PATENT SPECIFICATION

631,291

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Index at acceptance:—Classes 6(ii), B9c; and 81(i), B5c4.

PROVISIONAL SPECIFICATION

Improvements in Means for Drying and/or Preventing Freezing of relatively Large Areas of Ground

I, EDWIN KNOTT, of 24, Spring Place, Turn Lee Road, Glossop, County of Derby, a British Subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in means for drying and/or preventing freezing of relatively large areas of ground such as football grounds, cricket pitches, parts of race courses and the like.

According to the invention a steam pipe is laid in a brick, concrete or like trench sealed on the top, the pipe having connections to ordinary land drains, low pressure steam being supplied to the steam pipe and passing therefrom to the land drains whereby the whole area of the ground or pitch is heated, the water formed by the condensation of the steam passing along the land drains to the main drain.

The trench for the steam pipe is in the form of a rectangle, diamond or other convenient shape and is laid above the land drains. The top of the trench is sealed to prevent corrosion of the steam pipe and copper pipes pass through the top seal to connect the steam pipe to the land drains. The ends of the copper pipes may be formed as jets to increase the velocity of the steam into the land drains.

Dated this 3rd day of September, 1947.

J. OWDEN O'BRIEN & SON,
Chartered Patent Agents,
Manchester, 2.

COMPLETE SPECIFICATION

Improvements in Means for Drying and/or Preventing Freezing of relatively Large Areas of Ground

I, EDWIN KNOTT, of 24, Spring Place, Turn Lee Road, Glossop, County of Derby, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in means for drying and/or preventing freezing of relatively large areas of ground such as football grounds, cricket pitches, parts of race courses and the like, and for sterilizing the ground to eliminate pests.

It has been proposed to promote plant culture by a system of artificial heating of the soil effected by the supply of heated gases or steam to a line of leaky pipes enclosed within a second line of leaky pipes laid in a trench and covered with soil.

It has also been proposed to circulate hot air through underground pipes arranged in channels communicating with drain pipes, movement being imparted to the air by steam issuing from injector nozzles connected to the pipes and directed into the drain pipes.

The invention comprises a steam pipe laid in a brick, concrete or like sealed culvert or trench above a main drain, the steam pipe being connected to land drains baffled at each end by stones or pebbles to prevent the direct passage of live steam to the main drain, low pressure steam fed to the steam pipe passing through the land drains in which it is condensed, to the main drain.

The invention will be described with

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reference to the accompanying drawings.

Fig. 1 is a plan of a football or other field;

Fig. 2 is a section on line 2—2 of Fig. 1 to an enlarged scale;

Fig. 3 is a plan of Fig. 2 with the culvert shown partly in section.

Fig. 4 is a sectional plan to a smaller scale of a land drain supplied with steam from one pipe, the main steam supply pipe C being shown in dotted lines.

Where a field has been drained the existing land drains A running into a main drain B are employed for the passage of steam from pipes *c* communicating with a steam pipe C extending across the ground above the main drain B. The steam pipe C is fed with steam from a further pipe C^1 extending to the boiler or other source of supply.

The steam pipe C C^1 are housed in culverts D preferably of brick built respectively above the main drain B and above and between two of the land drains A respectively.

The land drains A are baffled at each end where they enter the main drain B by stones or pebbles *a* to prevent the direct passage of live steam to the main drain B, steam being supplied to one end from the steam pipe C by the pipes *c* which are preferably formed of copper to prevent corrosion.

The culvert D for the steam pipes is preferably of brick to prevent the entry of water thereto, thereby protecting the steam pipes from corrosion. The pipes *c* having jets c^1 at their outer ends pass through the brickwork of the culvert and into one end of the land drains A the steam from the jets passing through the land drains and the baffle at the opposite end where it is condensed the condensate passing to the main drain B, as shown in Fig. 4.

Waste steam from a boiler may be employed during the night for warming the ground to prevent freezing or for drying purposes. The steam condensing in the land drains A flows into the main drain B.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Means for drying sterilizing or preventing the freezing of relatively large areas of ground comprising a steam pipe laid in a brick, concrete or like sealed culvert or trench, above a main drain, the steam pipe being connected to land drains baffled at each end by stones or pebbles to prevent the direct passage of live steam to the main drain, low pressure steam fed to the steam pipe passing through the land drains in which it is condensed, to the main drain.

