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T. MERRYWEATHER

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FURNACE

Filed Sept. 10, 1928

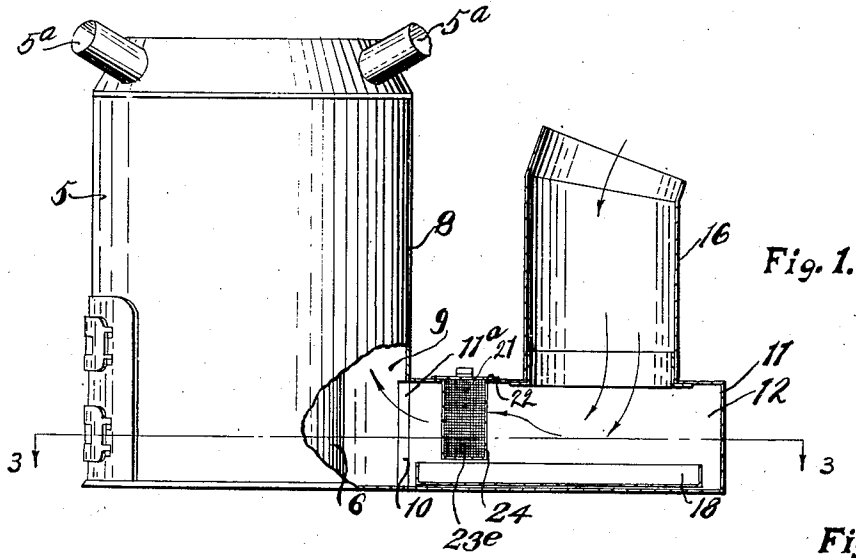


Fig. 1.

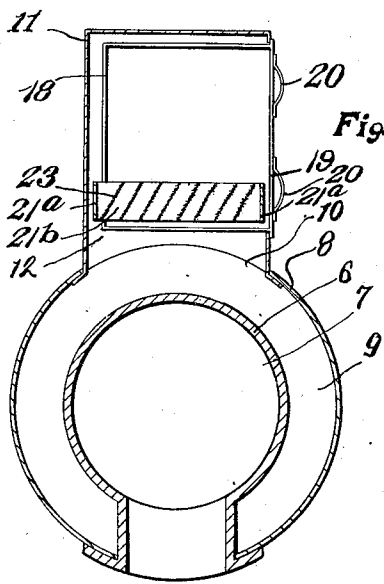


Fig. 3.

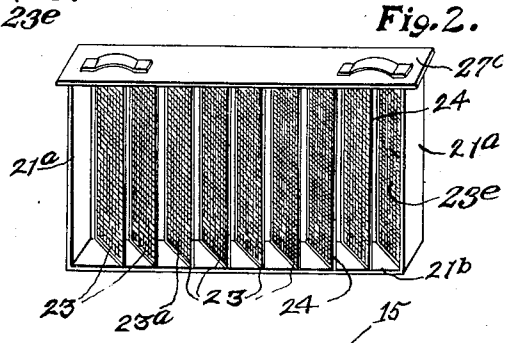


Fig. 2.

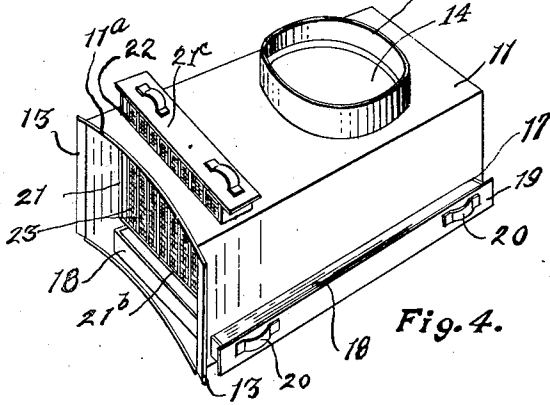


Fig. 4.

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This invention relates to new and novel improvements in hot air furnaces and has for its object the provision of simple, inexpensive means whereby the air may be properly humidified and the dust or other matter removed therefrom before passing through the furnace.

Other objects of the invention are to provide a hot air furnace having a cold air inlet chamber provided with a pan adapted to contain water and hold the same in a position where the air will be brought in contact therewith so that dust and other matter carried by the air will be precipitated in the water.

A further object is to provide a construction of the class above indicated and to provide a new and novel arrangement of baffle screens whereby a relatively large volume of the air in the cold air chamber will be brought into contact with the water whereby the air when it enters the heating chamber of the furnace will be practically free from dirt and dust.

An additional object is to provide a baffling device of new and novel construction which may be quickly and conveniently removed, cleaned and replaced and to likewise provide a water pan which may be quickly and conveniently removed and cleaned and the water therein replenished.

The above objects are accomplished and additional ends are attained by the novel construction, combination and arrangement of parts hereinafter described and illustrated in the accompanying drawings wherein I have shown a preferred form of the invention, it being understood that the invention is capable of various adaptations and that changes and modifications may be made or resort had to substitutions which come within the scope of the claim hereunto appended.

In the drawings like characters of reference are employed to designate like parts as the same may appear in any of the several views and in which:—

Figure 1 is a side elevational view of a hot air furnace with parts broken away and with the air inlet pipe and cold air chamber in central, vertical section.

Figure 2 is a perspective view of the baffling device employed in carrying out this invention.

Figure 3 is a horizontal, sectional view taken as indicated by the line 3—3 of Figure 1.

Figure 4 is a perspective view of a cold air chamber, the same being shown with the baffling device and the water container partly removed.

