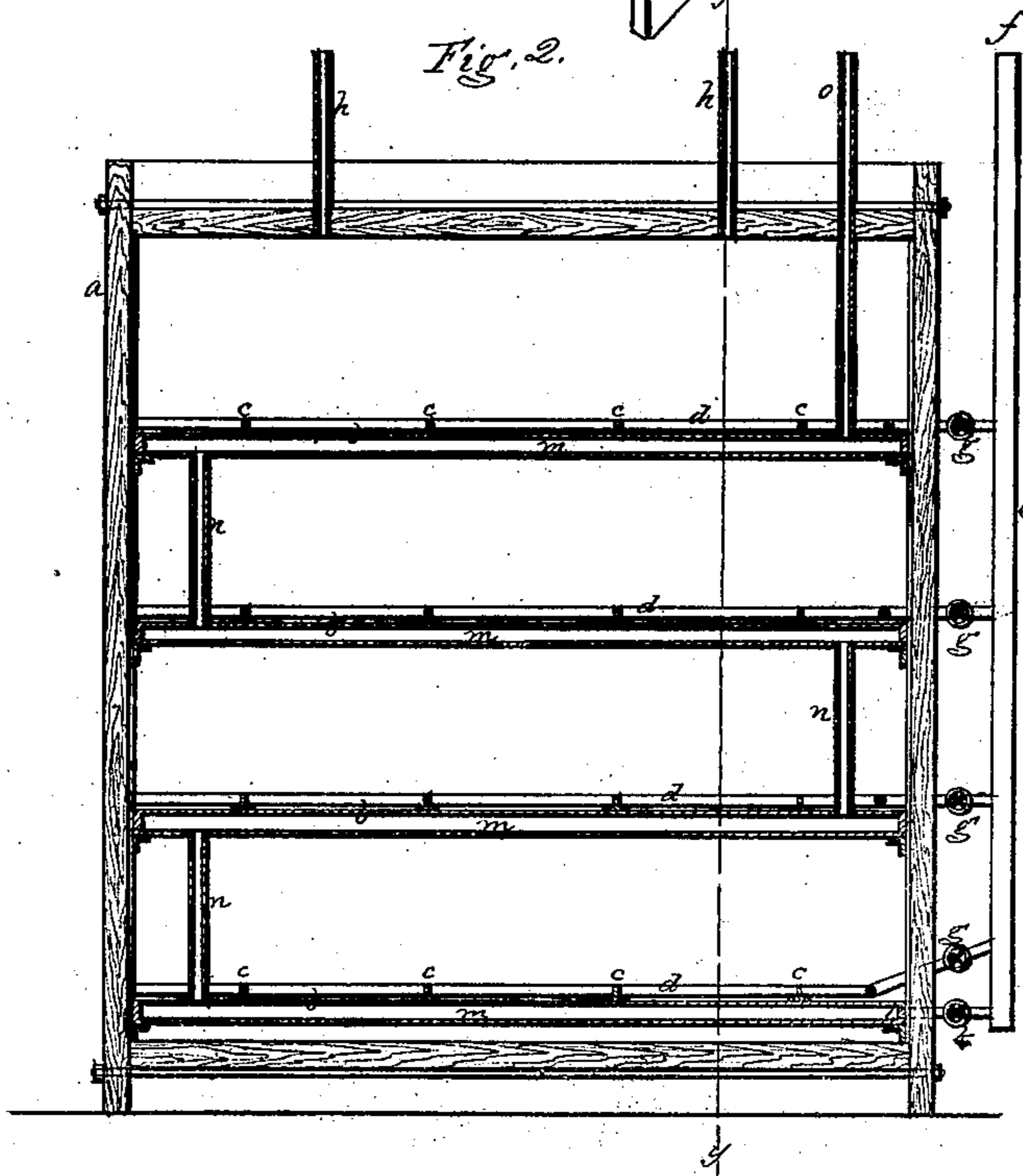
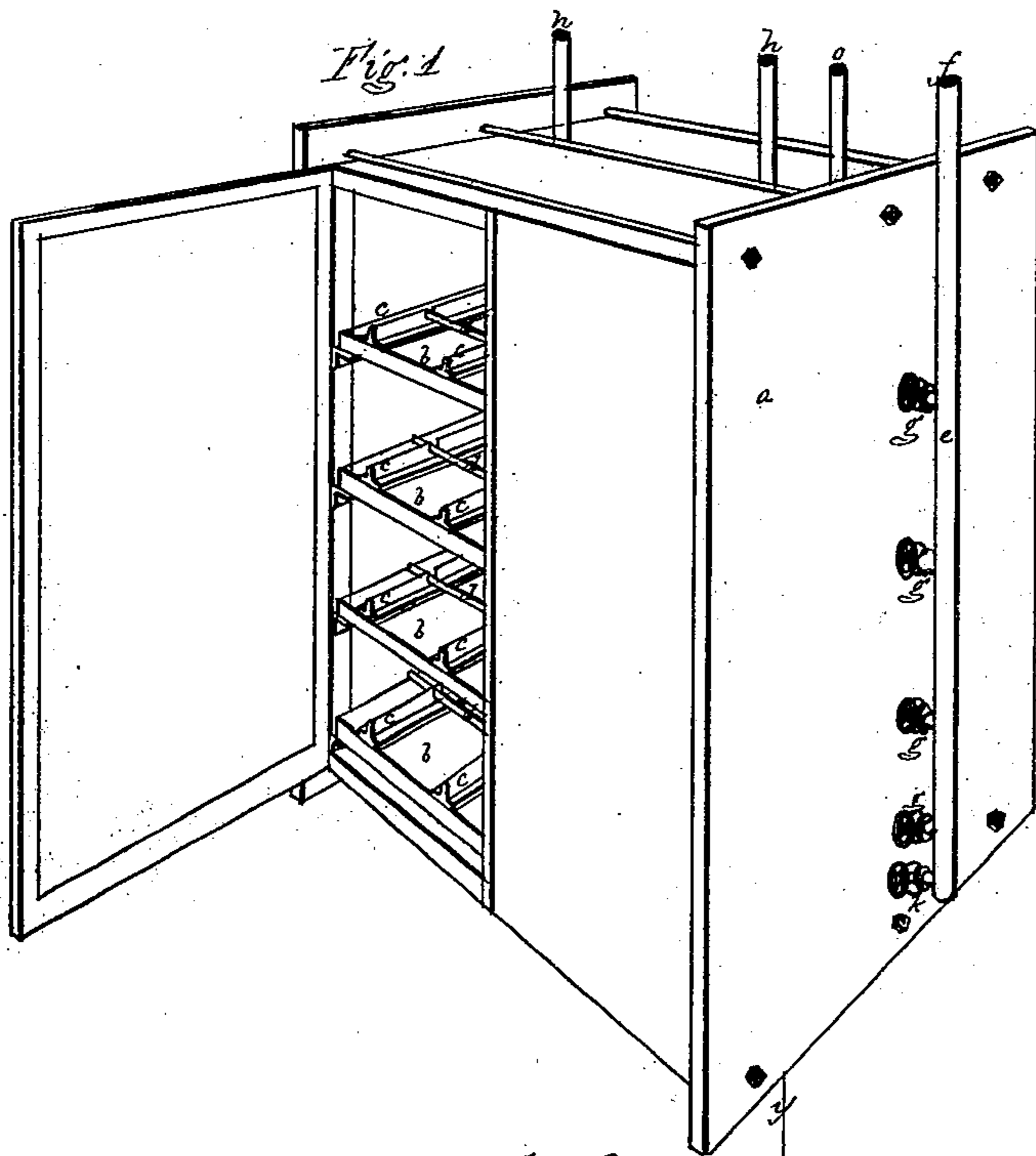
W. Welch,

