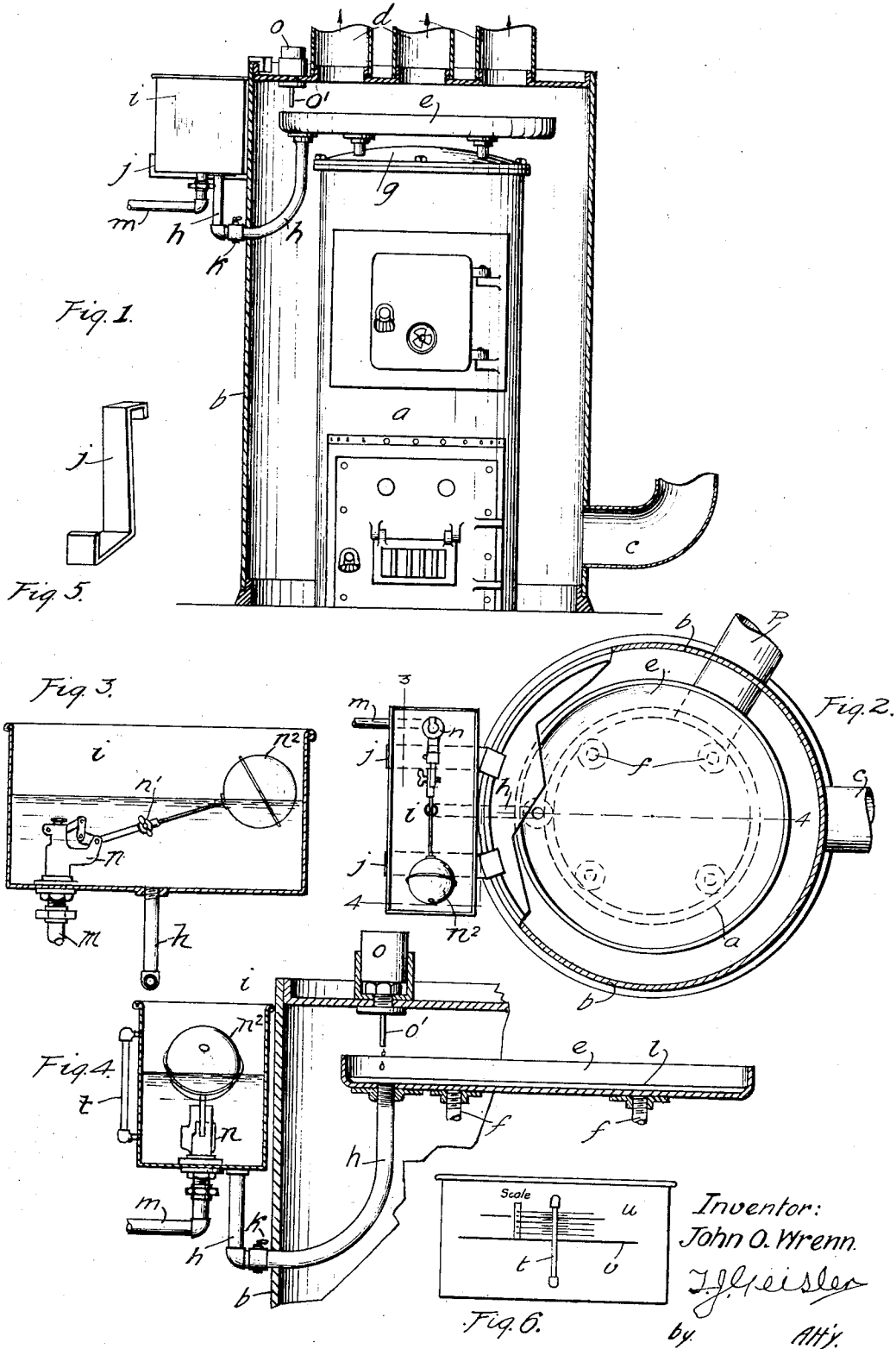


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HUMIDIZING ATTACHMENT FOR HOT AIR FURNACES.
APPLICATION FILED JUNE 3, 1919.

1,389,804.

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HUMIDIZING ATTACHMENT FOR HOT-AIR FURNACES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN O. WRENN, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Humidizing Attachments for Hot-Air Furnaces, of which the following is a specification.

The necessity of having the air in which we live indoor contain a certain amount of moisture or humidity is well understood. Hence the hot air furnace of our home is provided with a water-pan; but observation and experience has shown that this water-pan, as heretofore arranged, does not satisfactorily fulfil its duty.

It is known that a room with a high temperature and a low amount of moisture feels colder than a room with a lower temperature and a greater amount of moisture.

The lack of moisture not only causes discomfort, but accounts for a large percentage of catarrh, colds and other diseases of the mucous membrane. Proper humidity will not only prevent this, but will also save considerably on the cost of heating our homes.

It has been established as a working rule, as it were, that a temperature of 68 degrees Fahrenheit, should be accompanied by a humidity of 60%. The present hot-air furnace produces only a relative humidity of 25% with a temperature of 72 degrees.

To humidify a room of average size requires about one quart of water to be evaporated daily. But the present water-pan of the ordinary hot-air furnace is incapable of performing such duty.

