

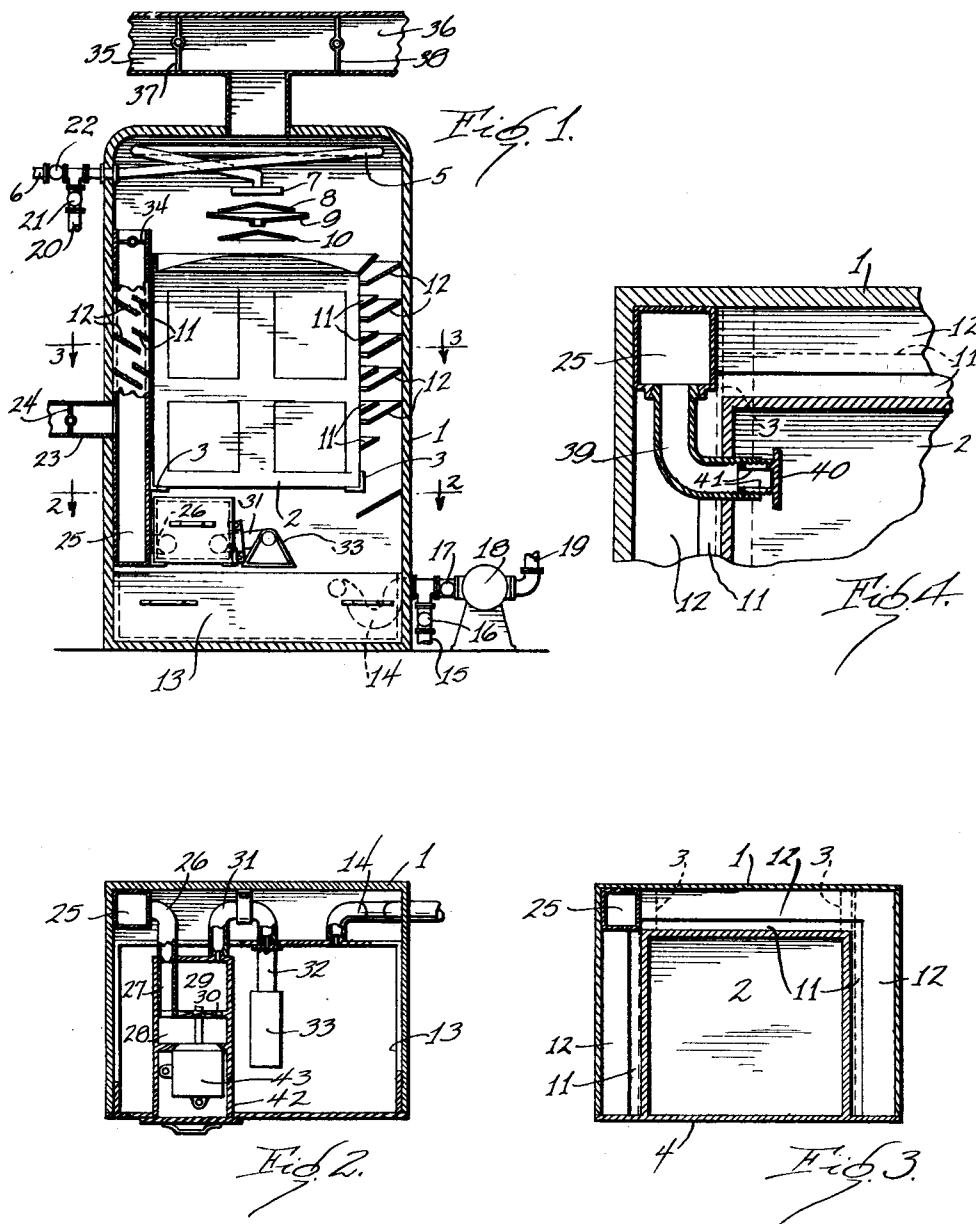
April 9, 1929.

