

(No Model.)

2 Sheets—Sheet 1.

A. C. HAVEN.
DISINFECTING APPARATUS.

No. 467,167.

Patented Jan. 19, 1892.

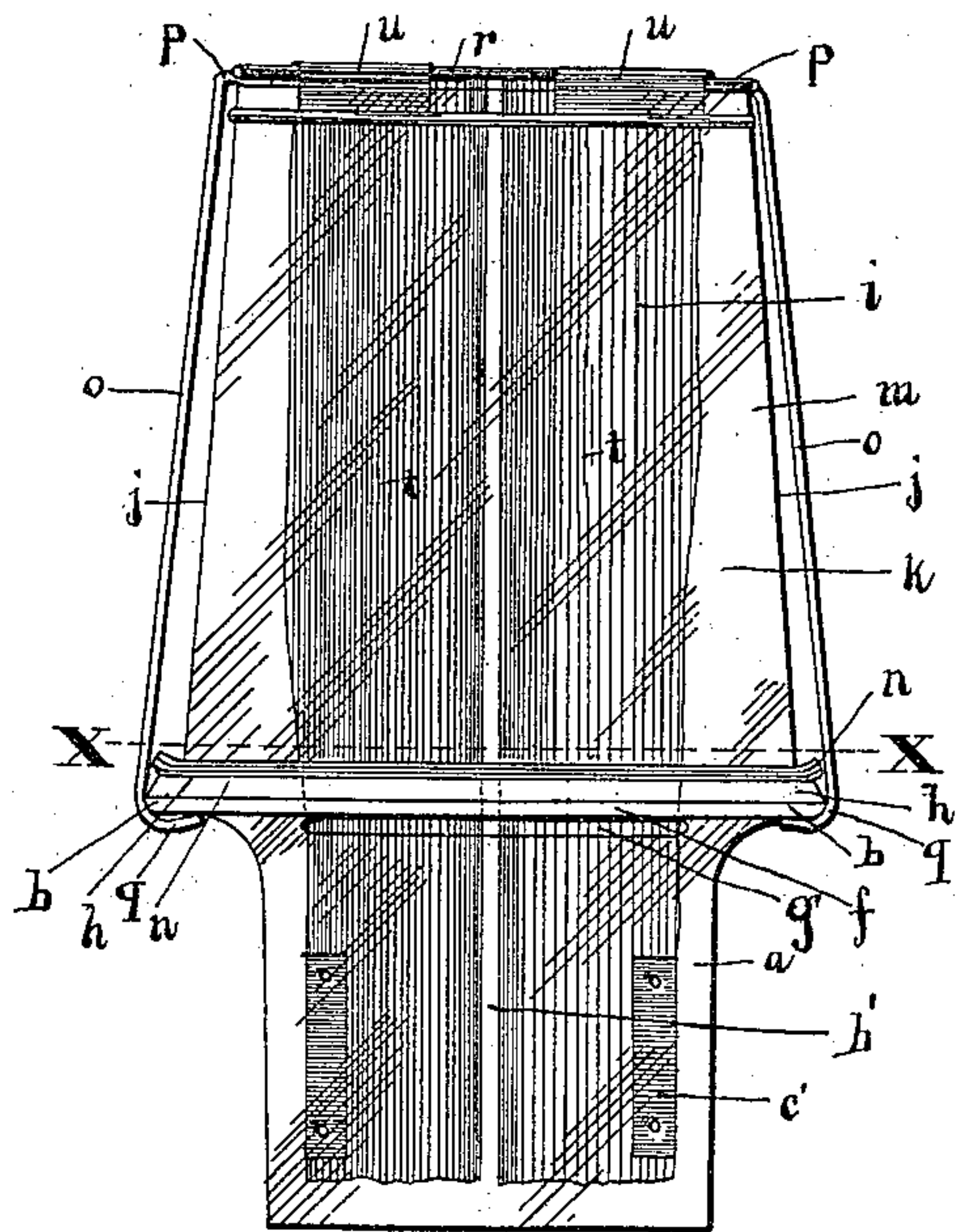


Fig. 1.

