(No Model.)

W. W. NETTERFIELD.

VAPORIZER.

No. 423,388. Patented Mar. 11, 1890.

Fig. 1

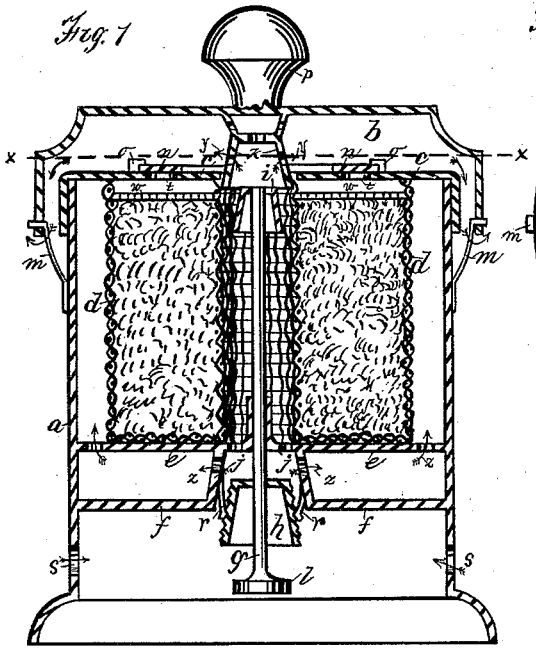


Fig. 3

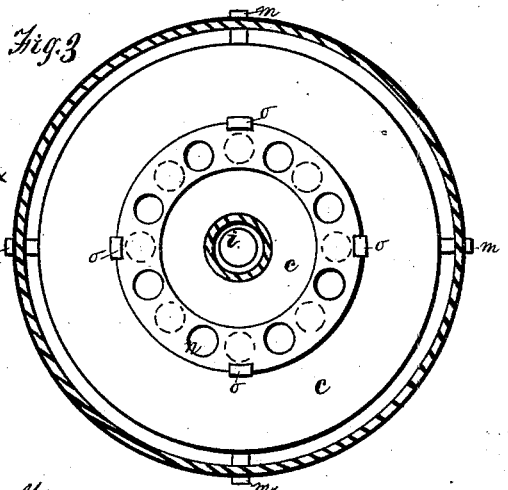


Fig. 4

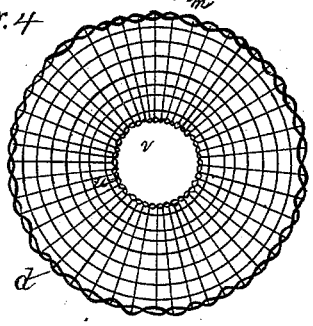


Fig. 2

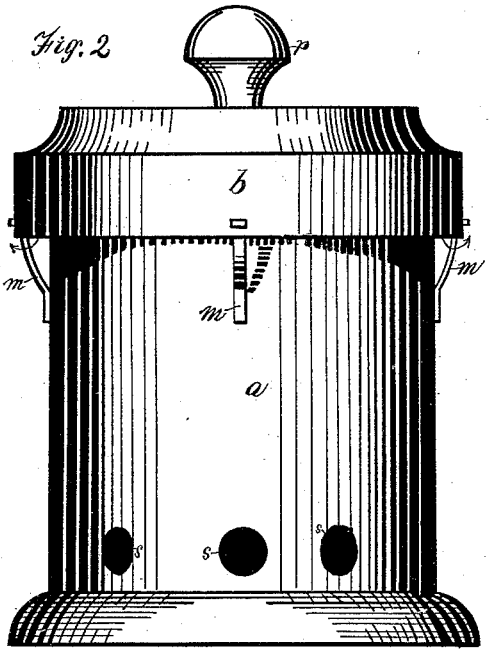


Fig. 5

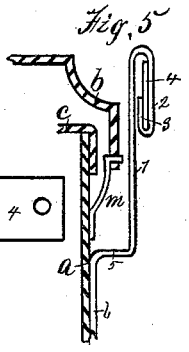
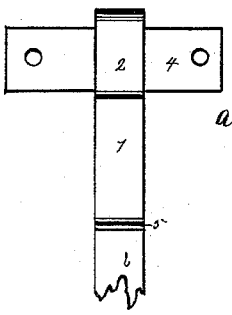


Fig. 6



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VAPORIZER.

SPECIFICATION forming part of Letters Patent No. 423,388, dated March 11, 1890.