2. Sheets. Sheet. 1.

Disinfecting App's.

No. 99986.

Patented Feb. 15, 1870.



W. Welch, 2, Sheets, Sheet 2.

Disinfecting App^s.

No. 99,986.

Patented Feb. 15, 1870.

Fig. 3.

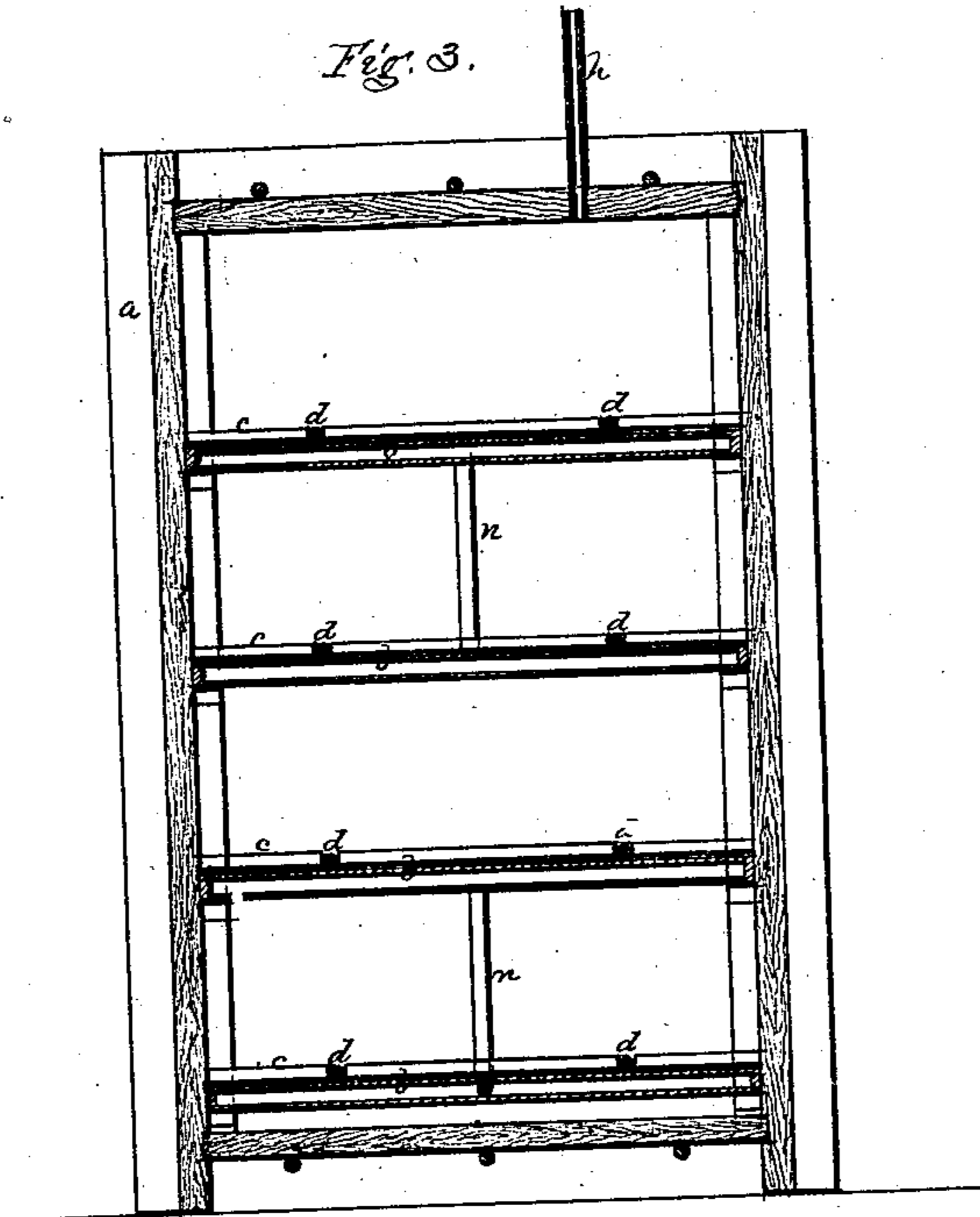
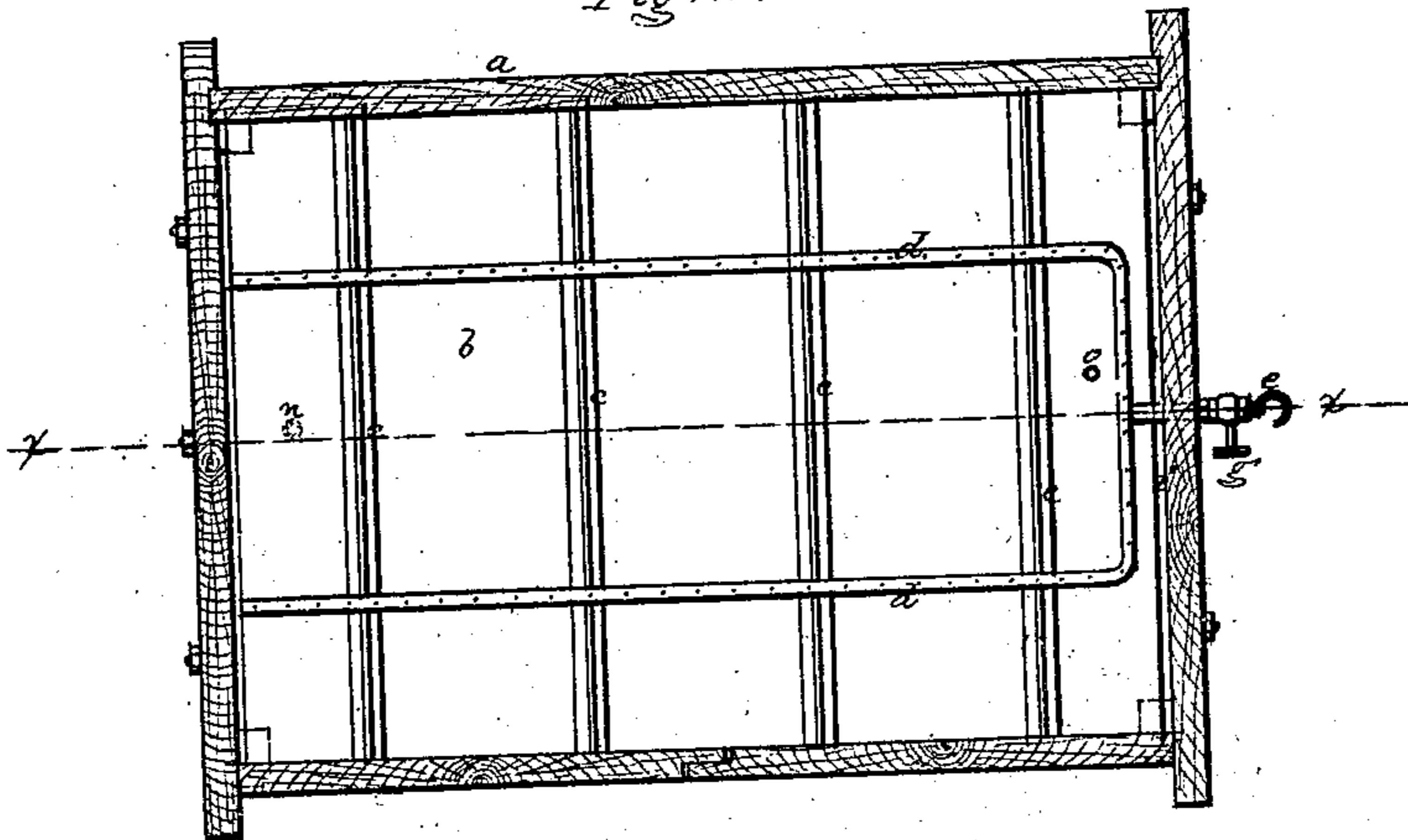