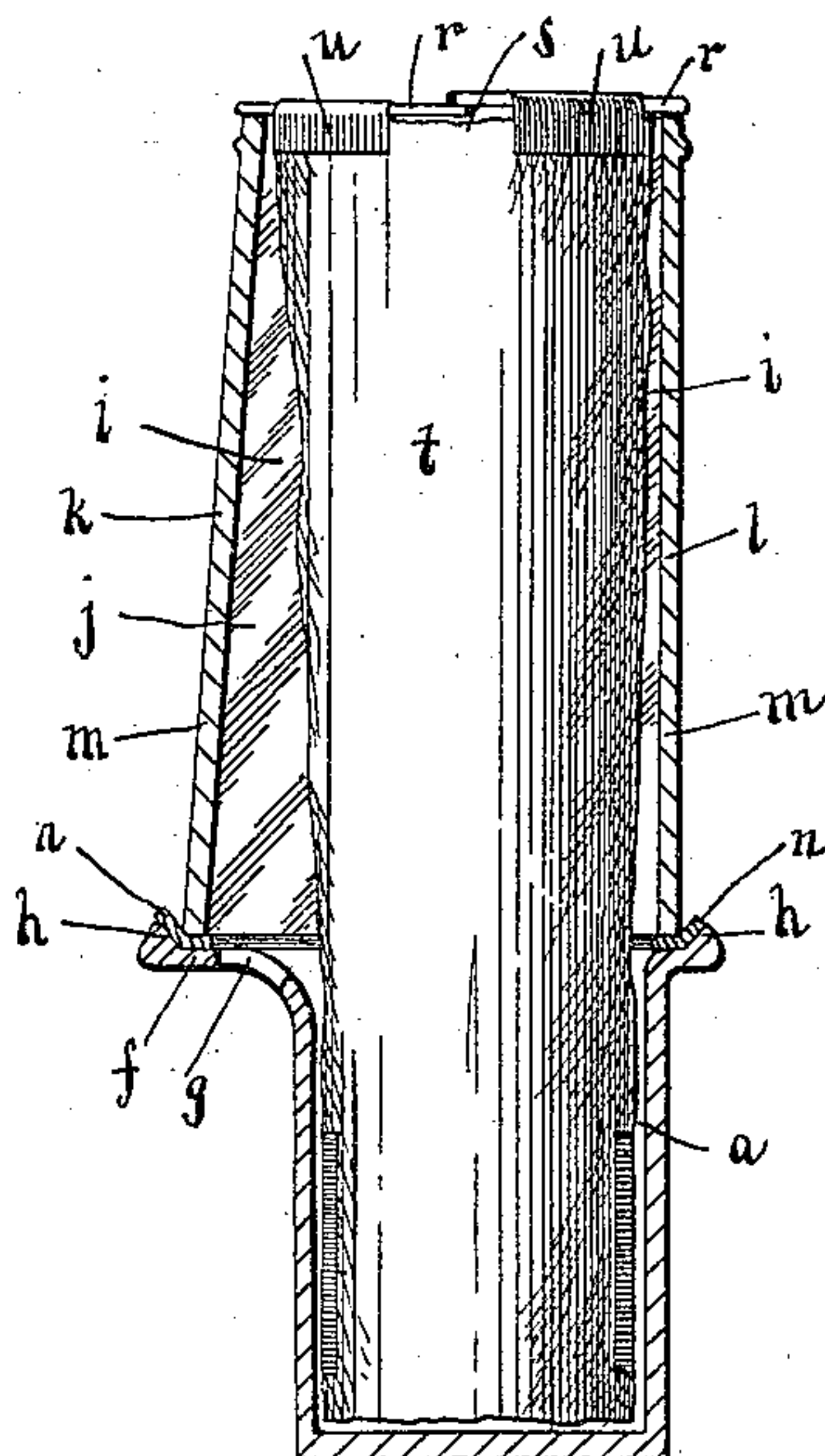


Fig. 2.