Application filed April 8, 1889. Serial No. 306,404. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. NETTERFIELD, a citizen of the United States of America, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Vaporizing or Deodorizing Apparatus, of which the following is a specification, reference being had to the accompanying drawings, and letters and figures of reference marked thereon.

The object of my invention is to provide a deodorizing or vaporizing apparatus the construction of which shall be simple and inexpensive, and the use or operation of which shall be effectual.

My invention therefore consists in the construction and arrangement herein pointed out, whereby the objects of my invention are attained.

In the accompanying drawings, in which like letters of reference indicate like parts, Figure 1 is a side elevation in section of my improved device. Fig. 2 is a side elevation of the complete device. Fig. 3 is a plan view in section, taken through line *x x;* and Fig. 4 is a view of the basket removed from the case. Figs. 5 and 6 are detail views of the suspending-hook.

Referring now to the drawings in detail, *a* indicates an outer shell or case; *b*, the outer cover thereon; *c*, the inner cover; *d*, an absorbent-holder; *e*, a diaphragm; *f*, a similar diaphragm located below *e; g*, a stem; *h* and *i*, valves mounted thereon; *j* and *k*, valve-seats; *l*, a handle upon stem *g; m*, cover-holding springs; *n*, a sliding cover attached to cover *c; o*, lips for holding slide *n* in position; *p*, a handle secured to the outer cover; *r*, valve-holding springs; *s*, inlet-openings, and *t* outlet-openings, in cover *c*.

The construction and operation are as follows: A can or outer casing *a*, of any suitable material—such as hemp or cotton—is provided, within which is arranged a diaphragm *e*, upon which diaphragm is arranged a basket or case *d*, adapted for holding an absorbent material, which basket or case I prefer should be constructed of woven or reticulated wire, which should be galvanized to prevent corrosion. It will readily be seen, however, that this portion of the device may be of other material, and if provided with perforations the same result will be attained. The absorbent-holder is provided with an annular recess, within which the absorbent material is deposited. The central portion of the absorbent-holder is provided with a tube or walls *u*, of the same material, thus forming an opening extending perpendicularly through the holder. A perforated disk forms its cover. Below the diaphragm *e*, I provide an annular chamber, which acts as a drip-cup, within which is collected any surplus acid which may escape from the absorbent material.

The can *a* has an inner cover *c*, arranged as shown, which cover is provided with vapor-outlet openings *t*, and the circular slide *n* is arranged above said openings, and is provided with openings which will register with the opening in the cover *c*. When it is desired to close these openings, the slide *n* is moved in its bearings until the openings *t* are entirely closed. The slide *n* is held in position by overhanging lips or bearings *o*, which maintain it in the desired position against the surface of the cover *c* and allow of its being moved or rotated to open and close the vapor-outlet openings as desired.

The inner side walls *j* of the drip-cup are made flaring, as shown in Fig. 1 of the drawings, thus forming a cone-shaped valve-seat, into which the valve *h* is made to fit, and thus close the openings in the walls *j* and the openings also into the tubular chamber *v*.

The outer cover *b* is made of larger diameter than the body of the casing or cup *a*, and the flange forming the sides of this cover are arranged at a sufficient distance from the case *a* to permit of the escape of vapor between the flange of the cover and the case. The flange of the cover is provided with perforations, into which pins or lips upon springs *m* pass, and thus maintain the cover in the desired position. To remove the cover, it is simply required to bear these springs *m* inward toward the case until their projecting points escape from the openings in the cover, thus releasing the holding means and allowing of its removal.

The cover *b* is provided with a depending cone-shaped part *k*, provided with openings, as shown, and the stem *g* at its upper end is provided with a like-shaped valve *i*, which

when forced upward, closes the openings in the valve-seat *k* and effectually prevents the escape of vapor therefrom.

To maintain the valves in the desired position and to allow of their adjustment, I prefer to arrange two depending springs *r*, whose upper ends are secured to the walls *j* and whose lower ends enter V-shaped notches in the valve *h*, (which notches may be but a mere roughening of the surface,) and these springs, bearing toward each other upon the surface of the valve *h*, while allowing of its free movement up or down, will maintain it in such position as desired.

