

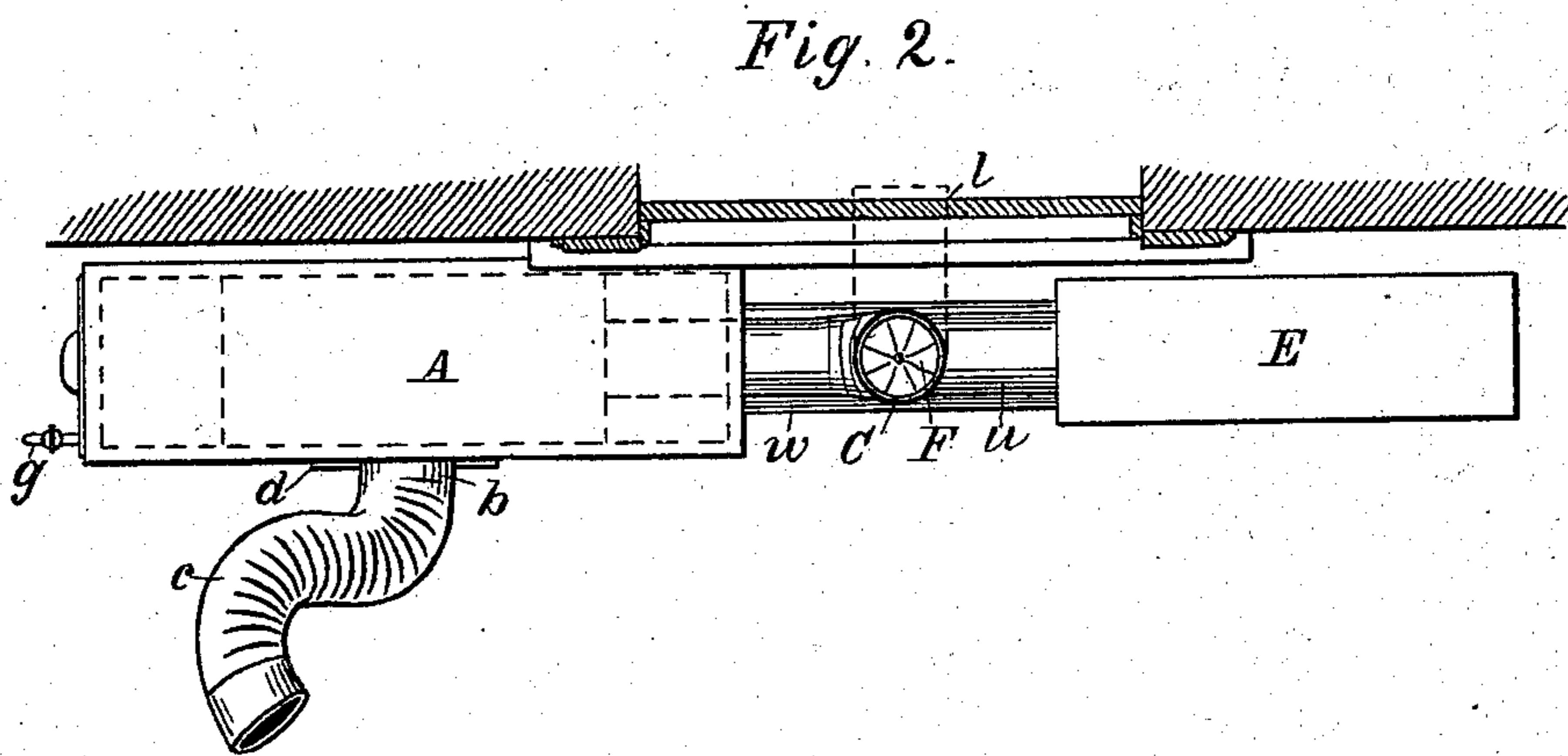
