June 3, 1930. H. A. GREENWALD 1,761,036

PUMP FOR REFRIGERATING APPARATUS

Filed Sept. 6, 1927

Fig. 1.

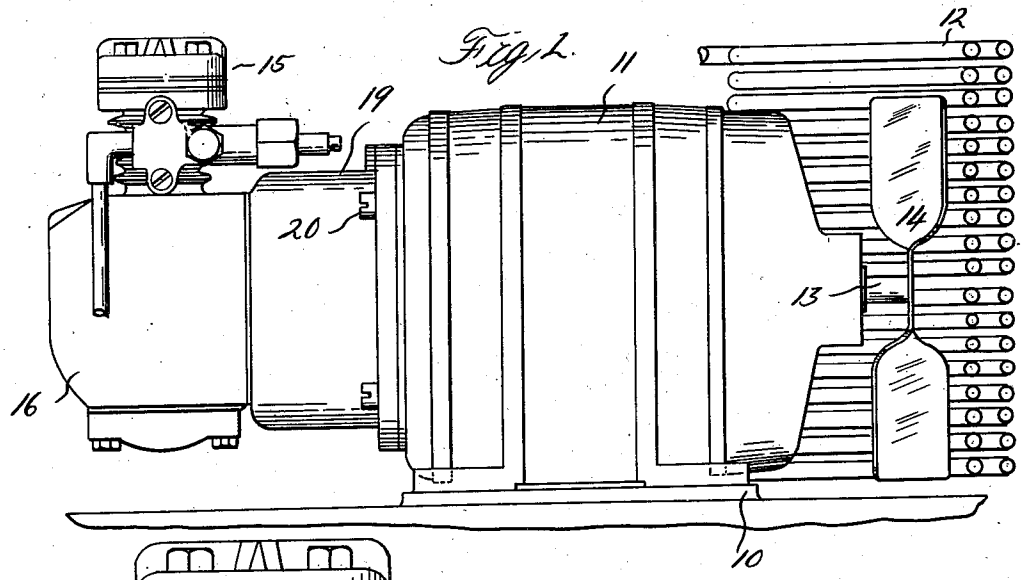
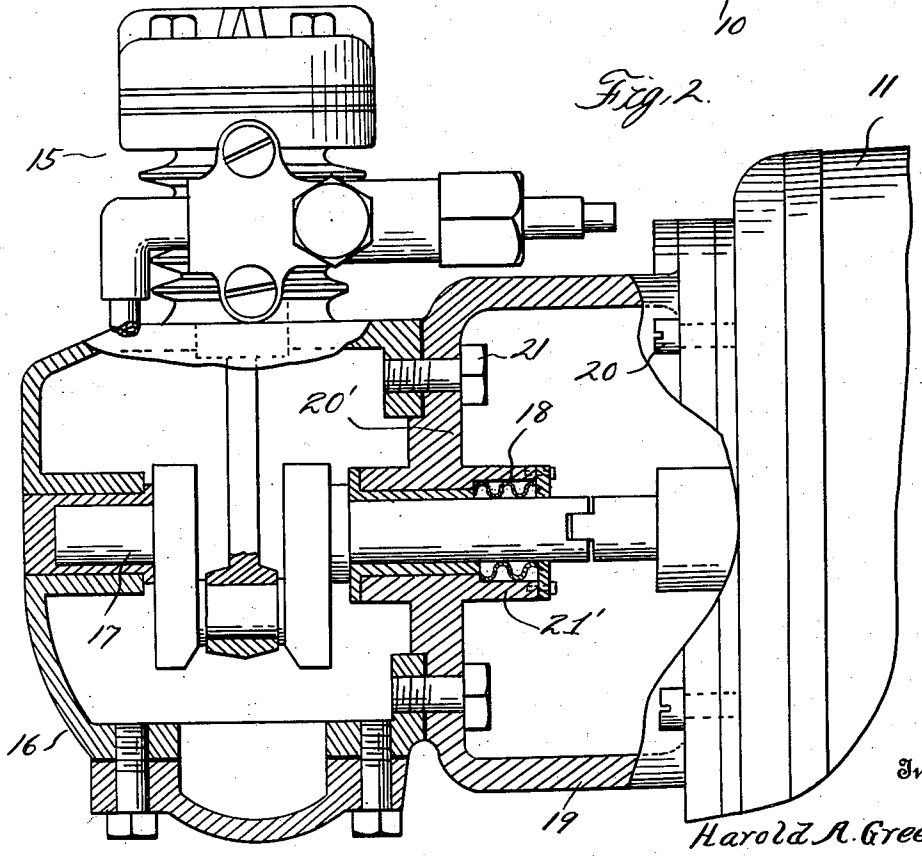


Fig. 2.



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UNITED STATES PATENT OFFICE

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PUMP FOR REFRIGERATING APPARATUS

Application filed September 6, 1927. Serial No. 217,774.

The invention relates to refrigerating apparatus and more particularly to improvements in certain parts thereof.

