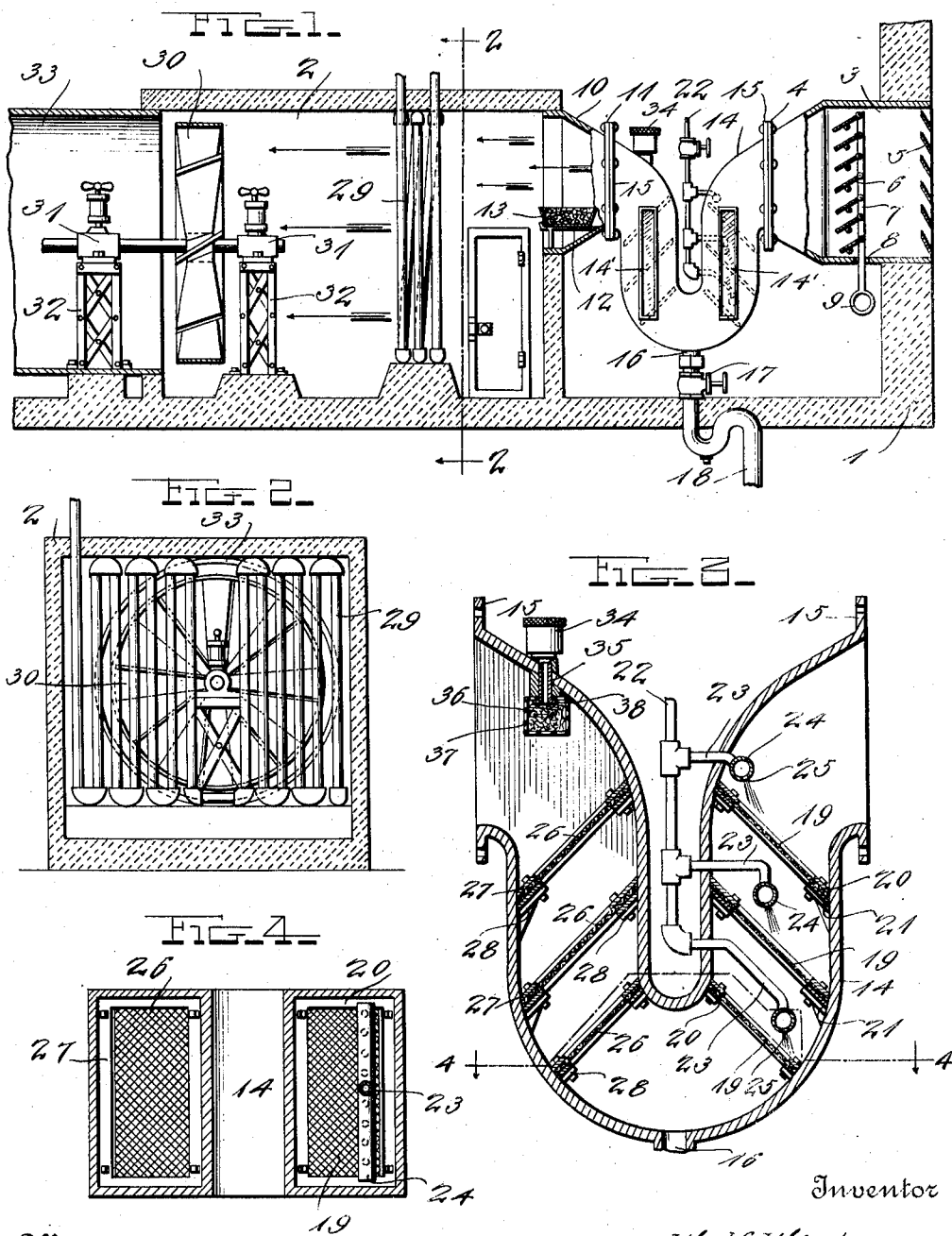


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 APPARATUS FOR TREATING AIR.
 APPLICATION FILED MAY 2, 1912.

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APPARATUS FOR TREATING AIR.

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To all whom it may concern:

Be it known that I, WALTER HAMILTON WINKS, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Apparatus for Treating Air; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in apparatus for treating air.

One object of the invention is to provide an apparatus having means whereby air for ventilating purposes is purified and warmed or cooled as desired before being used.

Another object is to provide an apparatus of this character having an improved construction and arrangement of air washing mechanism and an improved arrangement of screens whereby the air is thoroughly filtered and the surplus moisture removed therefrom.