Proceeding now to a detailed description of the invention with reference to the particular adaptation thereof disclosed in the drawings, the numeral 5 is used generally to denote a furnace which may be of ordinary or improved construction and which comprises the inner furnace body 6 having a combustion chamber 7. The numeral 8 denotes the outer casing which is arranged around the body 6 so as to provide an air chamber 9 therebetween. The outer casing 8 is provided on one side thereof at the lower end thereof with a relatively large opening 10. The numeral 11 denotes an inlet box which encloses the cold air chamber 12. The inlet box 11 is shown in the drawings as substantially rectangular in form and is provided with an open end 11a. The open end 11a is positioned against the casing 8 so as to cover the opening 10. The box 11 is provided on each lateral side thereof with outwardly projecting flanges 13 which extend into the chamber 9 and overlap the inner surface of the casing 8. The open end of the box 11 is suitably secured to the casing 8 so as to form a substantially air tight juncture therebetween.

The box 11 is provided in the upper wall thereof with a circular opening 14 in which is positioned a suitable nipple 15. The numeral 16 denotes a cold air pipe which is fitted over said nipple with the bore of the pipe communicating with the chamber 12. The box 11 is provided on one side thereof with a relatively narrow opening 17 which extends along the bottom thereof and in which is slidably mounted a shallow pan or drawer 18 which is adapted to contain water and which when in an inward position practically covers the bottom of the chamber 12. The drawer is provided with a forward face 19 which overlaps

the edges of the opening 17 so as to form a relatively tight joint therebetween. The drawer 18 is provided with suitable handles 20 whereby the same may be conveniently removed.

The box 11 is also provided on the upper wall thereof at a point adjacent the open end thereof with a rectangular opening 22 in which is detachably mounted a baffling device 21. The baffling device 21 comprises a rectangular frame having side walls 21a and a bottom wall 21b. The top wall 21c is relatively longer than the bottom wall and is of greater width than the bottom wall 21b or the side walls 21a whereby the same will overlap the edges of the opening 22 and form a closure member for said opening. The rectangular frame is provided with a plurality of vertically positioned rectangular baffle screens 23 which are secured to the upper wall 21c and to the lower wall 21b. The baffle screens are positioned in said frame at an inclination to the side walls 21a in parallel relation to each other. While the baffle plates 23 may be constructed of any suitable material, I prefer to construct the same of wire gauze 23c having a marginal support 24 of thin sheet metal. The baffling device 21 is positioned in the opening 22 so as to extend across the chamber 12 at a point between the inlet pipe 16 and the casing 8 whereby air flowing into the chamber 12 through the pipe 16 will be checked thereby causing dust and other matter in the air to be precipitated in the water in the pan 18.

It will be noted that the combined area of the baffle screens 23 is greater than the cross sectional area of the chamber 12. The baffle screens are arranged in a position where a large amount of air will flow through the wire screens 23. A large amount of dirt, dust or lint carried by the air and not precipitated in the drawer 18 will be lodged in the screens 23.

In use, the pipe 16 is operatively connected to a pipe leading to the inclosure to be heated. The pipes are likewise connected to pipes leading to said inclosure. A quantity of water is placed in the pan 18 and the pan is positioned in the bottom of the chamber 12. The baffling element 21 is placed in the rectangular opening 22 so as to extend transversely across the chamber 12. The device is then ready for operation. As the inner furnace 7 is heated, the air in the chamber 9 rises and passes upwardly through the pipes 10, causing the cold air to enter the lower part of the chamber 9 through the chamber 12 and through the pipe 16. As the air travels through the chamber 12, it is directed downwardly and a large volume of the air comes in contact with the water in the pan 18. A large amount of dirt, dust or other matter carried by the air is thus deposited in the water in the pan 18. As the baffle

screens 23 have an area greater than the cross sectional area of the chamber 12, and as the screens are arranged in shutter-like formation, a large amount of air passes through the screens 23, thus causing dust and other particles carried by the air to collect in the interstices of the wire gauze. At frequent intervals the pan 18 is removed and the dust and dirt collected by the water in the pan is removed therefrom and the pan refilled and replaced. It is also necessary to frequently remove the baffling device 21 for the purpose of cleaning the wire gauze 23a. The arrangement of the plates 23a are such that should dust accumulate on the screens 23 to an extent which would cause the interstices of the gauze 23a to become entirely filled with dust or other matter that the air can pass between the screens 23 whereby the baffling device 21 will not seriously interfere with the ordinary passage of air through the chamber 12.

It will be noted that the pan 18 presents a relatively large area of water to the air flowing through the chamber 12 and that the air will be humidified thereby. The humidifying of the air at this point will cause the dust and other matters carried by the air to be more readily collected on the baffle screens 23 and this will be true of the air flowing between the plates as well as the air flowing through the screens 23.

Having thus illustrated my invention and described the same in detail, what I claim as new and desire to secure by Letters Patent is:—

In a cold air inlet chamber for hot air furnaces, a casing, a cold air pipe leading to said casing, a water pan slidably mounted in the bottom of said casing, said casing having an opening in the upper wall thereof and a baffling device removably positioned in said opening and interposed between said inlet pipe and the outlet end of said casing, said baffling device comprising a frame having a plurality of spaced obliquely arranged parallel screens, the upper side of said frame having a greater area than said opening and arranged when the frame is positioned therein to completely close said opening.

In testimony whereof I have hereunto set my hand.

THOMAS MERRYWEATHER.