The invention has particular reference to an improved mounting for the compressor upon the motor whereby additional compactness and utility is obtained, the construction offering further possibilities such as cheapness in manufacture, durability and convenience in assembly.

The invention further contemplates the provision of a mounting, which in addition to supporting the compressor directly upon the motor, serves as a housing for the conventional seal upon the motor shaft and the usual shaft coupling between the compressor and motor.

The invention has as a further object to simplify, render more efficient and improve generally arrangements of this general character, and the means for attaining all the aforesaid objects, as well as other advantages, and the details of one illustrative embodiment of the invention will be made more apparent as the description proceeds, especially when considered with the accompanying drawings,

Wherein

Figure 1 is a side elevation of the motor and compressor and

Figure 2 is a view similar to Figure 1 partly in section.

Referring now to the drawing wherein like reference characters indicate like parts, it will be noted that there is illustrated a base 10 upon which a motor 11 and condenser 12 are preferably mounted. Arranged upon one end of the motor shaft 13 is a cooling fan 14 which, as shown, is completely housed within the condenser coils. Positioned upon the opposite end of the motor and supported thereby is a compressor 15, having a crank casing 16 and a crank shaft 17 journaled in bearings formed in the casing. Surrounding the shaft 17 adjacent the casing 16 is a liquid seal 18 of the usual construction for performing the dual function of preventing escape of the refrigerating fluid which may be contained in the casing 16 and also for preventing entrance of air from the outside along the shaft 17 and into the casing. Any suitable coupling may be employed for operatively connecting the crank shaft 17 to the motor shaft 13.

For rigidly supporting the compressor 15 upon the motor, I provide a bracket or housing 19 secured at one end upon the motor housing by means of the bolts 20 and at the opposite end to the compressor casing by means of the bolts 21. As shown, this housing is of sufficient length to completely encase the crank shaft 17, seal 18 and coupling members. It will further be noted that the rear end of the housing 19 is formed with an inwardly extending web 20′, a portion of which constitutes a bearing for the crank shaft 17, while another portion 21′ constitutes a chamber for the liquid seal. Thus it will be further noted that the bracket 19, in addition to supporting the compressor directly upon the motor and in addition to completely enclosing the crank shaft and motor shaft of the apparatus constitutes an efficient bearing for the crank shaft.

From the foregoing, it will be readily apparent that the herein described construction offers means for mounting the parts of the apparatus whereby a compact assembly results. Furthermore the assembling of the apparatus is facilitated as the parts may be quickly attached and easily aligned. I propose casting the housing 19 whereby this portion of the apparatus may be cheaply and easily manufactured and by merely machining the engaging parts of the housing and compressor, these parts may be properly united and aligned to correctly support the compressor.

While the invention has been shown and described herein in some detail, it will be readily apparent that various modifications in the specific structure illustrated may be resorted to without departing from the scope and spirit of what is claimed and to this end reservation is made to make such changes as may come within the purview of the accompanying claims.

What I claim as my invention is:

1. In combination, a motor, a support therefor, a tubular housing projecting later-

ally from said motor and carried thereby, a compressor carried solely by said housing, an operative connection between said motor and compressor including a shaft extending through said housing, and a seal surrounding said shaft, a wall of said housing having a portion constituting a bearing for said shaft and having a tubular portion projecting from the bearing portion and constituting a casing for the seal.

2. In combination, a motor, a cup-shaped housing opening toward and secured to one end of said motor, the base of said cup-shaped housing having a lateral projection constituting a seat, a compressor mounted upon said seat and secured to the base of said housing, and a driving connection between said motor and compressor including a shaft journaled in the base of said housing.

3. In combination, a motor having a casing and a shaft projecting from the casing, a substantially cup-shaped housing opening toward and closed by a wall of the motor casing, means securing the housing to the motor casing, a compressor secured to and constituting an extension of the housing and having a shaft journaled in a wall of the housing and connected to the motor shaft aforesaid.

4. In combination, a motor having a casing and a shaft projecting from the casing, a substantially cup-shaped housing supported directly upon an upright wall of the motor casing and constituting a lateral extension thereof, and a compressor supported upon an upright wall of the housing and constituting a lateral extension thereof, a shaft projecting from the compressor through the upright wall aforesaid of the housing and connected to the motor shaft, and a seal surrounding the compressor shaft within the housing aforesaid, and preventing fluid in the compressor from passing along the motor shaft.

5. In combination, a motor having a casing and a shaft projecting from one end of said casing, a substantially cup-shaped housing supported upon the end aforesaid of said motor casing and having a wall substantially parallel to the end aforesaid of said motor casing provided with aligned portions constituting respectively a bearing and a chamber, a compressor supported upon and secured to the upright wall aforesaid of the housing and having a shaft journaled in the bearing aforesaid and connected to the motor shaft, and a seal for the compressor shaft located within the chamber of the housing upright wall.

In testimony whereof I affix my signature.

HAROLD A. GREENWALD.