A further object is to provide means whereby the passage of the air through the purifying apparatus may be controlled.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is longitudinal sectional view of an air purifying apparatus constructed and arranged in accordance with the invention; Fig. 2 is a cross sectional view thereof taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged vertical sectional view through the air filtering and moistening mechanism of the apparatus; Fig. 4 is an irregular horizontal sectional view taken on the line 4—4 of Fig. 3.

In the embodiment of the invention as shown in the accompanying drawings, 1 denotes a portion of a building in which is arranged a room or apartment 2 containing part of the apparatus as will be hereinafter more fully described. In the outer wall of the building is arranged an air inlet flue or pipe 3 which extends into the building to a suitable extent and has its inner end contracted and provided with an outwardly projecting flange 4 as shown. In the outer end of the flue 3 is arranged a series of obliquely disposed spaced slats 5 which form a grating for the outer end of the flue which will per-

mit free entrance of the air, but will prevent the entrance of rain or snow. Arranged in the flue 3 a suitable distance from the slats 5 are shown a series of pivoted slats 6 which are pivotally connected at their forward edges with an operating bar 7 by means of which the slats 6 may be rocked on their pivoted supports to vary the width of the spaces between the same and thereby regulate the passage of air through the flue. The lower end of the bar 7 projects through a slot 8 in the bottom of the flue and is provided with an operating handle 9 as shown.

Arranged in the wall of the apartment 2 at a point opposite to the flue 3 is an air inlet flue or pipe 10 the outer end of which is contracted and has formed thereon an outwardly extending flange 11. On the bottom of the flue 10 is a shelf 12 on which is arranged a receptacle 13 containing lime or other air purifying substance.

Arranged between and connecting the flues or pipes 3 and 10 is a substantially U-shaped air filtering and washing chamber 14 each side or arm of which is substantially rectangular in cross section. The upper ends of the sides of the chamber are turned outwardly in opposite directions and the edges of said upper ends of the chamber are provided with flanges 15 which are bolted to the flanges 4 and 11 of the flues 3 and 10. Connected with the bottom or lowest point of the chamber 14 is a drain pipe 16 having therein a cut-off valve 17 and a goose neck trap 18.

In the side of the chamber 14 which connects with the flue or pipe 3 are a series of air filtering and washing screens 19 each of which is arranged in a frame 20. The screens 19 are spaced equal distances apart and are supported obliquely or at an inclination across this side of the chamber upon suitable supporting lugs 21 secured to the inner walls of the chamber as shown. Arranged in the space between the sides of the chamber 14 is a fluid supply pipe 22 to which are connected branch fluid connecting pipes 23. The pipes 23 project through the adjacent wall of the side of the chamber containing the screens 19 and have their inner ends connected with transversely disposed discharge pipes 24 one of which is disposed over each of the screens 19. The pipes 24 are provided in their lower sides with series of fluid discharging perforations 25 through which the water or other fluid from the pipe

22 is discharged onto the screens 19. It will be noted that the branch pipes 23 gradually increase in length from the upper toward the lower portion of the chamber so that the discharge tubes 24 on the inner ends thereof are disposed in different vertical planes as clearly illustrated in Fig. 3 of the drawings. By arranging the fluid discharging mechanism as herein shown and described it will be seen that the screens 19 are thoroughly saturated with the water or other fluid discharged thereon so that the air in passing through the screens will be washed and the greater part of the impurities and foreign matter filtered therefrom. In the opposite side of the filtering chamber 14 is arranged a series of filtering and drying screens 26 which are arranged in frames 27 and supported obliquely in this side of the chamber by lugs 28 in the same manner as the screens 19 in the opposite side of the chamber. The air after being washed and filtered in its passage through the screens 19 is drawn through the screens 26 which further filter the air and remove therefrom all surplus moisture. The air after passing through the screens 26 is drawn through the flue 10 into the room or compartment 2. In going through the flue or pipe 10 the air passes over the line or other purifying substance in the receptacle 13 on the shelf 12 of the flue and is subjected to the chemical action of such purifying substance. The water or other fluid discharged from the tubes 24 after passing through the screens 19 collects in the bottom of the chamber and is discharged through the pipe 16 and conducted by said pipe to a sewer or other place of deposit. In the chamber 14 are arranged small view openings or "windows 14" which are closed by transparent panels and are provided to permit the condition of the screens to be observed.

