

GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES

HEAT RECOVERY FROM REFRIGERATOR USING WATER HEATER AND HOT BOX

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ABSTRACT

Energy saving is important parameter in the refrigeration system of the fuel consumption for protection of the global environment. Heat recovery is the conserving the energy. The main purpose of this paper is the to study the recovery of heat for the refrigerator. The wastage of heat is used for many purpose like industrial and domestic application. We decided this machine for utilized of heating of water in the collecting of box.

Keywords: *Water heater ,hot box ,experimental analysis,cop of refrigerator.*

I. INTRODUCTION

This system is totally dependent on the vapor compression refrigeration system. in this system liquid refrigerant is the medium which removes and absorb the heat from the space. This system included the four components:- Evaporator, Expansion valve, Compressor, Condenser. In these system compressor is connected to condenser and evaporator. The refrigerant is charged in the compressor.

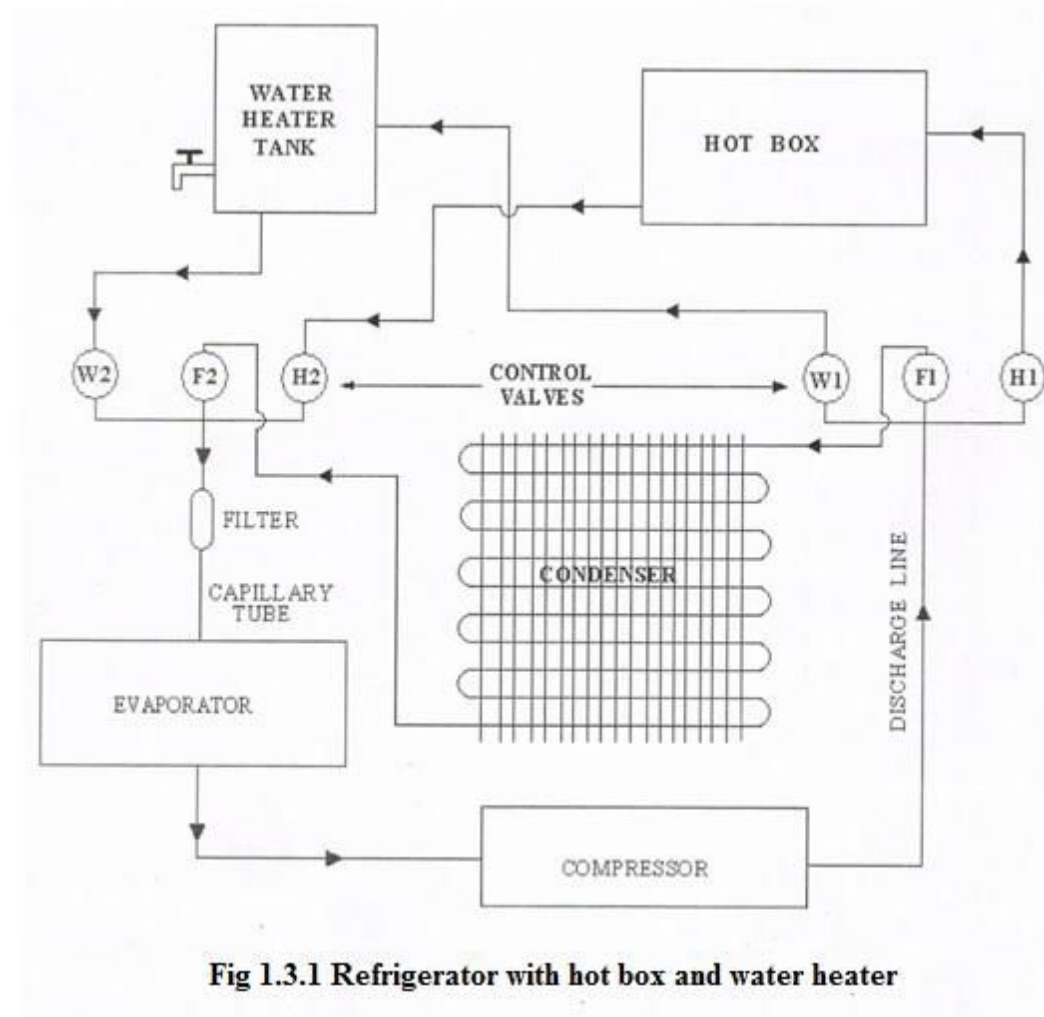


Fig 1.3.1 Refrigerator with hot box and water heater

Discharged line of the compressor is passed through the condenser This system is completely controlled by the valve mechanism and the cycle is continued. The wasted heat is nearly about the 50-60 degree. These wasted heat is used in various applications such as the water heating and hot box. In this system the purpose is to generate more and more energy. The main advantage of this system is to get the more heat and the minimum losses of the heat. These system is dependent on the vapor compression refrigeration system but the smallest change is occurs .This system is controlled by the valve mechanism it makes system very compact.

II.WORKING OF THE REFRIGERATOR

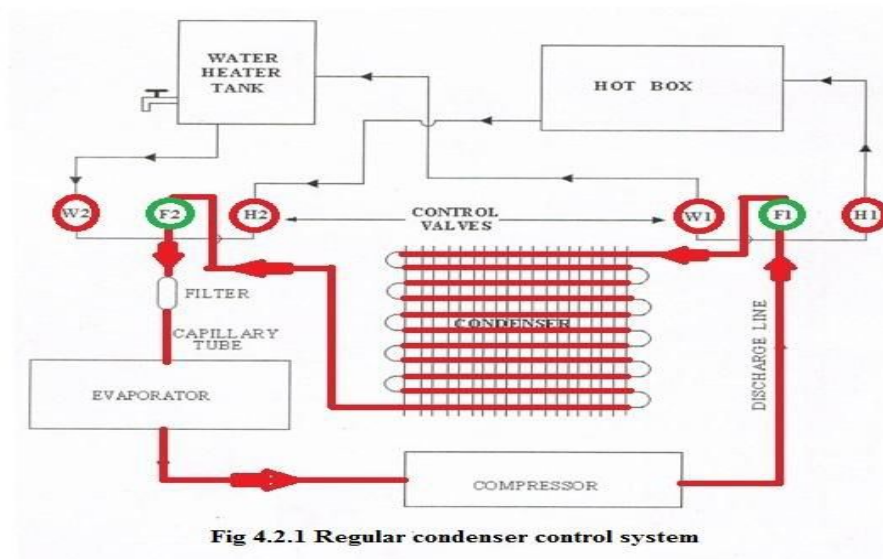