Fig. 4.



Witnesses
J. B. Kidder
M. W. Frothingham.
Wm. Welch
by his Atty
Crosby, Halsted & Gould

United States Patent Office.

WILLIAM WELCH, OF MONTREAL, CANADA.

Letters Patent No. 99,986, dated February 15, 1870.

IMPROVED APPARATUS FOR DIFFUSING VAPORS THROUGH CUSHIONS, MATTRESSES, &c.

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, WILLIAM WELCH, of Yarmouth, Norfolk county, England, temporarily residing at Montreal, Canada, have invented an Improved Machine for Diffusing Vapor through Cushions, Mattresses, Bedding, &c., for the purpose of cleansing them, which machine I term a Vapor-Fumigator; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention consists primarily in a closet provided with a tier of shelves, over each of which pass perforated steam-pipes, extending from a main steam-pipe, the shelves being made hollow or the chamber provided with a hollow steam casing or steam-boxes.

Upon the shelves are placed the cushions or other articles to be cleansed, and the doors of the closet being tightly closed, steam is let in through the perforated pipes, saturating the articles with hot steam, thereby destroying all insects and purifying the articles, which being effected, the steam is shut off from the perforated pipes, and steam is then passed through the hollow shelves, casing, or steam-boxes, thereby heating the closet and drying the cleansed articles.

The drawings represent an apparatus embodying the invention.

Figure 1 is a perspective view of the apparatus.