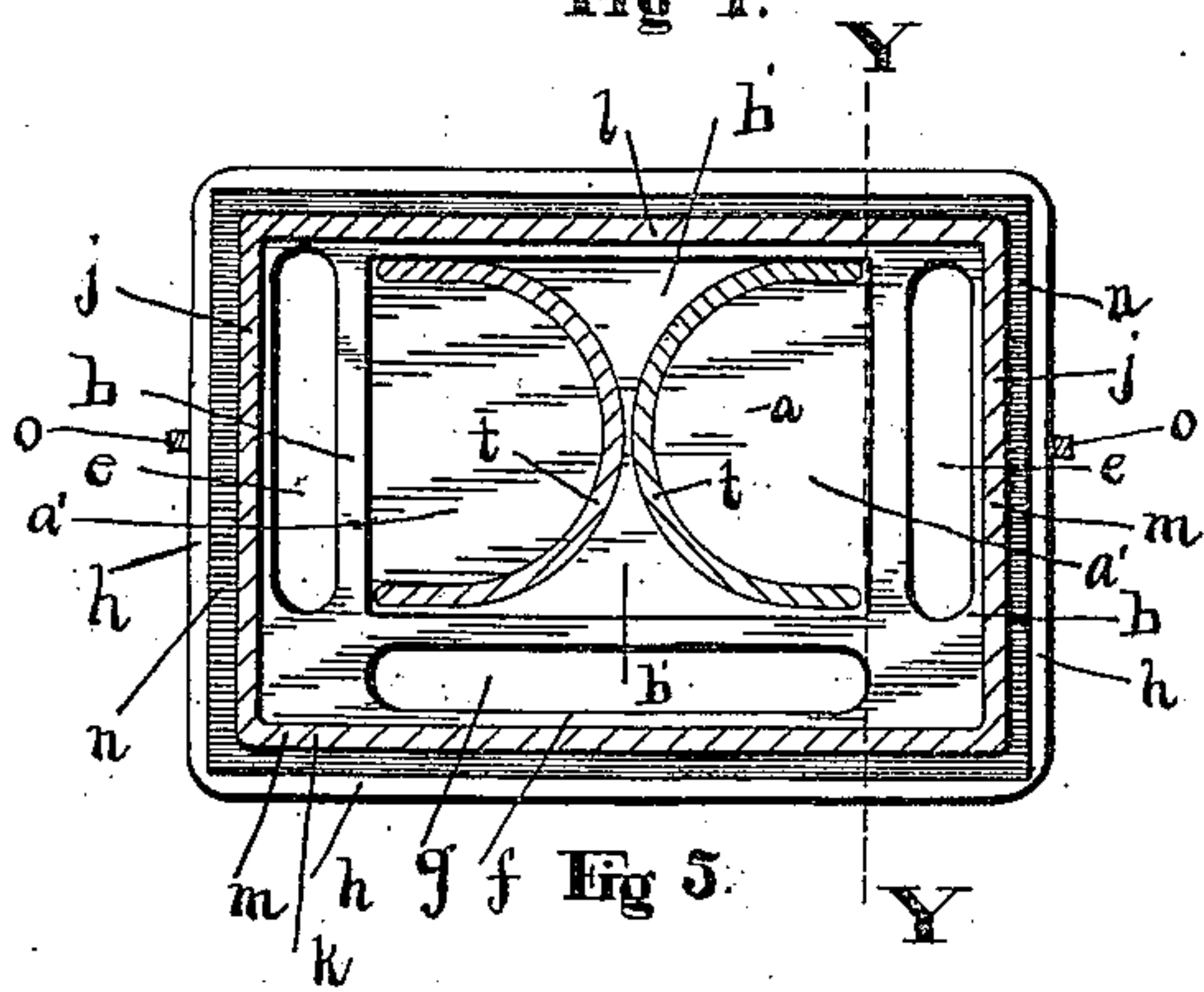
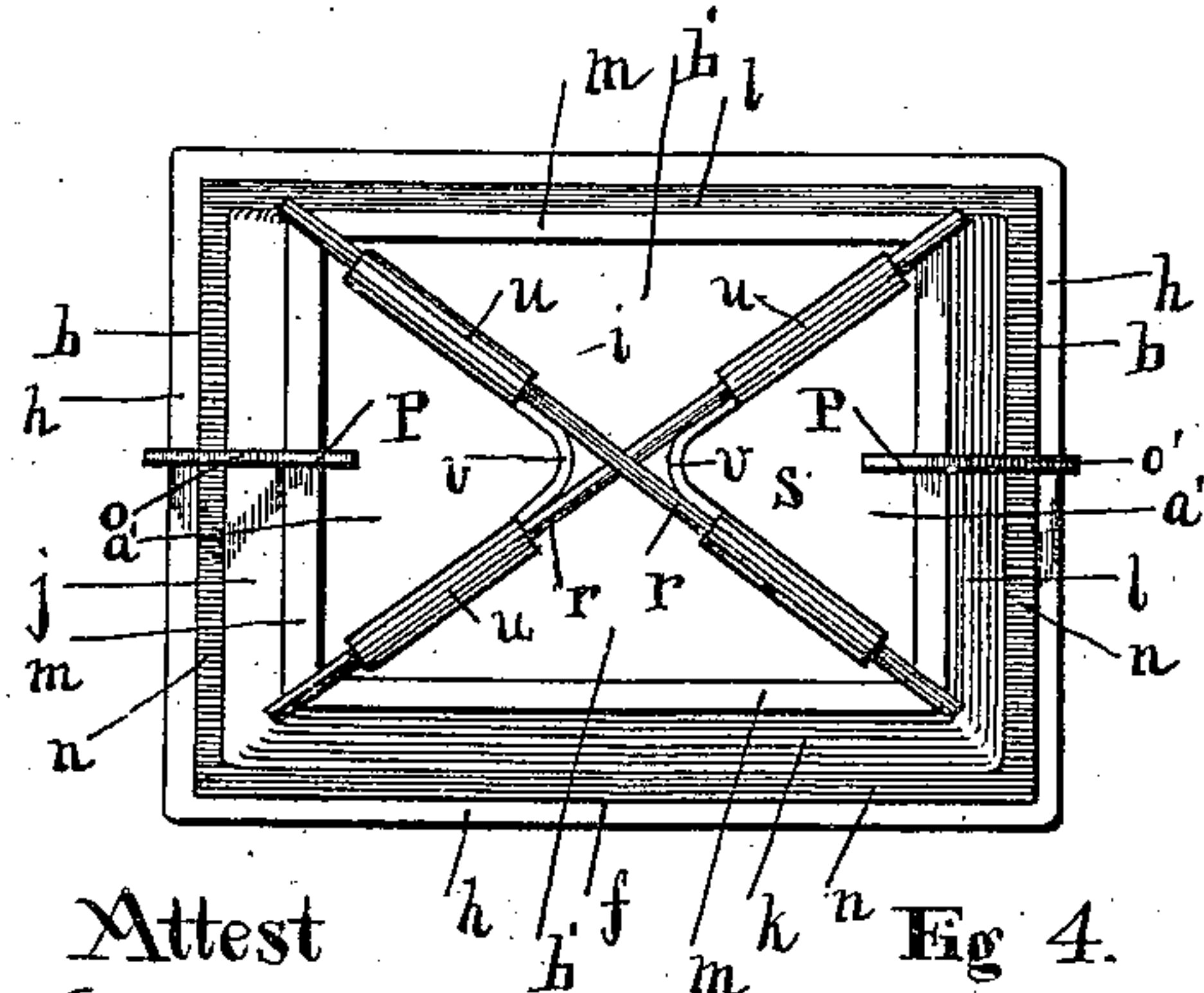


Fig. 3.



