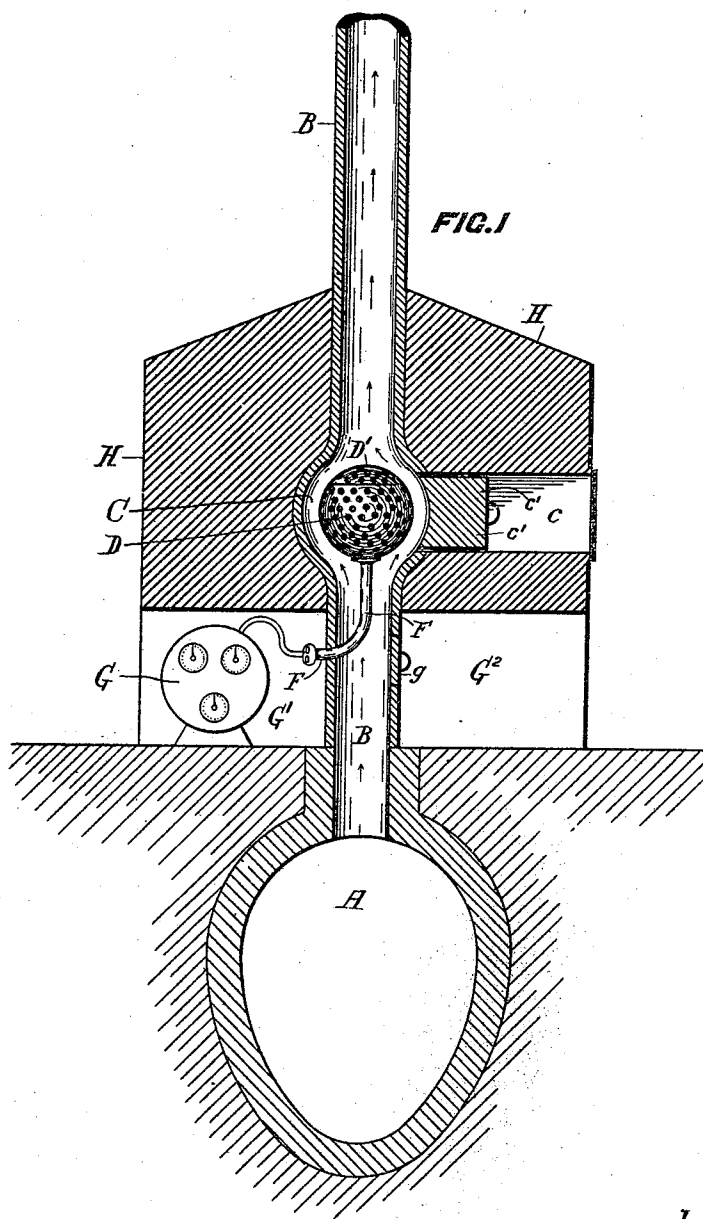


(No Model.)

