Dec. 11, 1928. 1,694,427

H. NIELSEN

REFRIGERATING MACHINE

Filed March 19, 1927

FIG. 1.

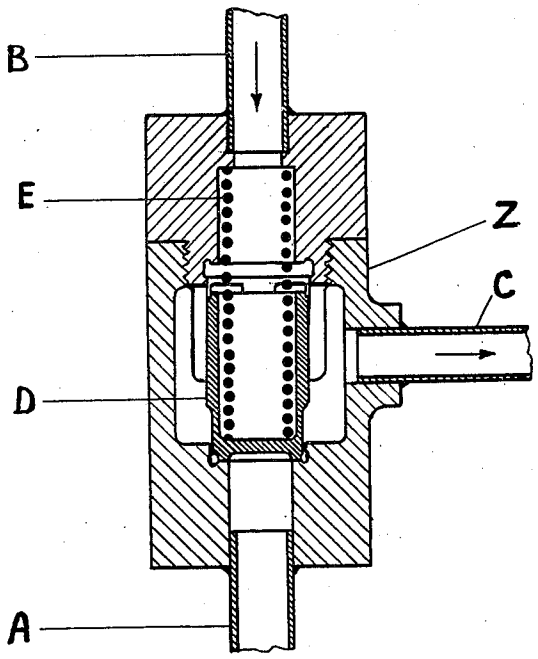
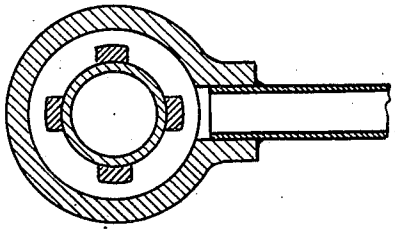


FIG. 2.



INVENTOR

Holger Nielsen

BY

ATTORNEY

Patented Dec. 11, 1928. 1,694,427

UNITED STATES PATENT OFFICE.

HOLGER NIELSEN, OF BUFFALO, NEW YORK.

REFRIGERATING MACHINE.

Application filed March 19, 1927. Serial No. 176,775.

In refrigerating machines where the compressor is to receive or suck gas from two or more evaporators with different temperatures and corresponding different back pressures, it is at present customary to have hand operated valves by which the compressor can be connected to any evaporator in which the back pressure has increased over the desired figure.

The present invention has for its object to automatically connect to the compressor any of two or more evaporators that may need most to be sucked from. Say for instance that the back pressure in two evaporators is desired to be kept at 20 and 30 pounds per square inch, having a normal difference of 10 pounds per square inch, and say that this difference has increased to 12 pounds per square inch, then the compressor should be connected to the evaporator with highest pressure so as to bring this down to only 10 pounds per square inch over the pressure in the other evaporator.

If, on the other hand, the difference is only 8 pounds per square inch, then the compressor should be connected to the evaporator with lowest pressure so as to bring this farther down and make the desired difference of 10 pounds per square inch.

These operations are done automatically in the device in question in which the variation of pressure difference is used for operating an opening and closing device for the pipe line branching off from the compressor suction line to two different evaporators.

The device is shown in the accompanying drawing, in which—

Fig. 1 is a vertical section, and

Fig. 2 is a horizontal section.

Z is a body from which pipe C leads to the compressor suction side. Pipe A leads to evaporator with highest pressure, and pipe B leads to the evaporator with lowest pressure. D is a movable member that can close either of the pipes A or B. Member D is exposed to highest back pressure from below and lowest back pressure from above; further, member D is loaded by a spring E. The force of this spring corresponds to the desired difference in back pressure. If this difference increases over that corresponding to load of spring, then member D goes up and closes the pipe to low pressure evaporator, allowing compressor to suck down the pressure in high pressure evaporator.

If, on the other hand, the difference in pressure is less than that corresponding to load of spring, then member D goes down and allows the compressor to suck the pressure in low pressure evaporator farther down. Thus the difference of pressure in evaporators will be kept constant continuously as long as the compressor runs.

In cases where more than two different pressures are desired, either or both of the two pipes A and C can be connected to another device of the same kind, from each of which two pipes will then branch off to other evaporators, etc., thus giving possibility of keeping four or even more back pressure at constant differences.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed, I declare that what I claim is:

In a refrigerating apparatus a coupling member connecting three pipes, one leading to the suction side of a compressor, one leading to a low pressure evaporator and one leading to a high pressure evaporator, and valve means in said member for maintaining a predetermined pressure difference between the two evaporators, said means closing said pipe leading to the high pressure evaporator when the pressure difference between the two evaporators is less than said predetermined difference and closing the pipe leading to the low pressure evaporator when the difference in pressure in the two evaporators exceeds said predetermined difference, said suction pipe being in communication with one of said pipes leading to the evaporators when the other is closed by said valve means.

HOLGER NIELSEN.