

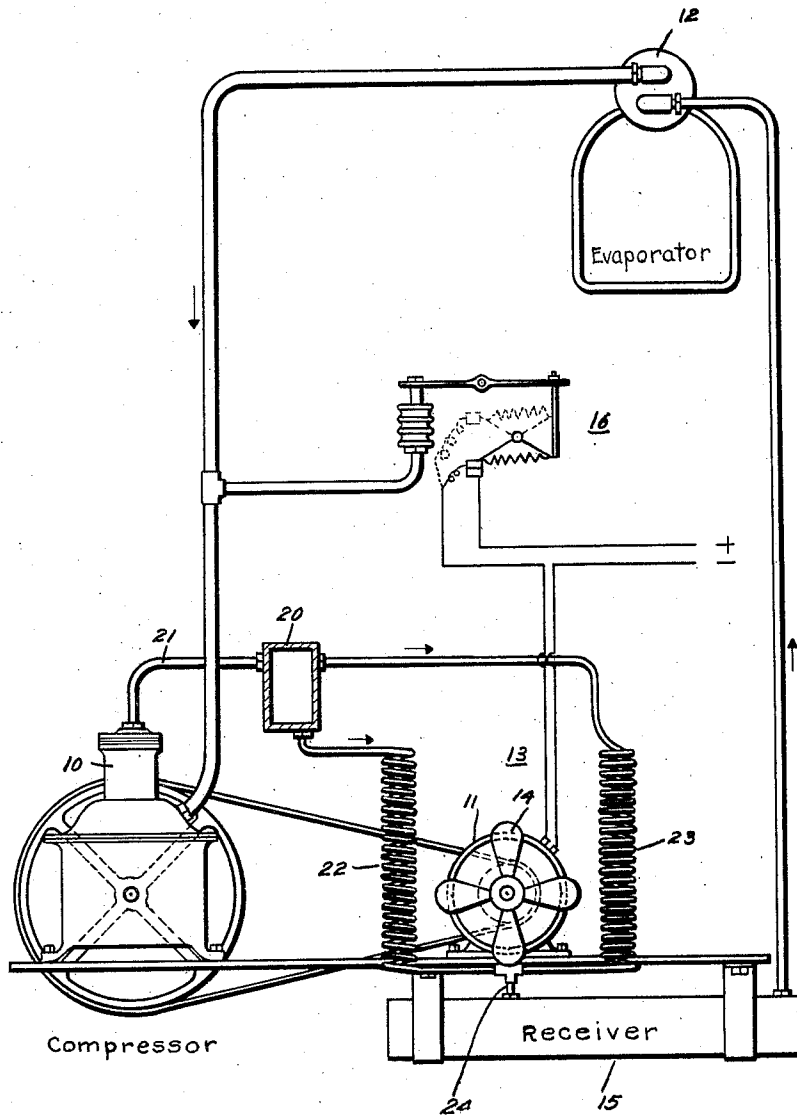
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REFRIGERATING APPARATUS

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REFRIGERATING APPARATUS

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This invention relates to refrigerating apparatus particularly to household plants of the compressor-condenser-expander type.

One of its objects is generally to improve the operation of such plants by preventing excessive head pressure on the compressor.

Other objects will be apparent from the accompanying description and drawings which show diagrammatically a refrigerating system embodying one form of my invention.

The system includes a conventional compressor 10 driven by an electric motor 11, drawing gaseous refrigerant from an evaporator 12 and delivering it in compressed gaseous form to a condenser, generally denoted by 13, cooled by air currents produced by the fan 14. The refrigerant condenses to liquid and flows into receiver 15. The pressure built up by the compressor forces the liquid refrigerant up into the evaporator 12. The motor is automatically started or stopped in response to conditions in the system by a pressure-responsive switch 16. In systems of this character, the compressor may be lubricated by the familiar splash system, oil being placed in the crank case for this purpose. Some oil leaks past the piston and is pumped into the condenser and thus a certain amount is circulated through the system. There are times, particularly when the compressor is started by the automatic control apparatus, when abnormally large quantities of oil pass into the condenser. Due to the small bore of the tubing ordinarily used in such condensers, the oil may not flow through the condenser as fast as it is pumped in by the compressor. This results in building up an excessive pressure in the condenser and piping which may stall the motor, or even strain or break the connections.