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J. M. Maxon.
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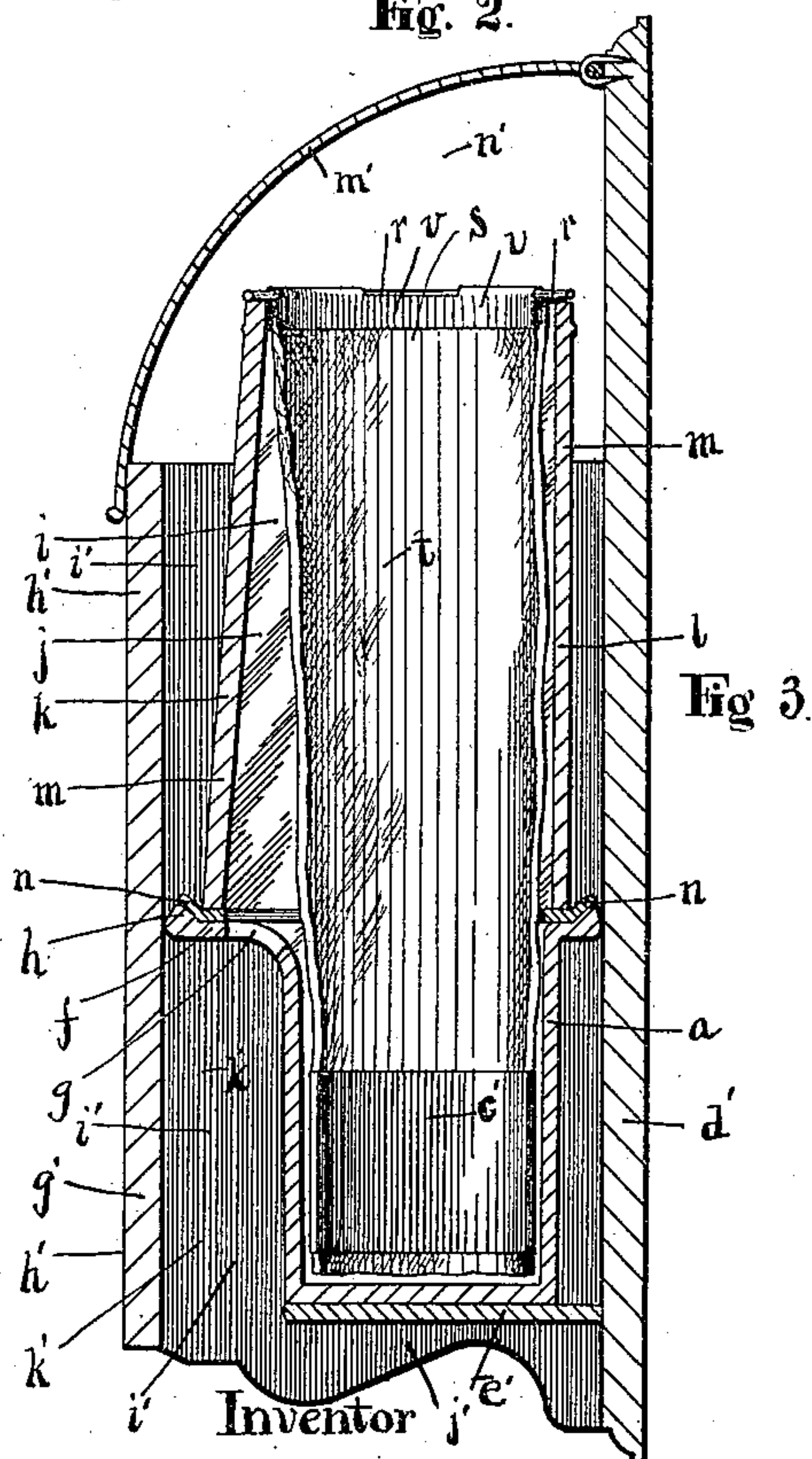


Fig. 5.

Inventor
Albert C. Haven,
By Jas. E. Thomas, Atty.