Arranged on a suitable support in the room or apartment 2 and spaced a suitable distance from the inner end of the flue or pipe 10 is an air heating or cooling coil 29 which is preferably in the form of one or more rows of vertically disposed pipes connected at their ends by elbows whereby a continuous passage is formed. In cold weather it is designed to supply the coil with hot water or steam whereby the passage of the air between the pipes or coil will be warmed and thoroughly dried, while in warm weather it is designed to supply the coil with cold water whereby the air passing between the pipes will be cooled. It might also be here stated that in cold weather it is intended to use hot water for moistening the screens 9 and washing the air, while in warm weather this screen moistening and air washing water will be cold. At the opposite end of the room or spaced a suitable distance from the coil 29 is an air

suction fan 30 the shaft of which is revolvably mounted in suitable bearings 31 arranged on standards 32 as shown. Connected with the end of the room in rear of the fan 30 is an air conducting chute or passage 33 which may conduct air to any part of the building or other desired place. The fan 30 may be connected with and driven by any suitable power (not shown). In one side of the room or apartment 2 preferably between the coil 29 and the inlet end of the flue 10 is a door whereby access may be had to the room.

In order to impart a pleasant odor to the air passing through the apparatus, I preferably provide means whereby a perfumed oil or extract may be evaporated in a suitable part of the apparatus. In the present instance is shown an oil cup 34 which is arranged on the upper side of the inner arm of the filtering and washing chamber 14. The oil cup 34 is preferably screwed onto the threaded outer end of the nipple 35 arranged in the upper wall of the chamber 14 and said cup is provided with any suitable means for regulating or permitting the contents thereof to discharge slowly drop by drop through the nipple 35. The extract when thus dropped from the oil cup is caught by a sponge or other suitable absorbent material 36 arranged in and supported by a wire catch 37 engaged with and secured to the inner end of the nipple 35 by a nut 38. In thus arranging the oil cup and sponge it will be seen that the air passing through the upper portion of the inner arm of the chamber 14 will take up the odor of the extract from the sponge, this extract thus imparting to the air a pleasant odor of any desired kind such for instance as new mown hay.

While I have herein shown and described the air as being drawn through the apparatus by means of a suction fan operated by a motor, it is obvious that in moderate weather as in the spring and fall of the year the motor fan may be stopped and the air permitted to circulate of its own accord through the apparatus.

While I have herein shown and described my improved air purifying apparatus as being connected with a room or apartment for ventilating or supplying the same with pure air which may be warmed by passage through a heating coil, it is obvious that I may connect the purifying apparatus with a hot air furnace for supplying the same with purified air which is distributed therefrom in the usual manner to various rooms of a building. It is also obvious that the apparatus when arranged on a small scale for supplying a furnace that the air suction fan may be operated by a small motor of any kind connected directly to the shaft of the same.

From the foregoing description taken in

connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

5 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as shown.

10 Having thus described my invention, what I claim is:

1. In an apparatus for treating air, an air inlet flue, a filter connected thereto, a series of air moistening and filtering screens obliquely arranged in said filter, fluid discharge pipes arranged in said filter between said screens and in different planes, and means in said filter for removing the surplus moisture from the air after it is washed.

20 2. In an apparatus for treating air, an air inlet flue, a filter connected with said flue and composed of laterally spaced chambers connected at one end, screens arranged in said chambers, and a fluid supply pipe arranged between said chambers and having a plurality of longitudinally spaced branches extending into one of said chambers between the screens thereof, said branches being of different lengths and discharging at different points on said screens, said filter having a fluid outlet arranged in the connecting chamber between said chambers.

3. An air filter and washer comprising a U-shaped member having annular flanges at its opposite ends, a plurality of air moistening and filtering screens arranged

obliquely in one member of said filter, a fluid supply pipe arranged between the members of said filter and having laterally extending branches projecting into one member of the filter between the screens thereof, said branches being of different lengths increasing gradually from the outer to the inner branch, perforated discharge tubes at the free ends of said branches, and means arranged in the other end of said filter for removing surplus moisture from the air after it is washed.

4. An air filter and washer comprising a substantially U-shaped member having means for connection with a flue, a plurality of longitudinally spaced obliquely arranged screens disposed in each member of said filter, a fluid supply pipe arranged between the members of the filter and having a plurality of longitudinally spaced laterally extending branches extending into one member of the filter between the screens thereof and provided with perforated discharge tubes at their free ends, said branches increasing in length from one end of the member to the other, said filter having an outlet formed in the outer wall of the connecting portion thereof.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER HAMILTON WINKS.

Witnesses:

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