

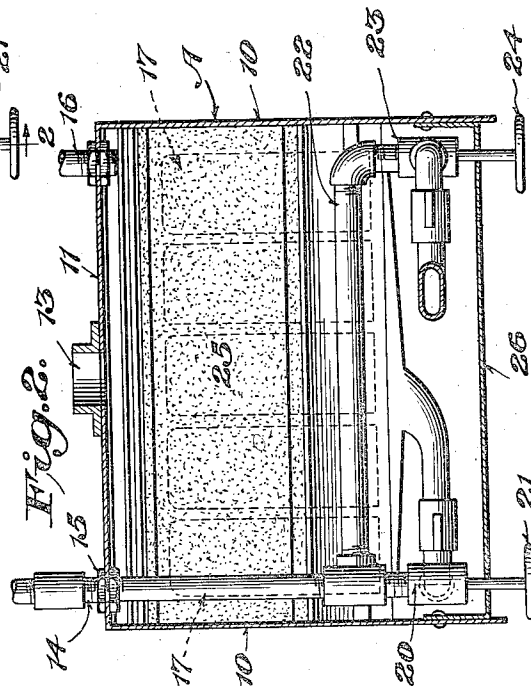
Aug. 18, 1936.

R. B. HAMILTON
RADIANT HEATING DEVICE

2,051,213

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2 Sheets-Sheet 1



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Fig. 3.

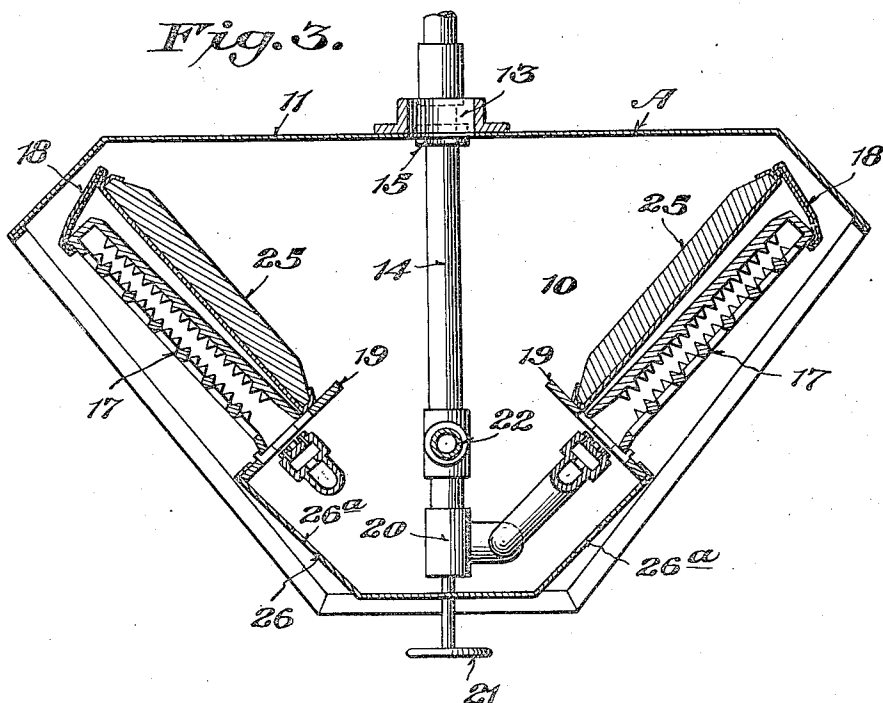
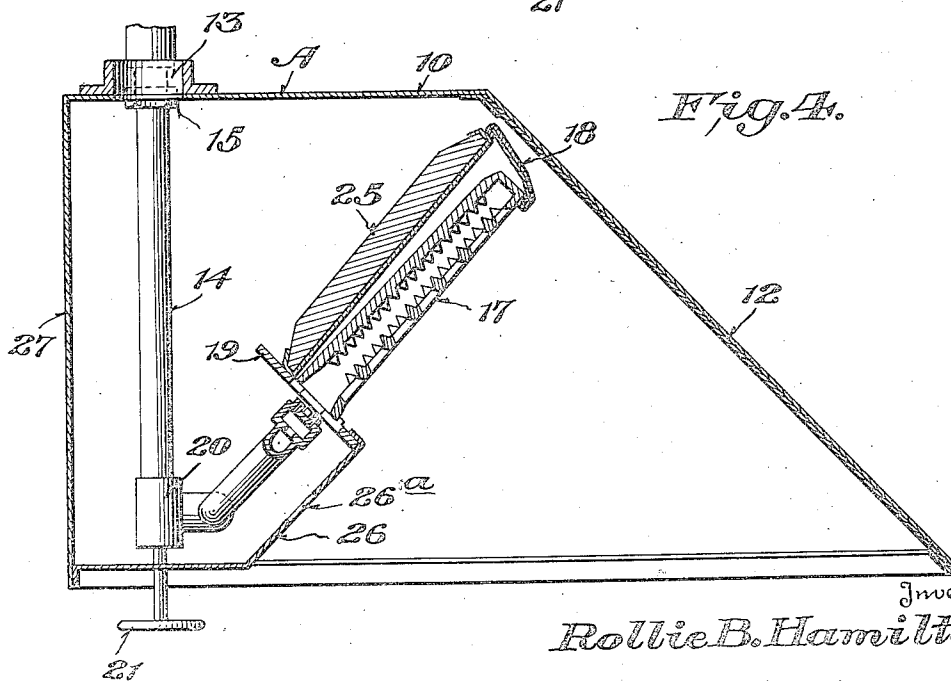


Fig. 4.



