

May 8, 1934.

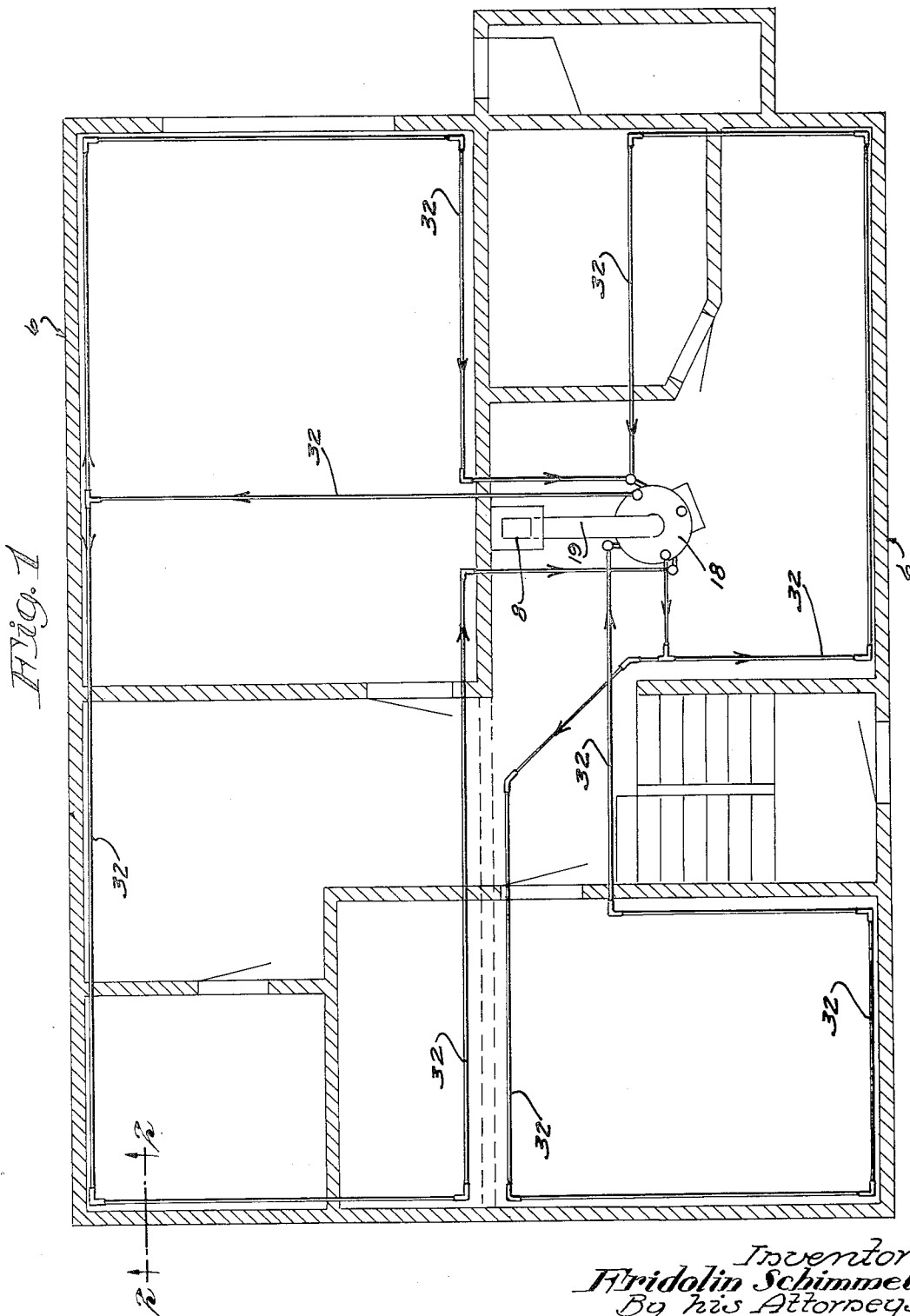
F. SCHIMMEL

1,957,616

HEATING SYSTEM

Filed Nov. 14, 1932

2 Sheets-Sheet 1



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Fig. 2

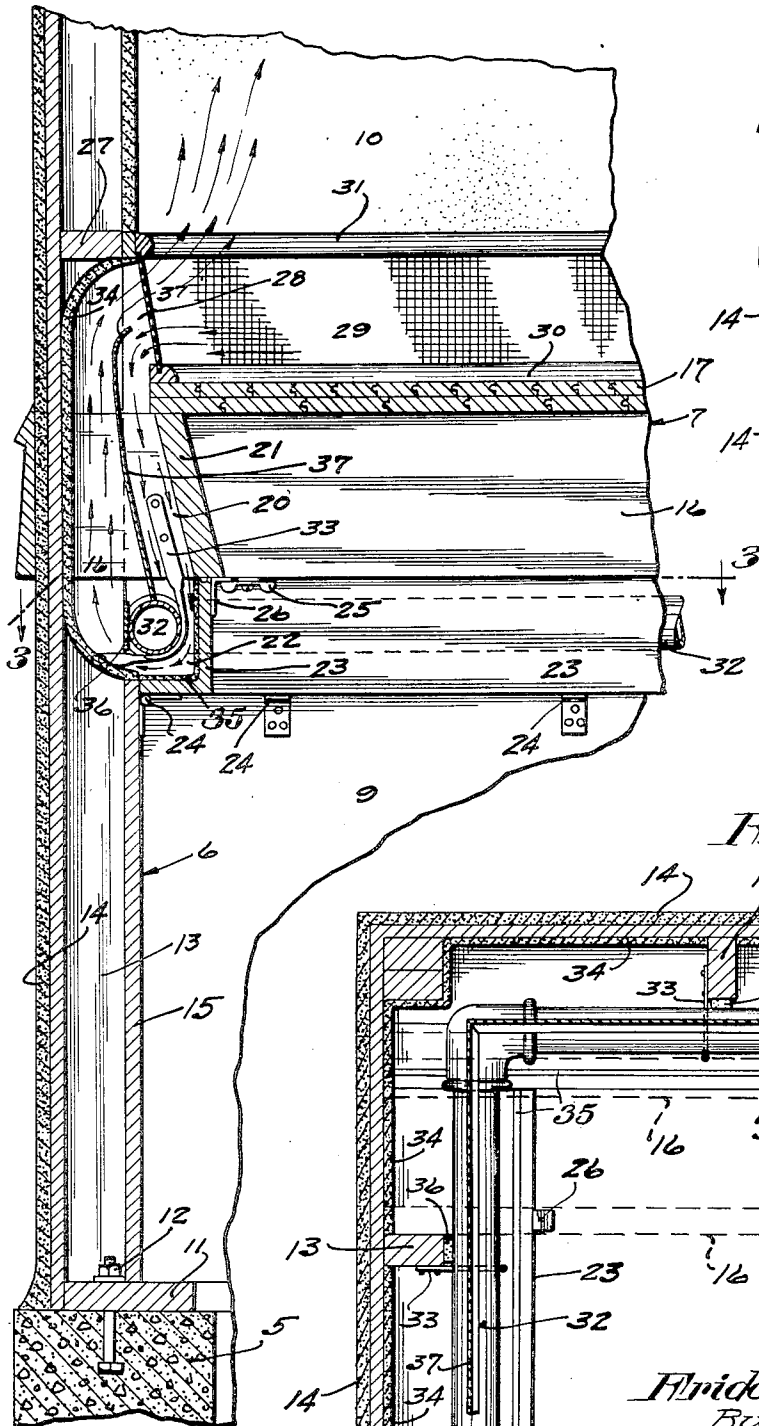


Fig. 4

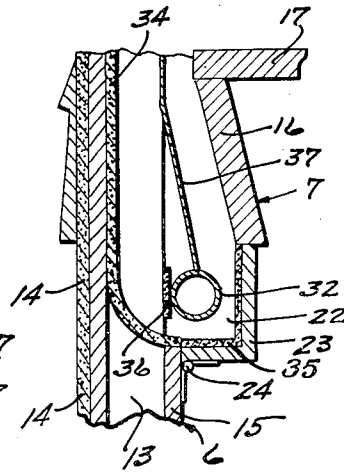
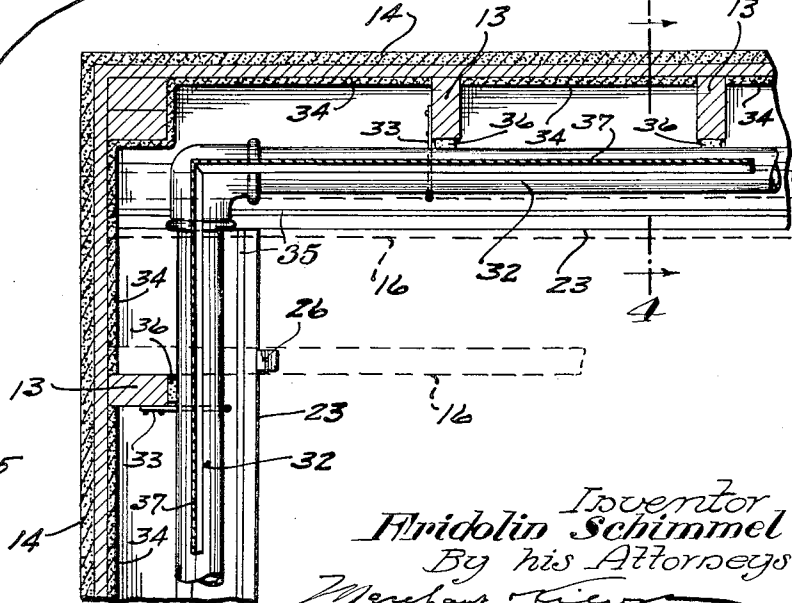


Fig. 3



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UNITED STATES PATENT OFFICE

1,957,616

HEATING SYSTEM

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Application November 14, 1932, Serial No. 642,511

2 Claims. (Cl. 237—49)

My present invention relates to heating and has for its object the provision of an extremely simple, highly efficient and inexpensive heating system for dwellings and other buildings.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 illustrates diagrammatically a plan view of a dwelling having the improved heating system installed therein;

Fig. 2 is a fragmentary vertical section taken on the line 2—2 of Fig. 1, on an enlarged scale;

Fig. 3 is a view partly in plan and partly in horizontal section taken on the line 3—3 of Fig. 2; and

