

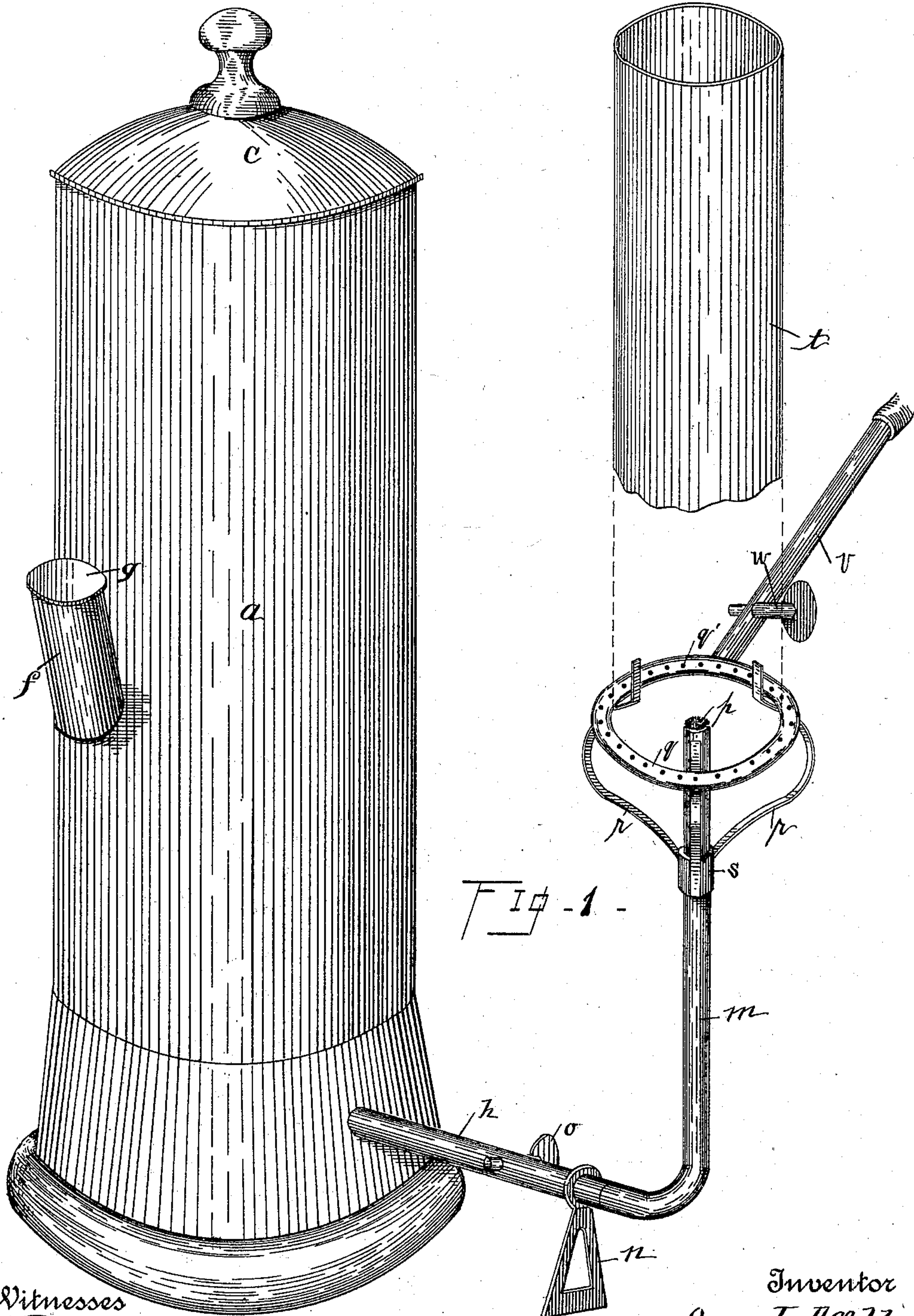
(No Model.)

2 Sheets—Sheet 1.

O. I. AFFELDER.
FORMALDEHYDE GENERATOR.

No. 605,372.

Patented June 7, 1898.



Witnesses

Frank H. Anglin
A. M. Wilson

Inventor

Oscar I. Affelder.

