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(54) Title: AN AIR CONDITIONING SYSTEM

(57) Abstract: According to embodiments of the invention, an air conditioning system is disclosed. The disclosed air conditioning system includes a compressor unit, a condenser and at least one evaporator unit having an evaporator coil. The condenser have at least two or more condenser coil circuits for conducting a refrigerant such that the cooling capacity of the air conditioning system may be modified using condenser coil circuit.

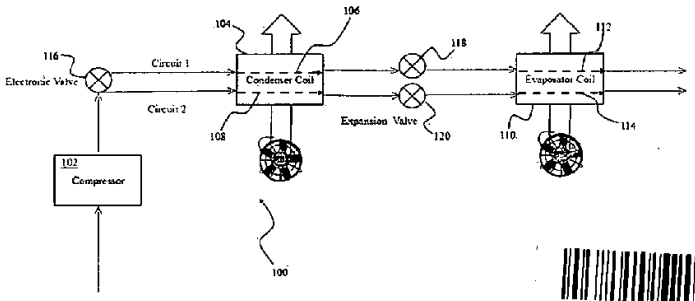
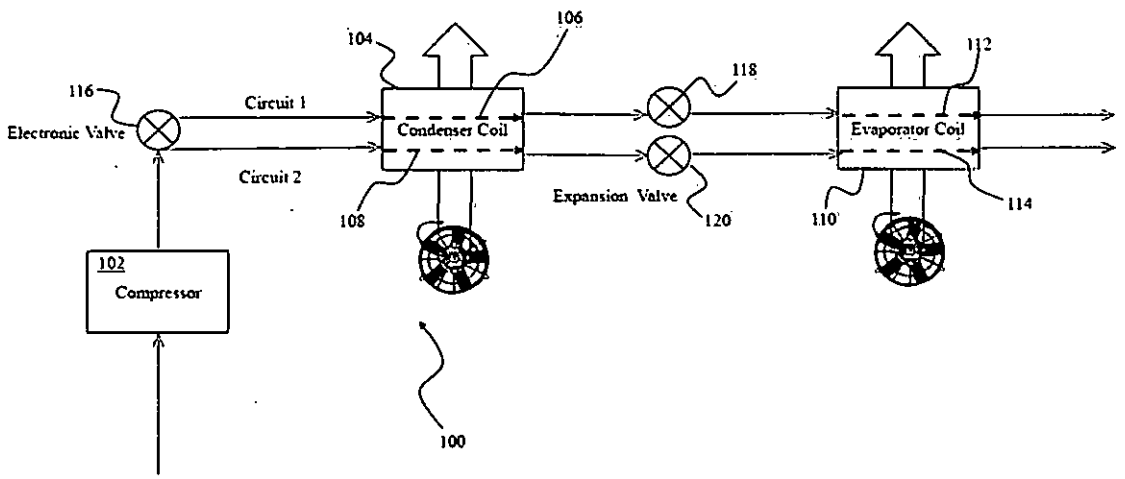


Figure 1

ABSTRACT

According to embodiments of the invention, an air conditioning system is disclosed. The disclosed air conditioning system includes a compressor unit, a condenser and at least one evaporator unit having an evaporator coil. The condenser have at least two or more condenser coil circuits for conducting a refrigerant such that the cooling capacity of the air conditioning system may be modified using condenser coil circuit.



We claim:

1. An air conditioning system comprising:

a compressor unit;

a condenser having at least two or more condenser coil circuits for conducting a refrigerant; and

at least one evaporator unit having a evaporator coil, such that the cooling capacity of the air conditioning system is modified using condenser coil circuits.

2. The air conditioning system as claimed in claim 1, wherein the evaporator coil has at least two or more circuits for receiving and conducting the refrigerant from the condenser coil.

3. The air conditioning system as claimed in claim 1, further comprising a first arrangement for selectively control passage of a refrigerant in one or more condenser coil circuits.

4. The air conditioning system as claimed in claim 1, further comprising a second arrangement for selectively control passage of a refrigerant in one or more evaporator coil circuits.

5. The air conditioning system as claimed in claim 1, wherein the number of condenser coil circuits are equal to number of evaporator coil circuit.

6. The air conditioning system as claimed in claim 5, wherein the first and the second arrangement are operable simultaneously.

7. The air conditioning system as claimed in claim 1, wherein the length of at least one of the condenser coil circuit is shorter than the length of at least other condenser coil circuit.