2. Means for drying, sterilizing or preventing the freezing of relatively large areas of ground substantially as described herein and with reference to the accompanying drawings.

Dated the 3rd day of September, 1949.

J. OWDEN O'BRIEN & SON,
Chartered Patent Agents,
Manchester, 2.

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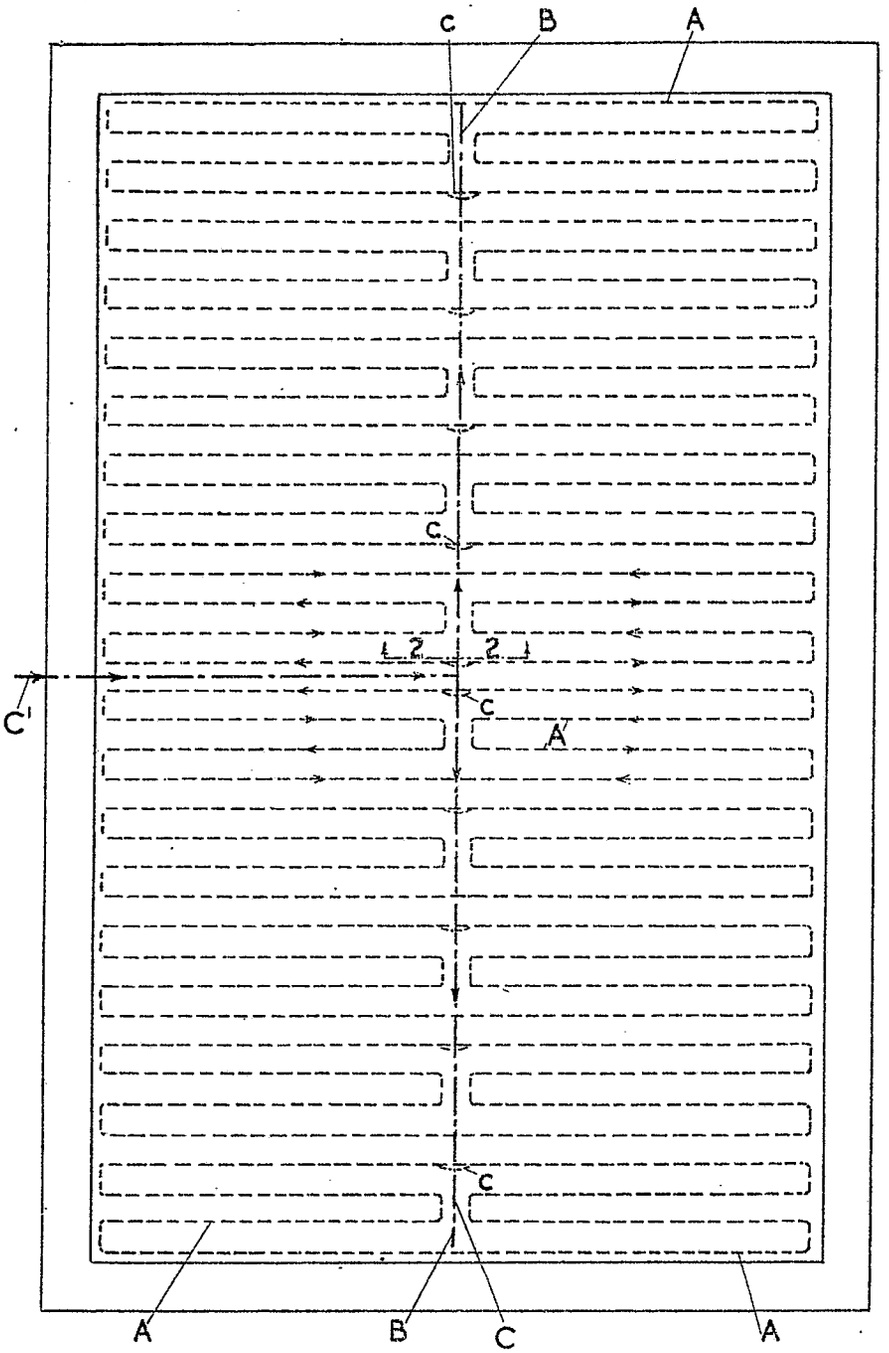
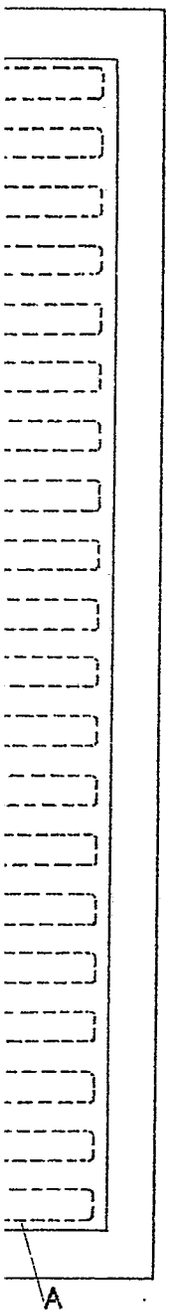