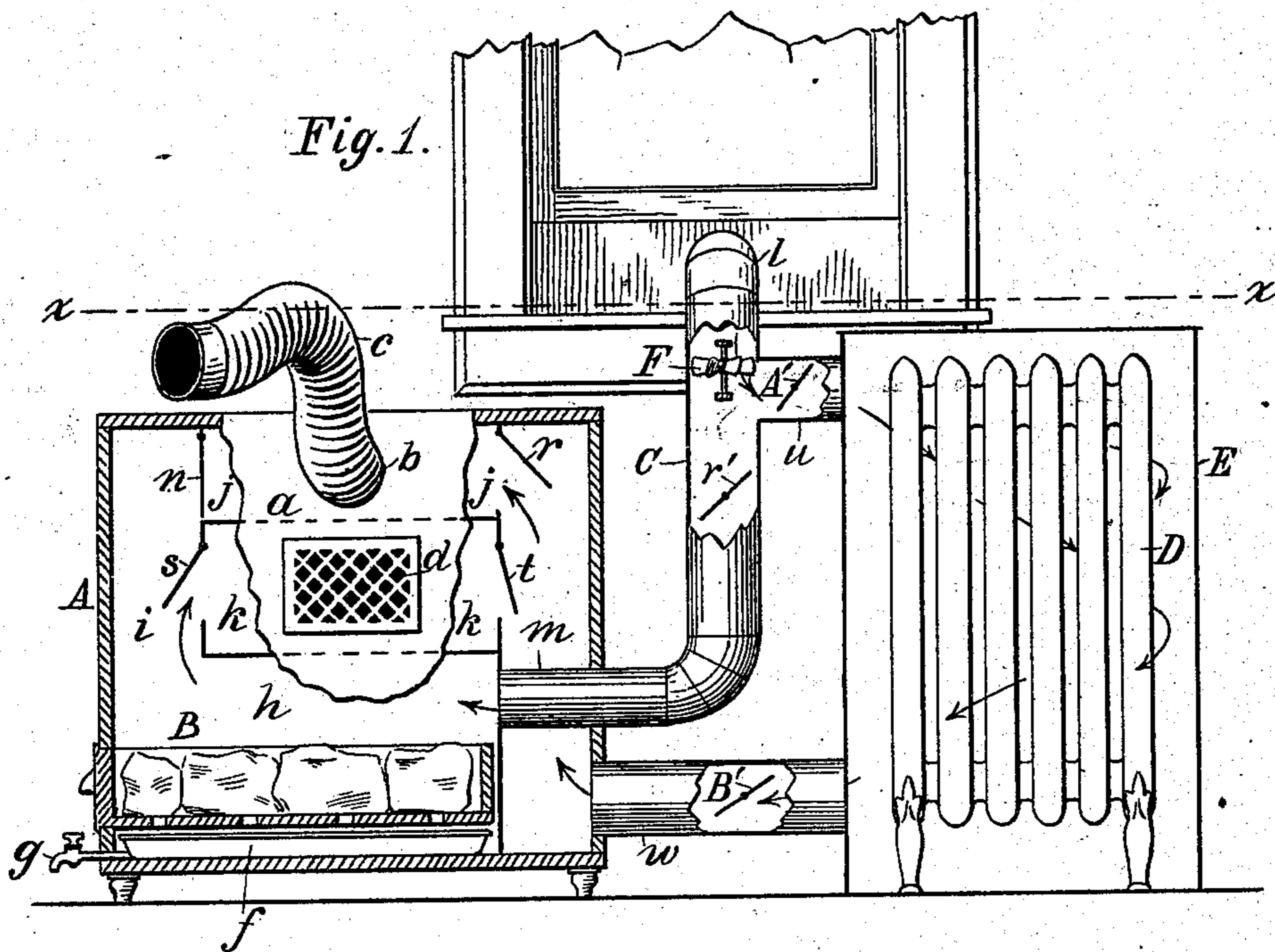
No. 724,145.

