

G. K. DETWILER.
NATURAL GAS BURNER.

No. 386,971.

Patented July 31, 1888.

Fig. 1.

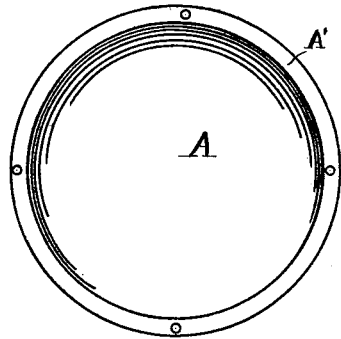


Fig. 2.

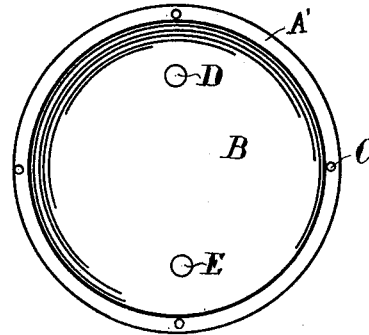


Fig. 3.

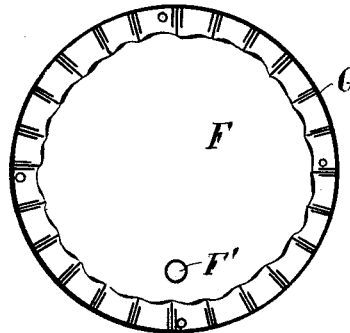
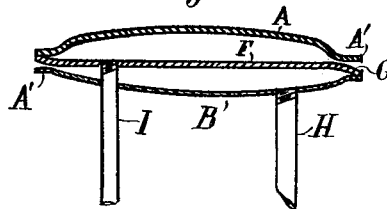


Fig. 4.



Witnesses.
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Inventor.
George K. Detwiler.
By William Webster.
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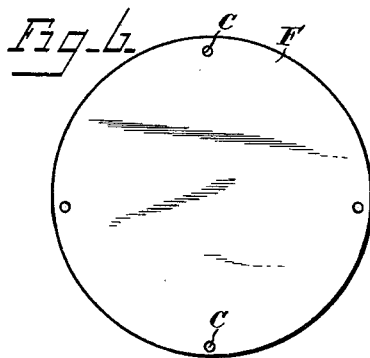
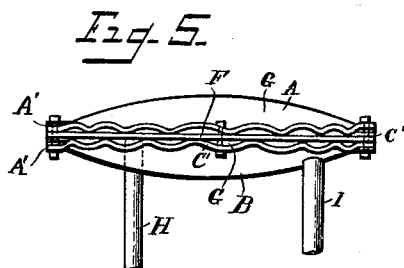
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

GEORGE K. DETWILER, OF TOLEDO, OHIO.

NATURAL-GAS BURNER.

SPECIFICATION forming part of Letters Patent No. 386,971, dated July 31, 1888.

Application filed December 16, 1887. Serial No. 253,091. (No model.)

To all whom it may concern:

Be it known that I, GEORGE K. DETWILER, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Natural-Gas Burners; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to natural-gas burners, more especially that class in use in furnaces, or wherever a more than ordinary amount of gas is used.

As is well known, it is usual wherever natural gas is to be used in furnaces for dwellings or manufacturing purposes to employ a burner of extra size having two or more compartments formed by securing a central partition vertically across the interior of the burner, thereby dividing the same transversely; or, where more than two pipes are to be employed, the space within the burner is divided into as many compartments by means of partitions as there are mixers and pipes to be employed. In using the burners thus constructed, wherever there is by reason of a rise in temperature necessity for but the amount of gas flowing through one mixer, it is desirable to cut off the gas passing through the remaining pipe or pipes leading within the burner to properly limit the supply to the demand. Where a burner of the character described is formed with two compartments, the gas is shut off from one of the pipes, leaving the remaining pipe to supply the demand. This reduces the area of the flame to one-half the periphery of the burner, tending by the unequal expansion of the metal with which the burner is composed to fracture the same and render it worthless, causing, also, an unequal expansion of the fire-box of the furnace, with a like result. It has also been attempted to use the gas supplied from two mixers by allowing the same to flow and unite within the burner. This has been found to require the nicest adjustment to provide for an equal flow from each pipe to prevent backflow of the gas to the mixer having the least pressure and the consequent danger therefrom.

The object of my invention is to obviate these objections and render it possible to use the aggregate of gas supplied from all the pipes or to limit the quantity to the amount supplied by a single pipe, and at the same time cause the gas to issue around the entire periphery of the burner, that the expansion of the burner as well as the furnace may be uniform. I attain these objects by the construction shown in the drawings, in which—

Figure 1 is a plan view of the interior of the top portion of a circular burner. Fig. 2 is a like view of the bottom portion. Fig. 3 is a plan view of a horizontal disk having a corrugated edge interposed between the top and bottom sections of the burner when the parts are assembled. Fig. 4 is a transverse vertical section of a complete burner. Fig. 5 is a front elevation of a complete burner, showing a modified construction, in which the disk is plain and the edges of sections A and B are corrugated. Fig. 6 is a plan view of the disk employed in the construction shown in Fig. 5.

For the purpose of illustration I have shown a round burner composed of two hemispherical sections, A and B, which, when united, form a convexo convex cavity within the two sections, being held united by bolts or screws C', inserted in perforations C, as shown in Fig. 5. The lower section, B, is provided with two perforations, D and E, for a purpose presently explained.

F is a disk having a corrugated edge, G, of somewhat greater breadth than the bearing A' of the sections A and B. The disk has a perforation, F', preferably screw-threaded. Disk F is placed horizontally between sections A and B, thereby dividing the central chamber horizontally into two chambers; or, if desired, two disks may be employed, thereby forming three chambers, each of which communicates with the outer periphery by means of the corrugations G, as plainly shown in Fig. 4.

H and I indicate supply-pipes, the pipe H being screwed into perforation D of section B, and pipe I being passed through perforation E of the lower section and screwed into perforation F' of disk F, by which means gas passing through pipe H is discharged into the lower compartment of the burner and flows out through the spaces formed in the periphery of the burner by the corrugations of the disk.

Gas flowing through pipe I is discharged into the upper compartment of the burner, and finds its exit at the outer edge thereof by means of the spaces formed by the corrugations of the disk.

The operation will be apparent. Should it be necessary to use the full amount of gas supplied by both pipes, gas is admitted to both compartments, and, finding an exit at the periphery through the spaces, is ignited, the combustion being around the entire periphery. Should, however, a less amount of gas be required, the supply from one of the pipes is cut off and the gas delivered through the remaining pipe is discharged into the chamber with which it connects, and the combustion thereof is around the entire periphery, thereby causing a uniform expansion of the metal of the burner and the flame to be deflected toward all sides of the furnace.

In Figs. 5 and 6 I have shown a modified construction, in which the corrugations G are upon the edges of the hemispheroidal sections A and B and the disk is formed with a plain peripheral surface.

While I have shown the burner as constructed round, I may vary the form of the

burner to suit the various demands of the trade without departing from the spirit of my invention.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A burner for natural gas having a chamber provided with a peripheral slot, a diaphragm dividing said chamber and extending into the slot, and supply-pipes communicating with the burner on each side of the diaphragm, as and for the purpose set forth.

2. In a burner for natural gas, an upper and lower section, a disk having corrugations around the edge interposed between the sections, a gas-supply pipe communicating with the upper section, and a like pipe communicating with the lower section, as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

GEORGE K. DETWILER.

Witnesses:

GRANT WILLIAMS,
EVA M. ELY.