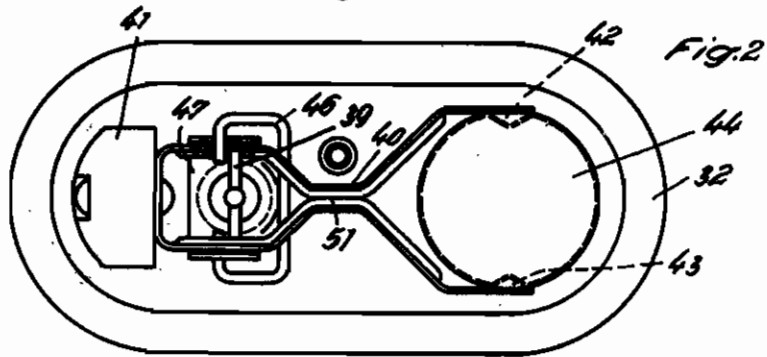
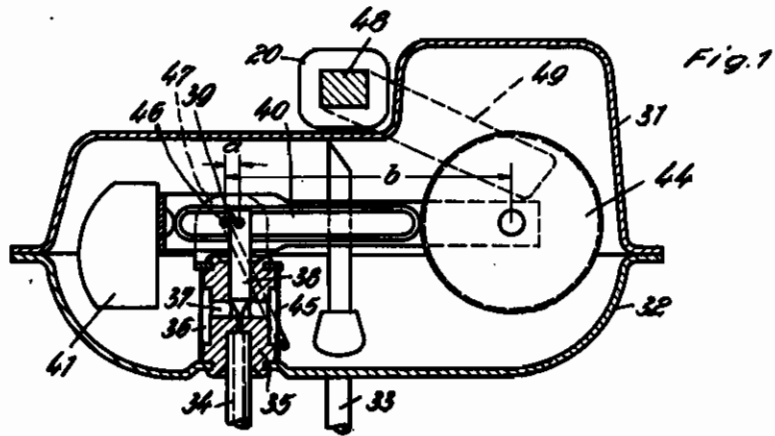


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Filed Sept. 21, 1940

Serial No.
357,688
2 Sheets-Sheet 1



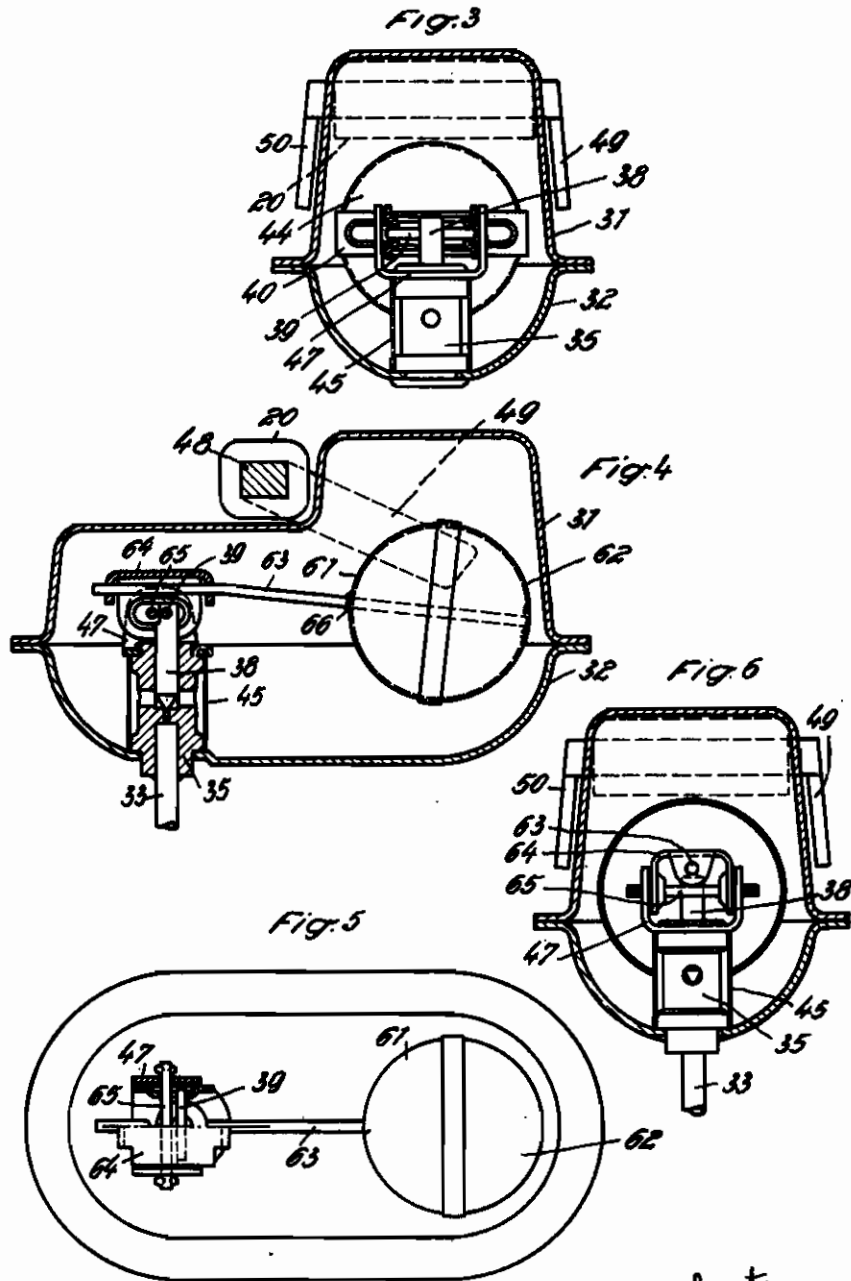
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Attorney

