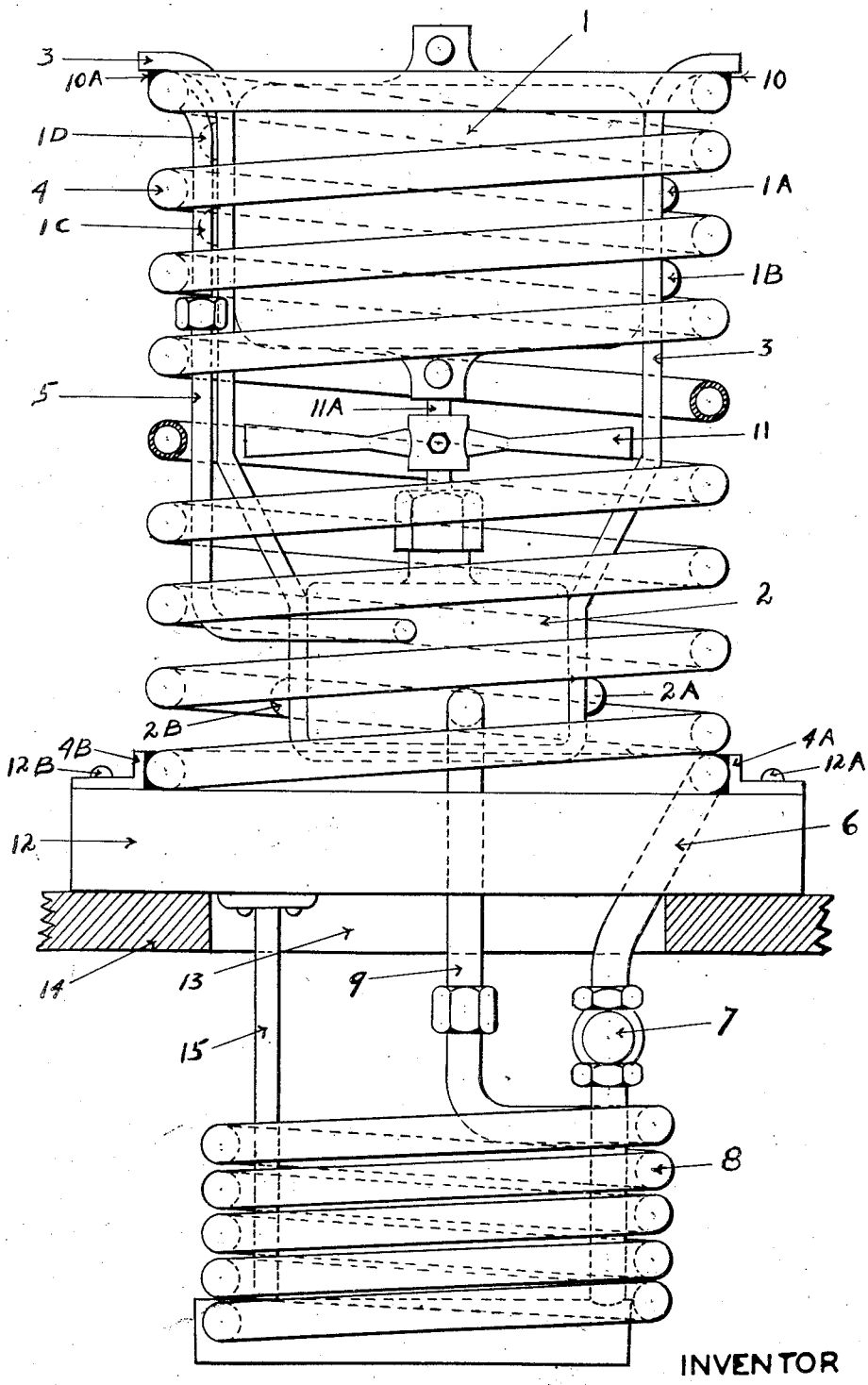
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REFRIGERATING METHOD AND APPARATUS

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REFRIGERATING METHOD AND APPARATUS

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The object of this invention is to arrange the members of a refrigeration system in order to make same compact, noiseless, and easily applied to refrigeration enclosures.

Insofar as I am aware in the prior arts, the compressor and the motor and air fan member of a refrigeration system are not surrounded by the condenser member, the condenser member of system is not cooled by drawing air into a space surrounded by a condenser, the moving mechanism members are not supported by the condenser member, the noise vibrations produced by the moving mechanism are not absorbed by the condenser. The condenser is not supported on one side of a plate and communicating with the freeze members of the system on the other side of the said plate, a hole is not included in the side of a refrigeration enclosure adapted to receive the freeze member, and to be covered by the plate which supports the members of a refrigeration system; the apparatus comprising the refrigeration mechanism, the condenser member, the freezing members the supporting plate as a complete refrigeration unit are not supported by the top or any other side of a refrigerator enclosure so that the freeze member extends through a hole in the said side and the plate secured to the said side.

