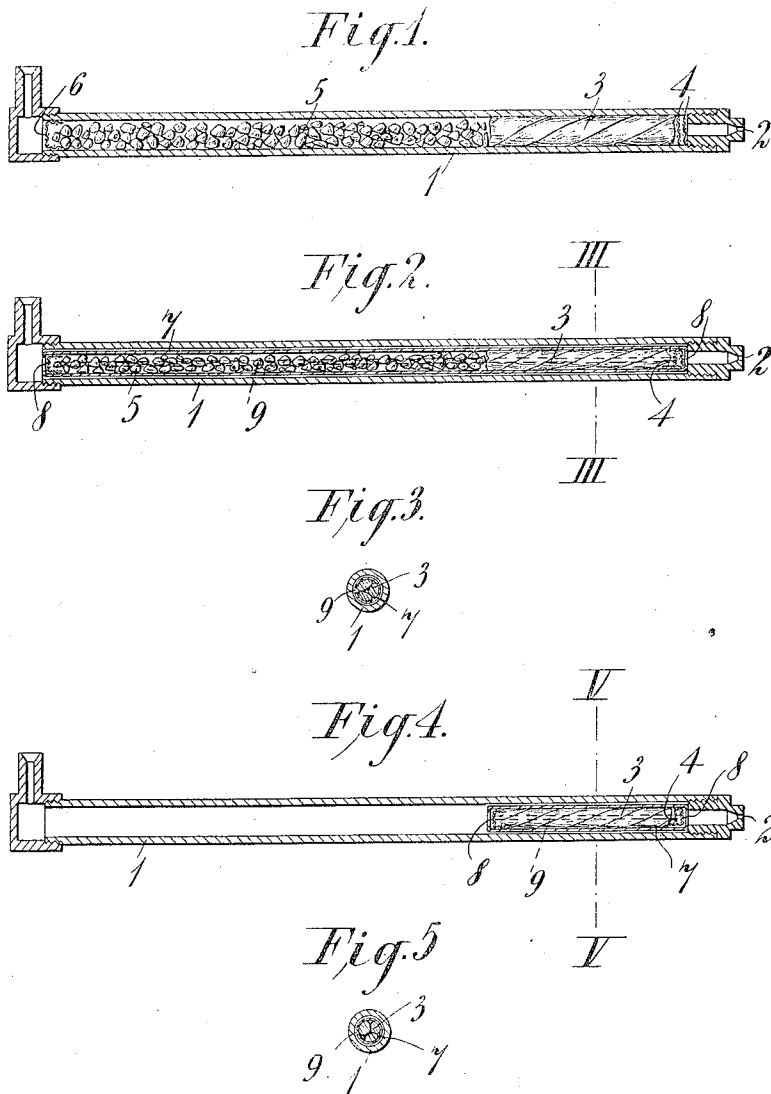


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VAPOR BURNING APPARATUS.
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944,456.

Patented Dec. 28, 1909.



-Witnesses.-

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VAPOR-BURNING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB HENRY MIESS, a subject of the King of Great Britain and Ireland, and a resident of Harlesden, in the county of Middlesex, England, have invented certain new and useful Improvements in Vapor-Burning Apparatus, of which the following is a specification.

Vapor burning apparatus—particularly vapor burning apparatus employed for the production of light by rendering mantles or the like incandescent by flames of vaporized kerosene or similar burning oil—have hitherto been subject to the objection that the orifices of the tubes or chambers (hereinafter referred to as vaporizing tubes) in which the oil has been vaporized have been liable to become stopped up by the deposition of carbon, and it has consequently been necessary to clean the orifices somewhat frequently, which, though facilities for cleaning are provided, is a considerable drawback, if not prohibitive, to the use of the apparatus. Now I have found by experiment that the serious obstruction of the orifice of a vaporizing tube in this way can be prevented for a very considerable time by the use in the tube of a filling comprising a section of suitable fibrous material, as fibrous asbestos or slag wool, extending for say one third to one half of the length of the vaporizing tube from the orifice thereof, from which it is suitably separated as by a layer or layers of wire gauze, and a section of suitable coarsely divided material, as pumice-stone, brick, flint, coke, or iron or copper filings, extending from the fibrous material to, or nearly to, the inlet end of the vaporizing tube. To produce the best results the fibrous material must be somewhat loosely arranged, for if it were too much compressed it would interfere unduly with the flow of vapor through the tube; good results may be obtained by charging the tube in such a manner that the density of the section of fibrous material is more or less similar to what would be produced by allowing the material to settle in the tube under the action of its own weight alone if there were no friction between the tube and the material. A certain amount of skill, derived from experience, is consequently required to provide a tube satisfactorily with the filling, and therefore for the convenience of the users of vaporizing apparatus there are con-