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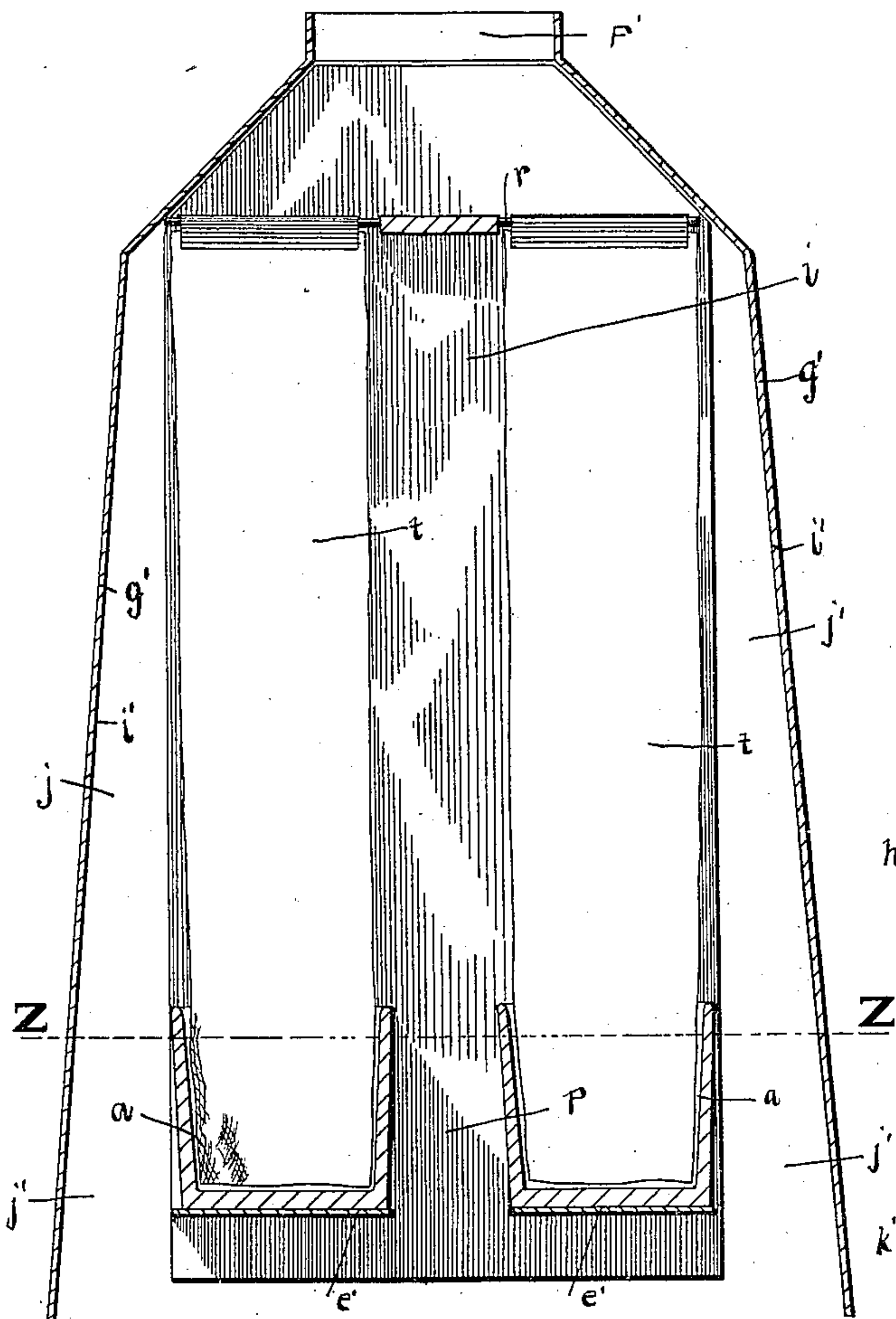


Fig. 6

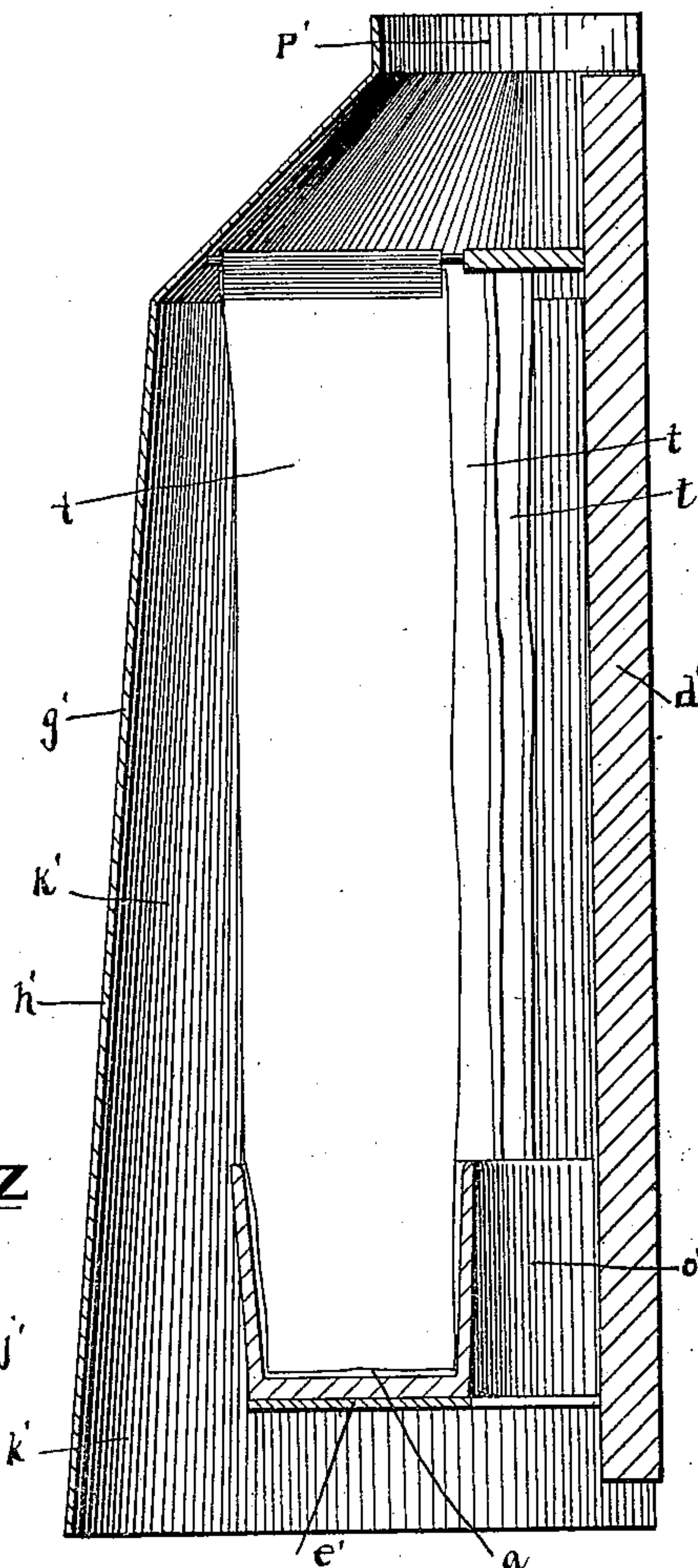


Fig. 8.