FIG. 1



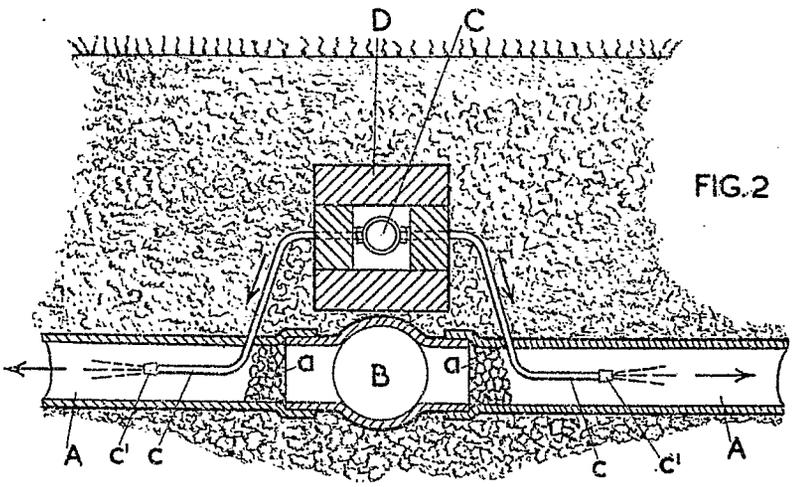


FIG.2

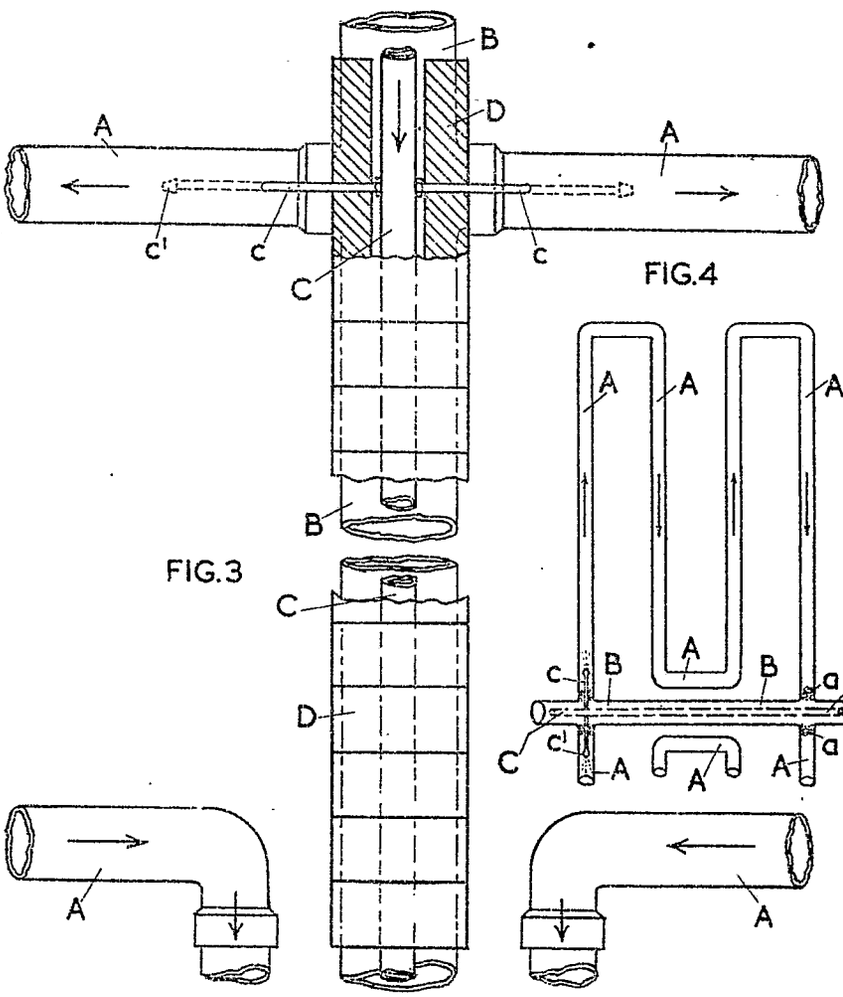


FIG.4

FIG.3

H.M.S.O.(Ty.P.)