PATENTED MAR. 31, 1903.

J. & W. TITUS.
APPARATUS FOR SIMULTANEOUSLY SUPPLYING HEATED AND
REFRIGERATED AIR.

APPLICATION FILED AUG. 20, 1902.

NO MODEL.



WITNESSES:

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APPARATUS FOR SIMULTANEOUSLY SUPPLYING HEATED AND REFRIGERATED AIR.

SPECIFICATION forming part of Letters Patent No. 724,145, dated March 31, 1903.

Application filed August 20, 1902. Serial No. 120,298. (No model.)

To all whom it may concern:

Be it known that we, JOHN TITUS, a resident of Oyster Bay, and WILLIAM TITUS, a resident of Old Westbury, in the township of North Hempstead, in the county of Nassau and State of New York, citizens of the United States, have invented certain new and useful Improvements in Apparatus for Simultaneously Supplying Heated and Refrigerated Air; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical transverse section and partial front view of an apparatus made according to our invention. Fig. 2 is a plan and partial horizontal sectional view in line *xx* of Fig. 1.

This invention comprises certain new and useful combinations of parts whereby we provide efficient means for supplying simultaneously warmed or artificially-heated air and cooled or artificially-refrigerated air to meet various requirements of sick-rooms and other rooms or apartments.

A is a box or cabinet, in the front *a* of which, at the upper part thereof, is an opening, to which is provided a nozzle *b*, to which is attached a removable flexible pipe or tube *c*, and also in the front thereof below the nozzle a second opening *d*, the purposes of which new instrumentalities will presently herein appear. In the lower part of the cabinet A is a drawer B, which on occasion may be drawn out or removed from the cabinet. This drawer is designed to be filled with ice when the apparatus is in use or operation. Its bottom *e* is perforated or otherwise constructed to permit water from melted ice to pass into a drip-pan *f* below, from which it may be withdrawn by an external faucet *g*. The space within the cabinet above the ice-drawer B is partitioned to provide a chamber *h*, from one end of which extends a vertical air-conduit *i*, which at its upper end communicates with a horizontal passage *j* at the upper part of the cabinet. Lower down the vertical conduit *i* communicates with one end of an air-chamber of passage *k*. At the opposite end of the cabinet is another vertical air-conduit *m*, which

communicates with the adjoining end of the horizontal passage *j*. This second vertical conduit *m* also communicates lower down with the adjacent end of the passage *k*. It is from the horizontal passage *j* that the hereinbefore-mentioned nozzle *b* projects from the front of the cabinet, and it is from the passage *k* that the hereinbefore-mentioned opening *d* extends through said front of the cabinet.

C is an air-inlet pipe, the office of which is to secure air from outside the room or apartment in which the apparatus is applied to use. To this end the outer end of said pipe is extended to an opening, preferably in a window, through which it communicates with the external atmosphere, as at *l*. The inner or lower end of this pipe C is continued through the side of the cabinet and joined to the adjacent end of the chamber *h*, which latter is above the ice-box, as just herein explained. Valves or dampers *n* and *r* are placed at opposite ends of the upper horizontal passage *j*, and similar valves *s* and *t* are provided at opposite ends of the passage *k*.

D is a heater which, as shown in the drawings, consists of an ordinary steam-radiator. Instead of this when desired any other suitable air-heating device may be employed. Over and around this heater is placed a shell or casing E, which at its upper part communicates by a short passage *u* with the air-inlet pipe C and at its lower part by a passage *w* with the lower part of the vertical air-conduit *m*. In the passage *u* is a valve or damper A' and in the passage *w* is a similar valve or damper B'. In the air-inlet pipe C above the passage *u* is an air-propelling device or blower, preferably an electrically-operated fan or propeller F.

It will be observed that by reason of their relative positions the passage *j* may preferably be termed an "upper" horizontal passage, *k* a "middle" horizontal passage, and *h* a "lower" horizontal passage, that the said upper and middle passages communicate by valved openings at their ends with the vertical air-conduits *i* and *m*, and that the lower passage is, in effect, a combination of the lower part of the air-inlet pipe C.

