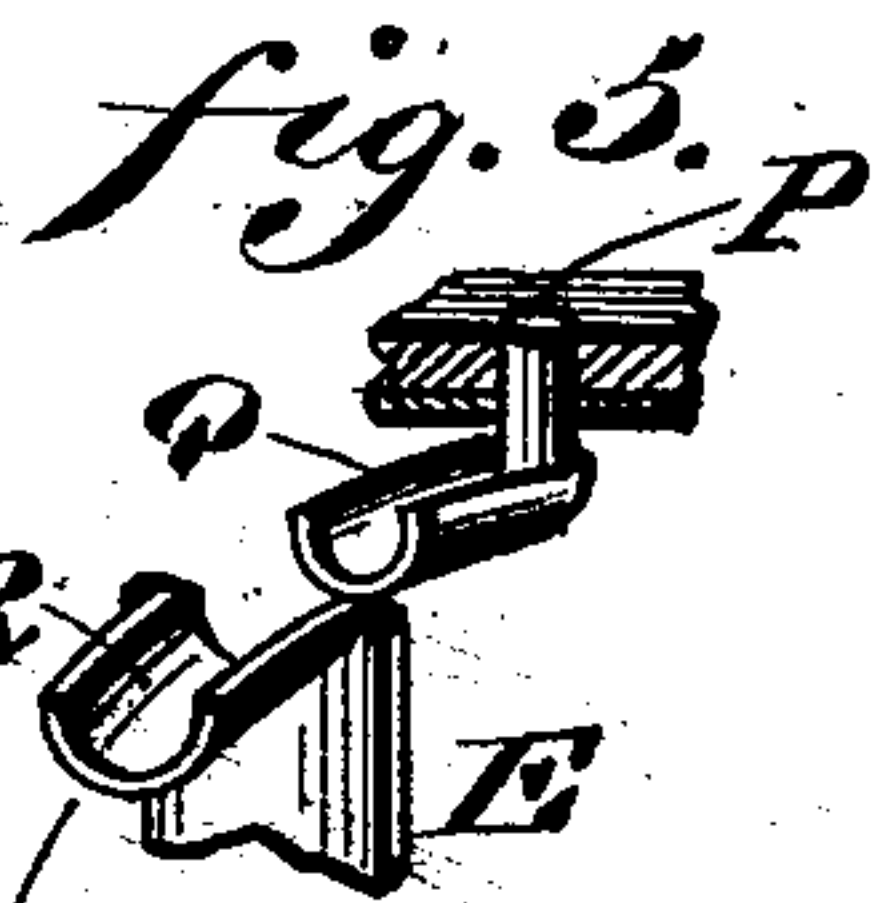
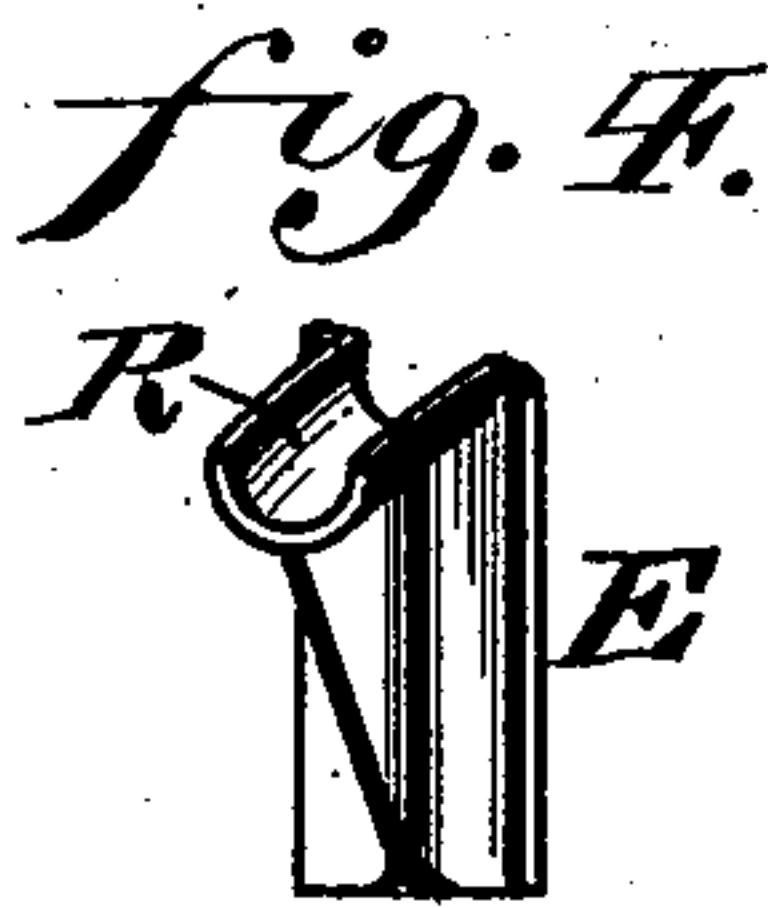
