

Dec. 22, 1931.

A. R. SPEER

1,837,296

HOUSEHOLD OZONIZER

Filed Oct. 26, 1927

Fig. 1.

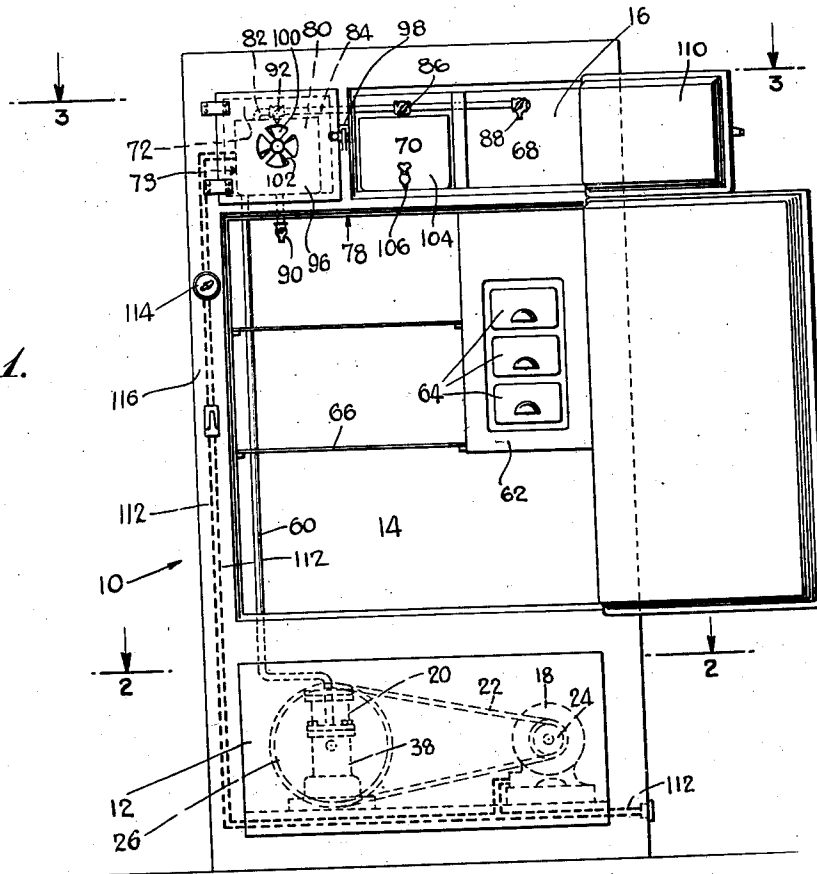


Fig. 2.

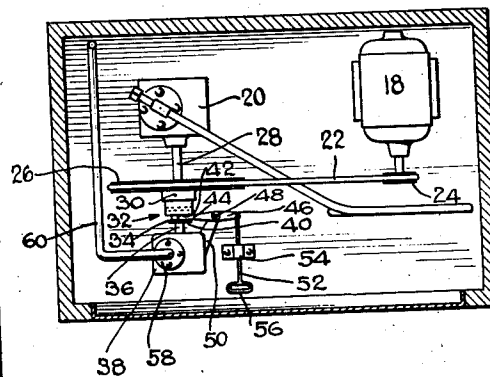
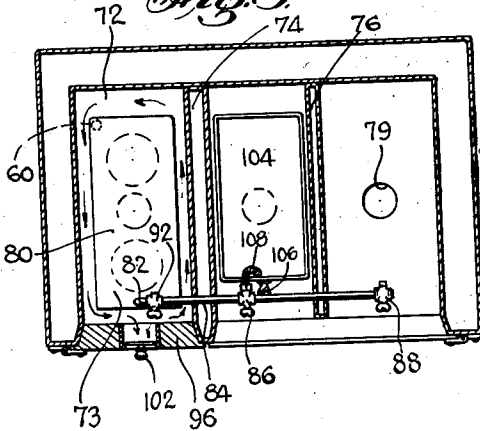


Fig. 3.



