

March 6, 1928.

1,661,433

T. J. LITTLE, JR

COMPRESSOR

Filed July 19, 1926

Fig. 1

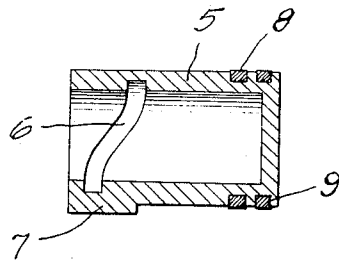
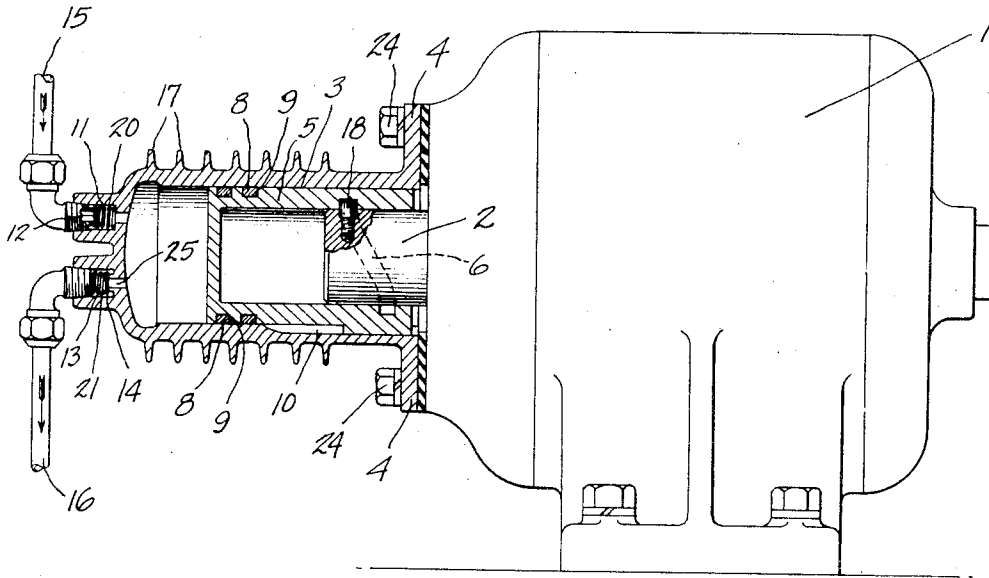


Fig. 2

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COMPRESSOR.

Application filed July 19, 1926. Serial No. 123,445.

The primary object of my invention is to provide a compressor for use in refrigerating systems which can be mounted upon a motor and operated directly by the shaft of the motor.

Another object of my invention is to provide a compressor for use in refrigerating systems, and particularly for those systems which are installed in domestic refrigerators, which will materially reduce the amount of space now required for the installation of domestic refrigerating systems.

With these and other objects in view, my invention consists in the arrangement, combination and construction of the various parts of my improved device, as described in the specification, claimed in my claims and shown in the accompanying drawing, in which:

Fig. 1 is a side elevation of a motor, showing in section, my invention attached thereto.

Fig. 2 is a sectional view of the rear portion of the piston employed in my improved device.

I have shown an electric motor 1 having an armature shaft 2 connected therewith, a cylinder 3 having an apertured flange 4 on the bottom thereof, secured to the motor 1 by the bolts 24 inserted through the flanges 4. Within the cylinder 3 is a piston 5 having an irregular groove 6 cut around its inner surface, and having a longitudinal flange 7 formed in its outer surface adjacent its rear end. Rings 8 are positioned in grooves 9 adjacent the head of the piston 5. The cylinder 3 has a longitudinal groove 10 cut in its inner surface near its lower end for sliding engagement with the flange 7 on piston 5. An inlet vent 11 is formed in the head of cylinder 3 and contains an inward opening valve 12. An outlet vent 13 is also formed in the head of cylinder 3 and contains an outward opening valve 14. A coil spring 20 is positioned in vent 11 to bear outwardly against valve 12 and to normally hold it securely over the end of pipe 15 which is fitted in vent 11, and a coil spring 21 is positioned in vent 13 to bear inwardly against valve 14 to normally hold it securely over the reduced portion 25 of vent 13.

An intake pipe 15 is fitted in intake vent 11 and an outlet pipe 16 is fitted in the outlet vent 13. A plurality of annular flanges 17 are formed on the outer surface of cylinder 3 to facilitate the radiation of heat gener-

ated by the operation of the piston 5. The shaft 2, which is operatively connected with the motor 1, and which extends into the piston 5, has a stud 18 positioned therein which is adapted to engage and move through the irregular groove 6. The piston 5 serves as the sole support for the left hand end of the shaft 2 as viewed in Fig. 1.

When the shaft 2 is rotated by the motor 1, stud 18 engaging and moving through the irregular groove 6 in piston 5 will cause the piston 5 to move backward and forward in cylinder 3. The backward movement of piston 5 will lift valve 12 from its seat on the end of pipe 15 and draw gaseous refrigerant from the expansion chamber of a refrigerating system, (not shown) through pipe 15 and vent 11 into cylinder 3. The forward stroke of piston 5 will compress the gaseous refrigerant drawn into cylinder 3 by the backward stroke, and will lift valve 14 and will force the compressed refrigerant through the vent 13 and the pipe 16 to the condenser of the refrigerating system (not shown). The flange 7, moving in the groove 10, will prevent the piston 5 from turning in the cylinder 3.

It will be obvious that various changes may be made in the arrangement, combination and construction of the various parts of my improved device, without departing from the spirit of my invention, and it is my intention to cover by my claims such changes as may be reasonably included within the scope thereof.

What I claim is:

1. In combination, an electric motor, a cylinder rigidly secured to one end thereof in axial alignment therewith and forming an end wall therefor, a piston slidably received within said cylinder rotatably receiving an end of the shaft of said motor within the interior thereof, a meandering endless groove in the interior walls of said piston, a projection on the periphery of said shaft engaging said groove, a longitudinally extending groove in the interior of said cylinder, and a longitudinally extending projection on the periphery of said piston received in said groove for preventing rotation of said piston whereby rotation of said shaft causes reciprocation of said piston.

2. In combination, a motor provided with an armature shaft, a cylinder secured to an end of said motor with its axis concentric

with said shaft, a piston in said cylinder rotatably receiving the adjacent end of said shaft and forming the sole support for said end, a meandering groove in the interior wall of said piston, and means fixed to said shaft received in said groove whereby rotation of said shaft causes reciprocation of said piston. 15

3. In combination, an electric motor, a cylinder secured to one end thereof in axial alignment therewith, a piston slidably received in said cylinder and held against rotation therein, one end of the armature shaft of said motor being rotatably received in said piston and being solely supported thereby, an irregular groove in the interior wall of said piston, and a projection on said shaft engaging said groove whereby rotation of said shaft causes reciprocation of said piston. 15

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