L. TÜRK.

DRYING AND HEATING APPARATUS.

APPLICATION FILED SEPT. 17, 1908.

931,098. Patented Aug. 17, 1909.

Fig. 1

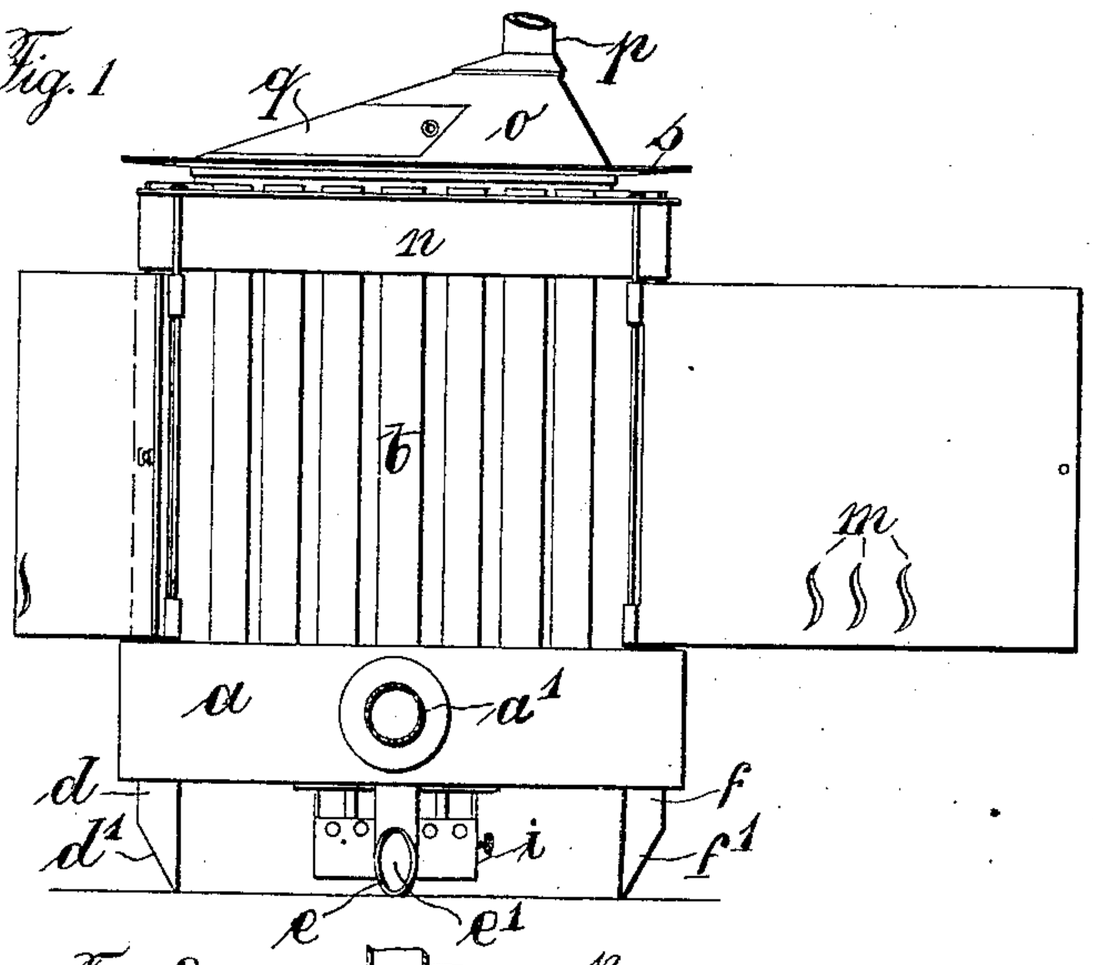


Fig. 2

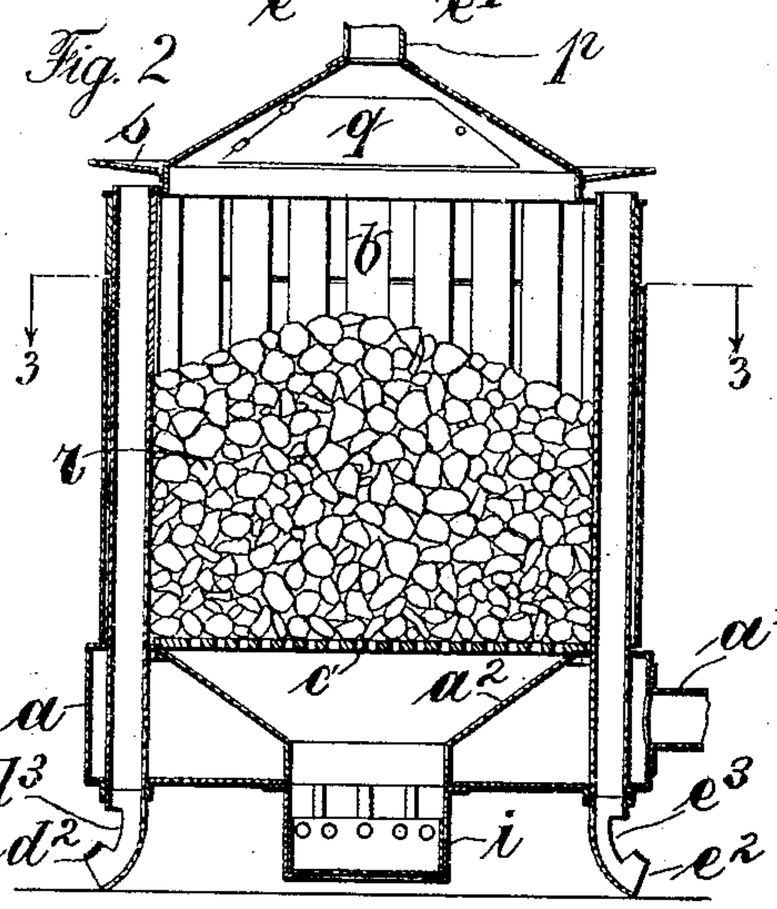


Fig. 4

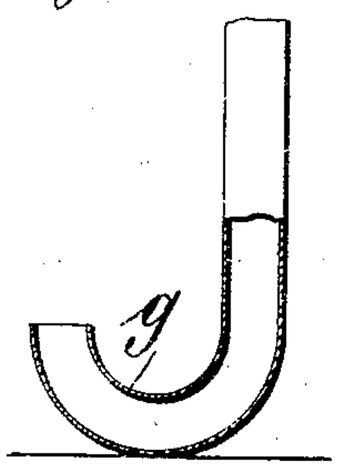


Fig. 5

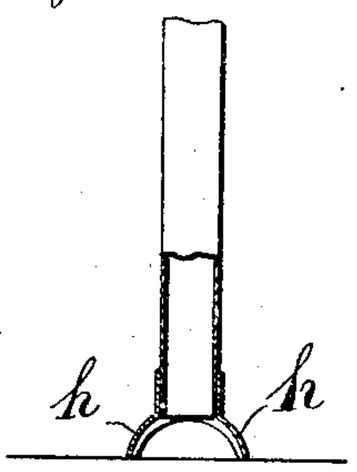
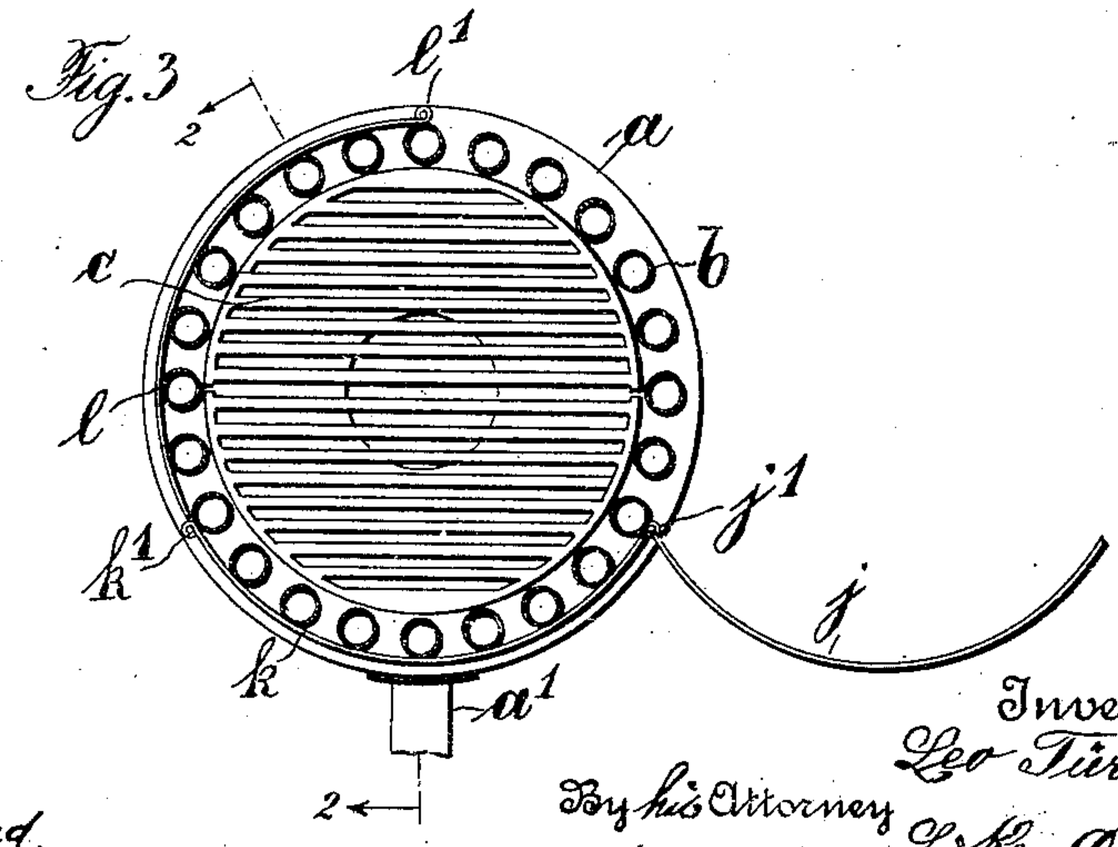


Fig. 3



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UNITED STATES PATENT OFFICE.

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DRYING AND HEATING APPARATUS.

No. 931,098. Specification of Letters Patent. Patented Aug. 17, 1909.

Application filed September 17, 1908. Serial No. 453,407.

To all whom it may concern:

Be it known that I, LEO TÜRK, a citizen of the Empire of Germany, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Drying and Heating Apparatus, of which the following is a specification.

This invention has reference to improvements in drying and heating apparatus.

It is the special object of my invention to produce such apparatus as are used in the drying of new buildings and damp and freshly plastered rooms in such a manner that not only the surface of the walls is dried but also the interior. The novel apparatus further is so constructed that the coldest air in the room, which is on the floor, is passed through the apparatus and heated while the damp air is passing through the apparatus and finally into the smoke pipe and out. Furthermore fresh air is constantly supplied which rapidly absorbs the moisture. This damp air passes through the apparatus and out of the room. In this way rooms in new buildings or freshly plastered rooms are quickly and effectively dried in a hygienic manner because the undesirable combustion gases and the moist air are constantly removed. The apparatus further is provided with means to dry quickly and effectively certain extremely wet portions of a room only, as for instance, damp corners or the like without subjecting surrounding objects to the action of the heat such as woodwork which may bend and thereby be ruined. Means are also provided for warming the air when entering the apparatus and other means for effecting great draft. In addition to these main objects it has been sought to produce an apparatus which does not look unsightly or clumsy and of such form that it may be easily conveyed into houses having narrow staircases so that hoisting through windows is rendered unnecessary.