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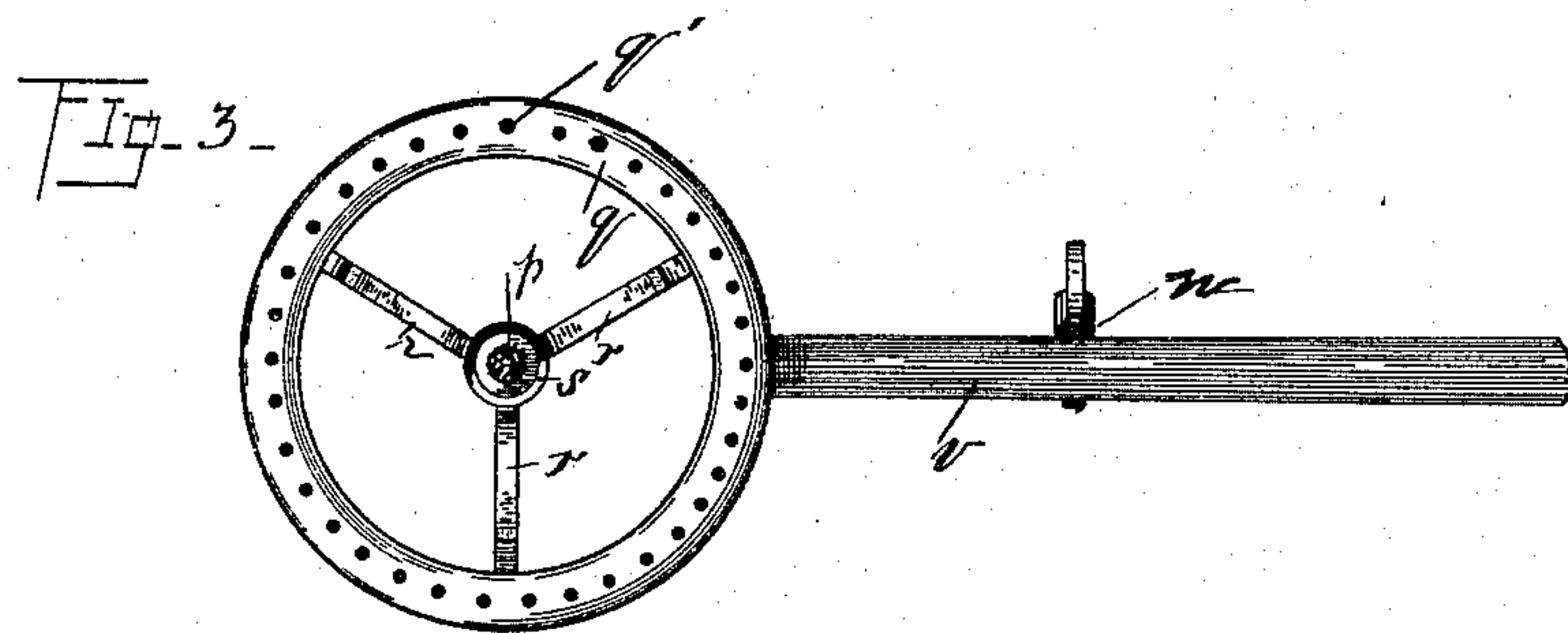
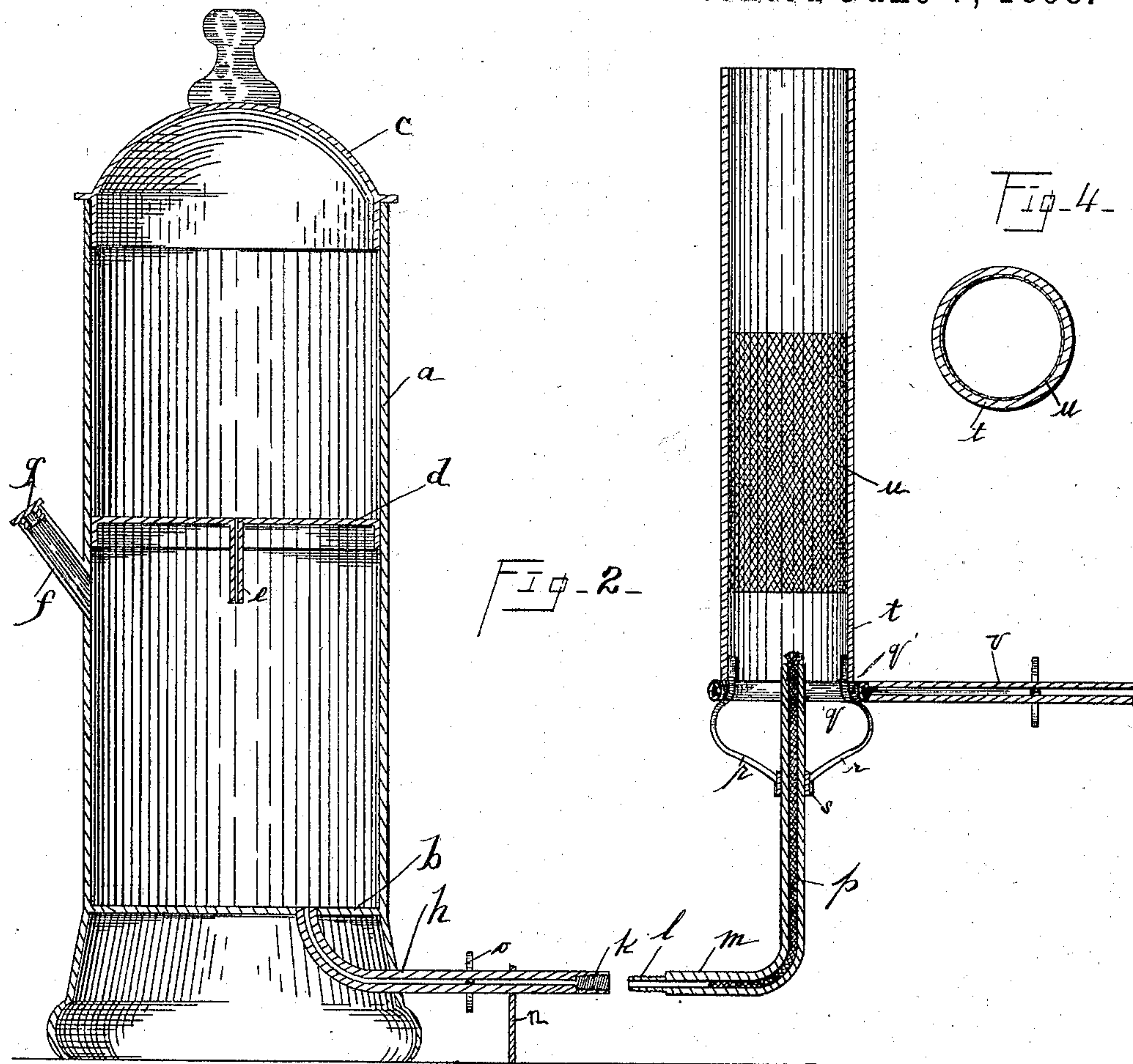
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UNITED STATES PATENT OFFICE.