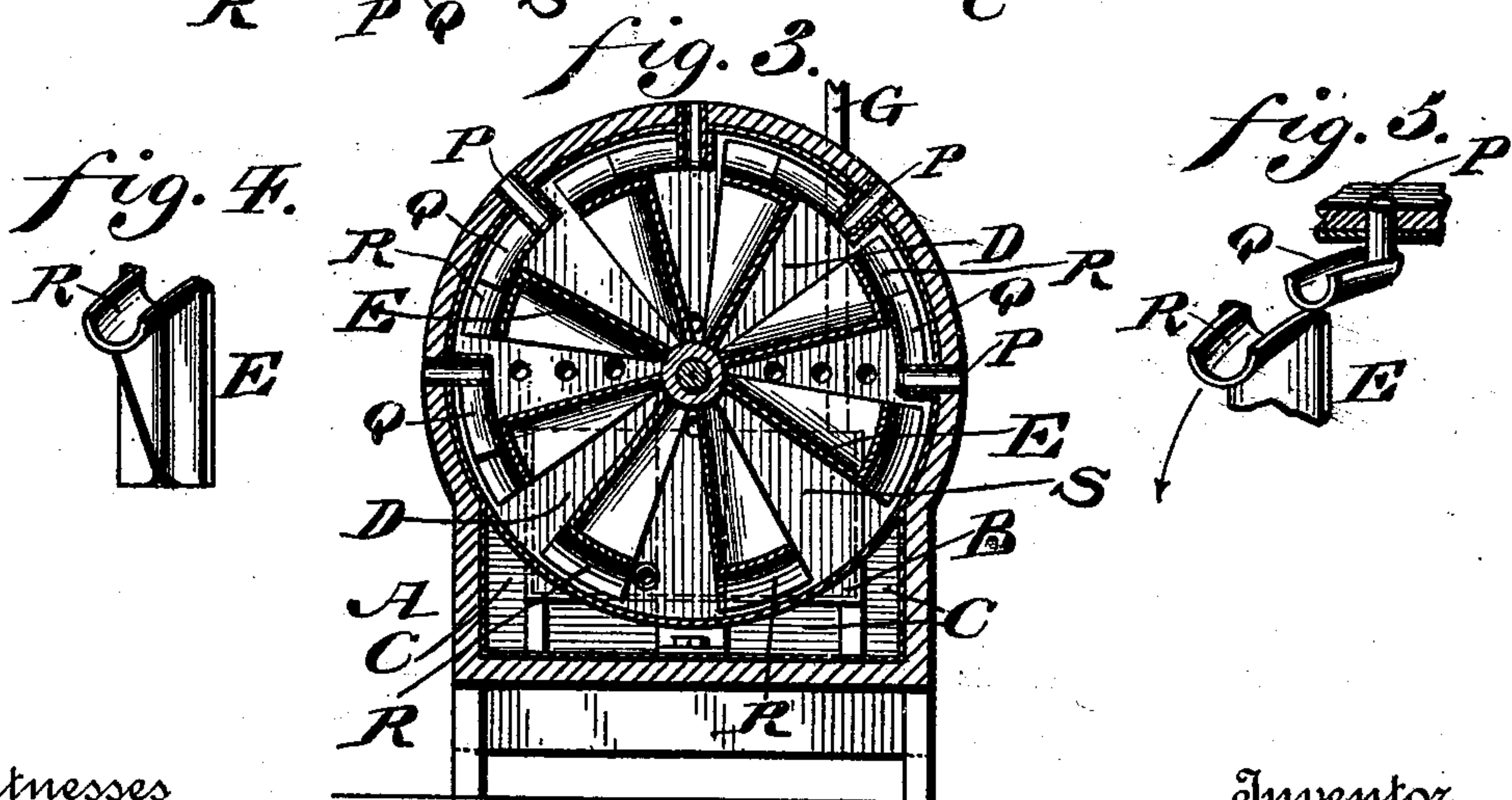