J. H. BECKMAN

1,708,600

COOLER

Filed Sept. 7, 1926



WITNESS
John W. Beckman

INVENTOR
J. H. BECKMAN
BY
Harry C. Schroeder
ATTORNEY

UNITED STATES PATENT OFFICE.

JACOB HENRY BECKMAN, OF OAKLAND, CALIFORNIA.

COOLER.

Application filed September 7, 1926. Serial No. 133,942.

My invention relates to improvements in coolers, and it consists in the combination, construction, and arrangement, hereinafter described and claimed.

5 The object of my invention is to provide a cooler in which the cooling effect is accomplished by the evaporation of water, the evaporation of the water being hastened by the passage of air thru the water.

10 A further object of my invention is to provide a device of the type described in which the various parts of the device may be removed without the necessity of first uncoupling pipes, the parts when removed permitting access to the device, whereby the device may be readily cleaned.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing, forming a part of this application, in which—

25 Figure 1 is a vertical section thru the device,

Figure 2 is a section along the line 2—2 of Figure 1,

Figure 3 is a section along the line 3—3 of Figure 1, and

30 Figure 4 is a detailed view of the device.

In carrying out my invention, I provide a casing 1 in which I mount a box 2. The box 2 is slidably disposed upon guide members 3, thus permitting the box to be removed from the casing 1 at the will of the operator. Figure 3 clearly shows how the front wall of the casing 1, indicated at 4, forms a part of the box 2. When, therefore, the box 2 is removed from the casing 1, the front wall 4 is also removed, thus permitting access to the interior of the casing.

40 The box 2 is kept cool by means of evaporating water. A coil pipe 5 is connected to a supply pipe 6 and has its other end connected to a spray nozzle 7. The water, in flowing thru the coil 5 is partially cooled, due to the fact that the coil 5 is disposed within the casing 1.

50 The water, when sprayed from the spray nozzle 7, falls upon a baffle plate 8, and from this point, the water drops upon a second baffle plate 9 and a third baffle plate 10. These plates thin the water out into a thin film, thus causing the water to more quickly evaporate and thus produce a greater cooling effect.

The baffle plate 10 is disposed directly above the box 2 and it will be seen from Figure 1 that the water from the baffle plate 10 would drop on top of the box 2. 60 The box 2 is spaced from the wall of the casing 1 on three sides thereof (see Figure 3) and the water will, therefore, flow over a series of baffle plates 11, carried by the box 2, and 12, carried by the casing 1. 65 The water, in dropping from baffle to baffle, provides a thin film, thru which air is forced, thus causing the water to quickly evaporate and cool the temperature within the casing 1. 70

The water drops from the baffles 11 and 12 into a reservoir 13, this reservoir being in the shape of a drawer which may be removed from the casing 1 in a manner hereinafter described. The water passes from the reservoir 13 thru an overflow pipe 14 and into an exhaust pipe 15. If desired, a valve 16 may be closed and a valve 17 opened for directing the water into a pump 18. A pipe 19 leads from the pump 18 and connects with a 75 pipe 20 which communicates with the coil 5. A valve 21 controls the flow of water from the pipe 20 into the coil 5. When the valves 16 and 22 are closed, and the valves 17 and 21 are open, water will be drawn from the 85 reservoir 13 and forced back into the coil 5. In this way, the same water is used time after time for evaporating the smaller portion thereof for cooling the box 2.

The air for causing the evaporation of the 90 water is admitted thru the inlet pipe 23 and the flow of air is controlled by a damper 24. From the pipe 23, the air passes thru a conduit 25, a pipe 26, a pipe 27, and into a compartment 28. From here, the air is 95 forced into a compartment 29 by means of a fan 30. The fan forces the air from the compartment 29 thru a pipe 31, a pipe 32, and an air ejector 33. It will be noted that the air will be forced thru the thin films of 100 water dropping from each baffle plate and in this way the water is caused to be evaporated very quickly, thus effectually cooling the box 2.

The conduit 25 opens into the upper part 105 of the casing 1 and this opening is controlled by a damper 34.

