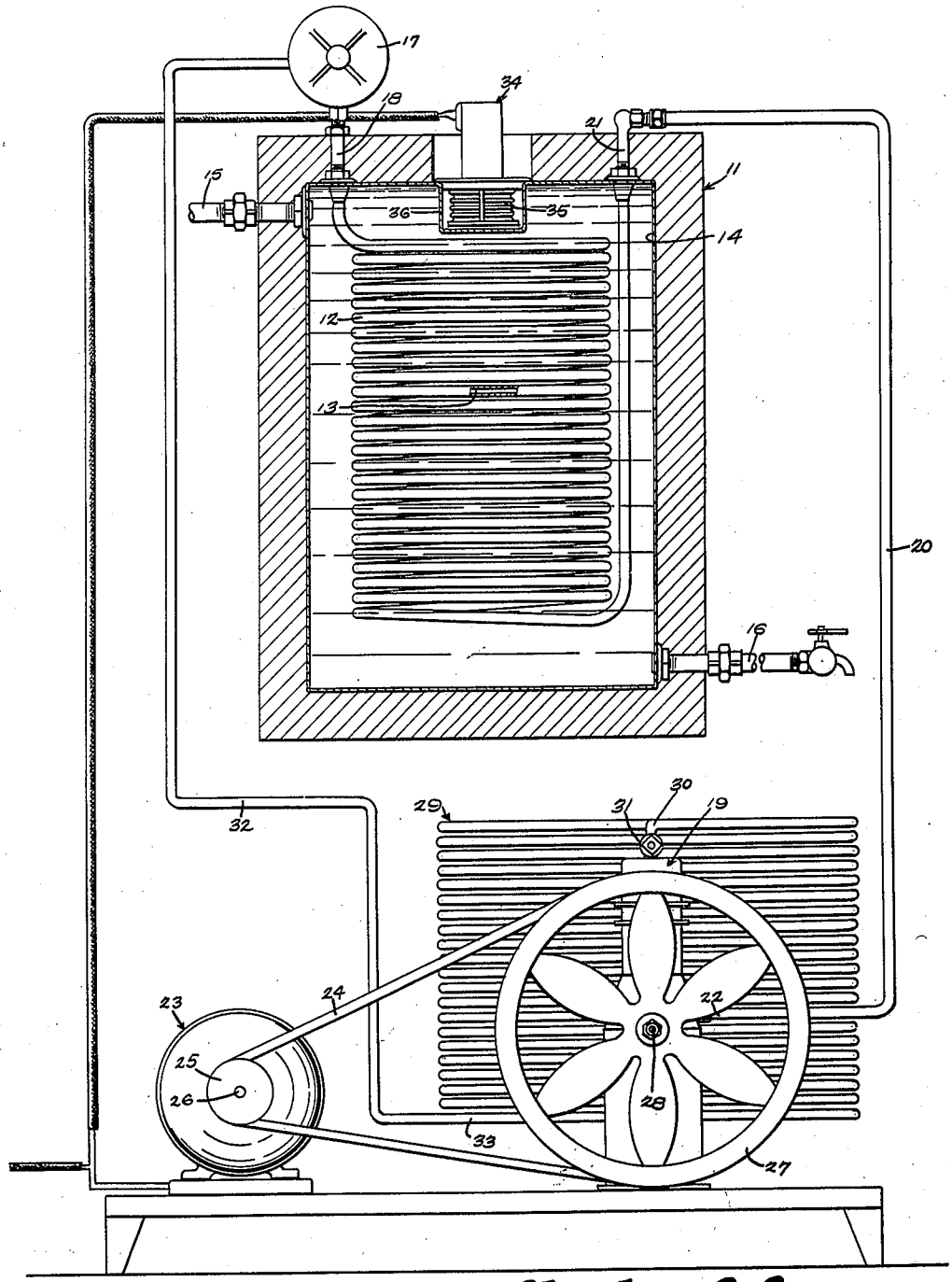
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FLUID COOLER