8. The air conditioning system as claimed in claim 1, wherein the length of at least one of the evaporator coil circuit is shorter than the length of at least other evaporator coil circuit.

Dated this the 31st day of December 2018

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FIELD OF INVENTION

The disclosure relates to heat exchangers in general, and in particular, to a condenser/evaporator arrangement of an air conditioning system.

BACKGROUND

Air conditioning system are well known in the art. Typically the air conditioning system are designed based on the fixed volume of enclosure where air conditioning is required. For example, 80 to 120 square feet enclosure require an air conditioning unit of 1-ton capacity. One ton is equal to the amount of heat required (288,000 Btu) to melt one ton of ice in a 24-hour period. A one-ton air conditioner is rated at 12,000 Btu per hour (288,000/24). Similarly, for 120 to 190 square feet space an air conditioning unit of 1.5-ton capacity may be required.

It is important to select right capacity air conditioning unit at the time of installation to avoid under performance or over power usage. At times it is challenging to identify right capacity air conditioning unit, particularly for Asian markets, considering regular movement of people from one rented place to another rented place.

As such their remains a requirement for an air conditioning unit that may be operated at plurality of load conditions

SUMMARY OF THE INVENTION

According to embodiments of the invention, an air conditioning system is disclosed. The disclosed air conditioning system includes a compressor unit, a condenser and at least one evaporator unit having an evaporator coil. The condenser have at least two or more condenser

coil circuits for conducting a refrigerant such that the cooling capacity of the air conditioning system may be modified using condenser coil circuit.

According to another embodiment, the air conditioning system may have an arrangement for selectively control passage of a refrigerant in one or more coils circuit.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention, as claimed.

BRIEF DESCRIPTION OF DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate exemplary embodiments and, together with the description, serve to explain the disclosed principles.

Figure 1 illustrate an exemplary air conditioning system according to an embodiment of the invention; and

Figure 2 illustrate an exemplary condenser unit arrangement according to an embodimcnt of the invention.

DETAILED DESCRIPTION OF DRAWINGS

Exemplary embodiments are described with reference to the accompanying drawings. Wherever convenient, the same reference numbers are used throughout the drawings to refer to the same or like parts. While examples and features of disclosed principles are described herein, modifications, adaptations, and other implementations are possible without departing from the spirit and scope of the disclosed embodiments. It is intended that the following

detailed description be considered as exemplary only, with the true scope and spirit being indicated by the following claims.

Figure 1 illustrate an exemplary air conditioning system 100 according to an embodiment of the invention. As illustrated, the air conditioning system 100 may include a compressor unit 102. According to an embodiment, the compressor unit 102 may be configured to raise the temperature and pressure of a low-pressure and low temperature refrigerant. According to exemplary embodiments of the invention, the refrigerants may be a Chlorofluorocarbons (CFCs) such as, but not limited to, R11, R12, R113, R114, R115, or a Hydrochlorofluorocarbons (HCFCs), such as but not limited to, R22, R123 or Hydrofluorocarbons (HFCs), such as but not limited to, R134a, R404a, R407C, R410a or any other known refrigerant. The high-pressure and temperature refrigerant may be transferred from the compressor unit 102 to a condenser 104, wherein said condenser may have at least two or more circuits 106, 108 for conducting the high-pressure and temperature refrigerant.

The system 100 further includes at least one evaporator unit 110 having a evaporator coil. According to another embodiment, the evaporator coil 110 may have at least two or more circuits 112, 114 for receiving and conducting the refrigerant from the condenser coil 104. According to yet another embodiment the number of condenser coil circuits 106, 108 are equal to the number of evaporator coil circuits 112, 114.

The system 100 further includes a first arrangement 116 for selectively control passage of a refrigerant in one or more condenser coil circuits 106, 108. According to an embodiment the first arrangement 116 is an electronic valve. According to another embodiment, the first

arrangement may be operated manually. According to yet another embodiment the first arrangement may be operated automatically.

The air conditioning system as claimed in claim 1, further comprising a second arrangement (not shown) for selectively control passage of a refrigerant in one or more evaporator coil circuits 112, 114. According to an embodiment, the second arrangement may be one or more expansion valves 118, 120. According to yet another embodiment, the first and the second arrangement may be operable simultaneously.

The arrangement being such that the cooling capacity of the air conditioning system 100 may be modified by selectively using one or more condenser coil circuits.