I have shown the top of the casing 1 as communicating with the pipe 35 and a second pipe 36. These pipes are closed by 110 means of dampers 37 and 38. The pipe 35 may lead to the interior of a house for cool-

ing the latter, if desired, while the pipe 36 leads to the atmosphere, thus exhausting the air from the casing 1 into the atmosphere. In this way, I provide novel means for cooling a house, if desired.

In Figure 4, I show a pipe 39 as communicating with the interior of the box 2 and with the conduit 25. This pipe is for the purpose of withdrawing odors from the box. A flow of air thru the pipe 39 is controlled by means of a plug 40 having openings 41 therein. A turning of the plug 40 will enlarge or decrease the size of the opening and thus determine the amount of air forced thru the pipe 39.

One of the principal features of the invention is that the box 2 may be removed, the reservoir 13 may be removed, and the drawer 42 containing the motor 43 may be removed without the necessity of first disconnecting a number of pipes. To accomplish this, I have shown the pipe 26 as having a friction fit with the pipe 27, the pipe 31 having a friction fit with the drawer 42 and the pipe 32, and the pipe 14 having a friction fit with the reservoir 13. This construction permits the drawer 42 and the reservoir 13 to be removed from the casing 1 whenever desired. A mere movement of these members back into position will automatically connect the various pipes together. In like manner, the pipe 39 has a friction connection with the conduit 25 and now permits the box 2 to be removed from the casing 1 whenever desired without the necessity of first disconnecting the pipe 39 from the conduit 25.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. I have already described how the cooling of the box 2 is accomplished by means of the water and the forcing of the air thru the water. The same water may be used time after time if so desired. I have further set forth how the water may be exhausted and the air either led into the house or exhausted. The device is also adapted to remove odors from the ice box. The entire device is especially constructed for permitting the box, the drawer, and the reservoir to be removed from the casing 1. In this manner, the casing may be cleaned at will.

I claim:

1. A cooler, comprising a casing, a box removably disposed within said casing, means for passing a thin film of water between said box and said casing, means for forcing air thru the film of water whereby all the air comes into contact with the water for causing the evaporation thereof, and means for causing operative connection with each other when said box, said water passing means, and said air forcing means are disposed in the casing, and causing opera-

tive disconnection when these members are removed from the casing.

2. A cooler, comprising a casing, a box removably disposed within said casing and being spaced from the walls of the cooler, a coil pipe disposed in the top of said casing and being in communication with a source of water supply, baffle plates carried by said box and said casing for causing the water to drop in thin films from plate to plate, means for forcing air thru the thin films of water whereby all of the air will be brought into contact with the water, and means for causing operative connection with each other when said box and said air forcing means are disposed in the casing, and causing operative disconnection when said members are removed from the casing.

3. A cooler, comprising a casing, a box removably disposed within said casing, and being spaced from the walls of said cooler, means for causing water to fall in a number of thin films between the box and the casing, said means being adapted to use the same water over and over again, a source of air supply, means for forcing all of the air thru the films of water, means for conveying the cool air to a house, or to the atmosphere, and means for causing operative connection with each other when said box and said air forcing means are disposed in the casing, and causing operative disconnection when said members are removed from the casing.

4. A cooler, comprising a casing, a food retaining box removably disposed in said casing, means for forcing air thru the casing, said means being removable from said casing, water retaining means carried by said casing and being removable therefrom, and means for causing operative connection with each other when said box, motor, and reservoir are disposed in the casing, and causing operative disconnection when these members are removed from the casing.

5. A cooler, comprising a casing, a box disposed in said casing and being removable therefrom, the front wall of said casing being an integral part of said box, baffle plates carried by said box and said casing, a coil pipe disposed in the top of said casing and being in communication with a source of water supply, means for conveying air into said casing, detachable means connecting said box with said air inlet, air moving means removably disposed in said casing, a water reservoir removably disposed in said casing, means for exhausting the cooled air to the atmosphere or for conveying this air to a house, and means for using the same water time after time or for discharging the water thru an exhaust pipe.

In testimony whereof I do hereby affix my signature.

JACOB HENRY BECKMAN.