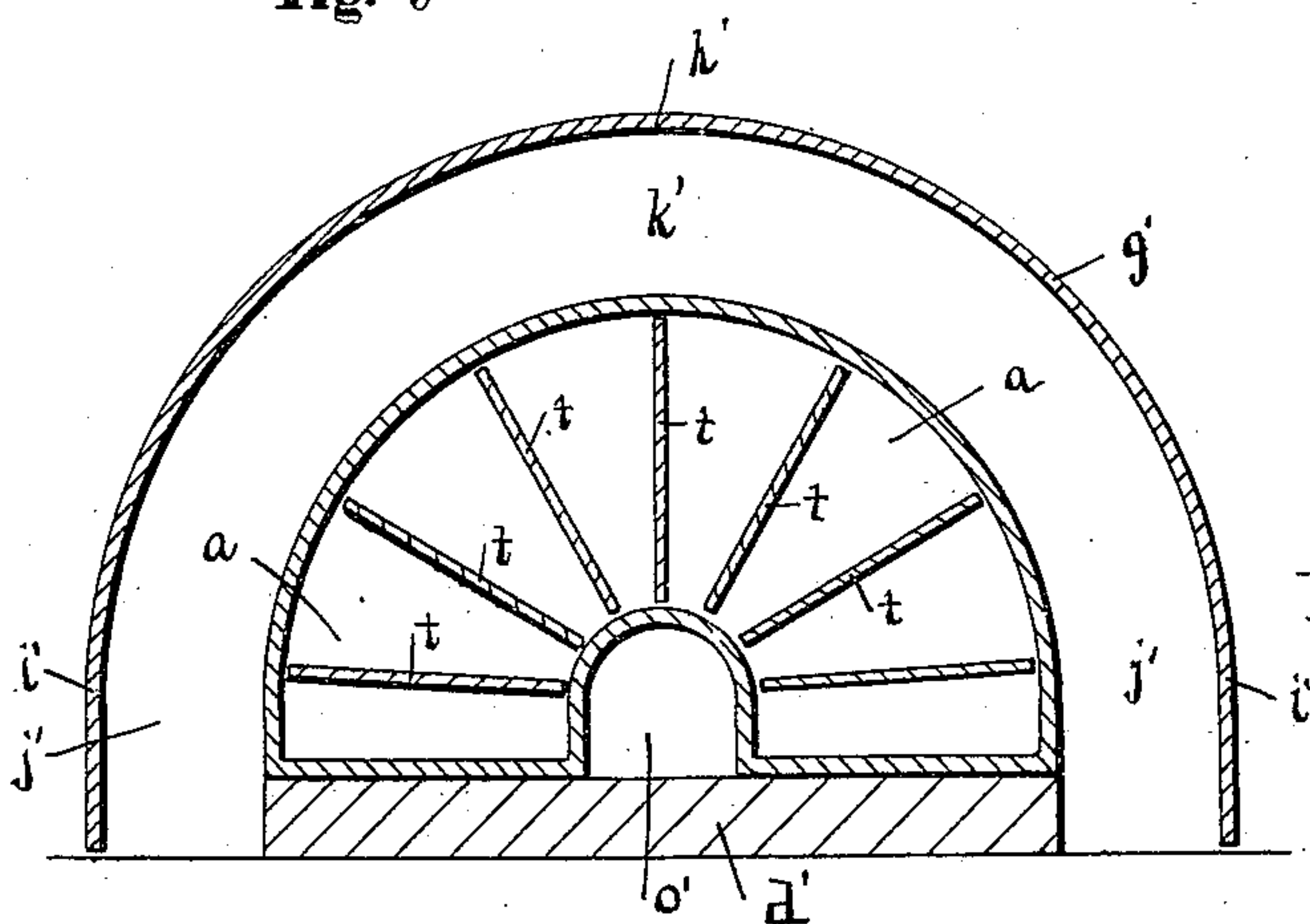


Fig. 7.

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J. B. Schissinger.
J. M. Maxon.

Inventor

Albert C. Haven

By Jas. E. Thomas, Atty.

UNITED STATES PATENT OFFICE.

ALBERT C. HAVEN, OF WEST BAY CITY, MICHIGAN.

DISINFECTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 467,167, dated January 19, 1892.

Application filed May 11, 1891. Serial No. 392,283. (No model.)

To all whom it may concern:

Be it known that I, ALBERT C. HAVEN, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Disinfecting and Deodorizing Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to deodorizing and disinfecting apparatus and pertains more especially to that class of deodorizing and disinfecting devices which are arranged to contain a disinfecting liquid or compound to be disseminated throughout the room by evaporation; and the invention consists, chiefly, in the construction, arrangement, and combination of the several parts of the device, together with the operation of the same, as I shall hereinafter more fully explain, and specifically set forth in the claims of this specification.