INVENTOR

ARTHUR R. SPEER

BY

Wm. Fincham

ATTORNEY

UNITED STATES PATENT OFFICE

ARTHUR R. SPEER, OF BRONXVILLE, NEW YORK

HOUSEHOLD OZONIZER

Application filed October 26, 1927. Serial No. 228,797.

This invention relates to household ozonizers.

An object of the invention is to provide in a single unitary structure and within the compact compass of the ordinary household refrigerator cabinet, a combined mechanical refrigerator and ozone generator so constructed and arranged that the ozone may be optionally distributed within the refrigerator cabinet or to the exterior thereof.

A further object of the invention is to provide means whereby the mechanical features of the refrigerating unit are utilized for the operation of an ozonizer incorporated into the refrigerating installation.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a front elevational view of a refrigerator cabinet, with the ozone generator incorporated therein in accordance with the invention, the doors of the cabinet being shown open to illustrate the interior construction thereof.

Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1, illustrating the machinery layout in the lower compartment of said cabinet.

Fig. 3 is a sectional view on line 3—3 of Fig. 1, in which the disposition of the ozone apparatus and its associated chambers is shown, the door of the ozone compartment being shown in section to show a feature of the invention.

On the drawings, a cabinet 10 is shown comprising three levels, viz.; machinery compartment 12, storage chamber 14 and the ozone level 16. The machinery compartment 12 and storage chamber 14 are of the type ordinarily found in the household

mechanical refrigerator, while the ozone level 16 is an element which may be made integral with, or as a separate member detachable from, the cabinet 10.

In the machinery compartment 12 is housed the customary electric motor 18, driving the refrigerator compressor 20 by means of the belt 22 carried on pulleys 24, 26. In the present construction, the shaft 28 of the compressor 20 is extended to have mounted thereon one element 30 of clutch 32, the other element 34 thereof being adapted to be fastened to the shaft 36 of an air pump 38.

Element 34 of clutch 32 is formed with a collar 40 having an annular groove 42, in which are received the prongs 44 of the arm 46, pivoted at 48 to a bracket 50 secured to the body of compressor 38 in any suitable manner. Linked to an end of arm 46 is the actuating bar 52, slidably received in guide 54 and having a handle 56 formed at an end thereof. By means of handle 56 and bar 52, elements 30 and 34 of clutch 32 may be moved in and out of engagement to control the operation of air pump 38.

The discharge outlet 58 of the air pump 38 has communication with the pipe 60, here shown to extend up through the storage chamber 14 of the cabinet 10, and then into the ozone level 16.

Within the storage chamber 14 is mounted the refrigerant tank 62, having the usual drawers 64 for receiving materials to be subjected to intense refrigeration. Due to the refrigerant contained in tanks 62, the surrounding air in chamber 14 will be cooled and an induced circulation of air around such chamber will be caused, some of the chilled air passing pipe 60, and cooling the compressed air in said pipe as it passes from pump 38. The usual shelving 66 may be provided within storage chamber 14. The motor 18, the compressor 20, and the usual condenser and evaporator constitute the refrigerating unit for the refrigerator.

The ozone level 16 of said cabinet is here shown as divided into three sections, namely, the storage compartment 68, a water purifying compartment 70, and the ozonizer chamber 72. These several sections may be insu-

lated from each other by walls 74, 76, and from the storage chamber 14 by the floor 78, in which, if desired, suitable openings 79 may be provided for conducting heat from said sections into the storage chamber 14 for cooling purposes.

The ozonizer 73 housed in chamber 72 may be of any standard construction, and is here shown to comprise a sealed container 80, in which the ozone making apparatus is housed, and with which the end of pipe 60 has open communication. An outlet 82 from said container is connected by the pipe 84 with the storage and water purifying compartments 68, 70, by means of which ozone produced by said ozonizer 73 is conducted to said compartments, the flow of ozone to the respective compartments being controlled by means of the cocks, 86, 88. A cock 90 is connected to the bottom of container 80 and opens into storage chamber 14, so that a controlled flow of ozone to said chamber may be had.