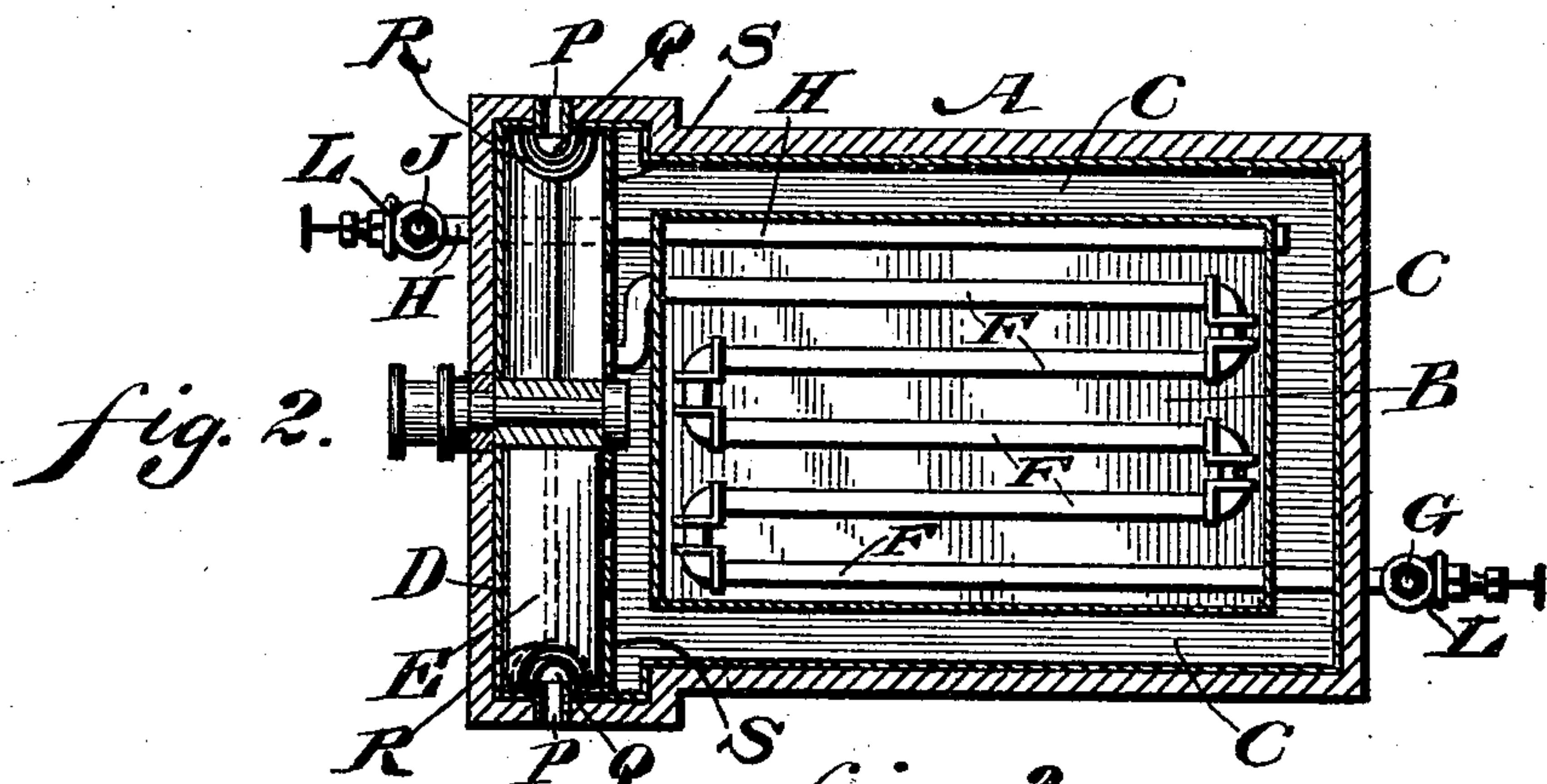
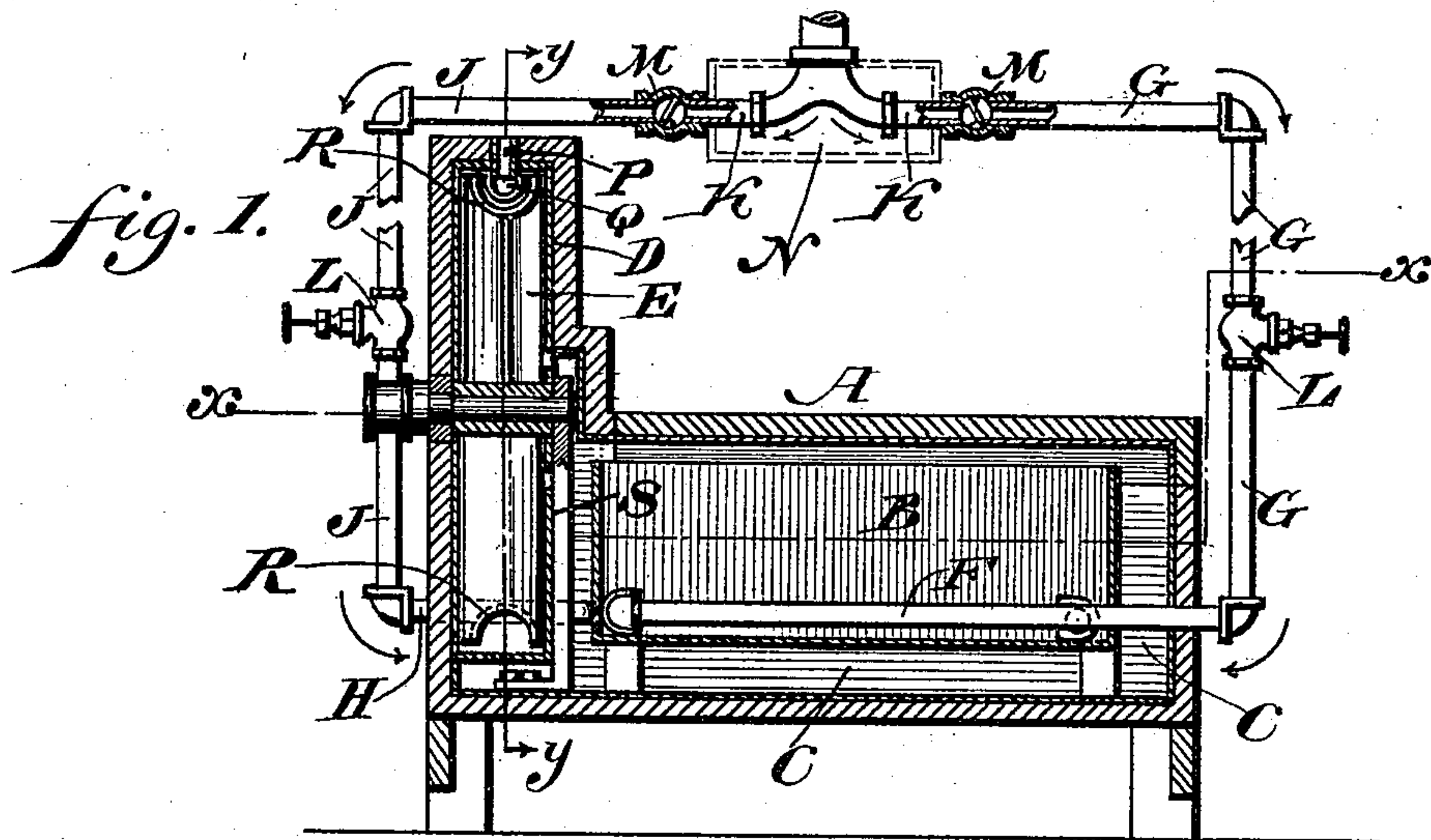


