Jan. 6, 1953 W. L. MORRISON 2,624,554

EVAPORATOR STRUCTURE

Filed April 6, 1949

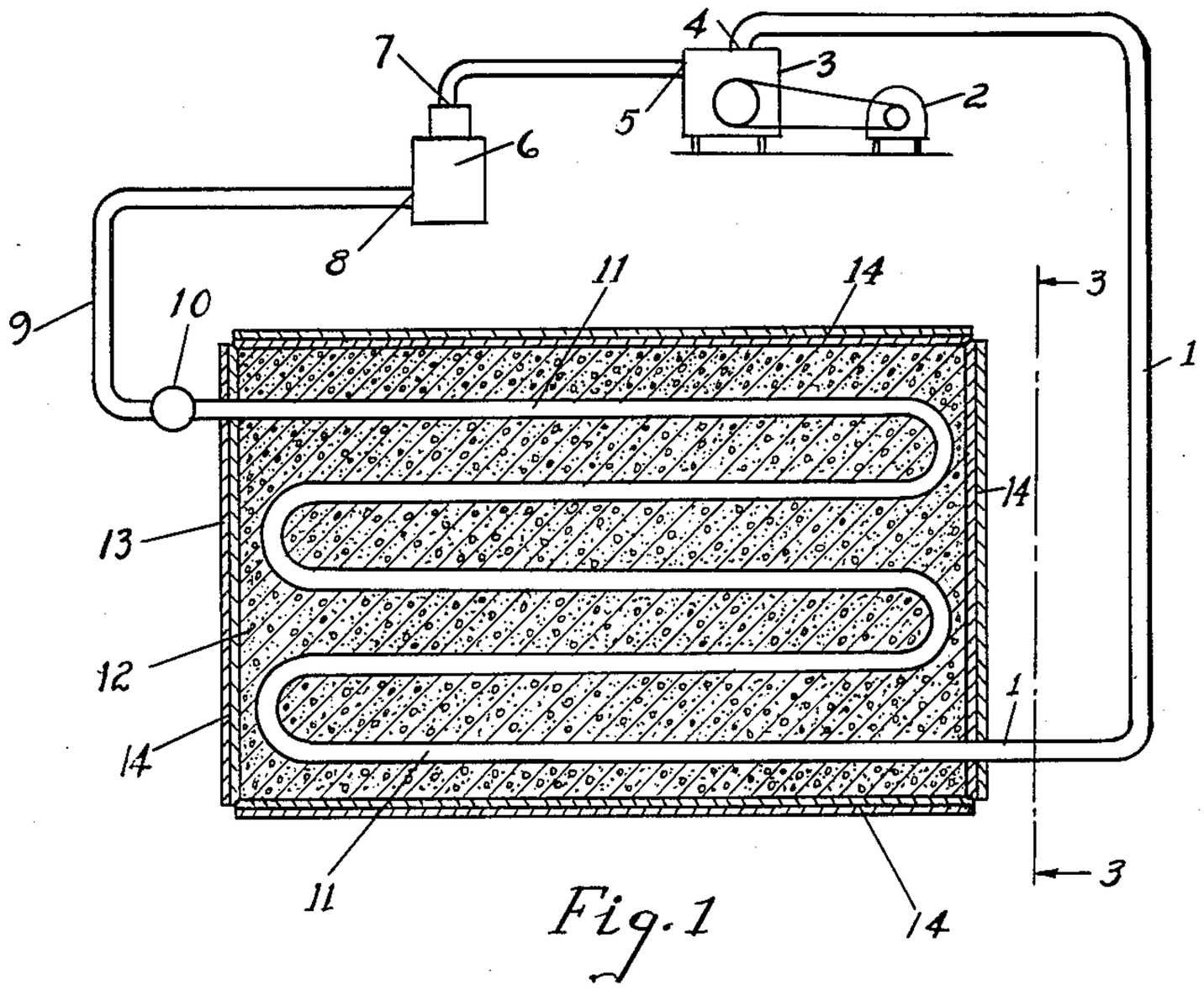

Fig. 1

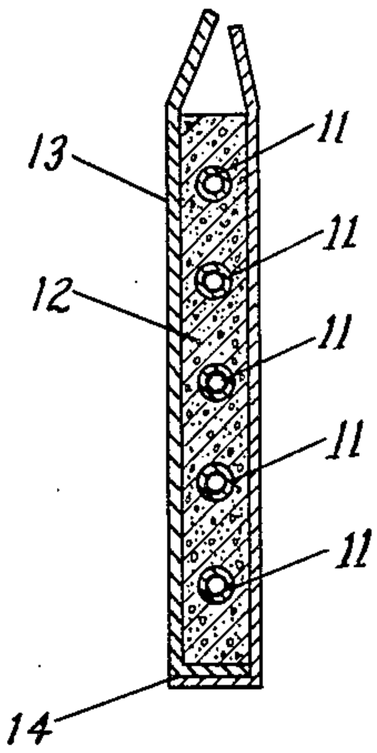

Fig. 2

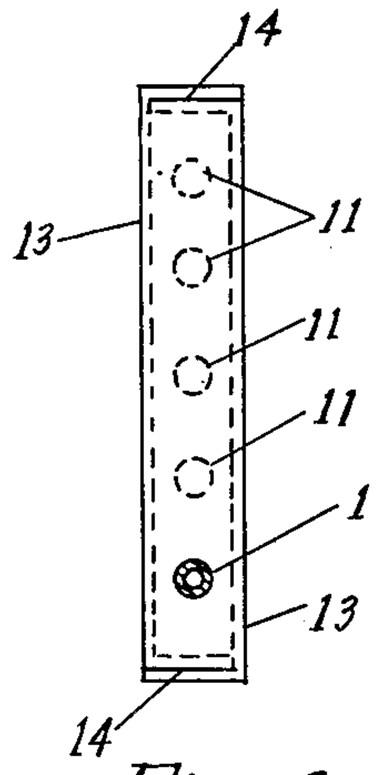

Fig. 3

Inventor
Willard L. Morrison
by Parker & Carter
Attorneys

Patented Jan. 6, 1953

2,624,554

UNITED STATES PATENT OFFICE

2,624,554

EVAPORATOR STRUCTURE

Willard L. Morrison, Lake Forest, Ill.

Application April 6, 1949, Serial No. 85,887

1 Claim. (Cl. 257—255)

1

My invention relates to a method and apparatus for heat transfer and has for one object to provide means for encasing the heat transfer coils in a concrete block with a hermetically sealed metal covering.

Another object of the invention is to provide an inexpensive means of extending the effect of heat or cold carrying tubes.

Another object is to provide a means of converting the tubing encased in concrete into a wall member or shelf or floor for refrigerating or heating purposes.

Another object is to provide a means for preventing condensation in or on a concrete block containing heat transfer coils.

Other objects will appear from time to time in the course of the specification and claim.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein:

Figure 1 is a horizontal section through the length of a concrete block showing the evaporator or tubing of a refrigeration circuit encased in the concrete;

Figure 2 is a vertical section through the concrete block;

Figure 3 is a side elevation of the block taken on the line 3—3 of Figure 1.

Like parts are indicated by like characters throughout the specification and drawings.

Referring to the drawings, Figure 1 illustrates the tubing 1 as part of a conventional refrigeration circuit consisting of a motor 2, a compressor 3. The refrigerant enters the compressor 3 at 4, is compressed and discharged at 5 to the condenser 6 at 7 and leaves at 8. The condensed refrigerant travels through the tube 9 to expansion valve 10, thence to the evaporator in the tubes 11.

The evaporator tubes or coil 11 where the evaporation takes place are encased in a block of concrete 12. This block 12 is then coated with a metal foil 13 which is pressed tightly against the surface of the concrete 12. The thinness of the foil permits it to be shaped to conform with the somewhat rough concrete in a manner impossible with heavier metal. Some adhesive that has high heat conductivity may be used to attach the foil to the concrete.

