Jan. 26, 1932. W. J. O'RILEY 1,842,625

BAFFLING DEVICE

Filed Nov. 28, 1930 2 Sheets-Sheet 1

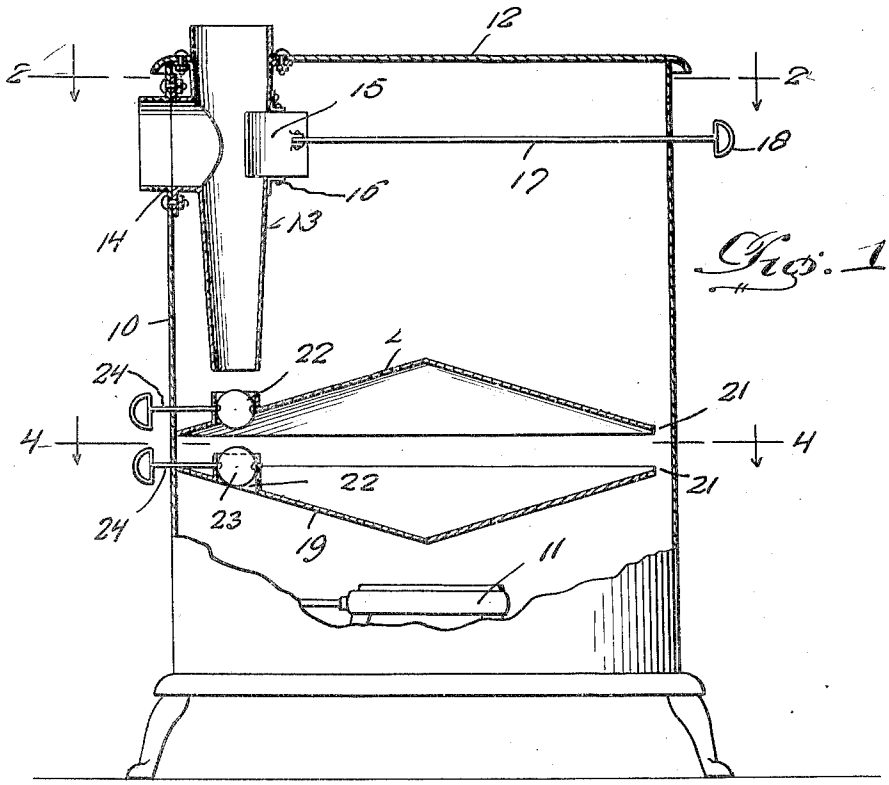


Fig. 1.

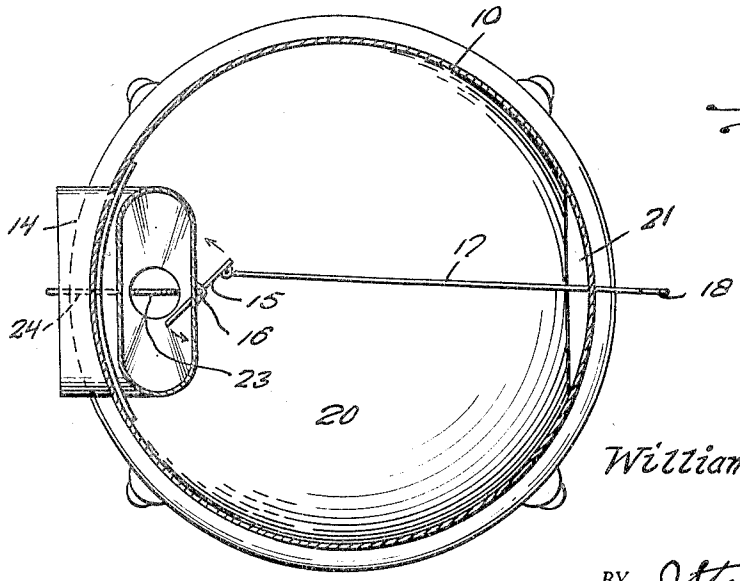


Fig. 2.

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Fig. 3.