2 Sheets—Sheet 1.

R. McKENZIE.
APPLIANCE FOR VENTILATING SEWERS, &c.
No. 480,958. Patented Aug. 16, 1892.



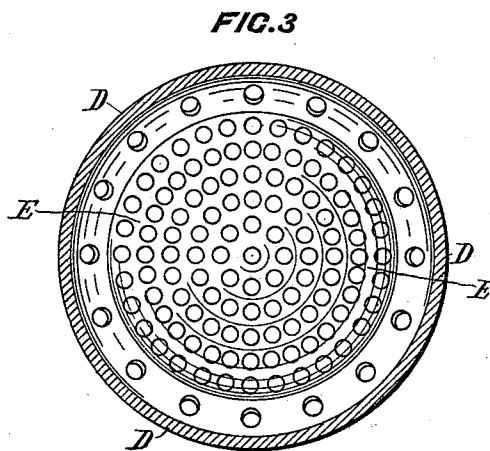
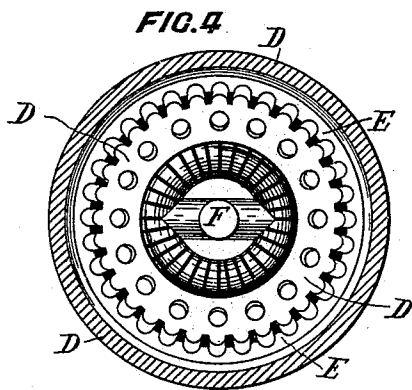
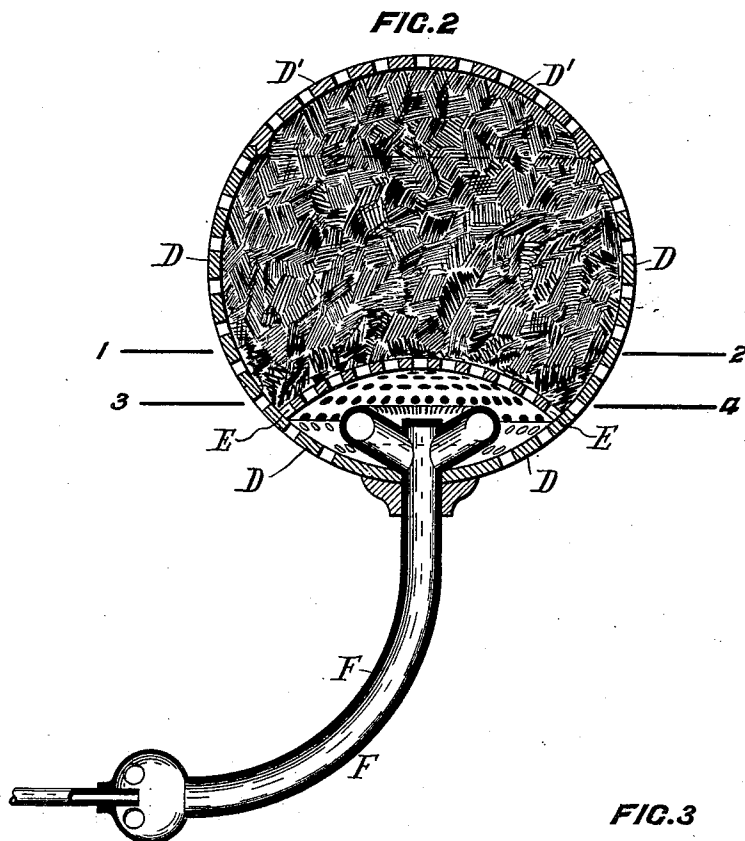
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UNITED STATES PATENT OFFICE.

ROBERT MCKENZIE, OF SYDNEY, NEW SOUTH WALES.

APPLIANCE FOR VENTILATING SEWERS, &c.

SPECIFICATION forming part of Letters Patent No. 480,958, dated August 16, 1892.

Application filed March 26, 1892. Serial No. 426,517. (No model.) Patented in New South Wales March 21, 1891, No. 2,878; in Victoria April 15, 1891, No. 8,656; in Queensland July 31, 1891, No. 1,815, and in South Australia August 4, 1891, No. 2,001.

To all whom it may concern:

Be it known that I, ROBERT MCKENZIE, chief sanitary inspector to the board of water supply and sewerage, residing at Sydney, in the Colony of New South Wales, have invented certain new and useful improved appliances to be used in connection with sewers, whereby the same are more effectively ventilated and the noxious gases and disease-germs contained therein destroyed, (for which I have obtained patents in New South Wales, No. 2,878, dated March 21, 1891; in Victoria, No. 8,656, dated April 15, 1891; in South Australia, No. 2,001, dated August 4, 1891, and in Queensland, No. 1,815, dated July 31, 1891,) of which the following is a specification.

It has been customary for sewerage engineers to ventilate sewers from their upper or more elevated extremities or ends. This mode of ventilation would be effective were all sewer-gases of less specific gravity than atmospheric air; but this is not the case, many forms of sewer-gas gravitating toward the lowest part of the sewer, thus defeating the object the engineer had in view.

