

(No Model.)

G. PHILLIPS.
SANITARY GRATE.

No. 544,375.

Patented Aug. 13, 1895.

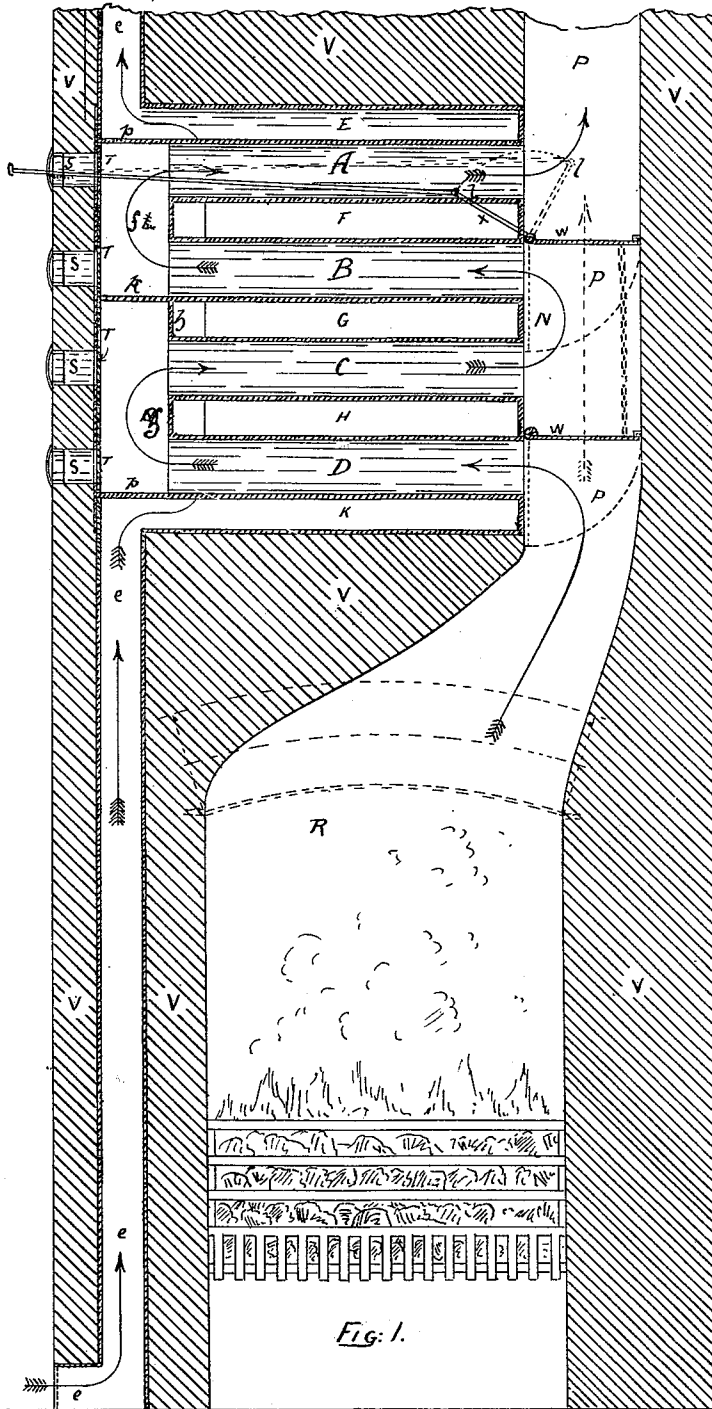


FIG. 1.

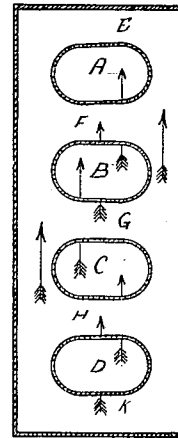


FIG. 2.

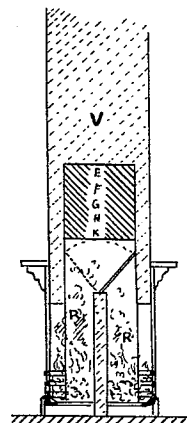


FIG. 3.

Witnesses.
Albert M. Jones
[Signature]

Inventor.
George Phillips
By *[Signature]* Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE PHILLIPS, OF VICTORIA, CANADA.

