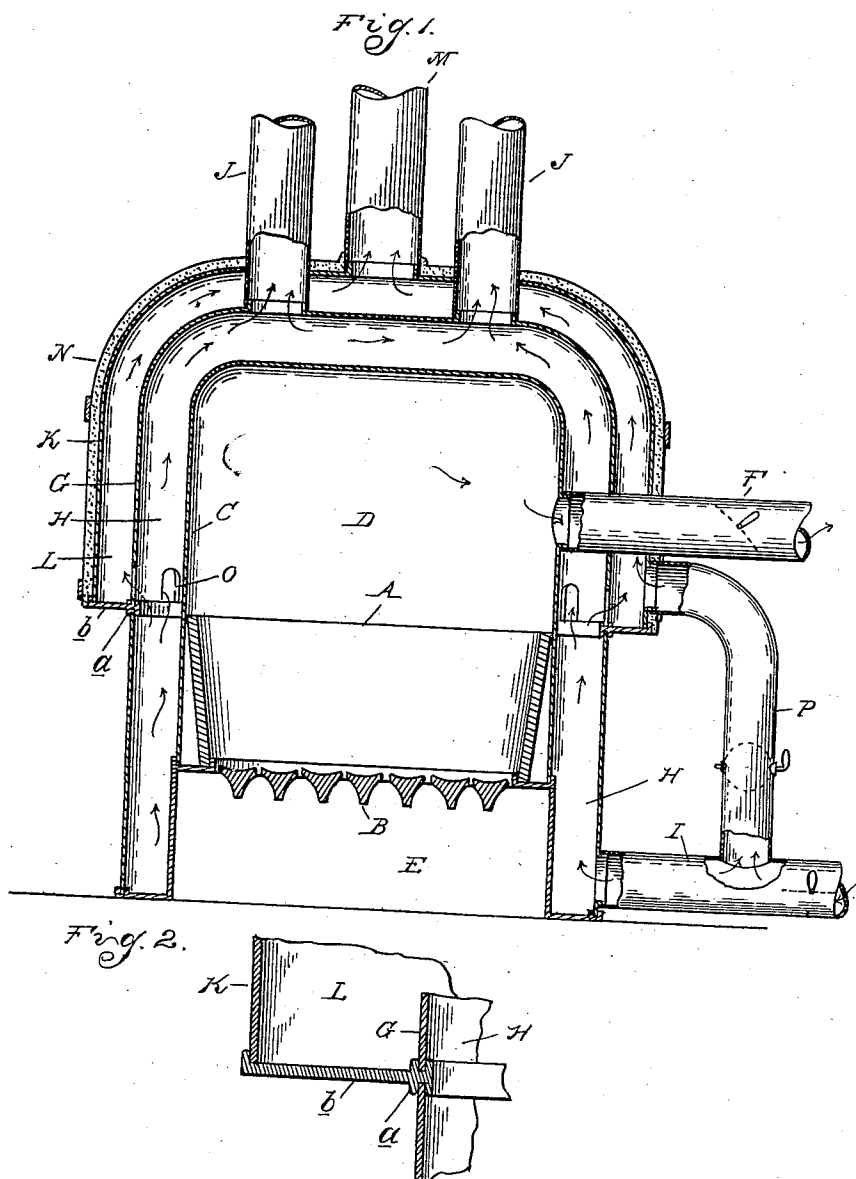


No. 859,102.

PATENTED JULY 2, 1907.

H. A. PARRISH.  
FURNACE.

APPLICATION FILED NOV. 15, 1904.



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# UNITED STATES PATENT OFFICE.

HOMER A. PARRISH, OF JACKSON, MICHIGAN.

## FURNACE.

No. 859,102.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed November 15, 1904. Serial No. 232,820.

*To all whom it may concern:*

Be it known that I, HOMER A. PARRISH, residing at Jackson, in the county of Jackson and State of Michigan, a citizen of the United States, have invented certain new and useful Improvements in Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to new and useful improvements in heating furnaces and consists particularly in the construction of a supplemental heating chamber arranged to take the radiation from the outside of the usual heating chamber, such supplemental chamber having an air inlet passage and air outlet conduits, so that there will be a circulation of heated air through this supplemental chamber carried to any desired point.

The invention further consists in the construction arrangement and combination of the various parts, as more fully hereinafter set forth and particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical central section through a simple form of hot air furnace, showing my invention applied thereto and showing two ways of supplying air to the lower part of the supplemental heating chamber. Fig. 2 is an enlarged section through the outer shell of the furnace heating chamber, the shell of the supplemental chamber and a supporting ring.

I have shown my invention applied to a very simple form of hot air furnace. The construction of the furnace itself is no part of my invention, as it may be applied to most any type of furnace intended for use in heating houses or other buildings. I will describe, in a brief way, the furnace herein shown.

A represents the fire pot, B the grate, C a shell by which is formed a combustion chamber D above the grate and an ash pit section E below the grate. From this combustion chamber leads the usual smoke pipe F. Around the shell C and spaced therefrom, is the usual shell G, forming between the shell C and the shell G the main air heating chamber H, such as is ordinarily used in hot air furnaces.