One of the objects of this invention is to provide a means for containing and evaporating a disinfecting or deodorizing liquid or compound which will be handy and convenient for charging and manipulation, will also be symmetrical in form and ornamental in appearance, and will also retain the fluid free from dust or dirt.

Another object of the invention is to arrange and construct a device for containing and evaporating a liquid disinfecting or deodorizing mixture which will present a large area of evaporating-surface to the air-currents of a room, whereby a thorough complete purifying operation is obtained.

My improved device will be found illustrated in the accompanying drawings, in which similar letters of reference will be found indicating the same parts throughout the several views.

Figure 1 represents a front view of my improved device without an outside casing. Fig. 2 is a vertical section of the same from front to rear. Fig. 3 is a vertical section taken at *y y* in Fig. 5 of the device as contained in a case for hanging against the wall of a room. Fig. 4 is a top or plan view of Fig. 1. Fig. 5 is a horizontal section of Fig. 1, taken at *x x*. Fig. 6 is a transverse vertical section of a modified form of arranging the device for provid-

ing a great area of evaporating-surface. Fig. 7 is a horizontal section of the same, taken at *z z*. Fig. 8 is a vertical section from front to rear of Fig. 6.

a is a vessel for containing liquid, and may be of any suitable material, as glass, porcelain, or metal, and of any desired form, either rectangular, semicircular, or oval, and the upper edges of the vessel are provided with outwardly-projecting flanges *b* on the sides, which have elongated openings or air-passages *e*, while the front side is provided with a flange *f*, having an elongated opening *g*, and the outer edges of these flanges are turned upward, forming a rib *h*.

i is an upper chamber contained in a casing composed of the inwardly-inclined deflecting side plates *j* and front inclined plates *k*, while the back plate *l* is preferably arranged to stand vertically with the rear side of the vessel, and these plates are preferably of metal or glass joined together at their lateral edges and arranged with their lower edges resting upon a packing-strip *n*, which is laid upon the flange *f* within the rib *h*, and the parts are retained in position by rods *o*, provided with hooks *p* and *q*, caught over the upper edge of the casing and the lower edge of the flanges *b*.

r are cross-bars of wire laid diagonally across the upper end opening *s* of the chamber and with their ends resting upon the upper corners of the casing, and *t* are wicks of fibrous material and provided with the metal pieces *u*, each bent upon itself to a U form and with the limbs of the U closed upon opposite sides of the upper ends of the wicks and forming a loop *v*, with its middle portion cut out, through which the rods *r* are passed, the wicks being preferably bent transversely to a semicircular form and arranged with their convex sides presented to each other, and which allows each rod to pass through a loop on each wick, so that the wicks will depend from the bars into the vessel in a semicylindrical form, which forms channels *a'* on the lateral sides of the wicks, while channels *b'* are arranged thereby on the front and rear sides thereof, the lower ends of the wicks being retained in proper form to produce the channel by the lower metal piece *c'*, which, first being bent to form, has its ends clasped

over the side edges of the wick. The upper section or casing is removed and the desired liquid deodorizing mixture is placed in the vessel, and the wicks are also thoroughly saturated therewith, and the casing is then placed in position and secured to the vessel. The saturated wicks are then put in place, with their lower ends depending into the liquid. The device is then ready for use in bath-rooms, refrigerators, cellars, &c., and is preferably placed in a position to receive the benefit of the usual upward air-currents passing throughout the inclosure, preferably taking advantage of the ventilating appliances, and the air-currents passing in at the openings *e* and *g* are deflected by the side inclined plates *j* and the front inclined plates *k* to full contact with the saturated wicks, so that the products of the evaporation going on in the liquid contained by the wicks is caught up and carried out by the air-currents and disseminated throughout the room or inclosure, and with the usual circulation of the air in the inclosure continually going on and the device being arranged to operate in conjunction therewith a great proportion of the air is passed through the chamber and in contact with the wicks, so that the air becomes fully impregnated with an odor and germ extinguishing medium, which thoroughly and efficiently eradicates all impurities and foul matter, together with disease-germs, &c., contained therein.

The foregoing description refers more particularly to the device as illustrated in Figs. 1, 2, and 5, while in Fig. 3 is illustrated the device as arranged for operation in a room, office, hall, &c., *d* therein being a back board to be hung against or affixed to the wall of the room in a proper position to receive the action of upwardly-moving air-currents from a stove, register, or ventilator, &c., and to the lower portion of this board is secured a shelf *e'*, and upon this shelf is placed the vessel *a*, with the upper casing and wicks affixed therein, as before described, the upper portion of the casing extending nearly to the upper portion of the board.

g' is a casing for inclosing the device, and consists of the vertical front plate *h'* and side plates *i'*, with their edges joined to the edges of the front plate, while their rear edges are secured to the face of the board *d*, and this casing extends from a point below the shelf *e'* to a point above or coincident with the upper open end of the upper chamber, so that side channels *j'* are arranged between the sides of the vessel *a* and the plates *i'*, communicating with the openings *e*, and a channel *k'*, communicating with the opening *g*, is arranged between the front plate *h'* and the side of the vessel.

m' is a cover hinged by its rear edges to the upper portion of the back *d'* and at a point considerably above the upper edges of the side plates *i'* and is arranged to incline downwardly, with its front edge resting upon the

upper edge of the front plate *h'*, and may be provided either with an inclined or convex upper side, as desired, so that an open space *n'* is provided on each side between the cover and the upper edges of the side plates *i'* for the exit of air-currents from the open end of the chamber *i*.

