G. A. DOWNS.

GENERATOR TUBE AND FILLER FOR VAPOR STOVES.

APPLICATION FILED NOV 21, 1910.

1,009,833. Patented Nov. 28, 1911.

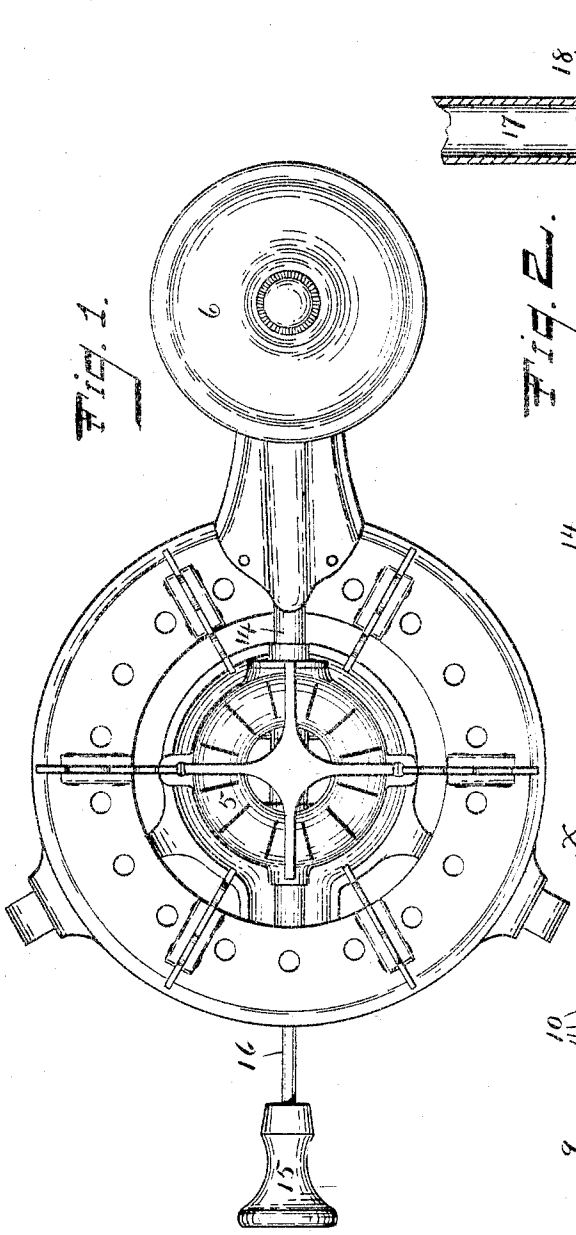


Fig. 1.

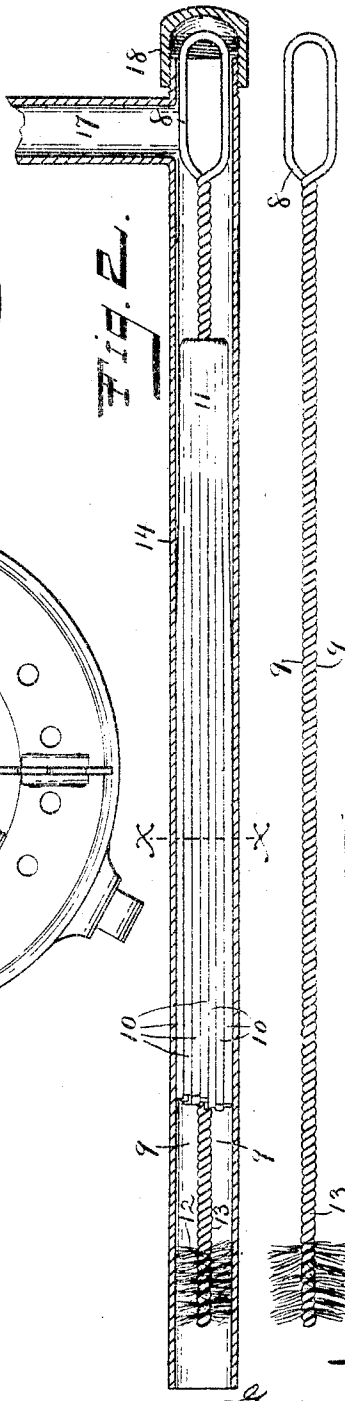


Fig. 2.

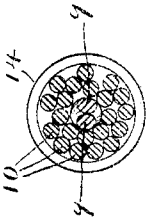


Fig. 4.

Witnesses:-

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UNITED STATES PATENT OFFICE.

GEORGE A. DOWNS, OF FORESTVILLE, CONNECTICUT, ASSIGNOR TO LANDERS, FRARY AND CLARK, OF NEW BRITAIN, CONNECTICUT, A CORPORATION.

GENERATOR-TUBE AND FILLER FOR VAPOR-STOVES.

1,009,833. Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed November 21, 1910. Serial No. 593,302.

To all whom it may concern:

Be it known that I, GEORGE A. DOWNS, a citizen of the United States, residing at Forestville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Generator-Tubes and Fillers for Vapor-Stoves, of which the following is a specification.

