

March 23 , 1926.

1,578,151

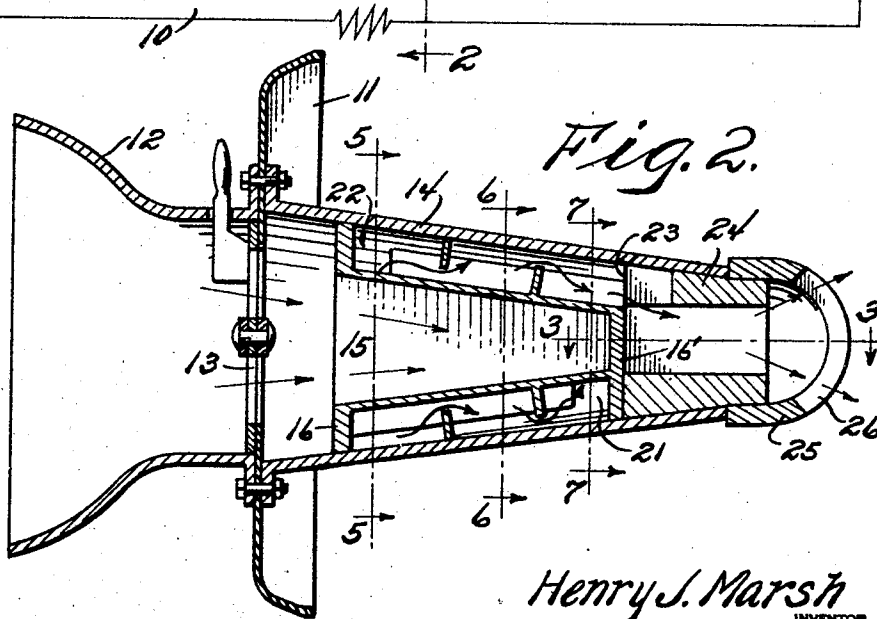
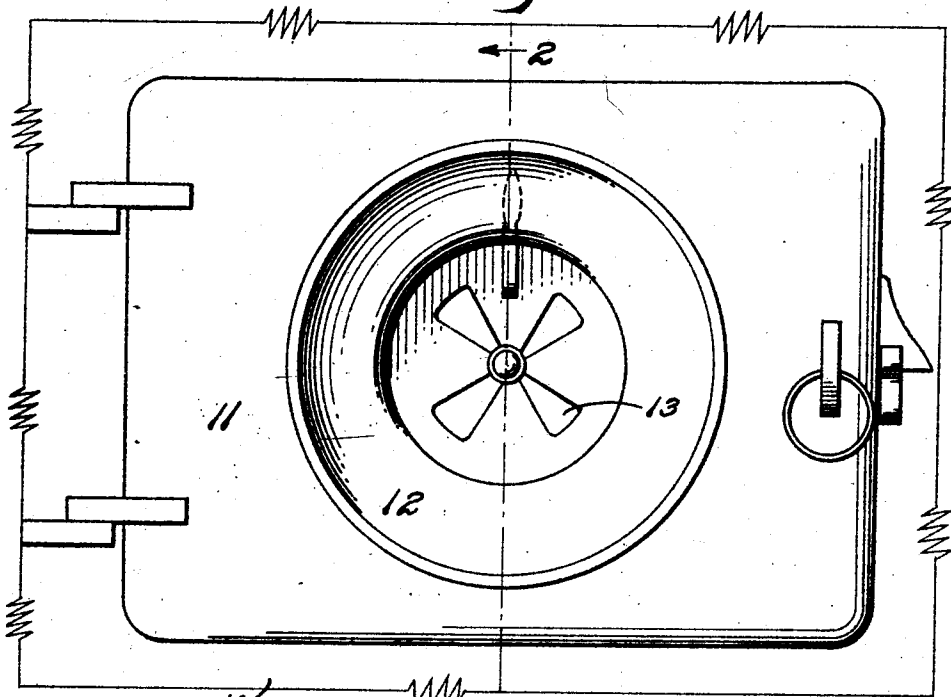
H. J. MARSH.

COMBUSTION PROMOTING DEVICE

Filed July 6, 1925

2 Sheets-Sheet 1

Fig. 1.



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WITNESS: *[Signature]*

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2 Sheets-Sheet 2

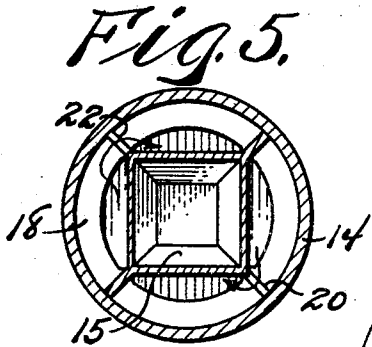
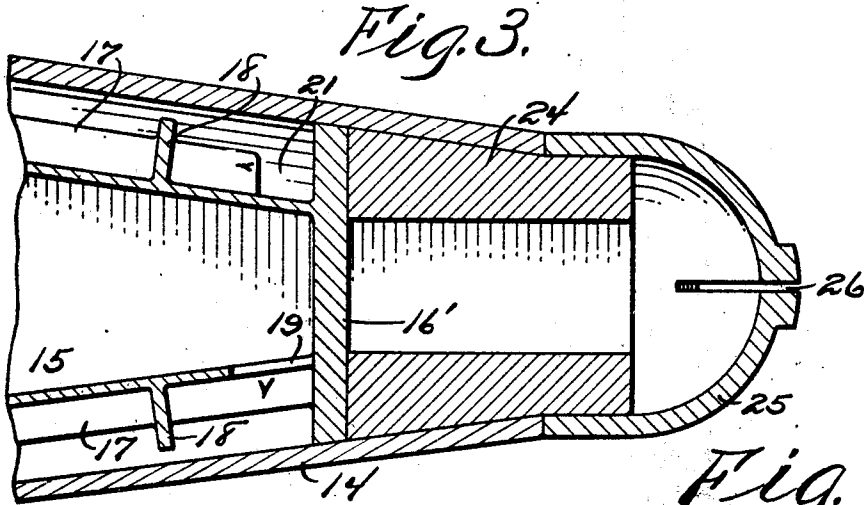


Fig. 4.

