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APPARATUS FOR HEATING FLOORS AND ROOMS

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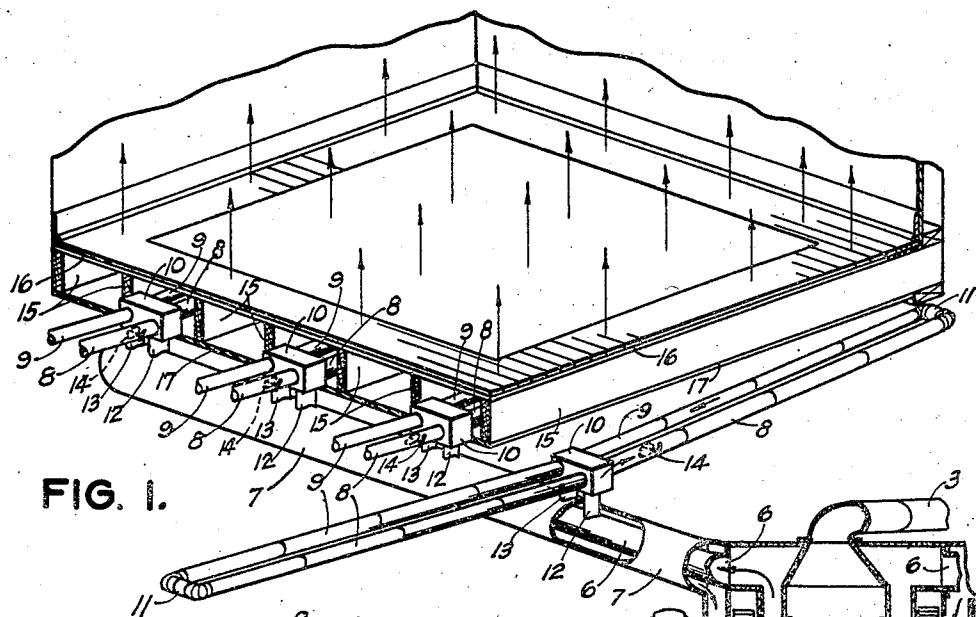


FIG. 1.

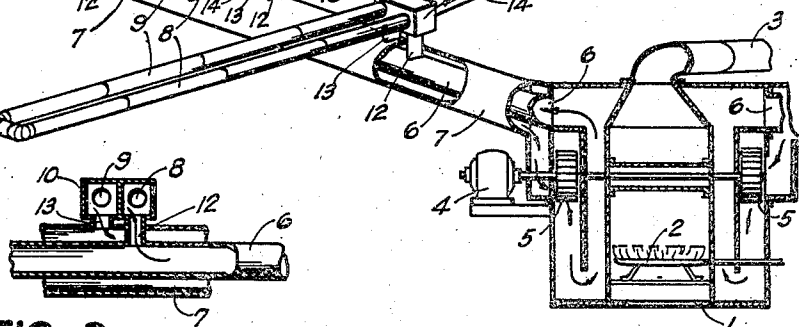


FIG. 2.

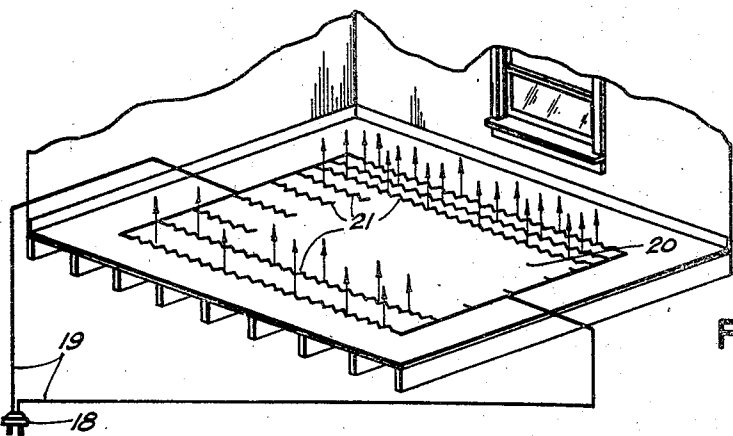


FIG. 3.