The invention further consists in the construction and arrangement of the detail parts all as will be fully described hereinafter with reference to the accompanying drawing in which:

Figure 1 represents in side elevation a drying and heating apparatus embodying in desirable form the present improvements. Fig. 2 shows in vertical cross section on line 2, 2 of Fig. 3, an apparatus somewhat modified as to the feet. Fig. 3 is a horizontal cross section of same on line 3, 3 of Fig. 2, and Figs. 4 and 5 show certain parts in detail view.

Similar characters of reference denote like parts in all the figures.

In the drawing *a* represents an air box which is circular in shape as seen from Fig. 3 of the drawing. A tube *a'* is provided on the air box through which fresh air from outside is constantly supplied to the apparatus.

In the circumferential top portion of the circular air box there are vertically mounted a plurality of metal tubes *b* which are in communication with the air box and open at the top. Any desired number of tubes may be provided in accordance with the size of the apparatus, twenty-four are shown in Fig. 3 of the drawing. The tubes are rigidly mounted in the air box. A circular grate *c* composed of two halves is located on top of the air box extending close to the tubes *b* which form a vertical circular wall for the fuel.

So far the tubes *b* have been described as in communication with the air box *a*. However a plurality of tubes extend through the air box and form the feet for the device as shown in Figs. 1 and 2. Three such tubes are illustrated, but any suitable number may be provided. These three tubes *d*, *e*, *f*, are not in communication with the air box, they merely pass through same as shown in Fig. 2. These tubes extend a certain distance below the air box and are provided with openings *d'*, *e'*, *f'*. Thus these tubes serve a double purpose, they act as the feet of the apparatus but their principal function is to remove the cold and dry air from the floor when the apparatus is in use and it is well known that the colder the air the less the moisture it contains. This is an essential feature of the apparatus because a quicker and better drying is effected by virtue of the increased ventilating thus produced. The openings *d'*, *e'*, *f'*, in the tubes forming the legs preferably are produced by simply cutting off slantingly the lower ends as shown in Fig. 1, or a special piece d^2, e^2 may be secured to the respective tube as shown in Fig. 2 wherein the apparatus is shown in vertical section. In these pieces d^2, e^2 openings d^3, e^3 are cut somewhat above the bottom end of each tube to prevent any clogging of the tubes by coarse dirt, sand and the like usually found in new buildings. In

Fig. 4 another modified form of the foot is shown which has an upwardly bent portion *g*. In Fig. 5 another modified form of the foot is illustrated having small outward extensions *h* and a central opening through which the air enters.

The air box *a* forms inside a slanting surface a^2 and an ash box *i* is attached to the bottom portion of the air box having openings for permitting the ingress of the air to the heating chamber.

In order to render the apparatus useful for protecting certain parts of the room and for drying extremely wet portions, such as corners or repaired portions my novel apparatus is provided with a mantle or envelop composed of a plurality of sections of which three are shown in Fig. 3, however any other desired number may be provided. These curved sections or parts *j*, *k*, *l* are moving on hinges *j'*, *k'*, *l'* and form part of a circle. This divided mantle extends from the air box up to near the open top ends of the tubes. When the mantle is open the surrounding damp air will be taken up by the burning fuel and finally passed through the smoke pipe. In rooms which have been finished but still are wet the apparatus is preferably placed in the center and the three or more members of the mantle partly opened so that the heat cannot strike directly woodwork, painted portions on the wall or marble mantel-pieces, etc. which may be damaged when an apparatus of former construction is used. Thus the sectional mantle or envelop is a protective means greatly increasing the usefulness of the apparatus and rendering it adaptable for manifold purposes. The mantle or envelop may be provided with openings or perforations *m*.

In order to increase the efficiency of the apparatus for quick drying, the draft should be augmented. I have discovered in practice that a broad strip of metal sheeting *n* surrounding the air tubes *b* right below their openings and extending down to the mantle or envelop, greatly increases the draft even if the mantle is completely open, while the mantle iself which is preferably made of sheet iron, controls the supply of the surrounding air according to how far it is opened and closed.