OSCAR I. AFFELDER, OF ALLEGHENY, PENNSYLVANIA.

FORMALDEHYDE-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 605,372, dated June 7, 1898.

Application filed June 1, 1897. Serial No. 639,064. (No model.)

To all whom it may concern:

Be it known that I, OSCAR I. AFFELDER, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Generators for Formaldehyde, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in a process for forming formaldehyde direct from wood-alcohol, and has for its object to provide simple, effective, and inexpensive means for thus producing formaldehyde gas for disinfecting purposes. This is accomplished by means of a lamp, the generator consisting of a double-compartment tank or reservoir which supplies alcohol by means of suitable connections to a wick, a burner by which artificial, natural, gasolene gas, or any other suitable gas may be burned, and a chimney containing a foraminous casing or mantle within the same.

The object of the generator is to produce formaldehyde gas by means of a forced vaporization of alcohol, vapors of which, together with air, passing through the aforesaid foraminous casing or mantle and issuing from the chimney into the room, building, or other apartment as formaldehyde. In this process the alcohol is not ignited, the wick being simply an agent to convey the alcohol to the heated area, thus insuring a forced vaporization. The tank or reservoir is so constructed that the alcohol will be uniformly supplied to the wick, the lower compartment of the tank or reservoir being almost filled with alcohol through the spout arranged on the side of the tank, and the upper compartment being likewise nearly filled, the alcohol being fed to the lower compartment by means of the capillary tube extending into the same and in such quantity as may be required to keep a constant head of alcohol in the lower compartment. By means of the outer tube connecting the lower compartment with the wick alcohol is supplied to the same uniformly.