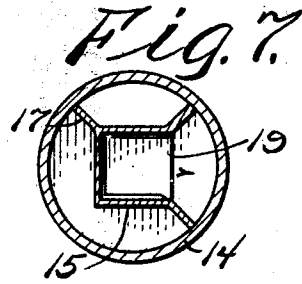
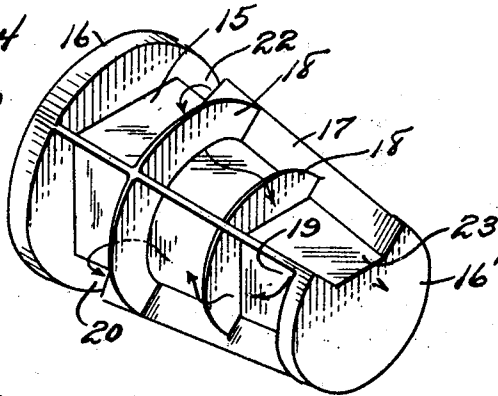
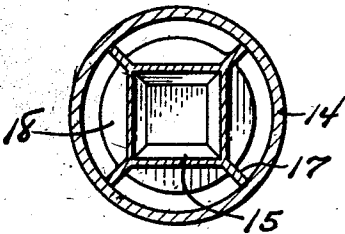


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY J. MARSH, OF ST. ALBANS, VERMONT.

COMBUSTION-PROMOTING DEVICE.

Application filed July 6, 1925. Serial No. 41,781.

To all whom it may concern:

Be it known that I, HENRY J. MARSH, a citizen of the United States, residing at St. Albans, in the county of Franklin and State of Vermont, have invented new and useful Improvements in Combustion-Promoting Devices, of which the following is a specification.

This invention has for its object the promotion of combustion in fuel burning apparatus so as to produce the maximum amount of heat with the minimum amount of fuel.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a view of the door part of a heating apparatus, showing my invention in use.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a perspective view of the inner conical member of the device.

Figure 5 is a section on line 5—5 of Figure 2.

Figure 6 is a section on line 6—6 of Figure 2.

Figure 7 is a section on line 7—7 of Figure 2.

In these views, 10 indicates a portion of the stove or other device in which the invention is used and 11 indicates the door of such device. A funnel 12 is attached to the outer face of said door and surrounds the usual damper 13 carried by the door. An outer frusto-conical member 14 is attached to the inner face of the door and surrounds the damper 13 so that air entering through the damper will enter said member. An inner frusto-conical member 15 is arranged in the outer member, said inner member having the flanges 16 and 16' at its ends which fit snugly the outer member and longitudinally extending ribs 17 are arranged on the cor-

ners of the inner member and contact with the outer member, these ribs dividing the space formed by the inner and outer members and the flanges into four chambers. Baffle plates 18 are arranged in the chambers for causing the air to pass through the same in a zig-zag manner. These plates have their ends connected with the ribs, with one plate of each set connected with the flat wall of the inner member and the other plate spaced from such wall. A port 19 is formed in the inner member at its small end and connects its interior with one of the chambers, so that the air entering the device will pass through the inner member to the small end thereof and will escape through said port into the first chamber and will pass outwardly along the said chamber and through a port 20 into the second chamber and then inwardly through such chamber and through a port 21 at the inner end of the chamber into the third chamber, outwardly through this chamber and through a port 22 at the outer end of said chamber into the fourth chamber and inwardly along said chamber through a port 23 at the inner end of the chamber into the bore of a bushing 24 located in the small end of the member 14 and from this bore the air will pass into a cap 25 from which it will escape through a narrow slot 26 which acts to spray the air into the combustion chamber of the apparatus. The ports 20, 21 and 22 are formed by cutting away the ends of the ribs 17, while the port 23 is formed by cutting away part of the flange 16'. The bushing 24 is placed in the inner end of the outer member 14 and abuts the inner end of the inner member. The cap 25 may be attached to this bushing.

From the foregoing, it will be seen that the air, entering through the damper in the door, is caused to take a circuitous path through the device before escaping into the combustion chamber of the heating apparatus, so that the air is highly heated before it mixes with the products of combustion in the apparatus. Thus the additional supply of oxygen, introduced into the apparatus by this device, will cause the products of combustion to burn in the combustion chamber so that practically all of the combustible matter of the fuel will be consumed and there will be very little, if any, soot or smoke passing from the apparatus. The

amount of air entering the device can be controlled by the damper 13 in the usual manner.

5 It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several
10 parts, provided that such changes fall within the scope of the appended claim.

What I claim is:—

15 A device for supplying air to a fuel burning apparatus, comprising an outer member extending into the apparatus, a hollow inner member having ribs on its exterior for dividing the space between the two members

into a plurality of longitudinally extending chambers, the inner member having a port in its inner end for connecting its interior
20 with one chamber and parts of the ribs being omitted to form ports which connect the outer ends of the first and second chambers together and the inner ends of the second
25 chamber with the third chamber and the outer ends of the third and fourth chambers together, the inner end of the fourth chamber communicating with the inner end of
the outer member, a slotted cap on the inner
end of the outer member and baffle plates
30 in the chambers.

In testimony whereof I affix my signature.

HENRY J MARSH.