A roof *o* is suitably secured at the top of the apparatus so arranged that the combustion gases pass through it into the smoke pipe *p*. This pipe is advantageously located somewhat out of the center line of the roof so as to allow of providing a door *q* therein through which the two single parts of the grate *c* and the fuel *r*, see Fig. 2, are conveniently introduced.

Right above the open top end of the hot air tubes *b*, there is secured an annular guard *s* which directs the hot gases sidewise whereby they are more evenly distributed. This has been so arranged that the combustion gases and the hot air cannot mingle with each other.

The operation of the device is very simple. After the apparatus has been placed in the desired location in the room to be dried, the air supply pipe *a'* is connected with the atmosphere outside of the room and to the smoke pipe there is attached a duct or pipe for conducting away the combustion vapors. When the fire is burning the hot air tubes are heated which in turn heat the air passing through same. The fresh air is gradually warmed in the air box and the coldest and dryest air in the room, which is on the floor, is passed through the tubes constituting at the same time the legs of the apparatus. The air for supporting combustion however is solely taken from the room and the moisture contained therein carried through the heating chamber and passed off through the smoke pipe.

It is self evident that with the apparatus as above described no discoloration of the walls can take place as is often the case when open coke heaters or braziers are used whose combustion gases pass into the room and produce usually a yellowish tint on the walls. By the constant renewal of the air however new quantities of heated air are continually circulated.

I claim as my invention:

1. A drying and heating apparatus for drying the rooms of new buildings, comprising an air box, a plurality of tubes arranged thereon on its outside portion in communication with the air box and open at the top, a plurality of air tubes between the others extending through the air box, forming the legs of same and having openings at the bottom for taking up the cold and dry air from the floor, means within the apparatus for heating the air passing through the air box, and means for conducting the combustion vapors out of the room to be dried.

2. A drying and heating apparatus of the type described, comprising a circular air box, a pipe thereon for introducing fresh air from the outside, a plurality of air tubes peripherally arranged thereon in communication with the air box and open at the top, a plurality of air tubes between the others not in communication with the air box, passing through same, extending beyond the air box, forming the legs of the apparatus and having openings at the bottom for taking up the cold air from the floor, a metal strip surrounding the air tubes near the open top ends, means for heating the air passing through the air tubes, and means for conducting away the combustion vapors.

3. A drying and heating apparatus of the type described, comprising a circular air

box with a tube for introducing fresh air from the outside, a plurality of air tubes circumferentially arranged thereon, a plurality of air tubes between the others, extending through the air box, forming the legs of the apparatus and having openings at the bottom, a metal strip surrounding the air tubes near their open top ends, a divided envelop surrounding the air tubes moving on hinges, means for heating the air in the air tubes, and means for conducting away the combustion vapors.

4. In a drying and heating apparatus of the type described, a circular air box with a tube for constantly introducing fresh air, a plurality of air tubes circumferentially arranged thereon, a plurality of tubes between them passing through the air box, forming the legs of the apparatus and having open ends at the bottom, a divided envelop moving on hinges surrounding the air tubes when closed, and a metal strip above the envelop surrounding the air tubes right below their top ends.

5. In a drying and heating apparatus of the type described, an air box with a tube for constantly introducing fresh air, a plurality of air tubes arranged on the outside top portion of said air box, a plurality of air tubes between same passing through the air box, forming the legs of the apparatus and having openings at their bottom ends, and a strip of metal sheeting surrounding the air tubes near their top ends.

6. In a drying and heating apparatus of the type described, an air box with tube for constantly introducing fresh air from the outside, a plurality of tubes arranged on its top outside portion, and plurality of tubes between them passing through the air box, forming the legs of the apparatus and having openings at their bottom ends for taking up the cold and dry air from the floor.

Signed at New York, N. Y., this 14th day of September, 1908.

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