The object of my invention is to provide the hot-air furnace with improved water vaporizing means, capable of producing the desired volume of vapor, and adjustable to the seasonal atmospheric conditions or other special circumstance. And furthermore, to adapt these vaporizing means for continuous operation; that is, without attention being required, thus eliminating the duty of keeping the water-pan filled; also to adapt the vaporizing means for serving to sterilize the air circulated from the furnace through the rooms; or even cause the circulated air to be impregnated with some medicinal material, as may be deemed beneficial in the treatment of bronchial or pulmonary diseases.

It is, furthermore, my object so to ar-

range my device that the same may be readily installed in the present common type of hot air furnace.

I attain my object by providing a hot-air furnace with water-vaporizing means arranged substantially as illustrated in the accompanying drawing in which;

Figure 1 is an elevation of a hot-air furnace of common type, provided with my humidizing means, the outer casing and air pipes being shown in section;

Fig. 2 is a sectional top view of the parts seen shown in Fig. 1;

Fig. 3 is a longitudinal section of the water tank taken approximately on the line 3—3 of Fig. 2;

Fig. 4 is a section approximately taken on the line 4—4 of Fig. 2;

Fig. 5 is a perspective detail of a hanger or bracket by which the water-tank may be supported at the top of the furnace-casing;

Fig. 6 is an exterior view of the tank, showing the means provided for indicating the water level in the water evaporating-pan.

Referring in the first instance to the construction illustrated in Figs. 1 to 5 inclusive:—

a represents the furnace, *b* the outer casing inclosing said furnace, *c* the air intake, and *d* the air-pipes leading to the registers in the rooms.

On the top of the furnace *a*, I mount a shallow water vaporizing pan *e* of large area. Said pan is provided with some convenient means, such as the legs *f*, for supporting it on the dome or top *g* of the combustion chamber.

The water vaporizing pan *e*, is provided with an opening in the bottom to which is connected a pipe *h* leading from the bottom of the water-tank *i*. The water-tank may be supported in place by a pair of hangers or brackets *j*, as illustrated in Fig. 2. The water-tank is preferably supported relatively to the horizontal plane in which the water vaporizing pan is located. The pipe *h* is provided with a valve *k*, so that the discharge from the water-tank *i*, into said pan may be cut off or controlled.

As more clearly illustrated in Fig. 4, the water vaporizing pan *e*, the water-tank *i* and connection are adapted to maintain a constant water level in the pan *e*.

The location of the pan in the lower part of the hot-air furnace, as heretofore the com-

mon practice, is wrong, because at that point the air drawn in from the exterior is still quite cold, and can only absorb and carry a small volume of moisture.

- 5 Not until the circulated air has reached the upper part of the furnace has it been sufficiently heated and expanded; and therefore the water-pan should be located in such higher level.
- 10 Furthermore, the volume of water contained in the water evaporating pan *e* should be varied in accordance with the requirement of the season. The cold, dry atmosphere of winter must have introduced into
- 15 it a larger volume of moisture in order to render the indoor air comfortable. Therefore the volume of water maintained in the pan *e* should be such as to induce rapid evaporation, which result is best induced in
- 20 a thin sheet of water of considerable area exposed to the heated currents of air passing over it. In warmer weather it would be better to maintain a greater depth of water in said pan, which would become heated
- 25 more slowly and therefore evaporate at a lesser rate.

- To provide for the convenient observation of the depth of water in the pan *e*, I provide the tank *i* with a glass *t* adapted
- 30 to indicate the level in the tank, and on the exterior of the latter I provide a scale *u* of which the base line *v* registers the bottom of the water evaporating pan *e*, and the graduations above such base line may be in
- 35 eighths of an inch or as otherwise as deemed convenient.

Hence by observing the height of the water column in the glass *t*, one is informed of the depth of water in the pan *e*.

- 40 In order to render my humidizing means automatic and continuous in action, and so

as not to require any attention, I prefer to connect the water-tank *i* by a pipe *m* with the water service of the house, and control the admission of water into the tank *i* by means of a float valve of a construction common in flush tanks. 45

The bracket arm *n* on which the lever of the float valve is pivoted is made with a joint as at *n'* including a thumb-screw, so that the position of the hollow globe *n²* may be varied in order to vary the water level in the tank *i*. 50

In order to provide means for medicating the water vapor, I provide a container *o*, having a drip-tube *o'* discharging into the water-vaporizing pan *e*. 55

P in Fig. 2 represents the pipe connecting the combustion chamber to the stack.

I claim:

1. In a hot air furnace, humidifying means comprising a water-pan located at the top of the furnace within the outer casing thereof, and an automatic water feed for said water-pan whereby a constant sheet of water is maintained in the latter, said automatic water feed being adjustable for varying the depth of said sheet of water according to atmospheric requirements. 60

2. In a hot air furnace, humidifying means comprising a water-pan located at the top of the furnace within the outer casing thereof, a tank, a connection thereof with said water-pan, and a float valve controlling the flow of water from the tank into the water-pan, said valve being adapted to maintain a constant sheet of water in the latter, and being adjustable for varying the depth of said sheet of water according to atmospheric requirements. 70 75

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