Figure 2 is a vertical section on the line *x x*.

Figure 3 is a vertical section on the line *y y*.

Figure 4 is a plan with the top of the closet removed.

a denotes the steam-chamber, the walls of which are made of wood or other non-conducting material, and constructed so as to be perfectly steam-tight.

At one side of the chamber are suitable doors, provided with rubber strips or other suitable packing-strips, (where they close against the closet walls,) to make them steam-tight when closed, and the walls are to be of sufficient strength to withstand the requisite pressure of steam or other vapor used in fumigating.

b b denote trays or shelves, having upwardly-projecting ribs marked *c*, on which the articles to be fumigated or steam-vaporized are placed, these ribs being made of suitable height above the top of the tray and perforated steam-pipes *d d*, in order to allow a sufficient space to insure the proper circulation and action of the steam or other vapor on all parts of the cushions, mattresses, or other articles to be fumigated.

e is the main steam or fumigating pipe, connected at its top *f* by a suitable pipe, provided with a stop-cock, with the boiler, the main pipe having branching

from it the branch-pipes *d*, which, passing through the end of steam-box, extend the entire length of each tray, each branch-pipe being provided with a stop-valve, *g*, between the outside of the closet and the main steam-pipe *e*.

Each branch-pipe is preferably arranged to rest upon one of the shelves, or upon the ribs projecting therefrom, and has a series of perforations through its top, as seen in fig. 4.

Pipes marked *h* lead from the top of the chamber, for the escape of the steam from the chamber after being used in fumigating.

The operation of the fumigator is as follows:

The articles to be cleansed are placed upon the trays *b*, and the doors of the steam-closet are closed.

The stop-cocks *g* are then opened and steam or other vapor of about twenty pounds pressure per square inch, more or less, as is found necessary, is admitted from the boiler through the main steam-pipe *e* into the perforated branch-pipes *d*, thus filling the steam-box *a*, and thoroughly permeating and fumigating the cushions, mattresses, or other articles placed on the trays, the holes in branch-pipes *d* being placed so as to inject the steam directly into the articles to be fumigated, thus effectually destroying insect life, and completely disinfecting and cleansing them from the foul condition in which they may have been previous to the fumigation.

The steam or vapor after its fumigative action passes up through spaces *i* at the ends or sides of the shelves, (see fig. 4,) and from thence escapes through the pipes *h* into the atmosphere.

When the articles are thoroughly fumigated, the stop-valves *g* are closed, and the articles are then submitted to a drying process, as follows:

A branch-pipe, *k*, at the bottom of the main steam-pipe *e*, fig. 1, passes into the steam-box and communicates at *l* with a hollow space, *m*, in the bottom tray.

A stop-cock on this branch-pipe *k* being opened, steam or vapor is admitted into the interior of the bottom tray, and thence ascends through the connecting pipes *n* into every tray, all being made hollow, and finally escapes through the waste-pipe *o* into the atmosphere.

The connecting pipes *n* are placed at alternately opposite ends of the respective trays, as seen in fig. 2, thus keeping a continuous circulation of steam through all the trays, and maintaining an equal temperature in the steam-chamber, and producing a drying process sufficiently rapid to give an elasticity to the hair, grass, or other material used in the fumigated articles, which cannot be obtained by any other known process except teasing.

Instead of these hollow shelves, hollow vertical par-

titions or pipes may be employed to convey the steam for drying, or the chamber may be made with steam-flues adjacent to the walls. I prefer, however, the construction and arrangement shown.

It will be obvious that the shape of the trays or of the closet may be varied as circumstances may dictate or require, they being made square, rectangular, cylindrical, or of any other shape best suited for the particular purpose to which the fumigator is to be applied.

It will also be obvious that the number of trays or perforated branch-pipes to be used in each fumigator may be varied to any extent desirable.

I claim—

A vapor-fumigating apparatus, having a series of

shelves, over which pass perforated steam-pipes, the shelves being preferably provided with suitable ribs for sustaining the articles to be fumigated above the pipes and shelf surfaces, substantially as shown and described.

Also, in combination with a closet provided with a system of steam-pipes, having perforations opening into the chamber, hollow steam-shelves or steam-conductors traversing the chamber or the walls thereof, substantially as described.

WILLIAM WELCH.

Witnesses:

HENRY SHACKELL,
WILLIAM WAINMIGHT.