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ALIEN PROPERTY CUSTODIAN

REFRIGERATING APPARATUS OF THE COMPRESSION TYPE

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the Alien Property Custodian

Application filed September 21, 1940

The present invention relates to improvements in refrigerating apparatus of the compression type.

It is well known in the art to control in such refrigerating apparatus the quantity of refrigerant flowing from the condenser to the evaporator by means of a float-controlled valve. Such a valve is, as a rule, arranged in a separate tank. The constructions hitherto known of the above type require a relatively large amount of material, since a comparatively large reserve of energy must be available in order to attain a reliable operation so as to overcome with certainty a jamming which may occur within the float lever system. According to the invention it is possible to reduce considerably the amount of material required for the float valve without impairing the reliability of operation thereof. This may be accomplished according to the invention by securing the float body to a rocking lever rotatably mounted in a stationary carrier and to which is also secured the valve needle, the ratio of transmission amounting, for instance, to 1:10 and over. By choosing such a great ratio of transmission it is possible to employ a very small float for operating the valve. Further features essential to the construction of a float-operated valve will be hereinafter explained in connection with the description of the embodiments shown.

An embodiment of the float-operated valve according to the invention is shown in Figs. 1 to 3. The float tank consists of two parts 31 and 32 firmly secured around their edges by welding. From the condenser (not shown) extends a conduit 33 into the interior of the tank. Through this conduit the liquid refrigerant passes into the float tank. 34 denotes the refrigerant conduit extending from the float tank to the evaporator (not shown), one end of the conduit being fitted in the body 35, in which is arranged also the valve needle 38.

The refrigerant flows through the passages 36 and 37 of the body 35 and then through the conduit 34 to the evaporator when the valve is in the open position. The valve needle 38 is secured to a rocking lever 40 by means of a pin 39. The rocking lever 40 is in turn rotatably mounted in the manner as shown in the drawing

in a carrier 47 with the aid of a bent wire 46, the upper end of the carrier 47 being secured to the body 35. The rocking lever 40 carries at one end a counter-weight 41 and on the other the ball float 44 made of two halves. The ball float is provided with two depressions 42 and 43 cooperating with corresponding parts of the rocking lever 40. The ball is therefore not firmly secured to the rocking lever itself by welding; screws or the like. The two arms of the rocking lever 40 are welded together as indicated at 51. The upper half 31 of the float tank is raised at the side facing the ball 44 in order that the float may move in the upward and downward direction. On the off-set wall of the upper part of the tank an electromagnet 20 may be mounted which serves to open the valve at will. The iron body of this electromagnet 48, 49, 50 has a U-shaped form in order that the two limbs 49 and 50 extend exteriorly of the float tank. As soon as the exciting current, which flows through the coil 20 has exceeded a predetermined value, the ball float 44 is attracted in the upward direction, thereby removing the valve needle 38 from its seat. Owing to the great ratio of transmission $a:b$, the dimensions of the arrangement, particularly the size of the ball float may be considerably reduced as compared to the arrangement hitherto known, without affecting the forces necessary for opening and closing the valve. 45 denotes a sieve which prevents foreign substances from passing from the tank into the valve.

Another embodiment of the float-operated valve which is very simple in design is shown in Figs. 4 to 6, in which similar numerals of reference denote corresponding parts as in Figs. 1 to 3. The valve ball consists in this embodiment of two halves 61 and 62.

The rocking lever 63 is designed in the form of a simple wire which extends through the ball in the manner as shown in Fig. 4 and which is welded to the ball half 61 as indicated at 66. The lever 63 is firmly secured to the strap 64 by welding which is rotatably mounted in the carrier 47 by means of a pin 65.

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