

Nov. 24, 1942.

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2,302,818

AIR CONDITIONING SYSTEM

Filed Nov. 29, 1939

2 Sheets-Sheet 1

FIG. 1.

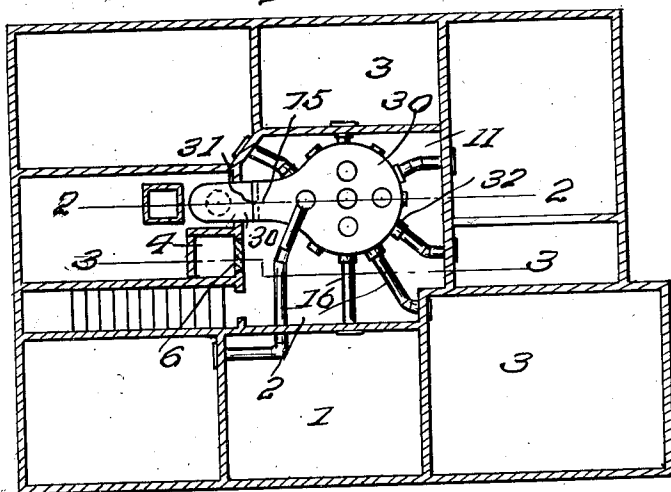


FIG. 2.

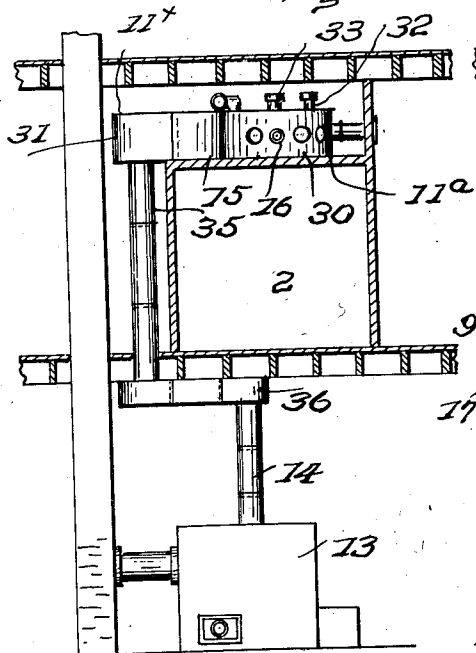
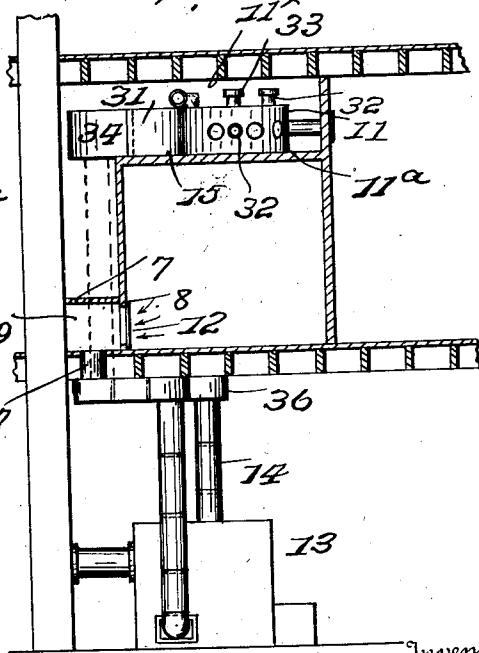


FIG. 3.