To charge the device and prepare it for use, the absorbent-holder *d* is filled with any absorbent material—such as wood, cotton, sawdust, cloth, pulp, or any other material which may serve to hold fluid—after which the disinfecting or deodorizing fluid is poured upon the surface of the perforated disk *w*, from which it flows downward and is held by the absorbent material. Holder *d* is then placed in position in the case *a*, resting upon the diaphragm *e*, as shown in the drawings. The cover *c* is next placed in position, and afterward the outer cover *b* is attached in place, as shown. If but a comparatively small amount of vapor is desired, then the valves *h* and *i* are forced to their valve-seats *j* and *k*, (this being done by grasping the handle *l* and forcing the stem *g* upward,) thus closing the passage-ways from this valve and also shutting off any inlet of air from the base. If, now, the slide *n* be also turned to cover or close the openings *t* in cover *c*, then the escape of vapor from the apparatus will be only such as can escape through the joints of the various parts of the device, amounting in fact to practically nothing. If, now, the valves be open a trifle, air will enter at the base and, passing up through the central opening, will become impregnated with the vapor and pass out, as indicated by the arrows *y*, the degree of evaporation depending directly upon the distance which the valves open. It will therefore be seen that by a suitable adjustment of the valves the volume of escaping vapor may be increased or lessened, as desired. If a greater amount of vapor is required, then the cover *b* is removed and the slide *n* is turned, thus uncovering the openings *t* in the cover *c*, and upon the cover being replaced, the valves being open, as before described, the air will enter as before, but, instead of passing directly upward through the central opening and apartment, will also pass through the openings indicated by the arrows lettered *z*, and, entering the annular chamber between the outer casing *a* and the case *d*, will penetrate the absorbent material and become saturated, and will escape not only through the openings indicated by the letter *y* but also through the openings *t* in the cover *c*, thus allowing of the escape of a much larger volume of vapor than before provided for. If but a trivial amount of vapor be desired, then the valves may be entirely closed and the openings *t* in the cover *c* may be allowed to remain open, and when so arranged, as no air is allowed to enter at the base, the escape of vapor will be reduced to a minimum, and yet sufficient vapor may thus be produced to disinfect the air in a small apartment.

Any well-known deodorizing or disinfecting fluid may be employed with this device.

The means for adjustment are preferably covered or concealed to avoid being interfered with by children; and, to suspend the device out of the way and out of the reach of children, I provide a hook, which is preferably made of heavy metal, in the shape shown in Figs. 5 and 6, and is soldered or otherwise secured to the case at the part 6. The offset portion 5 prevents the case or cover coming in contact with the wall, and the peculiar double fold 2 and 3 prevents the suspending hook or piece being detached from the supporting strap or piece 4, which is fastened to the wall by screws or hooks, and as it extends at each side of the suspending hook or part 1 considerable strain or pressure will be required to dislodge it, so that, if desired, the device may be permanently suspended against the wall out of the reach of children, and yet the valves may be conveniently manipulated from below, and the operation of the device thus be conveniently controlled.

It will be seen that if the device is to be permanently suspended the openings *s* may be omitted, and that in any case openings, as scallops or other shape, may be made in the base portion. It will also be seen that very many modifications may be made without departing from my invention.

Having therefore described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A deodorizing apparatus having inlet and outlet valves centrally arranged therein, in combination with an absorbent-holder, substantially as shown.

2. The combination, with a deodorizing apparatus, of a cover *c*, having openings therein and provided with overhanging lips, with a slide *n* to cover the same, provided with openings to register with the openings in the cover and fitted to slide beneath the overhanging lips on the latter, substantially as shown.

3. The combination of a case *a*, having a valve-seat *j*, with a cover *b*, provided with valve-seat *k* and a stem *g*, having valves *h* and *i* mounted thereon, substantially as shown.

4. A deodorizing apparatus consisting of an outer casing and having a central perpendicular opening through its body portion, in combination with an absorbent material arranged around said central opening, and means, consisting of valves arranged above and below the absorbent, to control the inlet of air and outlet of vapor, substantially as shown.

5. The combination of an outer casing *a*, an inner perforated casing *d*, air-passages, in-

let and outlet openings, and valves to control the passage of air, substantially as shown.

6. The combination of casing *a*, inner case *d*, cover *c*, slide *n*, cover *b*, and valves *h* and *i*, substantially as shown.

7. A shell *a*, having springs *m*, in combination with an overhanging cover *b*, provided with openings to receive the free ends of the springs, substantially as and for the purposes shown.

8. The combination of a casing *a*, having air-inlets, cover *b*, provided with handle *p*, inner cover *c*, having openings, and means to close the same, and an absorbent-holder, substantially as and for the purposes stated.

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