The refrigerants is enters in the compressor is called as the saturated vapour.It is compressed at the very high pressure and high temperature. The vapors in the compressor are called as the superheated vapour.This hot vapors is condensed by using the water. The cold mixture routed through the evaporator tubes. The warm air evaporates the liquid part of the cold refrigerants.

The auto refrigeration effects are the adiabatic flash evaporation at the lower temperature of the liquid. To complete of the refrigeration cycle the vapors from the evaporator is the saturation vapors and the it is routed back in the compressor and the cycle is the continued.

III.INTRODUCTION TO MODIFICATION

Refrigerator with hot box & water heater tank:

The refrigerator is based on the same principal\ of vapor compression cycle for hot box and water heater



but there is small change in the cycle.The w asted heat is 50-60 degree in condensate The wasted heat many applications such as the water heating and collected in box said to hot box.

IV. DESIGN



V. WORKING OF REFRIGERATOR WITH HOT BOX

The refrigerator with hot box and water heater shown in above fig. It is totally dependent on the vapors compression refrigeration system. After passing through the liquid line is connected to the compressor and evaporator. The wasted heat is about the 50-60 degree. This heat used many application such as domestic and industrial.

WORKING OF THE SYSTEM

- Regular refrigeration cycle
- refrigerator with hot box
- refrigeration with water heater tank .

VI. CONCLUSION

It is evident from that machine from above investigation known as the refrigerator with hot box and water heater. It performs the best results and 55-60 degree heat water up in water heater. And 45-50 degree maintain temperature up in hot box. Our daily routine we use this refrigerator. It relieves a lot of heat which goes waste but as per accessories that attach we have used. The machine has mainly useful for hotels, dairy, industry, and domestic purpose. The machine serving both cooling and heating purpose. This machine is multipurpose.

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