The object of this invention is to ventilate sewers from their lower grades and at the same time destroy by heat any deleterious sewer-gases and the germs contained therein. This is effected by means of an appliance of peculiar construction that is placed near the base of an uptake-shaft, up which the objectionable gases are drawn by the action of the apparatus.

In the accompanying drawings, Figure 1 is a vertical section of an oviform sewer from the crown of which springs an uptake-shaft, and showing the apparatus contained within a chamber in the shaft in elevation. Fig. 2 shows the ventilating appliances and connections in vertical section. Fig. 3 is a sectional plan of the ventilating appliance, the section being taken on the line 1 2 of Fig. 2. Fig. 4 is also a sectional plan of the same, the section being taken on the line 3 4 of Fig. 2.

A A is an oviform sewer, from the crown of which springs the uptake-shaft B, which may be bulbed at C, so as to form a chamber to contain the ventilating apparatus. The uptake-shaft B may be continued upward to any suitable height.

Within the chamber C is placed centrally a perforated shell D, preferably spherical in form, as shown in Figs. 1 and 2. This shell D may be constructed of fire-clay or other material that will resist the action of intense heat, its upper part being formed as a lid D'. A grating or perforated false bottom E covers the bottom part of the interior of the shell D, forming a chamber below the false bottom to receive a gas burner or burners F, the form of burner shown in the drawings being a ring-burner with radial slits and is of that type of burner known as a "Bunsen burner," the air being supplied to the burner from without the shaft in the manner shown in Fig. 1. The space within the shell D between the false bottom E and the cover D' is loosely packed with asbestos. A gas-meter G is shown in the recess G'. A similar recess G² is placed on the opposite side of the uptake-shaft B, the shaft being provided at that point with a hand-hole g for convenience of manipulation and inspection. The chamber C is also provided with an opening c sufficiently large to introduce or remove the shell D. This opening will also be used to introduce the light to the Bunsen burner. The opening c will be closed by a fire-brick c' or by any other suitable fireproof material. In order to prevent radiation, the chamber C should be inclosed in fireproof non-heat-conducting material. This is shown in the drawings a block of concrete H, in which are formed the several recesses G', G², and c, for the purpose hereinbefore stated.

In the drawings the uptake-shaft B is shown springing direct from the crown of the sewer A for convenience of illustration; but it is obvious that the shaft may be placed in any convenient position in relation to the sewer which it is desired to ventilate.

The *modus operandi* is as follows: Assuming that all the parts are in position, as shown in the drawings, the gas-burner is lighted through the opening c and the opening closed. The intense heat from the Bunsen burner will quickly bring the asbestos contained within the shell D to an incandescent state, thereby causing a heated updraft to ensue, thus drawing the foul gases upward from the sewer. As the foul gases pass around the

shell, which by this time is a ball of fire, they will become decomposed by the intense heat to which they are subjected and all noxious germs consumed, the products of combustion passing upward through the shaft B into the outer atmosphere in a harmless condition.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

10 1. In combination with an uptake-shaft from a sewer, a globular perforated shell located in said uptake-shaft and provided with a perforated partition to form a chamber between said partition and the wall of the shell,
15 an incombustible filling for said shell above said partition, and a burner located in said chamber, formed between the perforated partition and the shell, substantially as and for the purposes described.

20 2. In combination with an uptake-shaft from the sewer, a perforated shell located in said uptake-shaft and provided with a perforated partition to form a chamber between said partition and the wall of the shell, an

incombustible filling to said shell above said partition, a removable lid to said shell, constituting a part of the wall thereof, and a burner located in the chamber, formed between the perforated partition and the wall of the shell, substantially as and for the purposes described.

3. In combination with the take-up shaft having an enlargement C and an opening in one side of said enlargement for the introduction of a combustion-shell, a perforated shell located in said enlargement and having an incombustible filling and a chamber for a burner, a burner located in said chamber, and means for closing the opening in the side of the enlargement to the take-up shaft, substantially as and for the purposes described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT MCKENZIE.

Witnesses:

MANFIELD NEWTON, C. E.,
J. S. WHITELOCKE.