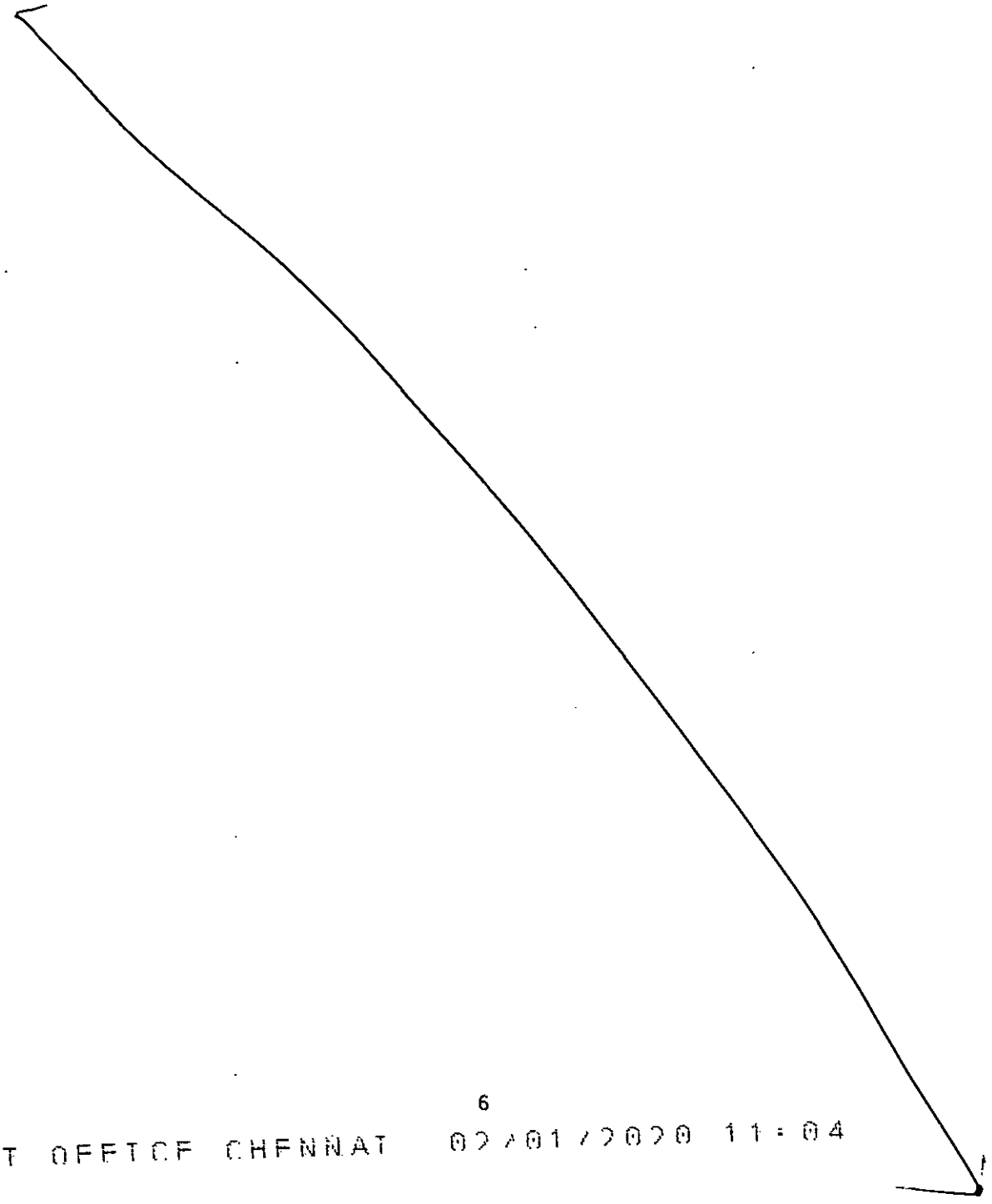
Figure 2 illustrate an exemplary condenser unit 104 arrangement according to an embodiment of the invention. As illustrated the the length of at least one of the condenser coil circuit 106 is shorter than the length of at least one other condenser coil circuit 108. According to exemplary embodiment of the disclosure, shorter circuit may be used for less power/load requirements, longer circuit may be used to handle the higher power/load requirement and combined circuits may be used to handle even higher power/load requirements as the case may be.

According to yet another embodiment the length of at least one of the evaporator coil circuit 112, is shorter than the length of at least one other evaporator coil circuit 114.

