

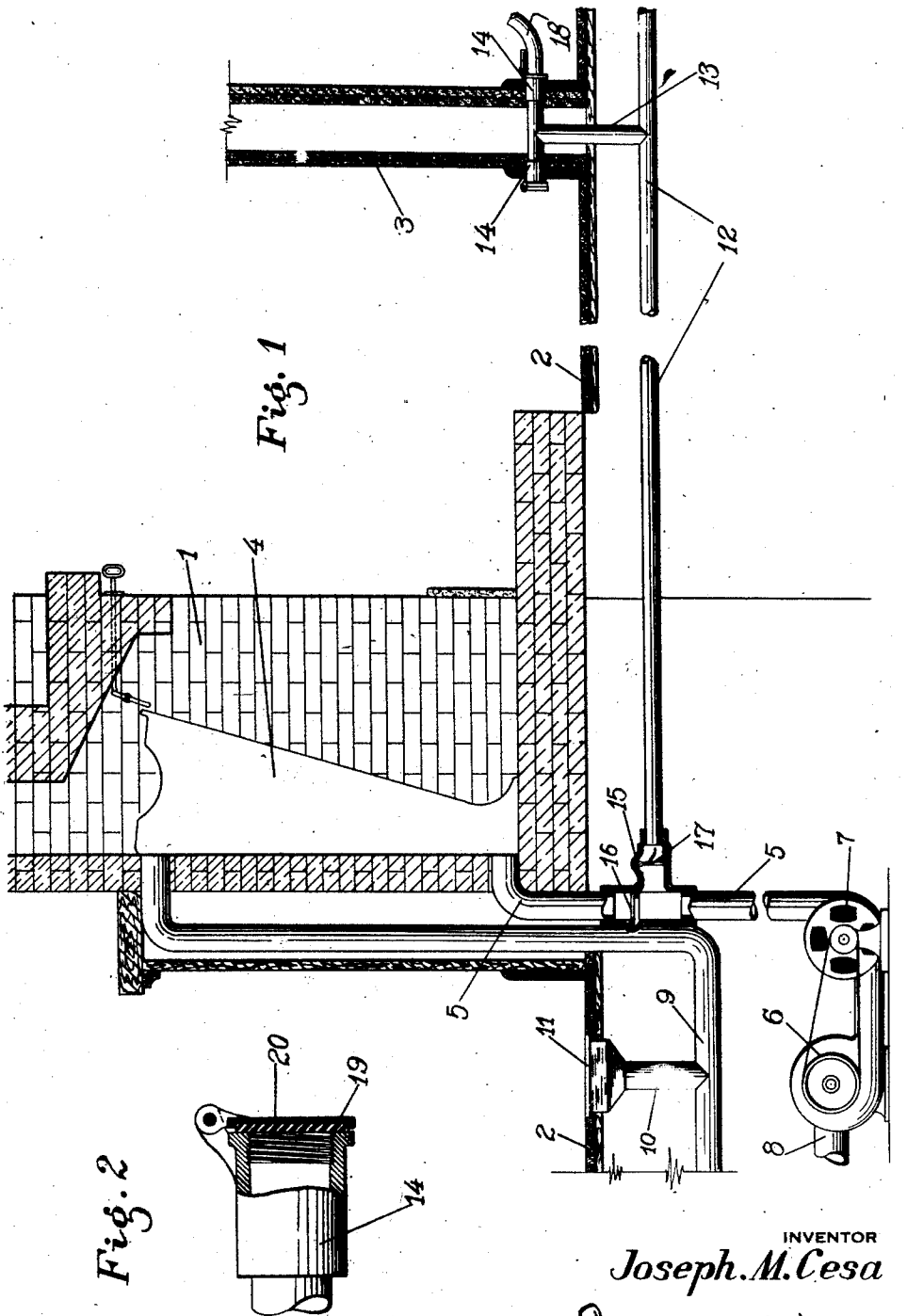
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COMBINED HOUSE HEATING AND VACUUM CLEANING SYSTEM

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UNITED STATES PATENT OFFICE.

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COMBINED HOUSE HEATING AND VACUUM CLEANING SYSTEM.

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This invention relates to combined house heating and vacuum cleaning installations, adapted for use in residential buildings generally.

5 In my co-pending application on a heating apparatus filed March 9th, 1925, under Serial No. 14,116, I contemplated heating all the rooms of a house from a single open fireplace. This was done by means of a
10 system comprising a hot air box in the fireplace, an air pipe leading to the box, an outlet pipe from the box having branches discharging into different rooms, and an electrically driven blower for forcing air
15 through the intake and into the box and outlet pipe.