The metal foil 13 can be folded on the sides as shown in Figure 2 and then hermetically sealed along the line 14.

The use and operation of my invention are as follows:

2

By encasing the tubes carrying heat or cold in a concrete block, the entire block takes on the heat or cold from the tubes. This extends the effect of the tubes over a larger area. The blocks can be used as a refrigerating wall in a refrigerator or a house. By circulating heat in the tubes the blocks can be used for walls or floors to furnish heat in a building.

The thin metal foil is wrapped tightly around the concrete block to protect it from the destructive action of condensation. The condensation takes place on the outer surface of the foil.

If desired, the cement block may be heated before the foil is applied so that the vapor pressure in the block is much higher per square foot than that of the ambient temperature, this will cause a reduction of pressure inside the foil casing when the block later cools and creates a vacuum effect between the metal foil and the concrete to assist in holding the foil firmly against the surface of the concrete.

I claim:

In combination, an evaporator coil, a concrete block cast thereabout and in which the coil is embedded, a metallic foil coating entirely enclosing the block except where the ends of the coil protrude therefrom, the edges of the foil being joined together to make an air tight cover for the block, the air pressure within the block beneath the foil being less than the ambient pressure, the coating being of such thickness and strength that the differential air pressure forces the foil to snugly engage, adhere to and conform minutely with the surface contour of the block.

WILLARD L. MORRISON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,740,336	Crittal et al.	Dec. 17, 1929
1,910,105	Herring	May 23, 1933
2,217,702	Kliest	Oct. 15, 1940
2,328,666	Musgrave	Sept. 7, 1943

FOREIGN PATENTS

Number	Country	Date
260,414	Great Britain	Nov. 4, 1926
348,329	Great Britain	May 14, 1931
415,915	Great Britain	Sept. 6. 1934
540,678	Great Britain	Oct. 27, 1941