(No Model.)

H. ILIOWIZI.  
AIR COOLING APPARATUS

No. 547,995.

Patented Oct. 15, 1895.



Witnesses  
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# UNITED STATES PATENT OFFICE.

HENRY ILIOWIZI, OF PHILADELPHIA, PENNSYLVANIA.

## AIR-COOLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 547,995, dated October 15, 1895.

Application filed February 13, 1894. Serial No. 500,074. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY ILIOWIZI, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Cooling and Ventilating Apartments, Houses, Cars, &c., which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of an apparatus for cooling air and ventilating apartments, houses, cars, &c, embodying means for cooling air and means for directing the same to a place of service, together with adapting the same for purposes of ventilation, all as will be hereinafter set forth.

Figure 1 represents a partial vertical section and partial side elevation of a cooling and ventilating apparatus embodying my invention. Fig. 2 represents a horizontal section thereof on line *xx*, Fig. 1. Fig. 3 represents a vertical section on line *yy*, Fig. 1, on a reduced scale. Fig. 4 represents a perspective view of one of the blades of the fan or blower of the apparatus. Fig. 5 represents a partial section and partial side elevation of another part of the invention.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a chest, within which is a refrigerant-box B, whose walls are separated from those of the chest, leaving the air-chamber C around said box. At one end or side of the chest A is a chamber D, which is in communication with the air-chamber C and has the fan or blower E mounted therein, said fan or blower receiving power in any suitable manner. Within the box B is a coil or length of pipe F, which extends through the wall of said box and that of the chest A and has connected with it the supply-pipe G. Passing through the walls of the chest and box and opening into the air-chamber C is a pipe H, which has connected with it the supply-pipe J. The pipes G and J are connected with the pipes K, which lead, say, from the roof of a building or any desirable height, whereby pure air may be admitted into said pipes G and J and thus supplied to the pipes F and H. The pipes G and J are provided with controlling-valves L, and likewise with check-valves M, the latter pre-

venting the return of air from the pipes F, H, G, and J.

