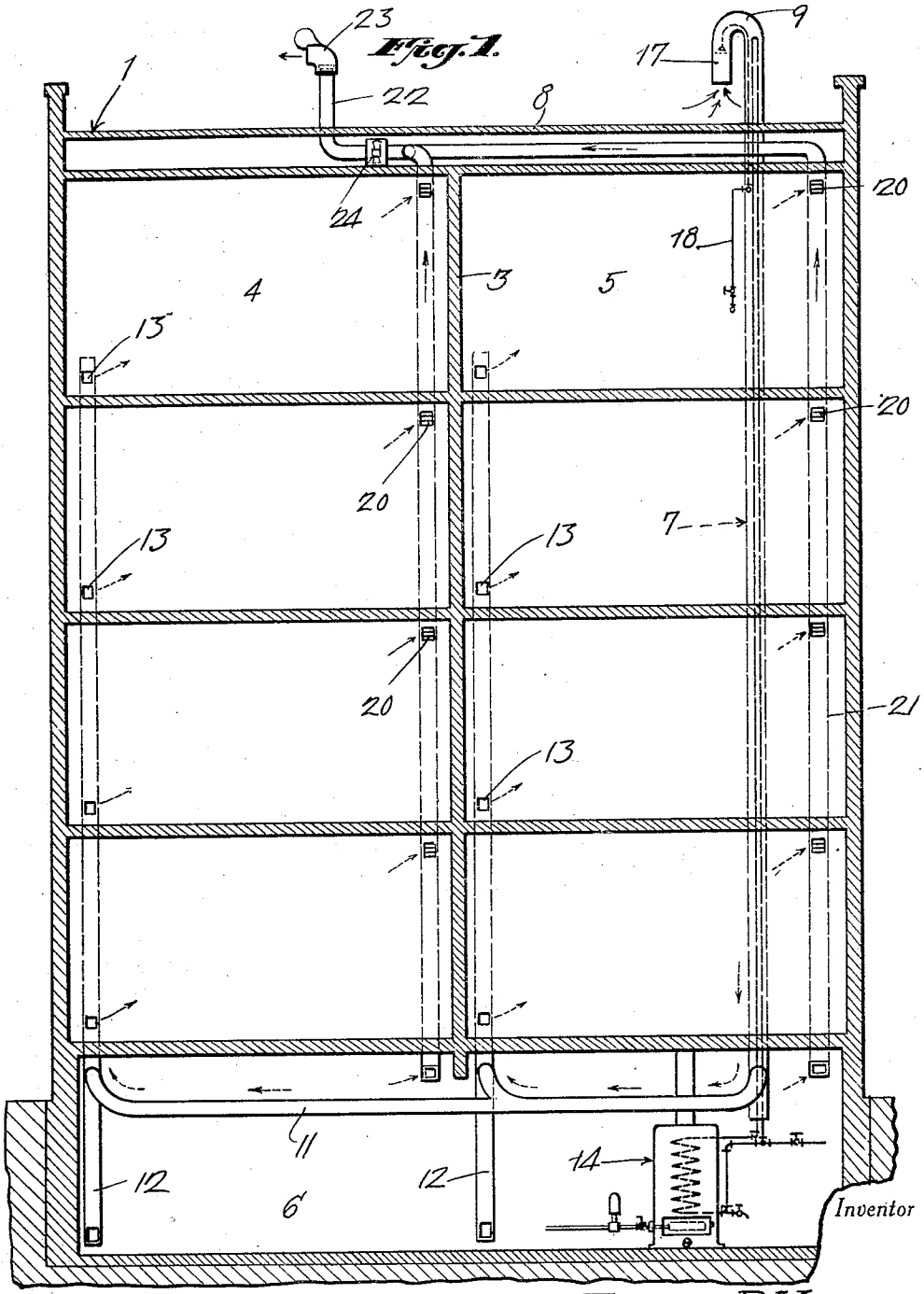
Jan. 19, 1932. E. P. KELLY 1,841,957

VENTILATING AND HEATING SYSTEM

Filed Feb. 7, 1930 2 Sheets-Sheet 1



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Fig. 3.

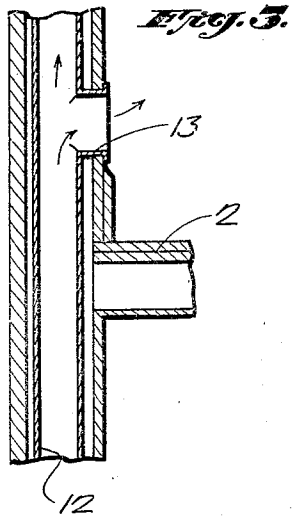


Fig. 4.

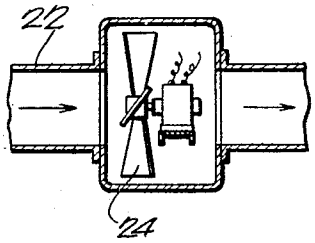


Fig. 2.

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UNITED STATES PATENT OFFICE

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VENTILATING AND HEATING SYSTEM

Application filed February 7, 1930. Serial No. 426,666.

This invention relates to improvements in ventilating and heating systems particularly for homes, office buildings, hotels, apartment buildings and the like.

An important object of the invention is to provide, in a manner as hereinafter set forth, a heating system of the aforementioned character which embodies means for supplying fresh, heated air to a building and for simultaneously exhausting the air from said building in a manner to provide a continuous circulation of fresh air therethrough.