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RADIANT HEATING DEVICE

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4 Claims. (Cl. 126—92)

This invention relates generally to gas burning heating devices, particularly of the radiant type, and has special reference to the mounting of such devices and to the combination therewith of novel means for collecting and carrying off gases of combustion and, if desired, for reflectively controlling stray heat rays emanating from the burner element or elements of the device.

One object of the invention is to provide a simple, inexpensive gas burning heating device which may be suspended from a ceiling, or otherwise mounted above the area to be heated, and which, without the necessity of employing a fan or other air circulating means to direct the heated air downwardly, will operate efficiently and effectively to heat such area.

Another object of the invention is to provide, in combination with a gas burner, or burners, of the radiant type, which is or are supported above the area to be heated, novel hood means so associated with the burner or burners as to collect and direct to a desired point gases emanating from the burner or burners.

Another object of the invention is, optionally, to provide means for reflectively controlling stray heat rays emanating from the burner or burners of the device so as to obtain maximum heating effect from the device within the area to be heated.

Another object of the invention is to provide a heating device of the character mentioned which is cheap and easy to make and to install and which includes readily accessible valve means for regulating the flow of gas to the burner element or elements thereof.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel combination and arrangement of features as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the drawings, wherein like characters of reference denote corresponding parts in the different views:—

Figure 1 is a central, vertical, longitudinal section through a gas burning heating device constructed in accordance with one practical embodiment of the invention.

Figure 2 is a transverse section on the line 2—2 of Fig. 1.

Figure 3 is a view similar to Fig. 1 illustrating an alternative embodiment of the invention; and

Figure 4 is a view similar to Figs. 1 and 3 illus-

trating another alternative embodiment of the invention.

Referring to the drawings in detail, first to the embodiment of the invention illustrated in Figs. 1 and 2, A designates, generally, a hood which may be formed from sheet metal or other suitable material and which may, if desired, be lined, either entirely or in part, with heat insulating or heat ray reflecting material, or with a combination of such materials. This hood may be of any suitable size and shape, depending upon the number, the size, and the relative arrangement of the burner elements embodied in the device. In the present instance, according to the particular embodiment of the invention illustrated in Figs. 1 and 2, the device comprises two burner elements disposed, generally speaking, in back to back relationship. The hood A, in longitudinal section, therefore may be appropriately in the form of a trapezoid having its shorter and longer bases at its top and bottom, respectively, as shown. In detail, said hood A comprises, in the case of the first embodiment of the invention, a pair of vertically disposed side walls 10, 10, a top wall 11, and a pair of end walls 12, 12 extending downwardly and outwardly at suitable inclinations from the ends of said top wall. At its bottom said hood is open, while in its top wall 11 is a gas escape opening 13, or, if desired, a plurality of gas escape openings, with which may be connected a conduit or conduits leading to any suitable point of gas discharge.

The hood A is designed to be suspended, either from a ceiling or from any other suitable support, above an area to be heated, and may be suspended in any suitable manner. In the present instance a gas supply pipe 14 extends downwardly through the top wall 11 of said hood, approximately midway between the ends and adjacent to one side thereof, and is suitably fastened thereto as indicated at 15. In addition, a second pipe or rod 16 is suitably fastened at its lower end to said top wall approximately midway between its ends and near the opposite side thereof. By means of the pipe 15 and the pipe or rod 16 the hood obviously may be firmly suspended from a ceiling or from any other desired support.

Within the hood A is mounted a pair of burner elements 17, 17, preferably of the radiant type, which may be of any known or desired construction. These burner elements are disposed, respectively, on opposite sides of the medial, transverse plane of the hood and extend transversely of said hood at suitable upward and outward inclinations; for example, at angles of approxi-

mately forty-five degrees to the horizontal. They may be mounted within the hood in any desired manner; for example, between upper and lower supporting pieces 18 and 19, respectively, which extend between the side walls of the hood. In this connection, if the burner elements are mounted by means of upper and lower cross pieces as shown, the upper cross pieces are suitably spaced from the top and the end walls of the hood for the passage of fumes and gases from in front of the burners into the space within the hood behind the burners for escape through the opening or openings 13.

At the lower end of the gas supply pipe 14 is a valve 20 with which is connected one of the burner elements 17, said valve being operable by means of a depending handle 21 to regulate the flow of gas to the burner element 17 with which it is connected independently of the flow of gas to the other burner element. From the pipe 14 at a point above the valve 20 a branch pipe 22 leads to the second burner element, this branch pipe including a valve 23 having a depending handle 24 by which it may be controlled to regulate the gas supply to the second burner element independently of the gas supply to the first mentioned burner element.

