

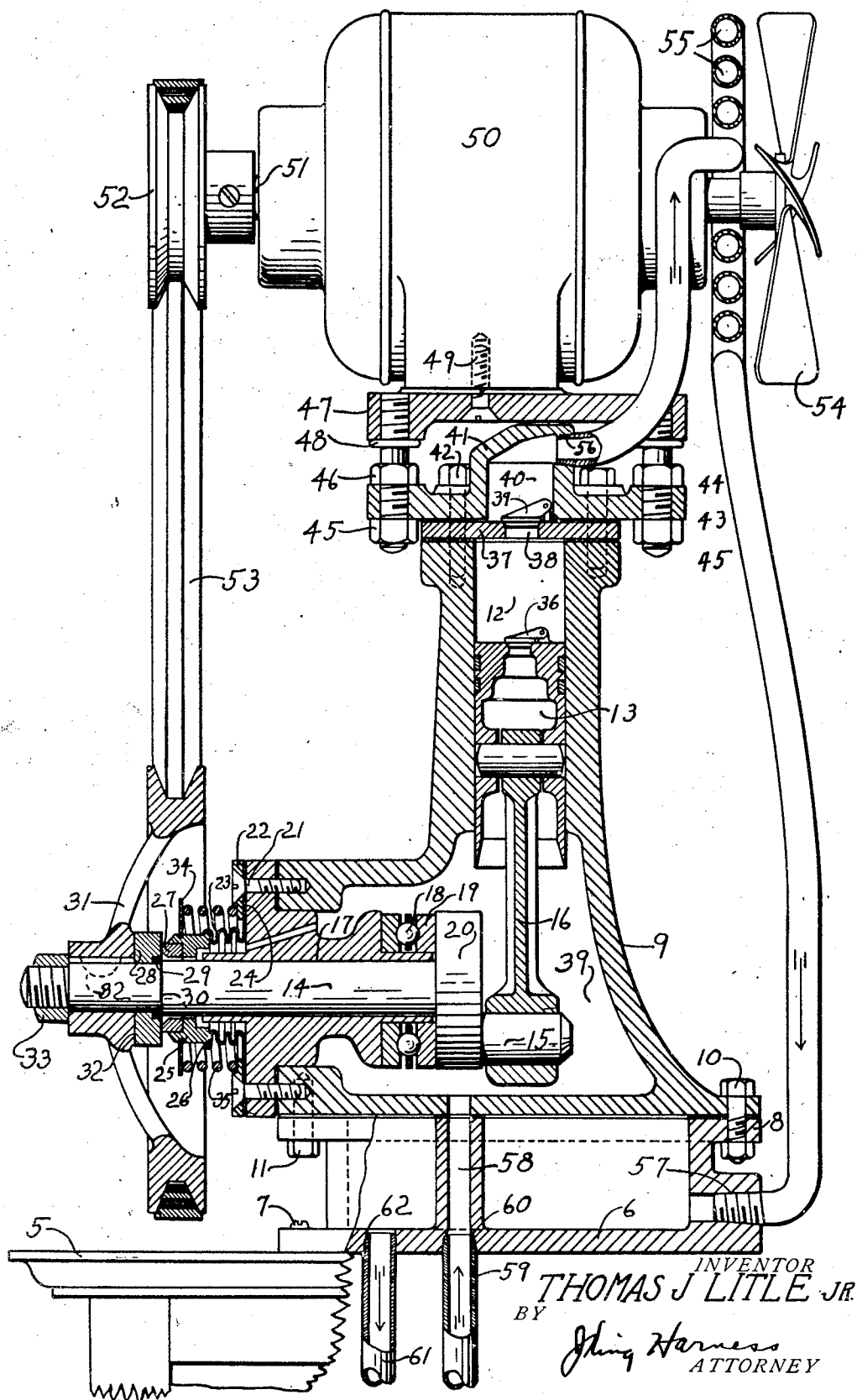
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PUMP FOR REFRIGERATING APPARATUS

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PUMP FOR REFRIGERATING APPARATUS.

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Among the objects of my invention are the provision of a simple and economical compressor adapted for use in refrigerating apparatus; the provision of a compact mounting of the motor for operating the compressor and simple means for adjusting the tension of the belt connecting the compressor and motor; and the combining of a condenser and receiver of a refrigerating mechanism with the motor and compressor to form a unitary structure.

With the above 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:

The single figure is a central sectional view of a compressor, condenser and receiver embodying my invention, a motor for driving the compressor being shown in elevation and a portion of the refrigerator cabinet being also shown in elevation.

I have shown a refrigerator cabinet indicated generally at 5 on the top of which a receiver 6 is secured by means of screws 7. The top of the receiver 6 is provided with a flange 8 to which the bottom of a compressor housing 9 is secured by bolts 10 and studs 11. Within the compressor housing 9 is a cylinder 12 within which the piston 13 is adapted to reciprocate. Positioned partly within and partly without the housing 9 is the compressor shaft 14. The crank 15 forms one end of the shaft 14, said crank being joined to the piston 13 in a conventional manner by the connecting rod 16. The shaft 14 is adapted to rotate in a bearing of considerable length indicated generally at 12. Positioned around the exterior of the bearing is a thrust bearing 18, a raceway 19 of which forms an abutment for the cheek 20 of the crank 15.