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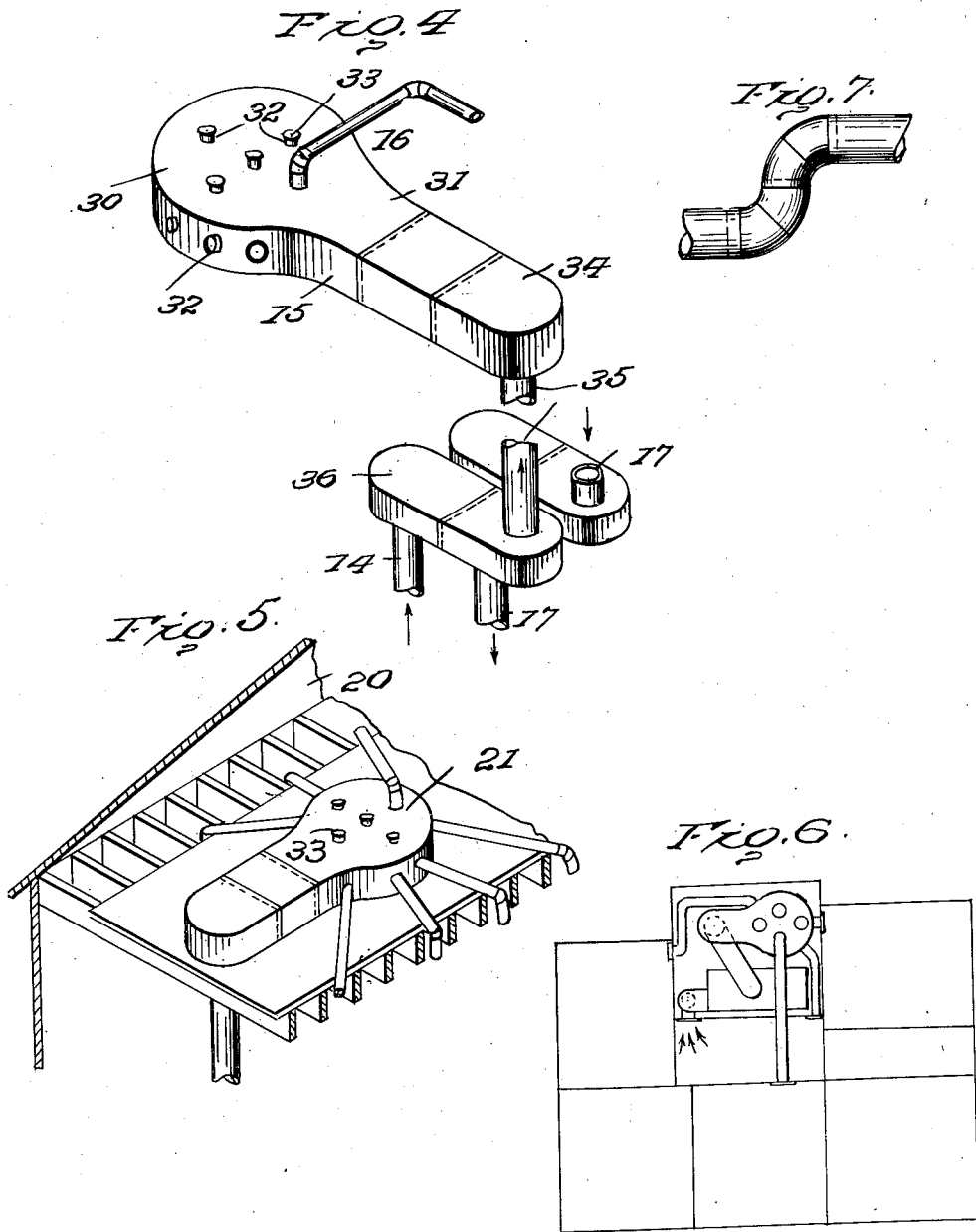
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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AIR CONDITIONING SYSTEM

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1 Claim. (Cl. 98—33)

This invention is directed to an air conditioning system for houses, and particularly small houses, wherein the usual complication incident to the number of ducts employed leading from the air conditioning unit, generally in the cellar, is largely avoided, and the distribution of the conditioned air throughout the rooms is largely concealed, and the distribution materially simplified.

One of the objects of the present invention is the provision in the ceiling of a corridor or hallway on the respective floor or floors of the house of a narrow compartment, in which a distributor for the conditioned air is mounted, one end of the corridor being divided by a vertical partition to define an area through which the main air conditioning duct from the unit in the cellar may be led to the distributor. In the corridor adjacent the partition is formed a closet, the bottom of which is insulated by a transverse partition to form a space, from which a cold air or return duct is led, and the wall of the corridor below the closet is formed with a screen or grating to permit the entrance of the cold air from the various rooms opening from the corridor.

In providing air conditioning means for small low cost houses, space as well as expense are of vital importance. Heretofore, it has been the custom to run the ducts from the furnace direct to the ducts leading to and through the partitions in the various rooms, which so greatly increases the cost in assembly, and the ducts take up so much space, the cellar is practically taken up with the ducts.

In other instances, it has been proposed to place long feed ducts in halls and from these ducts lead feeders to the various rooms.

Under the conditions noted, every job is made special and according to plans, with the further disadvantage of the building operations being delayed until such time as the ducts et cetera could be installed.

The underlying purpose of my invention is to so construct and arrange the distributor and the ducts that they may be standardized and supplied to builders in crated form and installed by inexperienced mechanics, and when assembled, the only ducts in the cellar leading from the furnace will be the inlet and outlet ducts. Thus I economize in space and expense.

A still further object of the invention is to provide a specific form of distributor associated with convenient means to attach sectional ducts and elbows for convenience in packing, assembling the parts, and economy in cost.

The invention also relates to improvements in

the details of construction and arrangement of parts which will be hereinafter described and pointed out in the claim.

In the drawings:

Figure 1 is a diagrammatic plan view of a house illustrating the application of my invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a detail perspective view of the distributor and ducts.

Figure 5 is a view illustrating another application of my invention.

Figure 6 is a diagrammatic plan view illustrating another way of applying the distributor and ducts.

Figure 7 is a detail view of a joint made up of rotatable sections forming somewhat a universal connection.