Preferably, but not necessarily, a heat insulating element 25 is mounted behind each burner element 17 both to assist in the radiation of heat downwardly and outwardly from the burner elements and to prevent heat losses through the hood space behind said insulating elements. Preferably, too, but not necessarily, the space between the bottoms of the burner elements is closed by a shield element 26 of sheet metal or other suitable material to prevent heated air below the hood from circulating upwardly directly through the middle portion of the hood to the gas escape opening or openings 13 in the top of the hood. If provided, this shield element 26 has air supply ports or holes 26^a and also serves to conceal from view the pipe connections, valves and burner element mounting means and thereby adds to the attractiveness of the device.

It has been found that the burner elements 17, 17 operate very satisfactorily when disposed at inclinations as shown, and that they serve effectively to radiate heat downwardly and outwardly to heat an area above which the heating device is mounted. Moreover, it has been found that by having the end walls 12, 12 disposed at downward and outward inclinations in front of the burner elements 17, 17, respectively, all heat waves emanating laterally outward from the burner elements are intercepted and directed downwardly, thereby contributing to the efficiency of the device in heating an area therebelow.

In some instances, due to lack of installation space or because it is desired that some heat shall be radiated laterally outward from the device, or for other reasons, it may be desirable to construct the device without having the hood. A include end walls extending downwardly and outwardly in front of the burner elements. Fig. 3 of the drawings illustrates a construction of this type, said construction being substantially the same as the Figs. 1 and 2 construction and amounting, in effect, simply to the elimination of the hood end walls 12, 12 of the Figs. 1 and 2 construction and having the hood open at its ends in front of the burner elements.

If desired, the device may comprise more than two burner elements. In that event, the

burner elements preferably are spaced equal angular distances apart as viewed in plan and the shape of the hood A in horizontal section is correspondingly varied. For example, if three burner elements are used the hood may be of triangular shape, or if four burner elements are used the hood may be of rectangular shape, or if six burner elements are used the hood may be of hexagonal shape. On the other hand, the device obviously may include only a single burner element. In that case its construction may be as illustrated in Fig. 4, amounting, in effect, to elimination of one-half of the device as shown in Figs. 1 and 2 and closing of the hood at the back of the burner element by an end wall designated as 27. In this connection, the construction illustrated in Fig. 4 may also be varied by eliminating the downwardly and outwardly inclined hood end wall 12 from in front of the burner element as suggested by the Fig. 3 construction.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:—

1. A gas burning heating device of the radiant type including a plurality of burner elements disposed in back to back spaced apart relationship with an open space therebetween, each at an upward and outward inclination to the horizontal, a closed top hood structure enclosing and spaced at its top above said burner elements and open at its bottom outwardly of said burner elements, said hood element having downwardly and outwardly inclined heat wave intercepting and deflecting walls disposed in front of said burner elements and extending from the tops thereof downwardly at least throughout major portions of the heights of said burner elements, respectively, and means closing the space between the inner spaced apart lower ends of said burner elements, said closing means having openings for the supply of air to the space between said burner elements and thence to the latter.

2. A gas burning heating device of the radiant type comprising a hood which in vertical section is in the shape of a trapezium closed at its top by a top wall, said hood having side walls and downwardly and outwardly inclined end walls, a pair of burner elements mounted within said hood in back to back spaced apart relationship with an open space therebetween one facing each end wall of the hood, the tops of said burner elements being spaced downwardly from the top wall of the hood for flow of fumes and gases over the tops of said burner elements into the hood space between the burner elements, the hood top wall having a gas escape opening, said hood being open at its bottom outwardly of the burner elements, the end walls of the hood extending from above the burner elements downwardly throughout at least major portions of the heights of the burner elements, respectively, and means closing the space between the bottoms of said burner elements.

3. A gas burning heating device of the radiant type comprising a hood closed at its top by a top wall and having side walls and downwardly and outwardly inclined end walls, a pair of burner elements mounted within said hood in spaced

apart back to back relationship, one facing each end of the hood, the tops of said burner elements being spaced downwardly from the top wall of the hood for flow of fumes and gases over the tops of said burner elements into the hood space between the burner elements, the hood top wall having a gas escape opening, said hood being open at its bottom outwardly of said burner elements, means closing the space between the bottoms of said burner elements, a gas supply pipe extending downwardly through the top wall of the hood near one side thereof and having said side of the hood supported thereon, means supporting the other side of the hood, and branch

pipes extending laterally from said gas supply pipe within the hood to the burner elements.

4. A gas burning heating device comprising a hood closed at its top by a top wall and having side and end walls, a burner element disposed within said hood, a gas supply pipe extending downwardly through the top wall of the hood near one side thereof and having said side of the hood supported thereon, means supporting the other side of the hood, and a branch pipe extending laterally from said gas supply pipe within the hood to said burner element.

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