In order to prevent oil or other liquid coming from the compressor stopping the condenser passages, I arrange two passages in parallel between the compressor and receiver in such a manner that liquid can not flow through one of them. This, then is always open for the passage of gaseous refrigerant and consequently an excessive pressure can not be built up. The other passage is ar-

ranged to permit the oil to flow through it, as well as refrigerant.

One mode of accomplishing this is to connect an oil trap 20 to the compressor delivery pipe 21 and connect two condenser coils 22, 23 in parallel between the trap and a common pipe 24 leading to the receiver. The delivery pipe from the compressor may enter the trap at any suitable point, which may be, as shown, near the top. The connection to the coil 23 is near the top of the trap while the connection to coil 22 is at or near the bottom.

Gaseous refrigerant and liquid entering the trap will separate, the liquid flowing off through coil 22. It will be appreciated that the quantity of oil circulated is small, therefore there will be no constant level of oil in the trap, and both refrigerant and oil may ordinarily flow through coil 22. The trap has sufficient capacity to hold, below the level of the connection to 23, all the oil which is likely to be delivered suddenly by the compressor. This oil can drain gradually through 22, leaving the coil 23 always unobstructed for the flow of gaseous refrigerant. The oil circulates through the system, returning through the evaporator to lubricate the compressor.

It is to be understood that the invention is not limited to the particular details which have been selected for the sake of illustration merely but includes modifications within the scope of the appended claims.

What is claimed is as follows:

1. Refrigerating apparatus comprising a compressor, condensing means having two condensing passages in parallel circuit relation and discharging into a common space, one passage being arranged to permit the entrance of liquid therinto and the other being arranged to prevent the entrance of liquid therinto.

2. Refrigerating apparatus comprising in combination a compressor and a pair of condensers connected in parallel circuit relation with the compressor discharging into a common space, and arranged to permit the entrance of liquid into one condenser and to

prevent the entrance of liquid into the other condenser.

3. Refrigerating apparatus comprising in combination a compressor, a conduit for receiving liquid refrigerant, and condensing means having two condensing passages connected in parallel between the compressor and the conduit, the connections being arranged to permit the entrance of liquid from the compressor into one passage and to prevent the entrance of liquid into the other passage.

4. Refrigerating apparatus comprising a compressor, an oil trap, a conduit for receiving both refrigerant and oil, a pair of condensers connected in parallel between the trap and the conduit, the trap being adapted to permit oil to flow to one condenser and to prevent oil from flowing to the other condenser.

5. Refrigerating apparatus comprising in combination a compressor, condensing means including two condensing conduits in parallel circuit relation and discharging into a common space, and means between the compressor and condenser for preventing liquid delivered by the compressor from entering one of the condensing conduits, said means permitting liquid to enter the other conduit.

6. Refrigerating apparatus comprising in combination a compressor, condensing means including two condensing conduits in parallel circuit relation and discharging into a common space, and means between the compressor and condenser for preventing liquid delivered by the compressor from entering one of the condensing conduits said means permitting both liquid and gas to enter the other conduit.

7. Refrigerating apparatus comprising in combination a compressor, condensing means including two condensing conduits in parallel circuit relation and discharging into a common space, and gas and liquid separating means connected between the compressor and condenser conduits and disposed above the level of the conduits, said separating means preventing liquid from entering one conduit and permitting gas to enter said conduit freely at all times and permitting the flow of liquid by gravity to the other conduit.

In testimony whereof I hereto affix my signature.

GEORGE M. TROUP.

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