Another important object of the invention is to provide a ventilating and heating system of the character set forth which embodies means for filtering the fresh air before its entrance into the building and which further embodies means for expeditiously cleansing the filtering medium when it is so desired.

Another important object of the invention is to provide a ventilating and heating system which is adapted for use or installation in a building of any height and having any number of rooms therein.

A further object of the invention is to provide, in a manner as hereinafter set forth, a ventilating and heating system of the aforementioned character which embodies mechanical means for accelerating the exhaustion of the air from the building.

Still further objects of the invention are to provide a ventilating and heating system for homes, buildings, etc. which will be simple in construction, strong, durable, efficient in its use and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a vertical sectional view taken through a building and showing a ventilating and heating system constructed in accordance with this invention installed therein.

Figure 2 is a vertical sectional view showing the air intake means, the air filtering means and the heating means which is associated with said intake means.

Figure 3 is a fragmentary vertical sectional view through one of the walls of the building showing one of the fresh air discharge registers therein.

Figure 4 is a detail view in section showing the exhaust fan which is interposed in the exhaust air conduit.

Referring to the drawings in detail, the reference character 1 designates generally the building in which the ventilating and heating system constituting this invention is installed, said building comprising a plurality of stories separated by the floors 2 and each floor divided by the partition 3 to provide the rooms 4 and 5 on each floor. It is to be understood that the building may have any desired number of stories and further that said stories may be divided into as many rooms as desired.

Extending upwardly through the building and preferably through one of the walls thereof from the basement 6 is a tubular air conducting pipe 7 which extends through the roof 8 of said building and terminates in a goose neck 9. The lower end of the air conducting pipe 7 is closed, as indicated at 10 and a conduit 11 communicates with the lower end portion of the conduit 7 within the basement 6. The conduit 11 communicates with the lower end portion of the conduits 12 which extend upwardly through one of the walls of the building and communicate with the rooms therein through the medium of the branch outlet pipes 13 (see Figure 3) which preferably have their free ends covered by a register, not shown. A conduit 12 is to be provided for each tier of rooms in the building.

A water heating unit 14 of any desired type is disposed in the basement 6 of the building and has an elongated substantially inverted U-shaped hot water conducting pipe 15 operatively connected thereto, said pipe 15 being disposed longitudinally through the conduit 7 in a manner to heat the fresh air passing downwardly through said conduit. The pipe 15 is inserted through the closed end

10 of the conduit 7, as clearly seen in Figure 2 of the drawings.

On the free end of the goose neck 9 of the fresh air conduit 7 is a filtering unit 16 for the purpose of cleansing the air as it enters the conduit 7. Disposed above the filtering unit 16 is a spray nozzle 17 mounted on the end of the water pipe 18 and adapted to discharge water on the filtering unit 16 in a manner to clean the same when it is so desired. To this end the water pipe 18 is provided with a control valve 19 which may be situated at any convenient point for use.

Also communicating with each of the rooms 4 and 5 of each story of the building through the medium of the registers 20 are the air exhaust pipes 21 which communicate, at their upper ends, with a common discharge pipe 22 which extends through the rooms 8 of the building and has mounted for rotation on its upper end a wind actuated hood 23. An electrically driven exhaust fan 24 is interposed in the pipe 22 for creating an artificial draft in the conduit 21. As illustrated to advantage in Figure 1 of the drawings the fresh air inlets 13 are disposed adjacent the floors of the rooms and at one side thereof and the exhaust registers 20 are disposed adjacent the ceiling of the rooms and on the opposite sides thereof from the inlet openings 13. It will further be seen that the conduits 12 and 21 extend into the basement 6 of the building and communicate therewith in a manner to also thoroughly ventilate and heat the same.

In use, the fan 24 creates a suction in the conduits 21 which draws the air from the rooms 4 and 5 of the building in a manner which will be readily understood. The exhaustion of the air from the rooms 4 and 5 draws fresh air downwardly through the conduit 7, the conduit 11, the conduits 12 and the discharge outlets 13 and it will thus be seen that a continuous circulation of fresh air is had in said rooms. As the air enters the goose neck it is thoroughly cleansed by the filtering unit 16 and as said air passes downwardly through the conduit 7 it is heated by contact with the hot water pipe 15. As before stated, the filtering unit 16 may be periodically cleansed by discharging water therethrough from the nozzle 17 mounted on the pipe 18 through the medium of the control valve 19.

It is believed that the many advantages of a ventilating and heating system constructed in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction may be had which will fall within the scope of the invention as claimed.

If desired a thermostat may be incorporated in the heating unit to automatically regulate the heat produced thereby.

What is claimed is:—

A ventilating and heating system for buildings of the character described comprising in combination an exhaust conduit communicating with the rooms of the building, an exhaust fan disposed in the conduit adapted to draw air therethrough from the rooms, a fresh air supply pipe communicating with the rooms, a hot water conducting pipe extending longitudinally through the fresh air supply conduit and adapted to heat the air as the same passes therethrough, a heating unit operatively connected with the hot water conducting pipe, said air conducting pipe extending vertically through the building and projecting upwardly through the rooms thereof, a goose neck on the upper end of the fresh air supply conduit, an air filtering unit disposed in the lower end portion of the goose neck, a water spray nozzle mounted above the air filtering unit and adapted to spray water thereon in a manner to cleanse the same, and a control valve disposed in the last named water conducting pipe.

In testimony whereof I affix my signature.

EDWARD P. KELLY.