The illustrated steps are set out to explain the exemplary embodiments shown, and it should be anticipated that ongoing technological development will change the manner in which particular functions are performed. These examples are presented herein for purposes of illustration, and

not limitation. Alternatives (including equivalents, extensions, variations, deviations, etc., of those described herein) will be apparent to persons skilled in the relevant art(s) based on the teachings contained herein. Such alternatives fall within the scope and spirit of the disclosed embodiments.

It is intended that the disclosure and examples be considered as exemplary only, with a true scope and spirit of disclosed embodiments being indicated by the following claims.



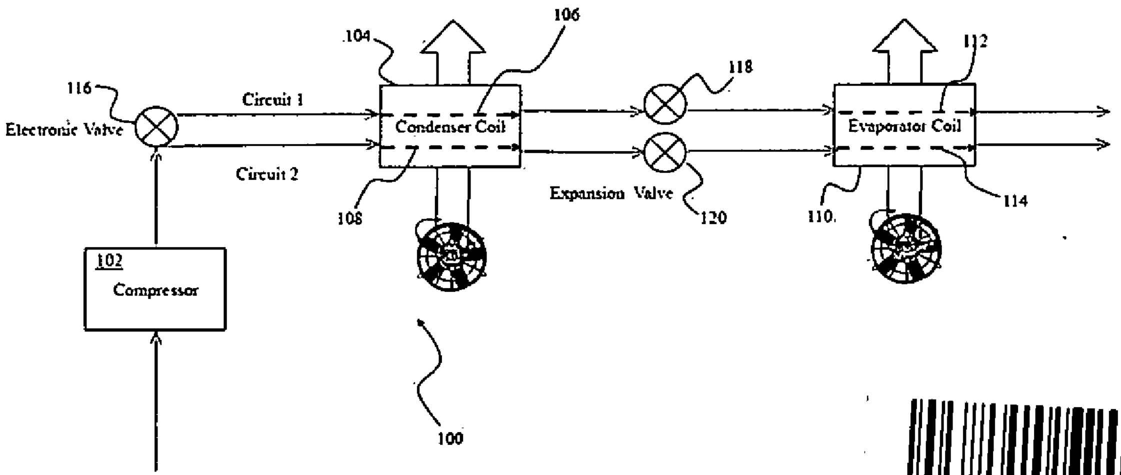


Figure 1

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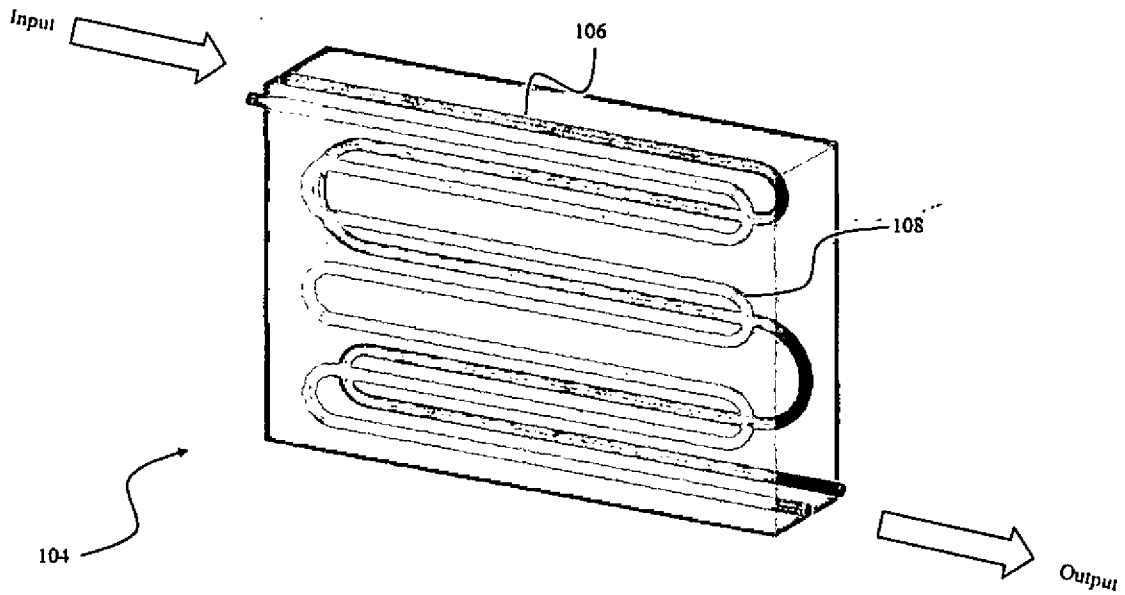

Figure 2

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