

G. VON SCHAPRINGER.
 APPARATUS FOR REGENERATING AIR.
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1,022,602.

Patented Apr. 9, 1912.

Fig. 1

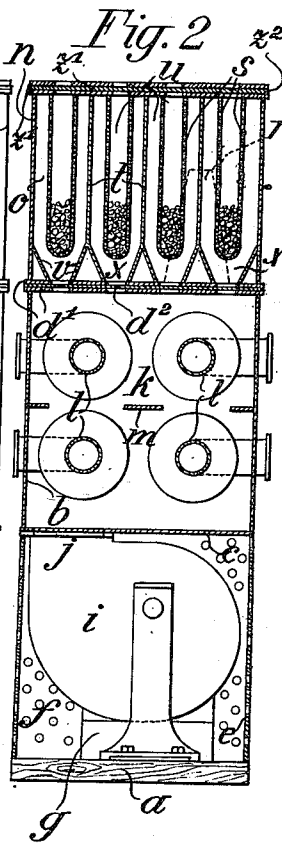
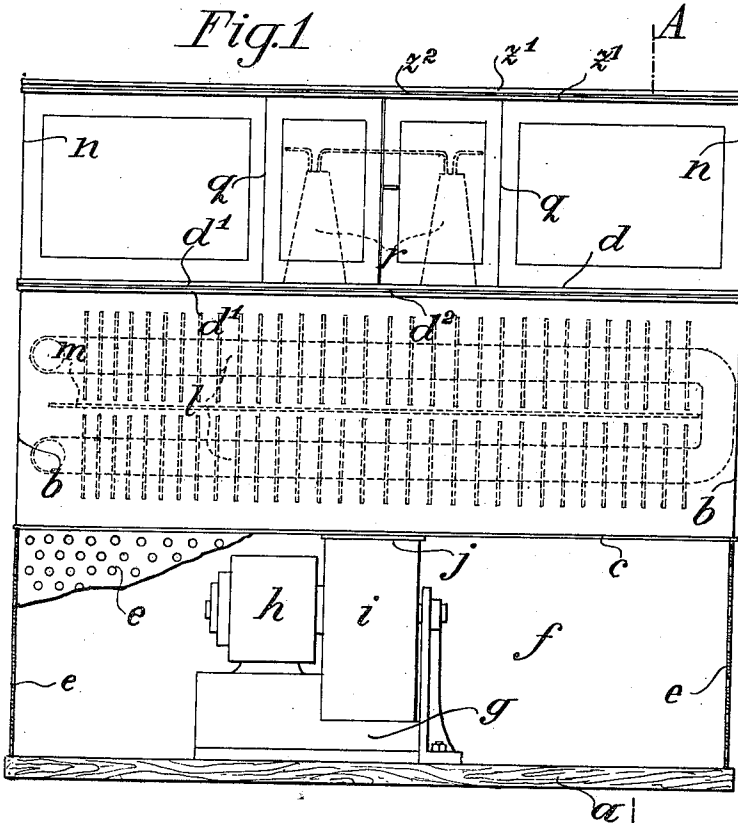
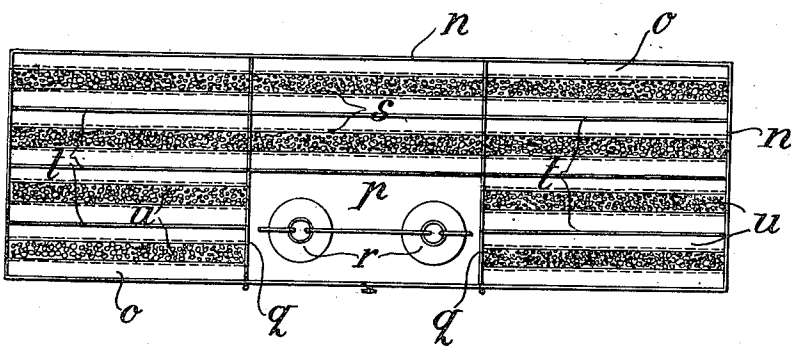


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE VON SCHAPRINGER, OF VIENNA, AUSTRIA-HUNGARY.

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1,022,602.

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To all whom it may concern:

Be it known that I, GEORGE VON SCHAPRINGER, a subject of the Emperor of Austria-Hungary, residing at Vienna, Austria-Hungary, have invented certain new and useful Improvements in Regenerating Air, of which the following is a specification.