Assuming the valves to be adjusted to regulate to the requisite degree the capacity for

air transmission of the several passages and the blower F to be put in operation to force air from outside the apartment downward in the pipe C, the operation of the apparatus is as follows: One volume of this air is directed through the passage *u* into the casing E, wherein it is raised in temperature by the heater D and then passing out from the casing under the passage *w* passes through the passage *w* to the conduit *m*, and thence through the adjacent portion of the passage *j* to the opening-nozzle *b*, and thus to the flexible pipe or tube *c*. Meanwhile another volume of air from that forced downward through the pipe *c* passes therefrom into the chamber *h* and into contact with the ice in the drawer B, thence upward through the conduit *i* to the passage *k*, from which it passes outward in its cooled or refrigerated condition through the opening *d* into the room or apartment in which the cabinet is placed. It will thus be observed that while warmed or heated air is caused to pass to the flexible pipe *c* cold or refrigerated air is caused to pass into the room in which the apparatus is used. We are by this means enabled in the treatment of many disorders of the human system to externally apply heated air direct to the person of the patient and at the same time enable the latter to respire air brought to the cooled or moderate temperature most appropriate to the condition of the pulmonary and bronchial organs. Further, when it is desired that only heated air be provided by the operation of the apparatus this result may be secured by closing the lower part of the air-inlet pipe C by means of a valve *r'* therein, thereby shutting off communication with the refrigerating-drawer. In like manner when only chilled or cooled air is desired this may be provided by turning the valves A' and B' to close the passages *u* and *w*, thereby shutting off the heating devices from communication with the air forced through the inlet-pipe C by the blower F, as described. In this event the valve *n* may be turned to open the adjacent end of the passage *j* to permit the refrigerated air to pass out through the nozzle *b* as well as through the opening *d*.

What we claim as our invention is—

1. The construction with a box or cabinet having an upper horizontal passage which opens through the wall of the cabinet and has a nozzle provided thereto, a middle horizontal passage, which also opens through said wall for the exit of air, vertical air-conduits which by valved openings communicate with the ends of the upper and middle passages aforesaid, an ice-receptacle in the lower part of the cabinet, a lower horizontal passage extending between the ice-receptacle and the middle horizontal passage and communicat-

ing with one of the vertical conduits, of an air-inlet pipe, one end of which communicates with the lower horizontal passage just mentioned and the other end of which communicates with the atmosphere outside of the apartment in which the cabinet is placed, a heating device which has a valved inlet from said air-inlet pipe and a valved outlet to the adjacent vertical conduit of the cabinet, and an air-forcing device placed in the air-inlet pipe and arranged to force a volume of air through the heating device to one of the vertical conduits to the upper horizontal passage and thence out through the nozzle thereof, and simultaneously therewith to force a volume of air to the lower horizontal passage into contact with the ice in the receptacle, thence to one of the vertical conduits and thence to the middle horizontal passage so that it may emerge from the opening thereof, whereby volumes of air of widely-differing temperatures but both fresh from the external atmosphere may be simultaneously supplied from the apparatus, as set forth.

2. The combination with a box or cabinet having an upper horizontal passage which opens through the wall of the cabinet, and has a nozzle provided thereto, a middle horizontal passage which also opens through said wall for the exit of air, vertical air-conduits with which, through valved openings, which by valved openings communicate with the ends of the upper and middle passages aforesaid, a removable ice-drawer in the lower part of the cabinet, a drip-pan arranged below said drawer to receive the drip therefrom, a lower horizontal passage above the ice-drawer and below the middle horizontal passage and at one end communicating with one of the vertical air-conduits, and an air-inlet pipe, one end of which communicates with said lower passage and the other end of which communicates with the atmosphere outside the apartment in which the cabinet is placed, of a heater, a casing surrounding said heater, which connects by a valved inlet-passage with the air-inlet pipe and by a valved inlet-passage with one of the vertical air-conduits, and a blower placed in the air-inlet pipe to simultaneously force volumes of air to and through the casing and to and through the lower horizontal passage in contact with the ice in the ice-drawer and thence to the respective outlet-openings of the upper and middle passages of the cabinet, as and for the purpose described.

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Witnesses:

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