The present invention will be described in connection with a comparatively small house, in which the front entrance leads into the living or main room, indicated at 1, from which extends a hall or corridor 2. The living room 1 opens onto the corridor 2, so that the corridor affords access through proper doors to any room.

In air conditioning installation, as now practiced in equipping this type of house, the conditioning unit is generally installed in the cellar, and ducts lead to the various partitions in the respective rooms of the house. This, as stated, constitutes a complication of ducts in the cellar, which is not only objectionable from the standpoint of taking up a great deal of room, but is disadvantageous from the standpoint of economy in requiring so many different ducts of different lengths to accomplish the purpose.

From the standpoint of the present invention, in the corridor 2 is formed a relatively narrow compartment or closet 4, which extends from the floor of the corridor to the ceiling, together with a door 6, the purpose being to economize in space, and at the same time provide a convenient and neat construction for the cold air duct. The interior of the closet near the bottom is provided throughout its full area with a floor-like partition 7, and the front wall of the closet is provided with a depending partition 8, which extends from the partition 7 to the bottom of the corridor. This partition 8, with the partition 7, defines a cold air space 9, which is of the full depth of the closet. This space 9 is cut off from the remainder of the closet, and its front wall, that is, the wall next to the corridor proper, is made up as of screen material or other appropriate grating 12, which establishes communication between the

space 9 and the corridor, which of course is in communication with the respective rooms by doors or other closures.

The air conditioning unit 13 is located in a cellar, and the heating or distributing duct 14 leads therefrom upwardly through the floor and between the partitions adjacent the closet to a point near the ceiling, where the pipe is extended laterally and connected to a distributor 15 of particular construction, the details of which will be hereinafter described. From the distributor 15, auxiliary ducts 16 open into the various rooms.

The distributor is housed in a compartment 11* formed at the ceiling of the corridor by a partition 11^a. This compartment lowers the ceiling of the corridor with reference to the ceilings of the adjacent rooms, but it is not noticed, and not only affords economy in space, but serves to confine the heat for proper distribution to the auxiliary ducts.

The space 9 is in communication with a cold air duct 17 leading directly to the distributing unit 13, the cold air entering this duct through the grating 12.

As thus arranged, the auxiliary ducts from the distributor 15 lead through the room partitions, ceiling formations and the like to the various rooms, and it will be quite apparent that all details of the air conditioning system in the parts located above the cellar are more or less concealed, except of course the outlets into the rooms.

The distributor 15 comprises a large somewhat hollow circular portion 30, provided with an extended portion 31, square, round, or rectangular in cross section. From the sides and top of the circular portion 30 extend hollow ring-like projections 32, adapted to receive caps 33. To provide for duct assembly with the distributor, and at the same time afford convenient means for packing in knock-down form, there is fitted to the extended portion 31 a section or sections 34 to reach to a partition. To the bottom of section 34 is fitted preferably round duct sections 35, which extend through the partition to and below the first floor. Below the floor, the ducts 35 engage in flat sections 36 to reach to the furnace.

When a unit is to be assembled, the caps 33 most convenient to the line of the room are removed and a duct or ducts lead to the room or rooms. Then joints capable of adjustment

in any convenient position are attached to the hollow ring-like projections, from which extend auxiliary ducts leading to the various rooms.

As thus far described, the distributor is located in a pocket in an out of the way place, namely in the ceiling of the corridor. There are, however, conditions where it is of advantage to locate the distributor at other points, depending entirely upon the type and condition of the house. For instance, the invention contemplates the provision of a construction to accomplish the result without the necessity of the closet formation. Here, in the attic 20, which is usually unfinished, provision is made to arrange and support the distributor 21 to which the heating duct from the conditioning unit is led through a partition of the house. From the distributor 21, auxiliary heating ducts extend to the various rooms, and the cold air return from the rooms may be led through an opening in the corridor or hall to the conditioning unit.

Obviously where there is no cellar, the furnace and distributor can be located on the ground floor, and the auxiliary ducts lead from the distributor through the partitions to the various rooms, as shown in Figure 6. The point is, by reason of the simple nature of the invention, it can be readily standardized and adapted to fit into the construction of the various forms of small property without special plans and specifications, and can be installed by unskilled labor.

What I claim is:

An air conditioning unit for use in air distributing systems including a hollow body having an enlarged end of true circular form, with the upper and lower walls parallel, and a reduced relatively elongated end, the upper and lower walls of which are on a plane with the upper and lower walls of the enlarged end, and the side walls of which are substantially parallel and merge gradually into the cylindrical wall of the enlarged end, the reduced end being formed with an inlet in its lower wall, the enlarged end being formed with a plurality of outlets in its circular wall, the disposition of the side walls of the enlarged and reduced ends providing for an uninterrupted flow of the heated air from the inlet in the reduced end to the outlets in the enlarged end, whereby the outlets will each receive uniformly heated air for distribution.

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