SANITARY GRATE.

SPECIFICATION forming part of Letters Patent No. 544,375, dated August 13, 1895.

Application filed January 31, 1894. Serial No. 498,682. (No model.)

To all whom it may concern:

Be it known that I, GEORGE PHILLIPS, stove-dealer, a subject of the Queen of Great Britain, residing at Victoria, in the Province of British Columbia, Dominion of Canada, have invented a new and useful Sanitary Grate, of which the following is a specification.

My invention relates to improvements in sanitary grates, being an ordinary grate, but with a special air-heating apparatus above.

In the drawings, Figure 1 shows a front section of the grate and apparatus. Fig. 2 shows a section of part of apparatus at right angles to the plane of Fig. 1; and Fig. 3 indicates on the same plane and a smaller scale a larger portion of the apparatus than Fig. 2, omitting the details in Fig. 2, which are indicated by letters E F G H K, also in Figs. 1 and 2.

The same letters refer to the same parts.

A are, as likewise B C D, tubes of oval, round, or square section, as convenient. The pipes or tubes are let into a box which is constructed so that a partition Z cuts the box into halves. The body for air E F G H K is on one side, through which pass the tubes A B C D, and on the other side are return-chambers *f* and *g*, separated by leaf *k*, which may be fixed or regulatable. The return end of the box has holes for cleaning, tubes being placed opposite thereto and having a means of closing said holes when cleaning has been performed. These tubes open into the chimney just over the fire and are horizontal. Between tubes D and C and also B and A are shunt-dampers W stopping up the chimney, so that the smoke has to travel along through D into return-chamber *g*, thence along C to return-chamber P, formed between the dampers W W, back through B into chamber *f*, thence through A and up flue P. These dampers W are connected together by chain or otherwise, and the upper one has a lever connected to a rod to side of chimney for regulation. W W are hinged, and in some cases K also.

This apparatus is made of iron, steel, or other metal. The bottom of the box K and top E are connected to channels or pipes *e* in the brickwork V.

S S S S are thimbles with covers for cleaning tubes.

R is the fireplace.

Having described the action of the smoke when traversing the pipes, I will explain the object. The channel in the brickwork from K downward leads to the floor, under the floor, or to the outside air, so feeding the apparatus with fresh cold air, which ascends to and through K H G F E, and thence up the top channel and into the various rooms where it is required, regulated by registers in the ceilings, walls, or floors. A good circulating-space is left between pipes and the walls of apparatus. When lighting the fire, or when required, the dampers W W can be partly or fully opened, so allowing part or all of the smoke and heat to go directly up the flue.

l is a lever for working dampers.

By this apparatus hot air can be supplied into the adjoining or upper room or same room as fire. The hot air entering the room from above forces itself downward, and so thoroughly heats the air, which when fouled goes up the chimney. Shunting the smoke in this manner is a great saving to the fuel. Supplying the hot air from above is a highly-sanitary principle, as it forces off foul air up the flue and supplies fresh ready-heated and yet pure air at the same time. Its heating capacity is far ahead of the ordinary grate. Another thing in its favor is the simplicity of regulating the draft and being able to heat two rooms with one fire, yet no danger and no trouble to keep clean. I sometimes use more or less than four tubes and place them perpendicular, horizontal, or slanting.

With the ordinary grate by far the larger percentage of heat goes up the chimney and is not utilized. By placing the apparatus over two grates, one in each room, back to back, and having a rocking damper hinged in the middle partition between the grates either fire may be lighted by opening that damper. (See Fig. 3.)

I make no broad claim to the grate alone or the principle of the apparatus separately, for I am aware that similar contrivances are used for manufacture of gas and other purposes; but

What I do claim, and desire to secure by Letters Patent, is—

5 A fire place having a chimney uptake with a direct outlet and a zigzag outlet through a series of tubes located in an air passage, provided with two pivoted valves connected and arranged so as to open or close each outlet alternately to produce a free draft or to heat

and cause circulation of air, as desired, substantially as set forth. 10

Victoria, British Columbia, January 13, 1894.

GEORGE PHILLIPS.

In presence of—

ALBERT M. JONES,
C. F. JONES.