The inclosed device now being hung in the influence of upwardly-passing air-currents in proximity to a stove or register receives the air-currents from below in the passages or channels *j'* and *k'* through the openings *e* and *g* to be deflected against the wick-surfaces by the inclined plates *j* and *k*, and thence through the openings *n'* to the room, and this action continually going on causes the atmosphere of a room to become thoroughly impregnated with the vapors of the evaporated liquid, which, acting chemically upon the foreign matter, germs, &c., contained in the air, causes a change to occur therein, which renders the noxious gases and disease-germs inactive and not able to affect the health of the occupants of the room.

Of course the casing for inclosing the vessel and wick-chamber may be made of metal, wood, or other material, as most convenient, and may be ornamented in any desirable manner to suit the position in which it is placed and the surroundings thereof, and as the apparatus is capable of use in very many places requiring various capacities different forms of construction can be arranged, if desired, the principal feature of the construction being to provide as great an area of wick-surface for exposure to the air-currents as possible within a limited area of space, and for a greater size, adapted to use in halls and large rooms, I prefer a form shown in Figs. 6, 7, and 8, with the vessel for containing the liquid and also the wick-chamber arranged in a semi-circular form, so that a central channel or space *o'* is provided at the rear side between the back board *d'* and the vessel, while the outer casing *g'*, inclosing the vessel and wick-chamber, is inclined inwardly toward the top or upper end and provides inclined deflecting-surfaces, leaving an upper end opening *p'* in the form of a flue, instead of the side openings *n'*, before mentioned, and a series of wicks *t* are then placed so as to depend from upper supports with their lower ends into the vessel and arranged transversely to radiate around a center, so as to provide spaces or channels between the exposed surfaces of the wicks for the passage of air-currents, the contracted upper end of the casing reaching to the outer edges of the upper ends of the wicks, so that the air-currents are forced to pass between the wicks as they pass upward.

This form of device, while being substantially the same in its general features as the styles formerly described, provides a greater area of wick-surface, and hence a very much greater capacity, and is more particularly adapted for use in connection with hot-air registers, hospitals, and theater-halls, &c.

It will be seen that in all of the various forms of construction the same general arrangement of the principal features of the apparatus is maintained—the tank for containing the liquid, the wick-chamber above the vessel, the wicks depending from a support above into the vessel, passages for admitting air-currents to and from the wick-chamber, and deflecting-plates for directing the air-currents to contact with the wick-surface—the principal aim of the construction being to attain the greatest possible effect by an apparatus within a reduced or limited area and to provide a great area of evaporating-surface for the liquid at a limited cost and expense.

Of course it will be noticed that by the arrangement of the deflecting-plates the upward air-currents are directed to contact with the saturated wicks for taking up the evaporation thereof, and at the same time the exposed surfaces of the wicks are protected from the influence of other violent air-currents which may occur from an open window or other source, so that a too great and rapid evaporation of the liquid is prevented and a steady and even operation of the apparatus is acquired with no attention, except to renew the liquid from time to time, and by providing the casing and cover for the vessel and wick-chamber a neat and ornamental appearance is provided and protection from dirt and dust is also secured.

While I have illustrated several forms of applying my improvement, other forms may be arranged for special purposes of a like nature, and therefore I do not confine my invention to the precise forms herein shown, but claim as my invention as follows:

1. In a deodorizing and disinfecting device, the combination, with the tank for containing the liquid and a wick suspended above and reaching into the tank, of the deflecting-plates having their upper ends in proximity to the wick and with their lower ends reaching outwardly beyond the edges of the tank for the admission of air between the plates and tank, substantially as set forth.

2. In a deodorizing and disinfecting apparatus, the combination, with a casing and a cover provided with side openings, of a tank

within the casing and provided with openings forming air-passages between the casing and tank, the deflecting-plates with their lower edges reaching over the said air-passages and with their upper ends leaning toward each other, and a wick supported between the adjacent upper ends of the deflecting-plates and with its lower end reaching into the tank, substantially as set forth.

3. A disinfecting and deodorizing device consisting of a tank for containing the liquid, the wicks supported above and depending into the tank, the deflecting-plates above and with their lower edges reaching outwardly beyond the edges of the tank, forming air-passages between the plates and tank, and a cover reaching over the upper ends of the deflecting-plates and provided with side openings, for the purpose set forth, substantially as described.

4. The combination, in a disinfecting and deodorizing apparatus, of the vessel for containing the liquid, the wick-chamber above the vessel, having an open top and with its bottom of a greater area transversely than the vessel and projecting over the sides thereof and provided with openings forming air-passages between the sides of the vessel and the sides of the wick-chamber, and a series of wicks within the chamber and depending into the vessel, substantially as set forth.

5. The combination of the vessel for containing the liquid air-purifying medium and provided around its upper edge with an outwardly-projecting flange having openings forming air-passages and having on its edge an upwardly-projecting rib, a wick-chamber casing with its lower edge resting on the said flange outside of the said openings and provided with an open upper end, the wicks supported upon the upper end of the said casing and depending into the vessel, and removable means for securing the said casing upon the flange, substantially as set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

ALBERT C. HAVEN.

Witnesses:

GEO. P. THOMAS,
JAS. E. THOMAS.