The principal object of my present invention is to connect an extension arrangement of piping to said system which will
20 enable vacuum cleaning operations to be carried out in the different rooms with the aid of the same blower used in connection with the heating system.

The motor which drives the blower is
25 made reversible, so that when rotating in one direction, the blower will act to force air through the heat pipes; while when the motor is rotating in the opposite direction, the blower serves as a suction fan, causing
30 air to be sucked through the extension piping from the different rooms.

The latter piping is connected to the air intake pipe between the blower and the hot air box, and automatically operating valve
35 means are provided so that when air is being blown into the hot air box no air will be sucked through the extension piping and vice versa; as will be seen hereinafter.

Thus a single motor and blower serve a
40 double function, and the sweeping or vacuum cleaning appliances, to be connected to the individual outlets from the vacuum pipe, may be of the very simplest nature, such as nozzles of any of the different shapes commonly used connected to a length of hose
45 which is attached to any one of the outlets which may be desired.

Such nozzles having no weighty motor and other apparatus to be moved there-
50 with, are easy and light to handle and hence may be used to clean not only floors but walls and shelves, clothes, and the like with but very little physical exertion on the part of the operator.

55 These objects I accomplish by means of such structure and relative arrangement of

parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the
60 several views:—

Fig. 1 is a fragmentary sectional view of a building showing my apparatus installed therein.

Fig. 2 is an enlarged sectional view of a
65 vacuum pipe outlet detached.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes an open fireplace of common construction, 2 the floor of the build-
70 ing, and 3 a conventional partition wall between adjacent rooms.

My heating apparatus, as also shown in the above mentioned co-pending applica-
75 tion, comprises a hot air box 4 placed in and lying against the back of the fireplace.

An air intake 5 leads to the bottom of the box from a combined blower and suction fan 6 which is preferably located in the
80 basement of the building and driven by a reversible motor 7. An intake pipe 8 (or the outlet pipe, as the case may be) of the blower preferably leads outside the building.

From the top of the box 4 an outlet pipe 9
85 leads downwardly to a point below and then runs along under the floor 2, with a branch 10 having an air distributing register 11 leading therefrom in each room to be
90 heated.

The above constitutes my heating system, which I do not materially alter from the previous arrangement.

My vacuum cleaning extension comprises
95 a main suction pipe 12 extending horizontally under the floor 2. Said pipe has laterals 13 projecting upwardly therefrom into the partitions 3, and outlets 14 leading from each lateral to adjacent rooms. These outlets are preferably close to the
100 floor and project through the usual base board, or in some similar convenient location.

The pipe 12 is connected to the pipe 5
105 by means of a special T fitting 15. This fitting has a flap valve 16 above the pipe 12 opening upwardly only; and another similar valve in its side, to control communication with the pipe 12, and opening
110 only away from said pipe or toward the blower.

In operation therefore it will be seen that

if air is forced upwardly through the pipe 5 from the blower, the valve 17 will be closed and the valve 16 opened, allowing air to enter the box 4.

- 5 If the direction of rotation of the blower is reversed, a suction will be induced in the lower portion of the pipe 5. This will cause the valve 16 to be closed preventing air from being drawn through the hot air piping. At the same time the valve 17 will be opened, causing a suctional force to be set up in the pipe 12 and its connected laterals. Therefore if the hose 18 of a vacuum cleaning or sweeping device is attached to any 10 of the outlets 14 the necessary vacuum or suctional action will be had through such device.

In order to eliminate the necessity of providing each outlet 14 with a manually operated valve, I provide a hinged flap-cover 19 over the outer end of each outlet 20 having a rubber gasket 20 on its inner face sealing the entrance to said outlet. When it is desired to use any outlet therefore it is 25 only necessary to lift up the cover of such outlet to make the necessary connection with the hose 18. The operator is then assured, without having to make an inspection at each room, that all the other outlets are closed and that all the suctional force is concentrated at the outlet being used. 30

From the foregoing description it will be readily seen that I have produced such a

device as substantially fulfills the objects of 35 the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to 40 as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:— 45

1. A house installation comprising in combination an air pipe terminating at one end in a room of the house, a combined blower and suction fan connected to the opposite end of the pipe, air heating means 50 interposed in the pipe intermediate its ends, and a vacuum pipe leading from the air pipe between the heating means and the fan to a termination in a room of the 55 house.

2. A structure as in claim 1, in which an automatically operating flap valve is mounted in the air pipe adjacent but beyond the connection of said air pipe with 60 the vacuum pipe and opening away from the latter, and a similar valve opening toward the air pipe, is mounted in the vacuum pipe adjacent the air pipe.

In testimony whereof I affix my signature. 65

JOSEPH M. CESA.