By means of a pet cock 92, ozone produced by said ozonizer may be led into the compartment 72, in which said ozonizer is housed. Compartment 72 is provided with a door 96 hinged to swing outwardly and secured normally by the lock device 98. Said door may be provided with a number of openings 100, with which is associated the louvre device 102 for controlling the effective size of said openings. With this assembly, it is possible to have a flow of ozonized air from the refrigerator into the room in which it may be installed, while, at the same time, ozone is supplied to compartments 68, 70, and chamber 14.

By shutting cocks 86, 88, and 90, and opening cock 92, ozone may be supplied only to the space in which cabinet 10 is housed. Likewise, by reversing the valves, ozone is fed to the several chambers, while cut off from said space. The proportion of air mixing with ozone fed to the room and the rate of diffusion into the room may be controlled by the louvre device 102.

The water purifier compartment 70 may be of any desired construction, but is here shown as comprising a chamber defined by the walls 74, 76, and housing therein the assembled water tank 104 having a discharge outlet 106, of any well known type. Connection from the pipe 84 to said tank for purification purposes is here shown as made by the flexible tube 108, which, if desired, may have sufficient length to be immersed to any desired level in the water contained in said tank. However, it is possible, by merely discharging ozone into compartment 70 and securing surface contact between the water and the ozone-saturated air of said compartment, that the water in tank 104 will absorb ozone sufficiently for purification purposes.

Compartment 68 is a chamber of any pre-

ferred type in which may be stored perishable articles, or articles that may easily deteriorate and require the presence of a germ killing reagent, such as ozone to prevent decay. The compartments, 68 and 70, may be provided with separate doors, as has been shown for compartment 72, but preferably a single door 110, provided with the customary latch device, closes both compartments 68 and 70 at once.

In providing power for the operation of the electric motor 18, and for the ozonizer 73, any suitable conduit means 112 may be built into the cabinet 10, a switch 114 being mounted on the front wall 116 for controlling the ozonizer 73.

In operation, after power has been applied to ozonizer 73 by actuation of switch 114, clutch 32 is actuated to place pump 38 into operation. However, if a concentrated ozone is desired, said pump may be left inactive.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In combination with a household refrigerator having a mechanical refrigerating unit including a motor, an ozone making apparatus mounted in said refrigerator, air pump means operatively connected to said motor for supplying air to said apparatus, and mechanism for disconnecting said means from said motor.

2. In a household refrigerator having a storage chamber and a mechanical refrigerating unit mounted within said refrigerator, said unit including a motor disposed on one side of said chamber, an ozone making apparatus mounted in said refrigerator on the other side of said chamber, and an air pump operatively connected to said motor and extending thru said chamber for supplying air to said ozonizer.

3. In combination with a household refrigerator having a refrigerating unit including a motor, an air pump operatively connected to said motor and an ozone making apparatus mounted within the refrigerator and connected to said air pump for receiving an air supply therefrom.

4. In combination with a household refrigerator having a mechanical refrigerating unit mounted therein including a compressor, a motor for actuating said compressor,

an air pump operatively connected to the motor, an ozonizer mounted within the refrigerator and connected with said air pump for receiving an air supply therefrom, and means for feeding the ozone from said ozonizer to select portions of said refrigerator.

5. In a household refrigerator having a food storage chamber, a mechanical refrigerating unit within said refrigerator, including a motor, a compressor, evaporator and condenser, said motor and condenser being mounted on one side of said chamber, an ozone making apparatus mounted in said refrigerator on the other side of said chamber, an air pump operatively associated with said unit and mounted adjacent thereto, and conduit means connected to said air pump and extending thru said storage chamber for supplying air to said ozonizer.

6. In combination with a household refrigerator having a plurality of sections, mechanism for making ozone mounted in one of said sections, a mechanical refrigerating unit mounted within said refrigerator, said unit including a motor, an air pump mounted adjacent said unit operatively connected to said motor, conduit means interconnecting said air pump with said ozone making mechanism, and means for optionally feeding said ozone to other sections of said refrigerator or discharging it to the exterior of said refrigerator.

In testimony whereof I affix my signature.
ARTHUR R. SPEER.