In lieu of the pipes K, I may employ a drum N, (shown in dotted lines in Fig. 1,) the same primarily receiving air from the atmosphere.

The wall of the chamber D has outlet pipes or ports P therein for the discharge of cold air from said chamber into the apartment or other place of service of the same. The ports P, as shown, consist of short straight pipes or tubes having open ends placed in openings in the peripheral wall of the chamber D. Secured to the inner ends of the said pipes and nearer to the peripheral wall of the chamber than are the inner ends of the pipes are troughs or guides Q, and on the outer ends of the blades or vanes of the fan or blower are flanges R, forming recesses, the walls of which are adapted to form close joints with said troughs and close at certain times the said ports P, said ports being open when the said flanges are not in contact with the said troughs.

The operation is as follows: The box is properly supplied with ice or other refrigerant and the fan or blower set in motion, whereby the air is drawn into the pipes F and H, and from thence injected into the chambers C and D. Owing to the subjection of the pipes F to the action of the refrigerant in the box B and the cold condition of the chamber C, due to said box, the air will be driven cold from the chamber D through the ports P to the place of service. When a blade reaches a trough Q, its recess R is occupied by the latter, thus closing the joint between the said blade and trough, whereby the supply of cold air to the room is shut off. As soon as the blade clears the trough, the port is uncovered and the air escapes through the same into the room. Owing to the injection of the fresh air into the chamber C, which will be occasionally preferably opposite to the chamber D, as most plainly shown in Fig. 2, the air from the pipe H is caused to circulate through the several sides of said chambers and thus be thoroughly cooled before its entrance into the chamber D. In order to cause the air from both pipes F and H to be directed into the chamber D about the central portion of the fan or blower E, I place in said chamber a diaphragm S, which is perforated in its central portion, and the pipe F terminates near the hub portion of the fan or



blower, as most plainly shown in Fig. 2, so that both volumes of air are caused to commingle, and the combined volume is then injected from the chamber D to the place of service.

- 5 Should the cold air from the chamber D be of a temperature too low for the purpose required, the supply of air may be cut off from either of the pipes G J.

When the refrigerant is removed from the  
10 box B, the atmospheric air admitted through either of the pipes F and H may be driven into the room, &c., for purposes of ventilation.

By cutting off the openings P at intervals the air which is being drawn into the cham-  
15 ber D by means of the fan is compressed, having no means to escape therefrom until the said ports are opened, when it escapes from the same in puffs or with increased force, more than if the ports were continuously open.

- 20 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A chest with a refrigerant box within and spaced from the same, so as to form a cold air  
25 chamber, a chamber adjacent to said cold air chamber, communicating therewith and having outlets therefrom, a fan in said second mentioned chamber, and a pipe in the refrigerant box, with a supply pipe from the atmosphere, said parts being combined substan-  
30 tially as described.

2. A chest, a refrigerant box within and spaced from said chest, forming a cold air chamber around said box, a chamber adja-  
35 cent to and communicating with said cold air chamber, and having discharge openings, a rotary fan in said second mentioned cham-

ber, and a pipe passing through said refrigerant box, discharging into said fan chamber, and having an inlet pipe leading from outside  
40 of said chest, said parts being combined substantially as described.

3. In an apparatus substantially as described, a chamber having ports in its walls, troughs at the base of said ports, and a fan  
45 in said chamber having blades with recesses in their outer ends, substantially as described.

4. An apparatus for the purpose set forth, consisting of a chest having a refrigerant box therein and spaced therefrom, forming a cold  
50 air chamber, a chamber adjacent to and communicating with said cold air chamber, and having discharge ports, a rotary fan in said communicating chamber having blades adapted to close the discharge ports of the said  
55 chamber, and a pipe passing through said refrigerant box into said chamber having the blower therein, said parts being combined substantially as described.

5. An apparatus for the purpose set forth, 60 having a chest with a refrigerant box therein and spaced therefrom, forming a cold air chamber, a chamber adjacent to and in communication with said cold air chamber, and having discharge ports, a rotary fan in said sec-  
65 ond mentioned chamber and a pipe passing through said cold air chamber and discharging into said communicating chamber at or near the center of said fan, said parts being combined substantially as described.

HENRY ILIOWIZI.

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