631,291 COMPLETE SPECIFICATION

2 SHEETS

SHEET 1

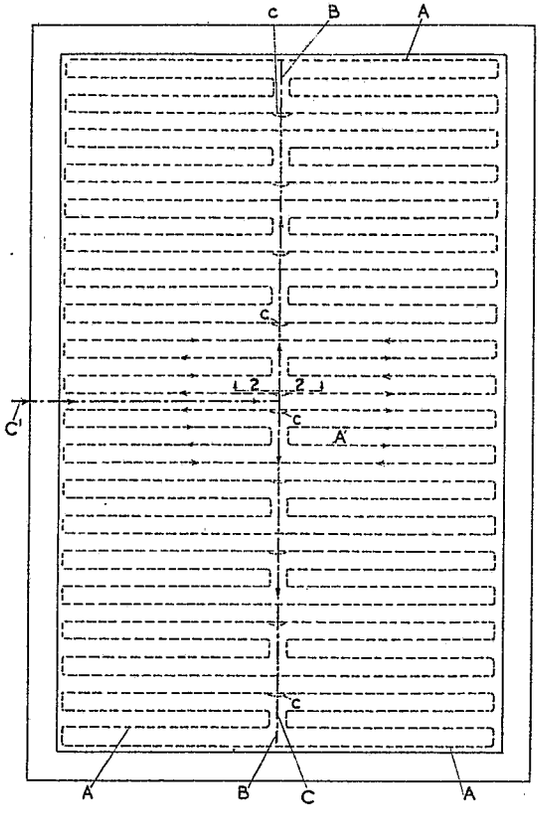


FIG.1

SHEET 2

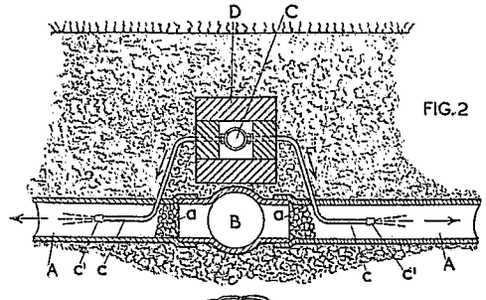


FIG.2

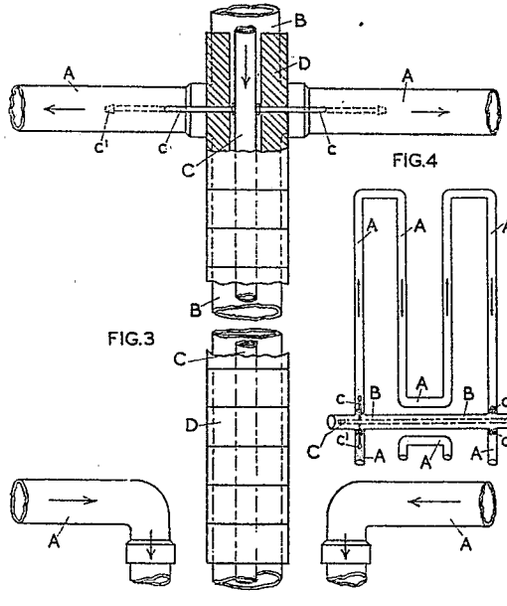
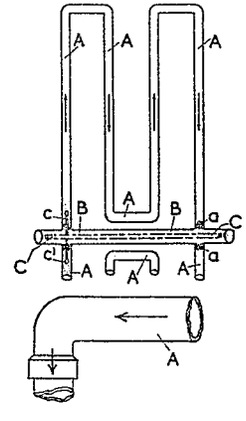


FIG.4

FIG.3



[This Drawing is a reproduction of the Original on a reduced scale.]

H.M.S.O.(Ty.P.)