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Charles C. Spreen
Inventor
by Smith and Freeman
Attorneys

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CHARLES C. SPREEN, OF DETROIT, MICHIGAN, ASSIGNOR TO KELVINATOR CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN

FLUID COOLER

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My invention relates to fluid coolers, and particularly to fluid coolers wherein the fluid is cooled by mechanical refrigerating apparatus, and the principal object of my invention is to provide a new and improved fluid cooler of this type. In the drawings accompanying this specification and forming a part of this application I have shown, for purposes of illustration, one form which my invention may assume. In these drawings the single figure is a general view of the embodiment of my invention herein illustrated showing the parts some in section and some in elevation.

The embodiment of my invention herein shown comprises an outer container herein shown as a tank 11, and an inner container herein shown as a coil 12, contained within the tank 11, and dividing the space within the tank 11 into an inner chamber 13 within the coil 12, and an outer chamber 14 between the coil 12 and the tank 11.

Connected into the outer chamber 14 is an inlet duct 15 for the introduction into the outer chamber 14 of the fluid to be refrigerated, and an outlet duct 16 for withdrawal from the outer chamber 14 of the fluid which has been refrigerated therein; provided to refrigerate the fluid within the outer chamber 14 is dry-type refrigerant expansion apparatus utilizing the inner chamber 13 as the refrigerant expansion chamber, and comprising also a suitable expansion valve 17 connected to the inlet end 18 of the coil 12 to control the flow of refrigerant into the inner chamber 13; connected to the refrigerant expansion apparatus is suitable refrigerant compressing mechanism comprising a compressor 19 receiving the expanded refrigerant from the inner chamber 13 by means of a duct 20 leading from the outlet end 21 of the coil 12 to the intake 22 of the compressor 19, operated by means of an electric motor 23 connected to the compressor by means of a belt 24 connecting a pulley 25 on the motor shaft 26 with the pulley 27 on the compressor shaft 28, and delivering compressed refrigerant to the expansion valve 17 through a condenser 29 having its inlet end 30 connected to the outlet 31 of the compressor 19 and delivering the compressed and condensed refrigerant to the expansion valve 17 through a duct 32 leading to the expansion valve 17 from the outlet end 33 of the condenser 29; and controlling the operation of the refrigerant compressing mechanism is a thermostatic switch 34 interposed in the circuit of the motor 23 and made responsive to the temperature of the fluid within the outer chamber 14 by disposal of the bellows 35 of the thermostatic switch 34 in a non-freezing fluid contained within a casing 36 depending into the fluid within the outer chamber 14.

From the above description it will be obvious to those skilled in the art that I have provided means for cooling fluid whereby the heat from the fluid is absorbed directly into the refrigerant expansion chamber, and more particularly into the expansion coil of refrigerant expansion apparatus of the dry type, and wherein the operation of the mechanical refrigerating apparatus is controlled by a thermostat responsive to a temperature condition of the water cooler, and more particularly to the temperature of the fluid being cooled.

Under all these circumstances it will be obvious to those skilled in the art that the embodiment of my invention herein shown accomplishes at least the principal object of my invention.

At the same time it will also be obvious to those skilled in the art that the particular embodiment of my invention herein shown and described may be variously changed and modified without departing from the spirit of my invention or sacrificing the advantages thereof, and it will therefore be understood that the disclosure herein is illustrative only, and that my invention is not limited thereto.

I claim:

In a fluid cooler refrigerated by mechanical apparatus, an outer casing, a sealed inner casing for containing fluid, a fluid inlet in open communication with the top portion of said inner casing, a valved outlet leading from said inner casing to the exterior of said outer casing, a refrigerant expansion coil in said inner casing arranged to cause the refrigerant to move downwardly substantially

the entire length thereof, and a thermostat exterior of said inner casing thermally responsive to the fluid at the top of said inner casing for automatically controlling the apparatus to maintain the fluid in said inner casing at a predetermined temperature.

In testimony whereof I hereunto affix my signature.

CHARLES C. SPREEN.