The bearing 17 is adapted to be secured to the remainder of the compressor housing 9, so as to form a part of the housing, by screw studs 21. A circular plate 22 is provided around the bearing 17 and is secured in place by the studs 21. The bottom end of a syphon bellows 23 is secured under the plate 22 as at 24. The other end of the syphon is connected and secured to a ring 25 as at 26. A bearing ring 27 is seated within the ring 25. The outer face of the ring 27 is

adapted to bear against a ring 28 provided on the shaft 14 and having a sealing ring 29 adapted to bear against the shoulder 30 on the shaft. A pulley 31 is also positioned on the shaft, being keyed thereto as at 32 so as to rotate therewith. The inner side of the hub of the pulley bears against the ring 28 as at 32 and the outer side thereof bears against a nut 33 screwed on the outer end of the shaft 14. The ring 25 is provided with an outwardly extending flange 34 between which and the ring 27 is positioned a coil spring 35, the tension of the spring 35 tending to normally force the ring 27 against the face of the ring 28 so as to prevent the escape of gas at the joint between the two. The tension of the spring 35 will likewise normally tend to hold the cheek 20 against the raceway 19 of the bearing 18.

The piston 13 is provided with a conventional valve 36 and a conventional cross plate 37 provided on the housing 9, said plate having a conventional opening 38 and valve 39. Thus when the piston 13 is moved downwardly the valve 36 will open to permit gases in the chamber 39 to enter the cylinder 12 and when the piston is raised the valve 36 will be closed and the valve 39 opened to permit gases to pass out into the chamber 40 in the head 41. The head 41 is secured over the plate 37 by a plurality of studs 42.

The head 41 is provided with a plurality of apertured lugs 43 through which a plurality of studs 44 extend, the studs being screw-threaded to receive nuts 45 beneath the lugs 43 and nuts 46 above the same.

The upper ends of the studs 44 are threaded into a motor base plate 47 until the base plate comes to rest on the shoulder 48. Secured to the base plate 47 by studs 49 is an electric motor 50 having a shaft 51 extending from each end thereof. On one end of the shaft 51 is a pulley 52 which is adapted to be connected with the pulley 31 by means of a belt 53. On the other end of the shaft is positioned a fan 54 which is adapted to direct air currents against the coils 55 of a refrigerant condenser which has an inlet connection with the head 41 at 56 and an outlet connection with the receiver 6 at 57.

An inlet connection to the chamber 39 of the compressor housing is provided by a passage 58 extending through the receiver

6 and connected at its bottom to a pipe 59 as at 60. A pipe 61 connects with the receiver 6 as at 62 for withdrawing liquefied refrigerant from the receiver. It will be apparent from the foregoing that a unit assembly of the receiver, compressor, motor and condenser is provided as well as a convenient way for connecting the inlet and outlet pipes of the freezer ordinarily contained within the refrigerator box to the compressor and receiver respectively. It will also be apparent that the tension of the belt 53 between the pulleys 31 and 52 may be easily and quickly adjusted through the nuts 45 and 46. Also that the provision of a long bearing for the compressor shaft makes unnecessary the provision of an additional bearing for the inner end of the shaft and that efficient means have been provided for sealing the joint between the shaft and housing against leakage of refrigerant therethrough.

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, a compressor housing having a compressor shaft therein and extending therefrom, a motor having a base plate secured thereto, a plurality of bolts secured in and depending from said plate, apertures in the head of said compressor housing into which said bolts extend, nuts on the bolts for adjusting their position longitudinally and for supporting said motor

on said compressor whereby said motor may be vertically adjusted, a motor shaft extending from the motor and a belt connecting the two shafts.

2. In combination, a receiver, a compressor and a motor supported in vertically aligned relationship, a pulley for said compressor, a pulley for said motor, a belt connecting said pulleys, and means for vertically adjusting the position of said motor independent of said compressor whereby to regulate the tension on said belt.

3. In combination, a compressor having a drive shaft provided with a pulley, a motor having a drive shaft provided with a pulley, means for supporting said motor on the top of said compressor, and a belt connecting said pulleys, said means being adjustable to bodily raise or lower said motor whereby to control the tension on said belt.

4. In combination, a compressor having a cylinder head and a drive shaft, said cylinder head provided with lateral apertured flanges and said shaft provided with a pulley, a motor provided with a shaft and a pulley, bolts received in the apertures in said flanges and engaging said motor for supporting said motor from said cylinder head, means engaging said bolts for adjusting the vertical relationship of said motor in respect to said cylinder head, and a belt connecting said pulleys.

5. In combination, a receptacle having an open top, a compressor supported on said receptacle and closing said top whereby to form said receptacle into a refrigerant receiver, and a refrigerant passage entering the bottom of said receiver and extending through the same into said compressor.

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