Fig. 4 is a fragmentary detail view in section taken on the line 4—4 of Fig. 3.

Of the parts of the building illustrated it is important to note the foundation 5, which extends just above the ground line, the outer wall structure 6, the floor structure 7, and the chimney 8.

The space below the floor structure 7 will hereinafter be referred to as the basement 9 and the rooms 10 above said floor structure are indicated by the numeral 10.

A plate 11 secured by bolts 12 to the foundation 5 supports the outer wall structure 6 which includes uprights 13, outer walls 14, and inner walls 15. The floor structure 7 includes joist 16 carried by the uprights 13 and floor boards 17.

In the basement 9 is a hot water boiler 18, the smoke pipe 19 of which is connected to the chimney 8. While the improved heating system is shown and will hereinafter be described as a hot water heating system, it will, of course, be understood that the same may be steam, vapor, or hot air heating system.

The horizontal air circulating conduit 20 is formed in the outer wall structure 6 and the floor structure 7 and extends substantially completely around the building. The outer sides of the conduit 20 are formed by the walls 14 and the inner sides thereof are formed on two sides of the building by the outermost joists 16 and on the other two sides of the building by cross members 21 between the joists 16. It will be noted that the conduit-forming joist 16 and the members 21 are inwardly and downwardly inclined so that their lower longitudinal edge portions are spaced in-

ward from the inner walls 15 in the basement 9. The inner walls 15 below the floor structure 7, at their upper edges, are spaced below said structure to form a work opening 22. This work opening 22 is normally closed by door sections 23 that are L-shaped in cross-section. The lower horizontal members of the door sections 23 are hinged at 24 to the walls 15 and are held closed by turn buttons 25 on the lower longitudinal edges of the joist 16 which engage cooperating L-shaped members 26 on the upper or vertical members of said door sections.