In order to illustrate and describe the manner in which I produce the formaldehyde gas, I have shown several views of the apparatus employed for this purpose, and in describing

the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters of reference indicate similar parts throughout the several views, in which—

Figure 1 is a perspective view of the apparatus, with the chimney partly broken away. Fig. 2 is a vertical sectional view of the tank and its connections with the burner. Fig. 3 is a top plan view of the burner and connections. Fig. 4 is a sectional view of the chimney.

Referring now to the drawings by reference- letters, *a* represents the tank or reservoir, which is provided with a suitable bottom *b* and cover *c*. Located about midway of this tank or reservoir is a false bottom *d*, having a capillary tube *e* extending downward into the lower compartment of the tank that is formed by means of the false bottom, and arranged in the side of the tank and below the false bottom is a tube or spout *f*, having an air-tight seal *g*. A capillary tube *h* communicates with the lower compartment of the tank or reservoir through the bottom *b* and is provided on its outer end with a screw-thread *k*, which receives the threaded nipple *l* of the upwardly-extending pipe or tube *m*, said tube *h* having a suitable supporting-brace *n* and a stop-cock *o* arranged at any desired point therein. The tube or pipe *m* carries a wick *p*, which protrudes through the upper end of the tube, and the lower end extends to or nearly to the connections of the tube or pipe *m* with the tube or pipe *h*.

Arranged around the upper end of the tube or pipe *m* is a circular burner *q*, having a series of perforations *q'*, said burner being supported in any suitable manner, the form shown in the drawings being by means of curved arms *r*, attached to the burner and to a collar *s*, which engages on the tube or pipe *m*, said arms protruding above the level of the burner and thus forming a support to engage the inner periphery of the chimney *t*, which has arranged therein a short distance above the burner a foraminous casing or mantle *u*, which may be composed of wire-gauze, metal, or other suitable material corrugated so as to increase the heating-surface and is adapted to generate heat around the escaping alcohol-vapors. A supply-pipe *v* is connected to the

burner and may be attached to the gas-supply by any suitable means, said pipe *v* having a suitable stop-cock *w* arranged at any suitable point thereon. The tank or reservoir
 5 having been filled with wood-alcohol, the same passes through the tube or pipe connection *h* to the wick *p* and is drawn through the tube or pipe *m* by this means. The gas having
 10 been ignited in the burner, a flame is thus provided entirely around the outside of the chimney. By reason of the heat generated by the flame, said heat being retained by the aid of the foraminous casing or mantle, the air laden
 15 with alcohol-vapor becomes heated and the formaldehyde gas thus generated passes off through the chimney into the room or building. At the same time as the alcohol from the lower compartment passes into the tube *h*
 20 the supply in the said lower compartment is replenished by the alcohol in the upper compartment dripping through the capillary tube *e*, thus retaining a constant supply of alcohol in the lower compartment. The formaldehyde gas will thus be generated uniformly as
 25 long as the head of alcohol in the lower compartment is kept constant or until a quantity equal to the amount placed in the upper compartment has been vaporized by the heat at the burner, even after which it will be produced, but in decreasing quantities. The formaldehyde gas thus generated will be found to
 30 be a powerful disinfectant against all pathogenic microbes.

Having fully described my invention, what
 35 I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for producing formaldehyde gas, consisting of a tank having two compartments, the upper tank receiving and sup-

plying the lower tank with alcohol, a pipe con- 40
 nected to the lower tank and carrying a wick at its free end, a burner surrounding said free end of the pipe, and connected thereto by means of braces, a gas-supply connected to
 45 said burner, supports projecting inwardly from said burner, a metallic chimney engaging said supports, so that the flame acts upon the outside of said chimney and having a foraminous mantle arranged therein, said
 50 chimney producing a draft so that the vaporized alcohol will come in contact with the mantle or casing, whereby formaldehyde gas will be generated and will pass out through the top of the chimney, substantially as shown
 55 and described.

2. In an apparatus for generating formaldehyde gas, consisting of a tank having two compartments, a discharge-pipe leading from the lower compartment and carrying a wick in the discharge and a burner having suitable
 60 connections with a gas-supply, said burner surrounding the end of the discharge-pipe and connected thereto, a metallic chimney supported within said burner so that the flame acts upon the outside thereof and having a forami- 65
 nous mantle arranged therein, said chimney producing a draft so that the vaporized alcohol will come in contact with said foraminous casing or mantle, whereby formaldehyde gas will be generated and pass out through the
 70 chimney, substantially as shown and described.

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

OSCAR I. AFFELDER.

Witnesses:

JOHN NOLAND,

THOS. M. BOYD, Jr.