Whereas: The present invention of refrigerating process and apparatus, the compressor, the fan and the motor members of the apparatus are surrounded by the condenser member of the apparatus. The condenser is cooled by drawing air into the space surrounded by the condenser and is discharged from the said space. The moving mechanism is supported on the condenser member, the vibration produced by the moving mechanism is absorbed or neutralized by the condenser member. The condenser coil is supported on one side of a plate and communicates with freeze members on the other side of plate. A hole is included in any of the sides of a refrigerating inclosure which is adapted to receive the freeze member and to be covered by the said plate which supports the refrigeration mechanism and freeze members, and the entire assembled apparatus is supported by any of the sides of a refrigeration enclosure so that the freeze member extends into the enclosure through a hole in the said side and the plate is secured to the said side.

A more specific description and explanation of my invention may be had by referring to the accompanying drawing.

1 is a motor adapted to drive the compressor 2. Motor 1 is secured to the bracket 3 by any suitable means but preferably by screws 1A, 1B, 1C and 1D. Compressor 2 is secured to bracket 3 by any suitable means but preferably by screws 2A and 2B. Part of the invention contemplates in a broad sense securing the mechanism of a refrigeration system to the condenser 4, so that the condenser 4 will support the said mechanism and so that the mechanism will be surrounded by the said condenser so that the assembled apparatus will be compact. Also part of the invention contemplates in a broad sense supporting the mechanism on a condenser coil so that any noise vibrations produced by the working mechanism can be absorbed by the condenser coil, due to the flexibility or lack of rigidity common to coils.

5 is a pipe which communicates with the condenser 4 and the compressor 2. Vapor or gas is compressed by the compressor and is delivered to the compressor 4 through pipe 5.

The vapor or gas compressed by compressor 2, is hot due to the act of compressing same. This vapor after it is conveyed to the condenser through pipe 5 is condensed and cooled and is delivered to pipe 6 which is either an extension of condenser coil 4 or a pipe extending from the coil 4 to the expansion valve 7, and which communicates with the condenser coil and the expansion valve, and adapted to convey refrigerant fluid to the expansion valve 7.

The expansion valve 7 communicates with the freeze member 8 and adapted to maintain the condensing pressure in condenser 4 and to deliver condensed refrigerating fluid to the freeze member.

The freeze member 8 is adapted to vaporize the refrigerating fluid received from the expansion valve 7, and the same freeze member communicates with a compressor suction line 9 and the said suction line 9 communicates with the compressor 2. The freeze member 8 may be of any suitable design but the coil design is preferred as due to the flexibilities common to coils any shifting of the position of pipe 9 or the members it is attached to will be adjusted by the flexibility of the said coil or any noise producing variation produced by the moving mechanism and which may telegraph through pipe 9 will be absorbed or neutralized by the said freeze coil 8.

The bracket 3 which supports the compressor and the motor is secured to the condenser coil in any suitable manner and to any suitable place in the condenser coil but preferably to the outer end of the said coil so that a maximum portion of the coil is utilized to absorb vibration produced by the moving mechanism it supports; also the

welding of the bracket 3 to the condenser 4 is preferred as shown at point 10 and 10A.

The condenser 4 is cooled by exposure to air, and although any suitable means for cooling said condenser coil may be employed the drawing of air into the space surrounded by condenser 4 and discharging of same from the said space by an air fan 11 is preferred, and is part of the present invention. It may be noted that the condenser coil rests on the plate 12 and that any air drawn into the space surrounded by the said coil must be drawn through part of the spiral spacing of the said coil, also that the motor 1 occupies part of the space surrounded by the condenser coil 4, but that there is an annular space between the coil and the motor. Any air which is drawn into the space surrounded by coil 4 is discharged from the said space through the said annular space and also through part of the spiral spacing of the coil 4 as is self evident.

The condenser 4 is secured to a plate 12 by any suitable means for securing the said condenser to the said plate. However, the welding of the brackets 4A and 4B to the condenser and securing these brackets to the plate 12 by screws 12A and 12B is preferred.

The motor and the compressor as is commonly known are heat producing members of a refrigerating system and the condenser as is commonly known is the heat dissipating member of a refrigerating system and said condenser as is commonly known communicates with the expansion valve and cold producing member of the system and said cold producing member communicates with the compressor. In the present invention the heat producing and heat dissipative members of a refrigeration system are secured to one side of plate 12 and the cold producing members are on the other side of the plate 12 but communication with the condenser and the compressor, said communications 6 and 9 extending through the said plate 12.

14 is the top or any side of a refrigeration enclosure, 13 is a hole in the top or any side of said enclosure adapted to receive the cold producing members 7 and 8, so that the said members extend into the said refrigeration enclosure.

The said hole 13 is covered by plate 12, and plate 12 is secured to the side 14 by any suitable means but preferably by screws 12A, and 12B which may extend through plate 12 into or through side 14.

