

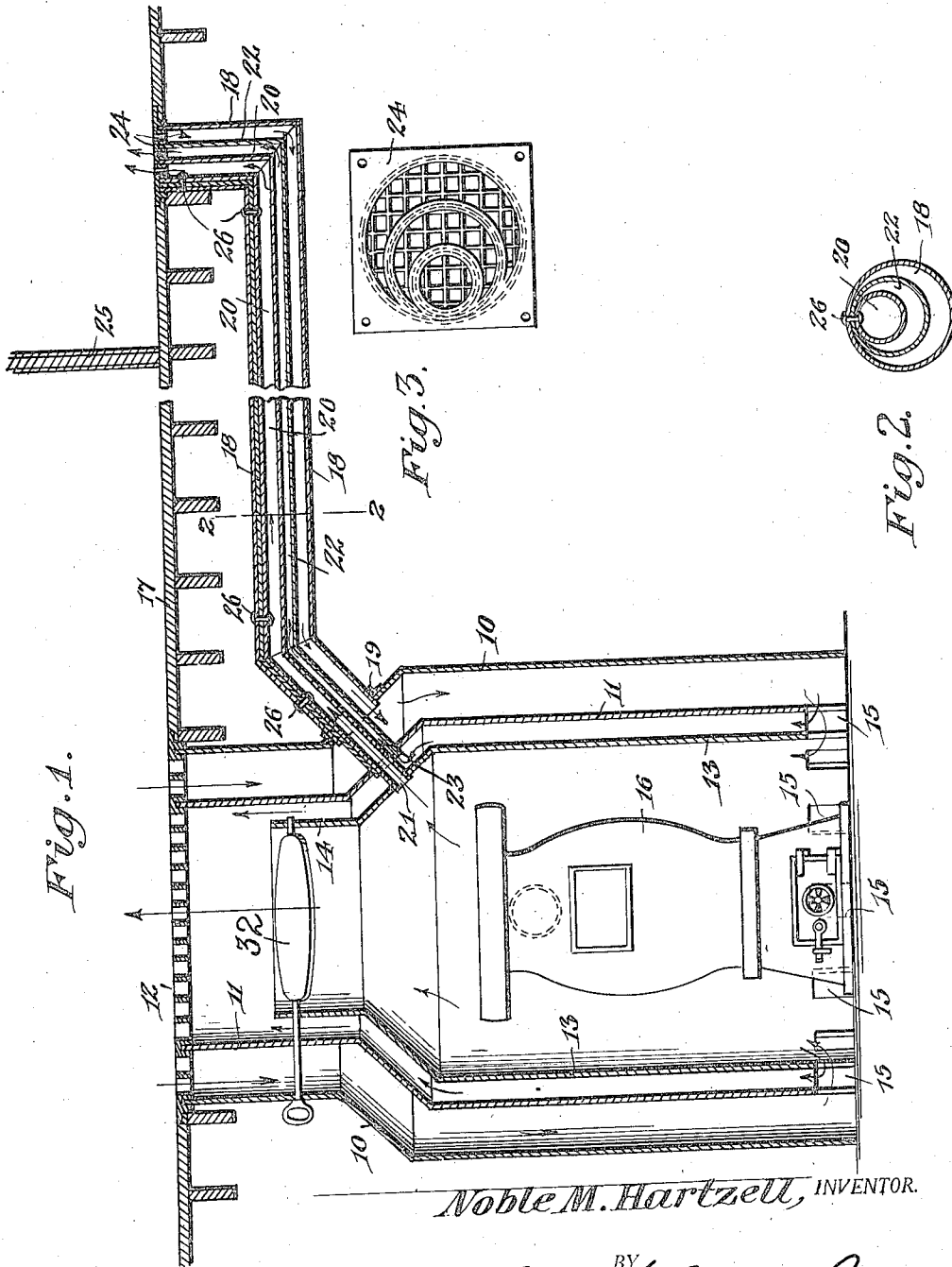
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CONDUCTOR FLUE FOR FURNACES

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CONDUCTOR FLUE FOR FURNACES.

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To all whom it may concern:

Be it known that I, NOBLE M. HARTZELL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Conductor Flues for Furnaces, of which the following is a specification.

This invention relates to air conductor flues for hot air furnaces, stoves, and the like, and has for one of its objects to provide a device of this character with improved circulating means in compact and inexpensively constructed form.

Another object of the invention is to provide a device of this character comprising a furnace including an enclosing shell having a hot air conductor flue leading from its upper part, and a cold air return flue enclosing the hot air conductor flue and leading into the shell at its lower part.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention:—

Figure 1 is a vertical sectional elevation of a conventional pipeless hot air furnace with the improvement applied.

Fig. 2 is a transverse section on the line 2—2 of Fig. 1 of the improved conductor flues.