structed what are herein called cartridges, each comprising a suitable envelop, formed it may be with a wire-gauze outlet end and adapted to fit into a vaporizing tube and containing the fibrous material and the coarse material, together with, it may be, the layers or one of the layers of gauze, so that if a cartridge be suitably inserted into a vaporizing tube the latter will be provided with a filling such as hereinbefore described. The length of the cartridge and the character of its charge may vary with the quality of the oil to be used: thus, in some cases I find it sufficient to provide quite a short cartridge (of a length of say from two to five centimeters for a vaporizing tube of from fifteen to twenty centimeters long) the envelop of which is suitably charged with the fibrous material but with none of the coarse material; when a filling without an envelop is used its length and character may similarly vary. An incandescent vapor lamp, the vaporizing tube of which is provided with such a filling or cartridge, will burn for a very considerable time without serious diminution of light, and when necessary the cartridge can be removed and another substituted therefor with ease and very little loss of time. A further advantage of the use of such fillings is that the cost of manufacture of vapor burning apparatus in which they are to be used is considerably reduced, since the expensive needling devices can be dispensed with.

Figure 1 of the accompanying illustrative drawings is a longitudinal section of an example of a vaporizing tube provided with a filling such as hereinbefore described and Figs. 2 and 3 and Figs. 4 and 5 are respectively views of two examples of vaporizing tubes provided with cartridges such as hereinbefore described, Figs. 2 and 4 being longitudinal sections and Figs. 3 and 5 cross sections corresponding respectively to the lines III and V of Figs. 2 and 4.

In the example shown in Fig. 1, 1 is the tube and 2 the orifice thereof. 3 is the fibrous material; 4, 4 are two disks of wire gauze arranged between the fibrous material 3 and the orifice 2 of the vaporizing tube; and 5 is the coarsely divided material between the fibrous material 3 and the inlet end of the tube 1, in which the material 5 is shown as confined by a gauze cap 6 fitting in the tube 1.

Figs. 2 and 3 show in longitudinal section a vaporizing tube 1 provided with an example of a cartridge such as hereinbefore described. The envelop comprises a tube 7 of brass and two wire gauze caps 8 that fit in the tube 7 and are retained therein by turned-in end-portions of the wall of the tube 7. The envelop contains fibrous material 3, a wire gauze disk 4, and coarse material 5 so that when, as shown, it is placed in a vaporizing tube, which it fits, the latter is provided with a filling like that shown in Fig. 1. If a tube were charged with the fibrous material by pushing quite loose fibrous material into the tube through one of the ends thereof, the density of the fibrous mass, instead of being uniform, would naturally be greater at the part or parts at which the pressure had been applied than at other parts: in order to obviate such nonuniformity of density, it is preferred to form the tube 7 with a slit 9 as shown in Figs. 2 and 3 and either to charge the tube through that slit, which is temporarily opened sufficiently for the purpose, or else, as seems best, to employ the fibrous material, as shown, in the form of a loosely made rope, as of asbestos, which is simply inserted through one end of the tube 7, which is of such a diameter and has its slit of such a width that when inserted into a vaporizing tube of suitable diameter its slit is closed to such an extent as to compress the fibrous material to a suitable density; the slit 9, moreover, enables the tube 7 to spring somewhat and so to fit tubes 1 that differ slightly in diameter.

Figs. 4 and 5 show a vaporizing tube provided with a cartridge like that shown in Figs. 2 and 3 except that it is shorter and

contains none of the coarse material 5. The cap 8 remote from the gauze disk 4 may in this case be omitted, although it is advantageous to retain the fibrous material in place before the cartridge is inserted into the tube 1.

What I claim is—

1. A cartridge adapted to fit in a vapor-burning-apparatus vaporizing tube or chamber and comprising a tubular envelop split longitudinally and having a wire-gauze end closure and containing adjacent to said closure a charge of loosely arranged refractory fibrous material.

2. A cartridge adapted to fit in a vapor-burning-apparatus vaporizing tube or chamber and comprising an envelop split longitudinally and a loosely made rope of refractory fibrous material fitting loosely in and retained within said envelop.

3. A vapor-burning-apparatus vaporizing tube or chamber containing a cartridge fitting therein and comprising a tubular envelop split longitudinally and having a wire-gauze end closure and containing adjacent to said closure a charge of loosely arranged refractory fibrous material.

4. A vapor-burning-apparatus vaporizing tube or chamber containing a cartridge fitting therein and comprising an envelop split longitudinally and a rope of refractory fibrous material fitting in and retained within said envelop.

Signed at London, this 13th day of May 1907.

JACOB HENRY MIESS.

Witnesses:

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