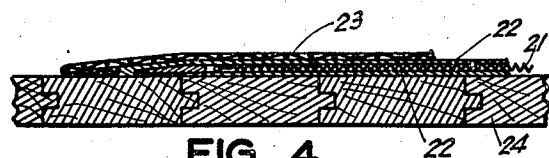


FIG. 4.

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APPARATUS FOR HEATING FLOORS AND ROOMS

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2 Claims. (Cl. 237-69)

The principal objects of my invention are to provide an apparatus of this character which is new, novel, practical, useful, and of evident utility; which is simple in construction, durable and reliable; which consists of but few sturdy parts, is easily operated, cannot easily get out of order and is efficient for the purposes for which it is intended; to provide apparatus whereby the heat is applied at a lower temperature thereby causing less heat loss than by ordinary methods; to provide means whereby the entire floor of a room is heated comfortably without wasting any heat in forming a blanket of hot air at the ceiling; to provide means for uniformly heating all parts of a room and thus avoiding the present discomfort of having one part of a room too hot and another part too cold; to provide means for forming a blanket of warm air near the floor to properly heat the lower portions of our bodies, leaving the cooler air nearer the ceiling for breathing purposes; to eliminate all heating elements within the room such as radiators, registers, vents and stoves thus making available the entire floor area for furniture and comfortable seating; and to provide for the transmission of the heat by conduction in such a manner that the air in the room does not come in contact with a superheated surface and is therefore pure and salubrious.

With these and other objects in view as will more fully appear, my invention consists in the construction, novel features, and combination of parts hereinafter more fully described, pointed out in the claims hereto appended, and illustrated in the accompanying one-sheet drawing, of which,

Figure 1 is a fragmentary perspective view, partly in section; Figure 2 is a fragmentary sectional detail; Figure 3 is a fragmentary perspective view of another embodiment of my method of heating and Figure 4 an enlarged fragmentary sectional detail referring to Figure 3.

Like characters of reference designate like parts in all the figures.

It is understood that various changes in the form, proportion, size, shape, weight and other details of construction, within the scope of my invention may be resorted to without departing from the spirit or broad principle of my invention as claimed and without sacrificing any of the advantages thereof, and it is further understood that the drawing is to be interpreted as being illustrative and not restrictive.

Our present methods of heating by means of open stoves, floor furnaces, hot air furnaces, steam radiators, etc., are not only expensive and waste-

ful, but uncomfortable and not conducive to good health. The heat supplied by these methods naturally rises to the ceiling and unless some means of forced circulation is supplied, a blanket of excessively hot air is wastefully formed at the ceiling before the lower part of the room is comfortable. Naturally the greater amount of this heat is lost through the ceiling, the air at head level is too warm and not pleasant to breathe while at the floor it is too cool for comfort.

My improved method and apparatus eliminates all of this waste and discomfort. I apply the heat at a comparatively low temperature to the underside of the floor of the room, the heat is transmitted into the room by conduction through the floor, thus applying a natural method analogous to that of the sun's rays heating the earth's surface which in turn radiates the heat to the atmosphere surrounding us. There is no waste of fuel in super-heating the air at the ceiling, no valuable floor space is occupied by registers or other heating units, the feet and body are comfortably warm and the air at head level is suitable for healthful breathing. Where there are small children in the family the floor will be a safe place to play on the coldest days as that will be the warmest part of the room. Rugs, carpets and other floor coverings are ordinarily used for keeping the floor warm. These are soon worn out and must be replaced but with my heating system they are not essential for warmth. More durable and non-wearable floor coverings may be used such as linoleum, rubber or terra-cotta tile, "ma-sonite" etc.

