

Nov. 24, 1964

J. FROST

3,158,081

AIR TREATMENT SYSTEM

Filed June 18, 1962

2 Sheets-Sheet 1

FIG. 1

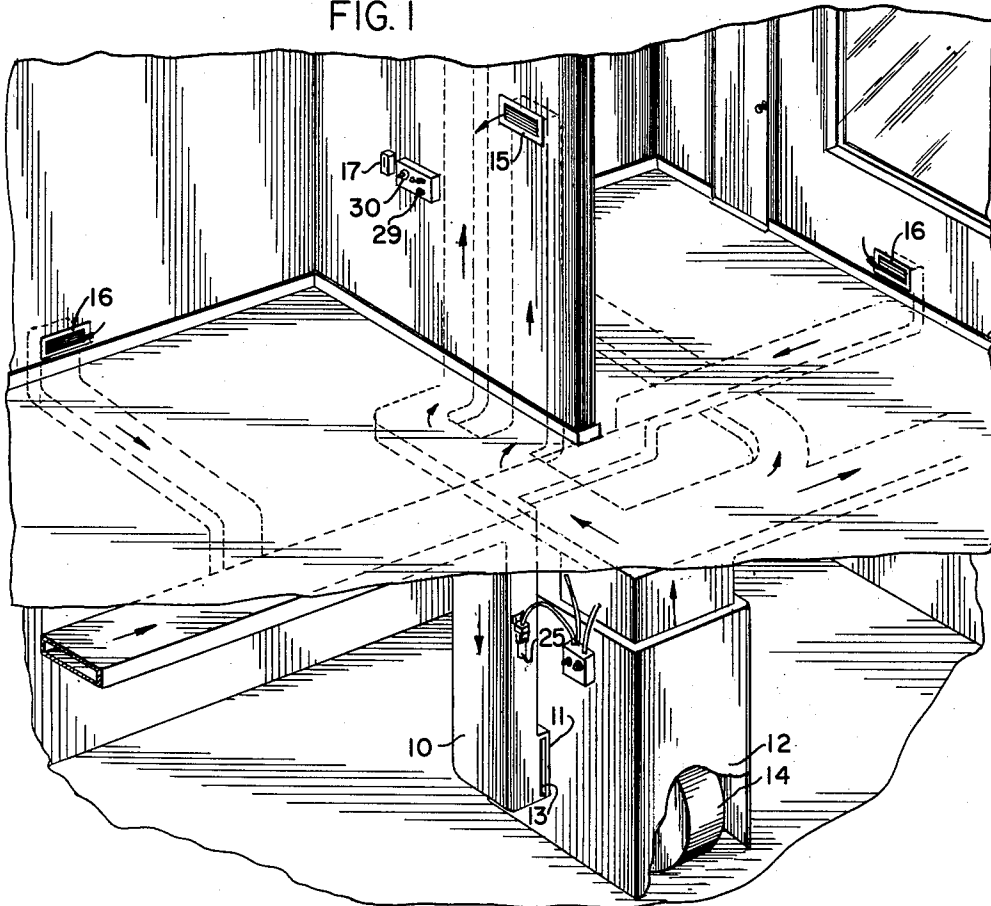
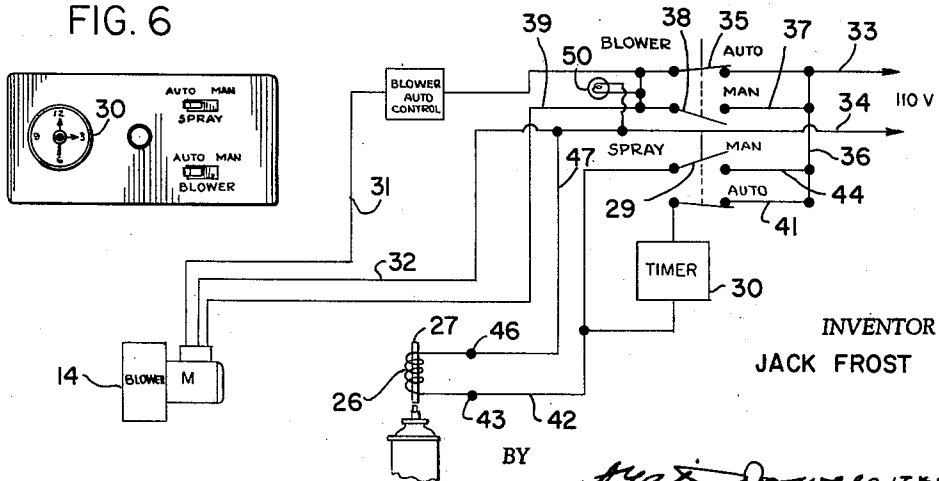


