

wherever hot air, hot water or steam is used in a house, to supply a constant amount of steam from a metal heater placed over the fire of the furnace, water being supplied to the evaporator at the same time automatically from the city water supply.

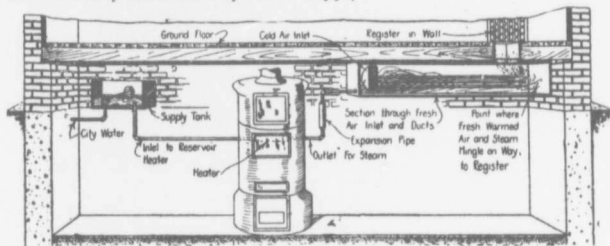


DIAGRAM 5

The apparatus consists of (a) a hollow casting or a series of pipes coupled together and placed over the fire beneath the sections of the boiler with the inlet pipe attached to the public water supply through an ordinary closet tank, set in the cellar at such a level as to just keep the heating reservoir filled. (b) The exit pipe leads directly to the flower room or other convenient place in the house, where it delivers steam directly and through the *law of expansion of gases* diffuses itself throughout the house, so that everywhere the degree of humidity is in practice the same. The automatic character of the water supply regulates nicely the moisture in the house, because, if the weather outdoors is cold and dry, the amount of heat required is greater, the fire burns brighter and the evaporation is more; while, if the outer atmosphere be mild and consequently holds more moisture, the fire will be burning less brightly and the amount of water evaporated will be proportionately lessened. It is desirable in order to make such a system effective that means be provided for introducing fresh air constantly into the house along with the moisture to maintain the sensation of freshness associated with moving air. It is found possible to warm outer air by passing it through a chamber in tubes which are surrounded by the steam as it moves toward the flower room, since as the air is warmed its capacity for moisture increases, and when the two are mingled they pass into the house atmosphere without any precipitation of moisture whatever.

The proper application of this system will maintain house air at a pleasant humidity of 50 to 55 per cent, while by a method shown in the diagram, the steam may be utilized to warm fresh air as it is introduced into the hall or living room of the house. The law of diffusion of gases operates so completely that hygroscopic tests will show air in all parts of the house to maintain practically the same relative humidity.

Realizing the defects and cost of methods adopted in schools and other places of assembly in supplying enough fresh air with an even distribution, recent experiments have been made tending to prove that the amount of carbonic acid in the air of a room given off from the lungs of persons is not in itself deleterious; but that the essential thing is to have the air which surrounds the individual, whose body temperature is 98.4° F., constantly replaced; or, in other words, that practically all the requirements of ventilation are met so long as the air of a room is kept in motion. While it is true that movement of the air in rooms is most desirable and necessary, the facts as herein set forth seem to supply ample evidence of the necessity of bringing to persons who have to live much indoors a steady supply of warmed fresh air, if they are to maintain themselves in good health and minimize the dangers from those who suffer from tuberculosis to those living with them.