The freeze member 8 is held in place by pipes 6 and 9 and bracket 15. Bracket 15 serves to support the member 15 and to lessen or to balance any strain which may be exerted on pipes 9 and 6.

Also part of the invention contemplates in a broad sense assembling the motor, the compressor, the condenser on one side of a plate and the freeze members on the other side of the plate, inserting the freeze member in a hole in a refrigerating enclosure and covering the said hole with the said plate.

It is understood that the drawing and description are illustrative only and do not restrict any of the claims attached hereto as changes in design may be made without departing from the spirit and scope of the present invention.

I claim:

1. The refrigerating apparatus which includes a condenser coil which surrounds a compressor, a fan and a motor which drives the said compressor and fan, the compressor and the air fan and the motor secured to the condenser coil so that the said coil supports the said members, an expansion valve, a pipe communicating with the expansion valve and the condenser, a freeze member communicating with the expansion valve and a pipe communicating with the freeze member and the compressor.

2. The refrigeration apparatus which includes a condenser coil, a compressor and a motor secured to the condenser coil so that the coil supports the said compressor and motor, a pipe communicating with the compressor and condenser, an expansion valve; a pipe communicating with the expansion valve and the condenser, a freeze member communicating with the expansion valve, a pipe communicating with the freeze member and the compressor.

3. The refrigeration apparatus which includes a compressor and a motor to drive the compressor, a bracket, a condenser, coil, the compressor and motor attached to a bracket which bracket holds the compressor and motor in place and position, and which bracket is secured to the condenser coil so that the said coil supports the bracket, the motor and the compressor, a pipe communicating with the compressor and the condenser, a pipe communicating with the condenser and the expansion valve, an expansion valve, a pipe member, communicating with the expansion valve, a pipe communicating with the compressor and the freeze member.

4. The refrigeration method and apparatus which includes a compressor adapted to compress refrigeration gas or vapor, a motor adapted to drive the said compressor, means for compressing gas, a bracket which supports the compressor and the motor, a condenser coil which supports the bracket, a pipe communicating with the compressor and the condenser and adapted to convey hot compressed gas or vapor to the condenser, means for condensing the gas, a pipe communicating with the condenser and the valve and adapted to convey refrigerating fluid from the condenser to the valve, a freeze member communicating with the valve and adapted to vaporize fluid received from the said valve, a pipe which communicates with the freeze member and the compressor, means for vaporizing the condensed refrigerating fluid and means for returning the refrigerating vapor or gas to the compressor to be recycled.

5. The refrigerating apparatus which includes a refrigerating enclosure, a freeze member, a hole in the side of the said enclosure adapted to receive the freeze member of a refrigerating apparatus which extends into the hole and the refrigeration enclosure, a plate which supports the freeze member and which covers the said hole, a condenser member of a refrigeration apparatus supported by the said plate, a compressor which is supported by the said condenser, a motor which drives the compressor supported by the said condenser, communications from the compressor to the condenser, a communication between the compressor and freeze member which extends through the plate, and a communication between the condenser and the freeze member which extends through the plate.

6. The refrigeration method and apparatus which includes an enclosure to be covered, a hole in the side of said enclosure adapted to receive the freeze member, a plate to cover the said hole and to support the said freeze member, a condenser coil supported by the said plate, a compressor and a fan and a motor to drive the fan and compressor, all supported on the condenser coil so that noise vibrations produced by the mov-

ing mechanism may be absorbed or neutralized by the condenser coil which has a flexibility common to coil, means for neutralizing vibrations, communications between the compressor and the condenser, between the condenser and the freeze members and betwen the freeze members and the compressor.

7. The refrigeration method and apparatus which includes, a refrigeration enclosure, a hole in the top or side of said enclosure, a freeze member which extends through the hole into the enclosure, a plate which covers the enclosure and which supports the freeze member, a condenser coil supported by the plate but on the opposite side of the plate, a compressor, a motor and a fan supported by the condenser coil and surrounded by the condenser coil so that the apparatus will be compact, and so that the vibrations produced by the moving mechanism may be absorbed or neutralized by the condenser coil which has a flexibility or lack of rigidity common to coils, communications between the condenser and the compressor between the condenser and the freeze members and between the freeze member and the compressor.

8. A plate which supports a valve and freeze coil on one of its sides, a condenser coil on the other side of said plate, a valve, a freeze coil and a condensing coil, a compressor, a fan and a motor which drives the compressor and fan, a bracket which extends into the space surrounded by the condenser coil and which holds the compressor, the fan and motor in place and position so that the motor, the fan and the compressor and the bracket are surrounded by the said condenser coil, a pipe extending from the compressor and the condenser and communication with the condenser and compressor, a pipe which extends through the plate from the condenser to the valve and which communicates the condenser and the valve, a pipe extending from the freeze coil to the compressor, means for cooling the condenser with the said fan, means for neutralizing or absorbing vibrations with the condenser coil and freeze coil, means for compressing gas, means for delivering same to condenser, means for condensing same, and means for vaporizing same, and means for recycling same.

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