FIG. 6



INVENTOR
JACK FROST

By [Signature]
ATTORNEY

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J. FROST

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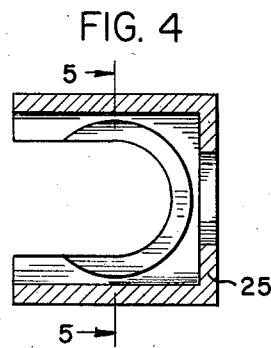
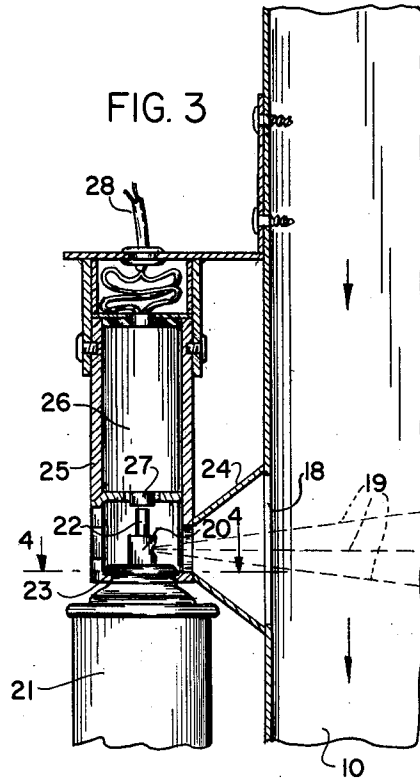
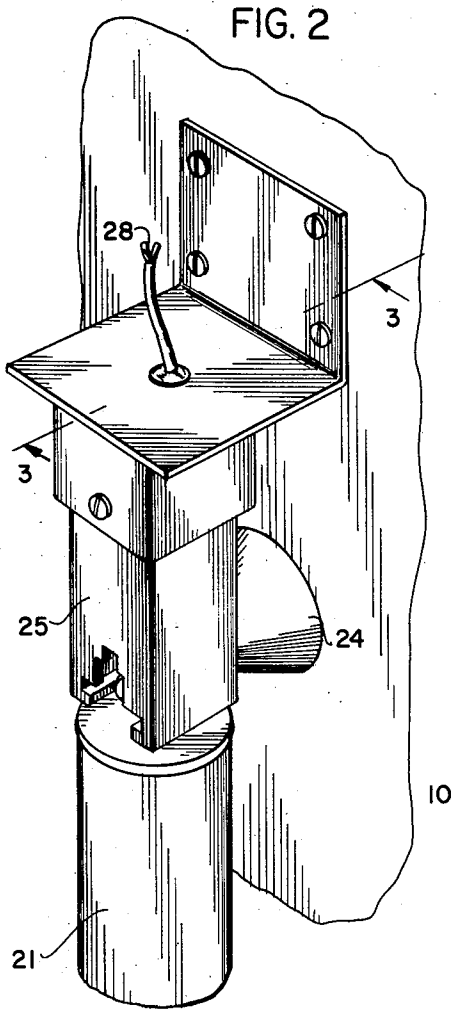
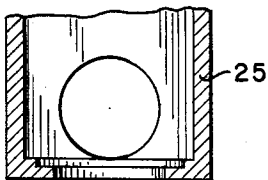


FIG. 5



INVENTOR
JACK FROST

BY

Hyates Lowell III
ATTORNEY

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3,158,081

AIR TREATMENT SYSTEM

Jack Frost, 3055 Glenrich Parkway, Columbus, Ohio

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2 Claims. (Cl. 98-30)

This invention relates to air conditioning within the home, to environmental conditions of the air breathed to sustain life, and to equipment by which the desirable condition and distribution of the air is produced and maintained.

The invention relates particularly to the maintenance and control of the air in a manner to improve the nature and character thereof to produce a desirable and pleasant effect on a person or persons subjected thereto.

Various systems and types of equipment have been employed for the maintenance of air in living quarters at the proper temperature, and humidity, and relatively clean or free from foreign particles and obnoxious odors with little concern to fragrance or pleasant smelling air of a character to bring a favorable response from those who breathe the same and contribute to a more affable cheerful attitude in the personality of those present, thus promoting more harmonious coexistence.

It is an object of the invention to provide mechanism for introducing into air within a restricted area a harmless medium which will impart a pleasant odor to the air sufficient to be detected by the olfactory nerves causing a pleasant reaction reducing chance of imitation and resulting in an affable, cheerful attitude and promoting optimism, as well as fostering relaxation and rest.

Another object of the invention is to provide mechanism for introducing a substance such as mild perfume or other substance for affecting or modifying the condition of the air, which mechanism can be controlled so that it will introduce such perfume either manually or automatically, intermittently or continuously, and at regular time intervals.

Another object of the invention is to provide mechanism which can be readily, simply, and inexpensively, applied to existing equipment, which is capable of utilizing compressed fluid containing an air modifying substance which can be released into the air to produce the desired change and effect.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a fragmentary perspective of a portion of the interior of a habitable structure of the character to which the invention is applied;

FIG. 2, an enlarged detail of the structure for releasing the compressed air modifying fluid;

FIG. 3, a vertical section on the line 3-3 of FIG. 2;

FIG. 4, a horizontal section on the line 4-4 of FIG. 3;

FIG. 5, a section on the line 5-5 of FIG. 4; and

FIG. 6, a detail layout of the system.