The top of the conduit 20 is above the floor structure and is closed between the uprights 13 by horizontal members 27. The inner walls 15 in the rooms 10 terminate at the members 27 and leave base openings 28 for the circulation of air between the conduit 20 and the rooms 10. Grills 29 are fitted in the base openings 28 and held in place by lower mouldings 30 secured to the floor boards 17 and upper mouldings 31 secured to the walls 15.

Extending longitudinally in the conduit 20, inward of the outer wall structure 6 and below the floor structure 7, is a combined heat exchange main and radiator which, as illustrated, is made up of hot water pipes 32 that lead to and from the hot water boiler 18. It will be noted that the hot water pipes 32 extend substantially completely around the building at the outer walls thereof. These hot water pipes 32 are held in place by metal straps 33 secured to the wall structure 6 and the floor structure 7 for the complete circulation of air therearound.

The outer side of the conduit 20 is insulated, as indicated at 34, and this insulation at the top portion of the conduit 20 is curved into the opening 28 for directing the hot air rising in the conduit 20 into the rooms 10. Said insulation at its bottom portion is curved to the work opening 22 and closes the bottom of the conduit 20 between the uprights 13. The inner sides of the door sections 23 are also insulated, as indicated at 35, and strips of insulation 36 are interposed between the uprights 13 and the hot water pipes 32.

Within the conduit 20 is an upright sheet metal baffle 37 which extends from the hot water pipes 32 to a point above the floor boards 17 and is arranged to direct the cold air moving along the floor and through the opening 28 downward into the conduit 20 where the same is directed onto the hot water pipes 32 and passes downward therearound where the same is heated. Hot air rising on the other side of the baffle 37 enters the rooms

10 above the current of cold air entering the conduit 20.

Obviously by opening the door sections 23 the hot water pipes 32 will be fully exposed for inspection or repairs.

By mounting the combined heat exchange main and radiator in a conduit at the outside of a building and extending the same substantially completely therearound, makes it possible to install a heating system at a very low cost. This heating system dispenses with the customary radiators and connections which are not only expensive but objectionable for the reason that they are unsightly and take up valuable wall space.

The novel arrangement of my improved heating system evenly distributes the heat substantially completely around the outside walls of a building where it is the coldest, and hence is very efficient. It is, of course, evident that the combined heat exchange main and radiator may extend along the inner walls of a building if found necessary.

Cold air intakes leading from the outside of the building to the conduit 20 or air intakes leading from the basement to the conduit 20 may be provided but for the purpose of this case it is not thought necessary to illustrate the same.

Obviously, the combined heat exchange main and radiator may be used in the summertime in connection with a cooling system for conditioning the air in the rooms of the building. A humidifying system may also be installed in the conduit 20.

From the foregoing it must be evident that the

invention therein disclosed is capable of large range of modification within the spirit of the invention herein disclosed and claimed.

What I claim is:

1. In a building, the combination with a wall structure and a floor structure, of a horizontal air circulating conduit in the wall structure with its bottom below the floor line and its top above the same, said wall structure having a base opening connecting the conduit with the interior of the building for the circulation of air therebetween, a combined heat exchange main and radiator in the conduit below the floor line and leading from a suitable source of supply, and a baffle extending longitudinally through the conduit and dividing the same into a cold air intake compartment and a hot air return compartment.

2. In a building, the combination with a wall structure and a floor structure, of a horizontal air circulating conduit formed by the wall and floor structures, the bottom of the conduit being below the floor structure and the top thereof being above the floor line, said wall structure having a base opening connecting the conduit with the interior of the building for the circulation of air therebetween, said conduit having a work opening at the under side of the floor structure, a closure for the work opening, and a combined heat exchange main and radiator in the conduit outward of the wall structure and below the floor structure.

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