One embodiment of my invention is shown as follows: Hot air furnace 1 having heating element or burner 2 is vented by pipe 3. Motor 4 drives fans 5 which blow the air, as indicated by the arrows, into hot air supply pipe 6, the cooled air is forced back to the furnace through the larger return pipe 7 surrounding said supply pipe 6. The hot air flows out through the unwidely inclined lateral supply pipes 8 from pipe 6, through short riser 12 and junction box 10. Bends 11 reverse the flow of hot air which returns through lateral 9, junction box 10, short connector 13 to large return pipe 7 and back to the furnace to be re-heated. Dampers 14 in pipes 8 inserted near junction box 10 may be under thermostatic control.

As shown in Figure 1 sets of lateral pipes 8 and 9 are placed in alternate spaces between floor joists 15, but in actual practice I prefer to have a set of said pipes placed in each of said spaces. With the rough and finish floor 16 above and the

insulation 17 below the joists 15, the lateral pipes 8 and 9 will heat the air in the space thus enclosed. By conduction, this heat will be transmitted through the floor 16 uniformly to all parts of the room as indicated by the arrows. The temperature of the air in the joist space around the pipes 8 and 9 need not exceed 120 degrees in order to maintain a temperature of 70 degrees or more at the floor level above. This temperature of 120 degrees or less is low as compared with steam in radiators or the hot air from floor furnaces. In heating with these latter devices the air in their immediate neighborhood must be super-heated in order to supply sufficient heat for comfort in regions farther away. These devices never heat the floor thoroughly even with some form of forced circulation, as the heat rises to the ceiling where its usefulness is dissipated.

My device heats that part of the room where we live and move—the floor and space immediately above it. The heat of conduction decreases from the floor upward. The feet and lower part of the body are in a slightly warmer zone than the head and face where we breathe. This is the ideal arrangement for health and comfort and can only be attained when the whole floor surface is heated to a uniform temperature.

In Figures 3 and 4 I have shown another method of attaining the same result, utilizing electric power in producing heat. Plug 18 connects to a power outlet, wires 19 supply current to pad 20 made up of heating elements 21 forming a grid positioned between insulating members 22. The pad 20 is placed under rug or floor covering 23 and serves the purpose of a rug cushion between the said rug 23 and floor 24.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a hot air conduction heating system, the combination of a hot air furnace, a hot air supply pipe in direct communication with said furnace, junction boxes having separate supply and return chambers, short risers leading

from said supply pipe to the supply chamber of each of said junction boxes, lateral heating pipes leading from said supply chambers, bends or elbows at the extremities of said lateral pipes, lateral return pipes in operative connection with said elbows and in juxtaposition with said lateral heating pipes, said junction boxes, lateral heating and return pipes being placed between the floor joists of the room being heated by conduction, the said return pipes communicating with the return chambers of said junction boxes, short vertical connector pipes leading from said chambers to a large return pipe, said last mentioned pipe surrounding said hot air supply pipe, being spaced therefrom and directly connecting with said furnace, and a fan for inducing circulation of air through said system.

2. In a hot air conduction heating system, the combination of a hot air furnace, a hot air supply pipe in direct communication with said furnace junction boxes having separate supply and return chambers, short risers leading from said supply pipe, to the supply chamber of each of said junction boxes, lateral heating pipes leading from said supply chambers, elbows at the extremities of said lateral pipes, lateral return pipes in operative connection with said elbows and in juxtaposition with said lateral heating pipes, said junction boxes, lateral heating and return pipes being placed between the floor joists of the room being heated by conduction, rough and finish floor above said lateral pipes and insulating material of any suitable kind below said pipes for enclosing the space between said joists against loss of heat except that of conduction through said rough and finish floor, the said return pipes communicating with the return chambers of said junction boxes, short vertical connector pipes leading from said chambers to a large return pipe, said last mentioned pipe surrounding said hot air supply pipe, being spaced therefrom and directly connecting with said furnace, and a fan for inducing circulation of air through said system.

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