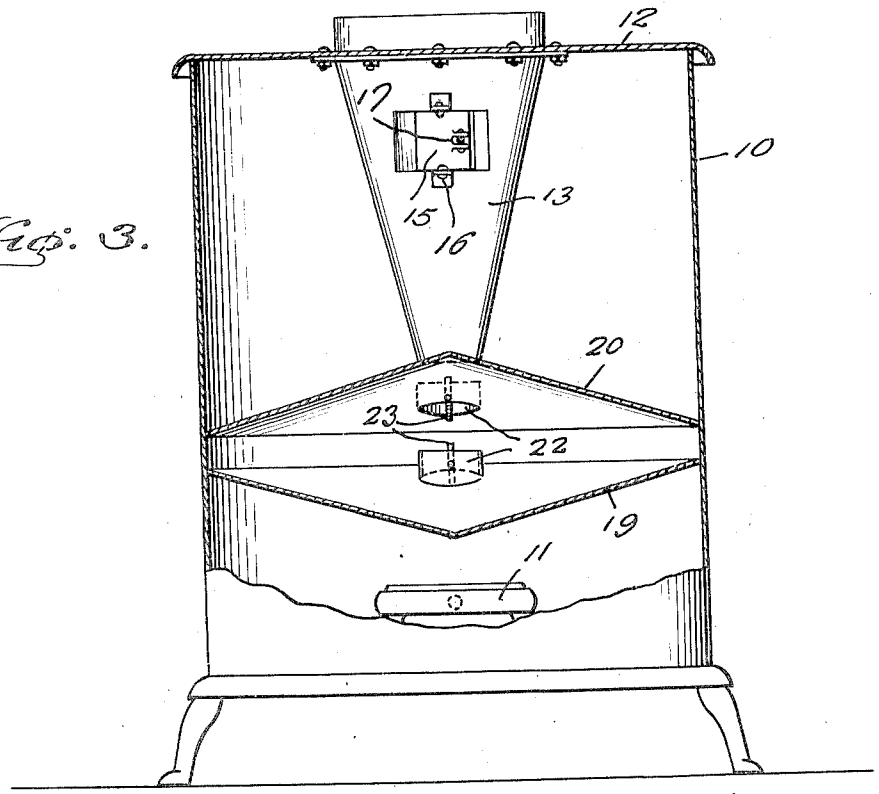
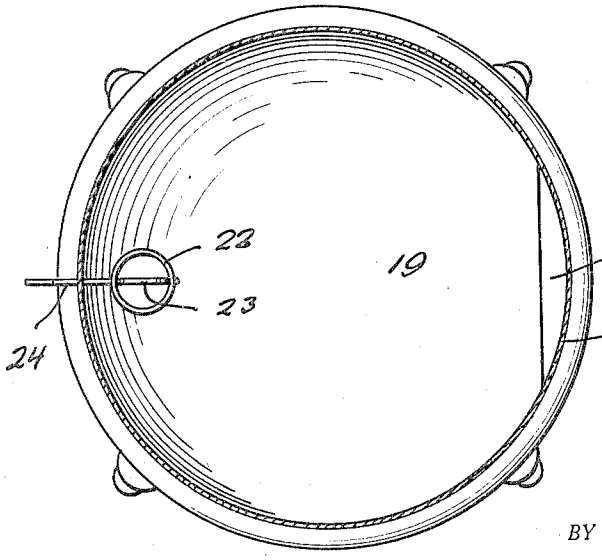


Fig. 4.



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Patented Jan. 26, 1932 1,842,625

UNITED STATES PATENT OFFICE

WILLIAM J. O'RILEY, OF PONTIAC, MICHIGAN

BAFFLING DEVICE

Application filed November 28, 1930. Serial No. 498,802.

The present invention relates to stoves and furnaces which use gas or oil as fuel, and particularly comprehends the provision of a device designed to baffle and retard the flow of products of combustion from the combustion chamber of the stove or furnace to minimize the loss of heat and to increase the heating efficiency of the burner used in the stove or furnace.

In carrying out my invention, I provide a novel arrangement of baffles for restricting and retarding the flow of products of combustion upwardly through and from the stove or furnace, together with a novel arrangement of dampers for regulating the flow of and directing the products of combustion in their course through the stove or furnace to the outlet stack therefor.

The nature and advantages of the invention will be better understood when the following detail description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this application, like numerals of reference indicate similar parts in the several views and wherein:

Figure 1 is a fragmentary sectional view through a stove provided with a baffling device constructed in accordance with the present invention.

Figure 2 is a sectional view on line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 1 but taken at a right angle thereto.

Figure 4 is a sectional view on line 4—4 of Figure 1.

Referring to the drawings in detail, 10 indicates generally a conventional form of stove adjacent the bottom of which is a burner 11 of any well known or preferred construction. Depending from the top 12 of the stove is an outlet stack 13 which is preferably tapered toward its lower end, and which stack can extend any desired distance within the stove as illustrated. The stack 13 is provided with a branch 14 which opens at one side of the stove, and one or the other of the stacks 13 or its branch 14 is adapted to be closed by a suitable cap not shown when not in use. The stack 13 is however provided with an opening at an appropriate point in its length for the escape of products of combustion from the point adjacent the top of the stove, and this opening is controlled by a suitable damper 15 pivoted as at 16 for swinging movement, and operated by a suitable rod 17 which extends through one side of the stove and provided with a handle 18.