Fig. 3 is an enlarged plan view of the form of floor register employed in connection with the structure shown in Fig. 1.

The improved flue structure is designed to be employed in connection with the class of furnaces known as "pipeless," or those in which the heated air is conducted directly through one portion of a register in the floor or wall of a room and the cooler air conducted back to the furnace through another part of the same register.

By means of the improved attachment herein shown and described, a portion of the heated air may be conducted from a pipeless furnace to any required distance, for instance to another room or rooms, without interfering with the ordinary operation of the furnace, or in other words transforming a "pipeless" furnace into a "pipe" furnace,

to a limited extent, without changing the construction of the pipeless furnace.

In Figure 1 a conventional pipeless furnace is shown consisting of an outer shell 10, and an intermediate shell 11, the outer shell converging at the upper end and connected to the outer part of a register, represented conventionally at 12, while the intermediate shell is also converged at the upper part and connected to the register at the inner or central part.

Disposed within the intermediate shell is an inner shell 13 spaced from the intermediate shell and converging at the upper part as shown at 14, with the converging portion spaced from the register 12. A plurality of openings 15 are shown between the intermediate shell 11 and inner shell 13 at their lower ends to provide communication between the spaces between the shells. The heater device is represented conventionally at 16 and located within the inner shell, and the floor in which the register is located is represented at 17.

The improved attachment comprises an outer conductor flue 18 connected at 19 into the outer shell 10, an inner conductor flue 20 within the outer flue and communicating at 21 with the inner shell 13, and an intermediate flue 22 between the outer and inner flues and communicating at 23 with the space between the inner and intermediate shells.

At their outer ends the three flues are upturned and connected to a register device 24 in the floor 17 and located at a distance from the main register 12, for instance in another room or beyond a partition represented conventionally at 25.

The inner flue 20 and the intermediate flue 22 are arranged to contact at one side with each other and with the outer flue, as shown, and united at their contacting sides by rivets 26 or other fastening devices. By this means the three flues are firmly united and supported and require no other internal support.

When the flues 18, 20 and 22 are thus arranged the register 24 will be correspondingly arranged, as shown in Fig. 3.

In the ordinary pipeless furnace the heated air rising from combustion means passes upwardly through the central portion of the

register 12 and the cooler air passes downwardly through the outer register into the space between the outer and intermediate shells and thence through the openings 15 into the space within the inner shell and thence out through the inner portion of the register 12, and thus establishing and maintaining a continuous circulation of the air.

In the improved device a portion of the heated air passes out through the inner flue 20 into the room through the inner portion of the register 24, and the cooler air passes down through the outer portion of the register and into the outer flue 18 and thence into the space between the outer shell 10 and the intermediate shell 11, and thence through the opening 15 into contact with the heat generator and thence out through the inner flue 20 into the room again, with which the register 24 communicates, thus creating and maintaining a continuous circulation in the latter room.

A portion of the cooler air also passes upwardly through the space between the shells 11 and 13 and thence through the intermediate flue 22 and out through the intermediate part of the register 24, thus protecting the main hot air flue from the cooler air passing down through the outer flue 18. The air flowing through the space between the shells 11 and 13 and thence through the intermediate flue 18 is cooler than the air flowing out through the main flue 20, hence forms a protecting cooler cushion to the inner flue as above noted.

The improved device is simple in construction, can be readily applied to a pipeless furnace without changing the furnace except forming perforations through the shells to receive the flues, and thus transform the ordinary pipeless furnace into a pipe furnace, but without interfering with the ordinary operation of the pipeless furnace.

A suitable damper device, represented con-

ventionally at 32, will preferably be located in the outer part of the inner shell 13, as shown in Fig. 1.

The preferred embodiment of the invention is disclosed in the drawings and set forth in the specification, but it will be understood that modifications within the scope of the claimed invention may be made in the construction without departing from the principle of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is:—

1. In a hot air furnace comprising an outer shell and an intermediate shell communicating with a room, an inner shell terminating below the upper line of the intermediate shell and spaced therefrom, an outer flue leading from the outer shell, an inner flue leading from the inner shell and enclosed by the outer flue, and an intermediate flue leading from the space between the intermediate and inner shells and extending between the inner and outer flues, and providing an envelope which protects the inner flue from the cooler air passing through the outer flue.

2. A hot air furnace comprising an outer shell and an intermediate shell communicating with a room, an inner shell terminating below the upper line of the intermediate shell and spaced therefrom, an outer flue leading from the outer shell, an inner flue leading from the inner shell and enclosed by the outer flue, an intermediate flue leading from the space between the intermediate and inner shells and extending between the inner and outer flues, said flues being in contact at one side, and fastening means extending through the flues where they contact.

In testimony thereof, I affix my signature hereto.

NOBLE M. HARTZELL.