My invention relates to improvements in generator tubes for liquid fuel vapor stoves, and the objects of my improvements are to provide an efficient interior cartridge or filling and to provide for cleaning the same and the tube when they become foul.

In the accompanying drawing: Figure 1 is a plan view of a vapor stove with one of my generator tubes applied thereto. Fig. 2 is an enlarged central longitudinal section of the generator tube, with a side elevation of the filling within the tube. Fig. 3 is a side elevation of the combined core and handle for the said filling. Fig. 4 is an enlarged transverse section on the line *x x* of Fig. 1.

My generator tubes are designed for vapor stoves which use liquid fuel that is fed by gravity into the generator tube from an elevated font. As shown, the generator tube 14 extends diametrically across the stove below a ring-shaped burner 5 that is fed from the font 6.

My improvement relates to the filling within the generator tube, which filling is detachable from the tube proper in its entirety. Other fillings in this class of tube have been designated as cartridges. The manner of connecting the tube with the burner and font is not essential to my invention so long as a portion of the tube constitutes a compartment or chamber in which vapor is generated from the liquid fuel that is fed into the tube for supplying the burner with vapor. The tube proper 14 is of an old construction and in fact the stove herein illustrated is made in accordance with the Warner Patent No. 968,435, Aug. 23, 1910, with the exception of the parts within the generator tube.

The main portion of my cartridge or filling is composed of a bundle of longitudinally extended wires. These broadly speaking are old and well known as a filling for generator tubes.

I employ a core or foundation upon which to build up the cartridge, the said core consisting of a twisted wire handle 8 and two central wires 9 integral with the said handle. The other wires 10 are shorter and are built up around the central wires that project a little at one end while the twisted and looped portion or handle 8 projects from the shorter wires at the other end. All of the wires are securely connected together at the end nearest the handle, in any proper manner, as for example by solder so as to make them practically a solid plug 11 at that end. The outer wires are cut away or reduced to about half their diameter at the plug end for the full length of the said plug or soldered portion, so that the said plug is of less diameter than is the bunch of wires at the other parts of its length. That end of the generator tube which is occupied by the plug and from which the handle projects, is the influent end of the tube, and the plug is made of less diameter than the full bunch of wires in order to let the liquid fuel pass through the tube around the plug at this point into the spaces between the several wires and between the outer wires and the inner wall of the tube. The several wires are flexible and their ends farthest from the influent end of the tube are left free and unfastened excepting the ends of the two central wires 9. These terminate within the tube at a point beneath the ring-shaped burner.

The filling thus far described will form an efficient and operative device, but I prefer to add other parts as follows: A cleaner 12 in the form of a wire brush is secured to the shank 13 which shank is an extension of the central wires 9, the said cleaner filling the tube at a point near the effluent end thereof, leaving an open space or chamber within the tube around the brush shank between the said brush and the confronting ends of the wires 10. The fuel enters the generator from the front branch 17, and the end of the generator tube may be closed by removable cap 18. The vapor is discharged from the tube through a suitable and ordinary cock, that may be inserted into and secured to the generating tube. The handle 15 and needle 16 of the said cock are shown in Fig. 1.

The general operation of the stove, in generating vapor from the fuel, is the same as in other stoves of this class. When denatured alcohol is employed as the fuel in these stoves, it generally follows that after

a time, a hard gummy substance is deposited within the generator tube at a point near the burner, or the part of the tube that is subjected to the highest heat, which substance gradually cuts off the flow of the fuel and vapor, thereby rendering the stove less useful if not wholly useless. A filling of longitudinal wires for the generator tube distributes the fuel over a large surface and at the same time gives the most efficient feed for alcohol containing a gummy substance.

By my improvement, when the generator tube becomes foul so as to impair the usefulness of the stove, it is only necessary to withdraw the entire filling from the generator tube and then separate the free ends of the wires 10 and clean them thoroughly, in any proper manner. The flexibility of the wires and leaving their ends free as described, permits of complete separation of the wires 10, so that they may be cleaned one by one, or they will be flexed and rub one against the other if the bunch of wires 10 be rolled back and forth under pressure. Pulling the wires from the generator tube will break up and loosen the gummy substance that may lie between the wires and the wall of the said tube, and the cleaner, scraper, or brush 12, following the said wires, will remove all of the loosened foreign matter and also loosen and remove other portions that may not have been loosened in removing the wires. When thus cleaned the filling or cartridge for the generator tube is replaced therein after which the stove will be substantially as efficient as when it was new, and this cleaning can be repeated as often as may be desired.

The construction is simple and inexpensive, and the entire filling may be removed as a unit.

I claim as my invention:

A generator and filler for use in vapor stoves comprising a tube proper, a filler having a combined handle, core and shank formed of twisted wire extending substantially from end to end of the said tube, a filler body surrounding the said twisted wire at the middle portion of the said tube, and a wire brush cleaner at that end of the said twisted wire which lies within the effluent end of the said tube.

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Witnesses:

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