Briefly stated, the invention is a means for enlarging the usefulness of a conventional temperature modification or other system in which air is circulated in habitable quarters. In order to modify the nature of the air to a greater or less degree and intended primarily to add fragrance to the air, deodorize, disinfect, or the like, spray means, in the form of a compressed fluid containing the modifying medium is tied into the system and electromagnetic means for releasing such modifying medium is provided as well as control means whereby the release may be automatic or manual; also timing mechanism may be included for the selective operation of such release means.

With continued reference to the drawings, the invention is applicable to a system which circulates air in a habitable area such as that of a system employed for temperature

modification and including wall structure 10 forming part of a heating and cooling system and through which air is circulated as indicated by the arrows.

This wall structure may be in the form of a duct having a connection 11 with the main body 12 of the structure, and if desired the connection 11 between the duct structure 10, and the body 12, may include filter means 13.

In the system air is circulated by a blower 14 through the duct system and is discharged through outlets 15 into the living area with air returned through inlets 16, all of which is of conventional construction. The temperature is controlled by means of a conventional thermostat 17.

The duct system 10 is provided with a relatively small opening 18 (FIG. 3) through which compressed fluid 19 may be injected into the air stream within the duct system, such compressed fluid containing an air modifying medium or substance which may be fragrant, a deodorizer, disinfectant or of other character, such compressed fluid being ejected through a discharge orifice 20 of a conventional or otherwise spray can or container 21 when an operating valve stem 22 is depressed or moved endwise. The spray can has an overhanging retaining or supportive lip or flange 23 by which it may be held in place.

In order to prevent waste a tapered or frusto-conical wall 24 is provided about the discharge opening 18 and such wall 24 may be carried by mechanism for moving the valve stem 22. The structure for holding the can 21 and for operating the valve includes a barrel or housing 25 containing a solenoid 26 having a movable member or core 27 which, when the solenoid is actuated by energization of the coil through the leads 28, causes the movable member 27 to move against the valve stem 22 to open the same. The current to the solenoid may be manually controlled by a suitable means such as a push button 29 or timer 30.

The blower 14 is connected by leads 31, 32 to power lines 33, 34, the lead 31 passing through an automatic switch 35. The line 33 is connected to the blower by a cross line 36 and branch 37 passing through manual switch 38 to lead 39 to the blower. Cross line 36 is connected by a timer branch line 41 through switch 35 and timer 30 to line 42 to one side 43 of the solenoid 26. Cross line 36 is also connected to the lead 42 through a manual line 44 passing through switch 29. The other contact 46 of solenoid 26 is connected by lead 47 to line 34. A signal or indicator light 50 is connected by suitable leads to cross line 34 and either line 37 or 31.

In the operation of the device when the switches are in the automatic position as indicated in FIG. 6, the circuit is completed to the blower through the line 33, automatic switch 35, line 31, line 32 and line 34. At the same time the circuit to the solenoid is completed through line 34, lead 47, contact 46 and contact 43, lead 42, timer 30, lead 41, branch lead 36 back to line 33, under which arrangement the timer 30 controls the operation of the sprayer assuming the completion of the circuit through the automatic switch.

If the switch is in the manual position, the circuit to the blower is through line 33, lead 37, manual switch 35, line 39 to the blower and back through line 32 to line 34. With such circuit arrangement the circuit to the solenoid 26 may be completed from line 33 through branch 36, line 44, manual switch 24, lead 42 to contact 43 and back through contact 46 of the solenoid, lead 47 to the line 34. Under such connection the circuit to the solenoid is energized by manually closing the switch 29.

It will be apparent from the foregoing that the present invention supplements a system by which heating and/or cooling is accomplished, although not specifically limited thereto and it adds to the system mechanism whereby compressed fluid containing an air modifying medium of the desired character, such as with a fragrance of the

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nature and intensity desired, or of an odor counteracting medium, or a substance to purify, or disinfect, and in which the operation may be manual or automatic, as well as under suitable timed conditions.

It will be obvious to one skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawings and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. In a heating and air conditioning system including a central unit, air distribution and return lines, means for circulating air, and control means for said circulating means, spray device means associated with said system in a manner to discharge the spray into the return air line in said system, said spray device means including a container for the material to be sprayed and means for controlling the discharge from said container from a re-

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5 mote location, and including automatic means for causing the intermittent operation of said spray device and additional means for rendering said automatic means inactive to permit said spray device to be operated manually from said remote location when said means for circulating air is in operation.

2. The structure of the preceding claim in which said automatic means for operating said spray device is a timer.

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ROBERT A. O'LEARY, *Primary Examiner.*

MEYER PERLIN, *Examiner.*