In rooms or chambers intended for the inhalation of radium emanations it is of importance to regenerate the spent air exhaled by the patients and to render it again respirable. In accordance with the present invention, this regeneration of the spent breathing air is obtained by means of an apparatus which is mounted in such rooms or chambers, takes up the exhaled air, cools the same in a refrigerating device and then forces it through a medium that absorbs the carbonic dioxid, whereupon the thus regenerated air is allowed to be discharged again in the room or chamber.

The apparatus consists essentially of a box or receptacle that is connected on the one side with an exhaustor or the like and on the other side with the emanation chamber and comprises a cooling device and an absorption chamber separated from the latter by a filtering layer.

In the accompanying drawings Figure 1 shows a side elevation of an apparatus according to the present invention, Fig. 2 is a vertical cross section on the line A—B of Fig. 1 and Fig. 3 is a plan thereof with the top plate removed.

On the base plate *a* is mounted a box *b* subdivided by two horizontal partitions *c*, *d* into three superposed cells or compartments. The lowermost compartment *f* lined on all sides by perforated metal sheets *e* contains an electromotor *h* mounted on a pedestal *g* and an exhaustor *i* or similar suction device for exhausting the air, driven by the said electromotor. The discharge tube *j* of the exhaustor opens by means of an aperture in the partition *c* into the second box-compartment *k* which is closed on all sides. Within this compartment *k* is arranged the ribbed refrigerator or cooler *l* through the pipes of which flows the cooling medium. The spent air forced into this compartment *k* by the exhaustor flows along the outer surface of the ribs of the refrigerator and becomes cooled. In order to maintain the air in intimate contact with the cooling pipes and the ribs of the refrig-

erator, deflecting surfaces *m* may be fitted at suitable places within the compartment *k* between the cooling pipes *l*.

The horizontal partition *d* which closes the compartment *k* at the top consists of two metal plates *d'* *d'* which are arranged at a certain distance apart and are provided with perforations and between which is interposed a filtering cloth *d²*. The spent air, which has been forced into the compartment *k* and has been cooled therein, but which is not yet regenerated, passes through the perforations of the metallic plates *d'* *d'* and the filtering cloth *d²* into the next higher compartment *n* of the box. This compartment is subdivided by the partition walls *q* *q* into three separate sections *o*, *p*, *o'* the arrangement being such that the cooled air, coming from the compartment *k* enters only into the two exterior sections *o*, *o'* of the compartment *n*. The middle section *p* is intended for holding the receptacles *r* which contain and furnish the emanation means, whereas the two exterior sections *o* *o'* are provided with receptacles *s* which are made of perforated metal plates or of wire cloth bent so as to form a U-shaped cross section and which are filled with a material capable of absorbing carbon dioxid, such as soda-lime or caustic potash. Each of the sections *o*, *o'* is subdivided by the partitions *t* into separate cells *u* and in each cell *u* is suspended a receptacle *s* in such a manner as to enter with its lower end into a funnel-shaped space *x* separated from the adjacent spaces by means of the inclined roof-shaped strips *v* (Fig. 2). The apertures provided in the top-plate *d'* of the partition wall *d* open into the said spaces *x*. The entire apparatus is closed at the top by means of two perforated metallic plates *z'* *z'* arranged at a certain distance apart and having a filtering cloth *z²* placed between the same. The spent air that has been cooled in the compartment *k* and has been freed of impurities by its passage through the filtering layer *d²* flows now through the absorbing medium contained in the receptacle *s* and is thus freed from carbon dioxid. It then passes through the upper filtering layer *z²* where it is entirely freed from dust whereupon it returns again as clear respirable air into the room or chamber in which the inhalation of the emanation means takes place.

Claim.

Apparatus for regenerating air, comprising, a box divided into superposed compartments, a suction device in the bottom compartment for exhausting the exhaled air, a
5 cooling device, formed of ribbed tubes, in the next higher compartment, an absorption device, consisting of perforated sheet metal receptacles suspended in separate cells, pro-
10 vided in the top compartment and filled with absorbing material capable of absorbing the carbon-dioxid in the exhaled air,

and an air filter, closing the apparatus at the top and forming a communication between the compartment containing the ab- 15 sorption device and the surrounding atmosphere.

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

GEORGE VON SCHAPRINGER.

Witnesses:

JOSEF RUBARCH,
AUGUST FUGGER.