Arranged within the stove is one or more baffles, which divide the combustion chamber of the stove into upper and lower compartments, and which baffles are designed to both restrict and retard the flow of products of combustion through the stove in a manner to be presently described. I have illustrated two of such baffles, although one may be employed independently of the other, the baffles being arranged in spaced superposed relation, the lowermost baffle being indicated at 19 and the uppermost baffle as at 20. The baffles are reversely disposed as illustrated, the baffle 19 being concaved downwardly and the uppermost baffle being concaved upwardly, and it will be noted upon inspection of Figure 2 that these baffles extend across the entire area of the stove above the burner 11 and beneath the outlet stack 13, but terminate a slight distance from one side of the stove to provide a passage 21 for the products of combustion from the lowermost to the uppermost compartment. Each baffle is provided with an outlet opening 22 arranged directly in line with the outlet stack 13, and each opening is equipped with a damper 23 having an operating rod or element 24 as illustrated. Manifestly, the structure provides a novel arrangement of dampers in conjunction with the baffles to regulate as well as to direct the flow of products of combustion from the burner to the outlet stack 13, so that the heating efficiency of the burner can be varied as the occasion may require. For instance, the dampers 23 of the baffles may be opened to permit the products of combustion from the burner 11 to pass through the openings 22 into the stack 13, or the damper 23 of the lowermost baffle

may be closed to cause the products of combustion to pass around the baffle 19 through the passage 21 into the upper part of the stove, and also in the space between the baffles to the outlet opening 22 of the uppermost baffle 20. On the other hand, the damper 22 of the uppermost baffle may be closed with the damper 23 of the lowermost baffle open, whereupon the products of combustion will pass through the opening 22 of the lowermost baffle and be directed by the uppermost baffle in the direction of the passage 21, thereby causing the products of combustion to flow around the lowermost baffle as well as under the uppermost baffle through the passage 21 into the upper portion of the stove, before they escape through the stack 13. The damper 15 of the stack may be maintained closed to cause the products of combustion to flow to the stack from the bottom or lower end thereof, or this damper 15 may be opened to allow a more ready escape of the products of combustion from the upper portion of the stove as will be readily understood. By selectively operating the dampers 15 and 22 the draft can be conveniently regulated, and the products of combustion caused to pursue a more or less direct or indirect course through the stove as the occasion may require.

While it is believed that from the foregoing description the nature and advantages of the invention will be readily understood, I desire to have it known that I do not limit myself to what is herein illustrated and described and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What I claim as new is:

1. In combination with a stove or furnace having a burner arranged in the bottom thereof and an outlet stack depending within the stove or furnace from the top and along one side thereof, spaced superimposed baffles located above the burner and dividing the combustion chamber of the stove or furnace into upper and lower compartments, said baffles terminating short of the side of the stove or furnace remote from said stack to provide a passage for the products of combustion from the lower to the upper compartment, said baffles having alined openings located directly beneath the lower end of the stack for the passage of products of combustion therethrough, and independently controlled dampers for the openings of the baffles.

2. In combination with a stove or furnace having a burner arranged in the bottom thereof and an outlet stack depending within the stove or furnace from the top and along one side thereof, a downwardly concaved baffle located above the burner and dividing the combustion chamber of the stove or furnace into upper and lower compartments, said baffle terminating short of the side of the stove or furnace remote from the stack to provide a passage for the products of combustion from the lower to the upper compartment, said baffle having an outlet opening in alinement with said stack, and a damper controlling said opening.

3. In combination with a stove or furnace having a burner arranged in the bottom thereof and an outlet stack depending within the stove or furnace from the top and along one side thereof, an upwardly concaved baffle located within the stove or furnace above the burner and dividing the combustion chamber of the stove or furnace into upper and lower compartments, said baffle being slightly spaced from the side of the stove or furnace remote from the stack to provide a passage for the products of combustion from the lower to the upper compartment, said baffle having an outlet opening located in alinement with said stack, and a damper controlling said opening.

4. In combination with a stove or furnace having a burner arranged in the bottom thereof and an outlet stack depending within the stove or furnace from the top and along one side thereof, a downwardly concaved baffle arranged above the burner, an upwardly concaved baffle arranged in spaced superimposed relation with the first-mentioned baffle, both of said baffles terminating short of the side of the stove remote from the stack to provide a passage for the products of combustion from the lowermost to the uppermost compartment and also to the intervening space between said baffles, each baffle having an outlet opening, and a damper for controlling the opening of each baffle.

5. In combination with a stove or furnace having a burner arranged in the bottom thereof and an outlet stack depending within the stove or furnace from the top and along one side thereof, said stack having an opening for the escape of products of combustion at an appropriate point in its length, a pivoted damper controlling said opening, means for operating said damper, a downwardly concaved baffle arranged above the burner, an upwardly concaved baffle arranged in spaced superimposed relation to the first-mentioned baffle, both of said baffles terminating short of the side of the stove or furnace remote from the stack to provide a passage for the products of combustion from the lower to the uppermost compartment and also to the space between the baffles, each baffle having an outlet opening, and a damper for controlling the opening of each baffle.

In testimony whereof I affix my signature.

WILLIAM J. O'RILEY.