I is the inlet pipe for the air to be heated, connecting with the chamber H at or near the lower end thereof.

J are the usual hot air pipes communicating with the chamber H and leading up into the house at any desired point.

In the construction of such furnaces, particularly hot air furnaces, a great deal of heat is radiated into the cellar, and, so far as heating the house is concerned, this heat is wasted. I desire to utilize this heat, *i. e.* convey it to the house, and to this end I place a shell K outside and inclosing the upper portion of the furnace, spaced from the wall G a sufficient distance to form within it a supplemental air heating chamber L,

the air in which will be heated by the radiation from the wall G. In this particular construction, I have shown a flanged ring *a*, between the upper and the lower parts of the shell G, as is usual in furnace construction, and I have shown a flanged extension *b* on this ring, as a simple and convenient means of supporting the shell K at its lower edge.

Leading off from the supplemental air heating chamber L is the hot air pipe M. This is preferably taken off from the top of the shell K and there may be one or more, as desired, according to the wishes of the person constructing the furnace and the arrangement of the furnace in relation to the rooms of the house. I have shown the shell K covered with an asbestos sheathing N to better retain the heat therein.

In order to get an air circulation from the chamber L out through the pipe M, I provide ports or openings O in the wall G at the lower part of the supplemental chamber L, and a branch pipe P leading from the pipe M to the lower end of said chamber. The passage of air through the branch pipe P is controlled by a damper or valve arranged within said pipe and by closing this damper or valve the supply of air to the chamber L is made to depend upon the ports or openings O, the air first entering the main air heating chamber H and passing from thence through said ports or openings. By opening the damper or valve arranged in the branch pipe P air is supplied to the supplemental heating chamber directly from the pipe M.

I have shown the supplemental air heating chamber as extending down to at or near the top of the fire pot. The particular extent of this air heating chamber is somewhat immaterial and may be arranged to suit the convenience of the furnace to which it is applied or the desire of the manufacturer. It is desirable, however, that this supplemental chamber shall inclose the top and preferably part of the sides of the furnace proper and I think the best results are obtained by extending this inclosure down to the point indicated in the drawings.

The parts being thus constructed, their operation is as follows:—The fire being built in the fire pot in the usual manner, the smoke passes out through the pipe F and the air in the chamber H being heated, will rise through the pipes J to be distributed to the house in the usual manner, fresh air being continually supplied through the pipe I. The air in the chamber L will be heated by the radiation from the wall G and it will flow into the house through the pipe M, fresh air being supplied either through the ports O or through the pipe P, or by any other suitable air supply connection.

This device can be applied to new furnaces or to old furnaces already in use and may be used in con-

nection with hot air furnaces or other types of furnaces

What I claim as my invention is:—

1. In a hot air furnace the combination of a combustion chamber, a main air heating chamber having an air exit and an air inlet, a main air supply conduit for the main air heating chamber communicating at the base thereof, a supplemental air heating chamber arranged around the upper part of the main air heating chamber and having an air exit and an air inlet and a branch air supply conduit communicating with the main air supply conduit outside the furnace and the supplemental air heating chamber at the base thereof.
2. In a hot air furnace the combination of a combustion chamber, a main air heating chamber having an air exit and an air inlet, a main air supply conduit for the main air heating chamber communicating at the base thereof, a supplemental air heating chamber arranged around the upper part of the main air heating chamber and having an air exit and an air inlet and a valve controlled branch conduit communicating between the main air supply conduit outside the furnace and the supplemental air heating chamber at the base thereof.
3. In a hot air furnace the combination of a combustion chamber, a main air heating chamber having an air exit and an air inlet, a main air supply conduit for the main air heating chamber communicating at the base thereof, a supplemental air heating chamber arranged around the upper part of the main air heating chamber and having an air exit and an air inlet and communicating at its base with the main air heating chamber and a valve controlled branch air supply conduit for the supple-

mental air heating chamber communicating with the main air supply conduit outside of the furnace and the supplemental air heating chamber at the base thereof.

4. The combination in a hot air furnace of a fire pot, a shell inclosing the fire pot and extending above the same to form a combustion chamber, a second shell entirely inclosing the first mentioned shell to form a main air heating chamber, said second shell being provided at its top with air exit openings, and openings arranged at a height directly above the top of the fire pot and an air inlet opening at its base, a third shell to form a supplemental air heating chamber inclosing the upper part of the second shell and terminating at a point directly above the height of the fire pot, said shell being provided with an air exit opening at its top and an air inlet opening at its base, a main air supply conduit communicating with the air inlet opening at the base of the second shell; and a valve controlled air supply conduit communicating with the air inlet opening in the third shell and the main air supply conduit.

5. In a hot air furnace, the combination with a combustion chamber and a main air heating chamber having an air exit and an air inlet of a supplemental air heating chamber having an air exit and an air inlet and communicating at its base only with the main air heating chamber.

In testimony whereof I affix my signature in presence of two witnesses.

HOMER A. PARRISH.

Witnesses:

VERNE W. BADGLEY,  
CHAS. A. PARRISH.