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(54) Gas-expansion thermostat particularly designed for home electric convectors.

(57) A gas-expansion thermostat particularly designed for home electric convectors comprises a first gas-expansion membrane and at least a second gas-expansion membrane arranged in series and communicating with the first membrane.

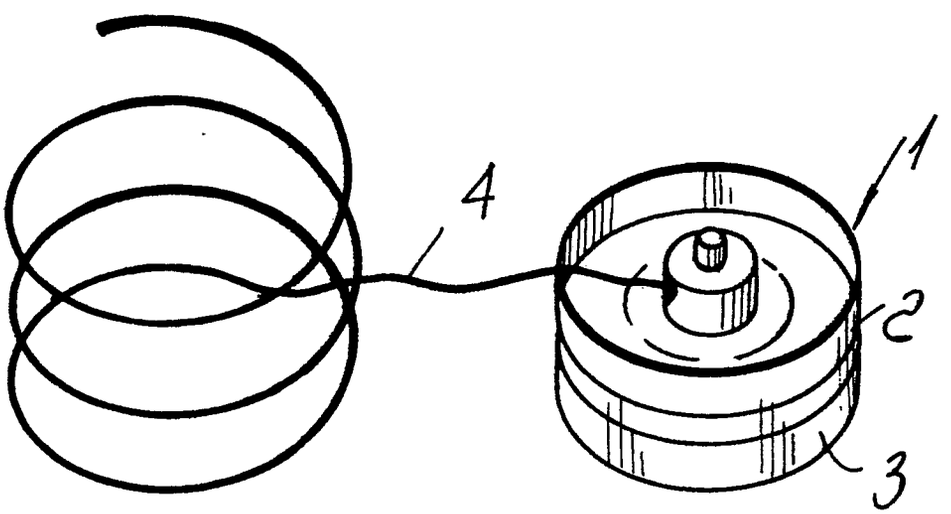

Fig. 1

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BACKGROUND OF THE INVENTION

The present invention relates to a gas-expansion thermostat particularly designed for home electric convectors.

There are at present known thermostats which are used for home electric convectors, which thermostats comprise membrane encompassing vapor tension regions which, as the temperature is changed, are deformed so as to displace the membranes cooperating with electric actuators for switching on and off the coupled power source.

Known vapor tension thermostats have a comparatively large size and, consequently, originate serious problems as they must be installed in a drive box or panel of an electric convector.

There are also known liquid expansion thermostats which are used in several industrial applications such as refrigerating-and heating applications, or are applied to household appliances, which have a comparatively reduced size with respect to the vapor tension thermostats.

However, these liquid expansion thermostats are not generally used in home electric convectors since said thermostats are very expensive.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to solve the above mentioned problems by providing a gas-expansion thermostat which is specifically designed for application to home electric convectors and which has a very reduced size while being able of accurately and reliably operating.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a small size thermostat which can be easily and quickly installed on home electric convectors.

Yet another object of the present invention is to provide such a gas expansion thermostat which can be easily constructed starting from easily available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, are achieved by a gas-expansion thermostat, specifically designed for home electric convectors, characterized in that said thermostat comprises a first gas-expansion membrane and at least a second gas-expansion membrane arranged in series with the first membrane and communicating therewith.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the present invention will become more apparent from the following detailed disclosure of a gas-expansion thermostat, specifically designed for home electric convectors, which is illustrated, by way of an indicative but not limitative example, in the accompanying drawing where:

Figure 1 is a schematic perspective view illustrating the gas-expansion thermostat according to the invention; and

Figure 2 is another schematic view showing the thermostat according to the invention applied to a supporting structure.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the Figures of the accompanying drawing, the gas-expansion thermostat according to the invention, which is indicated overally at the reference number 1, comprises a first gas-expansion membrane 2, and a second gas-expansion membrane 3, which are series arranged so as to communicate with one another.

As shown, the membranes 2 and 3 are coup led to a filling capillary tube, indicated at 4, and are specifically designed to provide the desired expansion displacements while having a very reduced size, substantially corresponding to the size of a conventional liquid-expansion membrane.

The mentioned thermostat construction is coupled within a supporting frame, indicated at 5, and, owing to the series connection of the two membranes, it affords the possibility of remarkably enlarging the displacement range which can be obtained so as to provide a very sensitive and compact thermostat.

With the disclosed arrangement, the making cost will be very small, and likewise will be very small the cost for making the necessary molds and assembling and heating tools.

All of the mentioned advantages have been obtained based on the concept of coupling in a series relationship the two membranes 2 and 3 which are equal to one another and of the liquid-expansion type.

Accordingly, with the disclosed arrangement, it will be possible all of the problems which are at

present encountered in the home convector field, since a thermostat can be constructed which is very simple construction-wise and very efficient from the operating standpoint.

While the invention has been disclosed and illustrated with reference to a preferred embodiment thereof, it should be apparent that the disclosed embodiment is susceptible to several modifications and variations all of which will come within the spirit and scope of the appended claims.

Claims

1. A gas-expansion thermostat, specifically designed for home electric convectors, characterized in that said thermostat comprises a first gas-expansion membrane and at least a second gas-expansion membrane arranged in series with the first membrane and communicating therewith.
2. A gas-expansion thermostat, according to Claim 1, characterized in that said first and second membranes have a like construction.
3. A gas-expansion thermostat according to Claims 1 and 2, characterized in that said membranes are associated to a supporting structure.
4. A gas expansion thermostat, according to the preceding claims, characterized in that the series coupling of the fist and second membrane provides, with a given radial extension, a double expansion displacement.

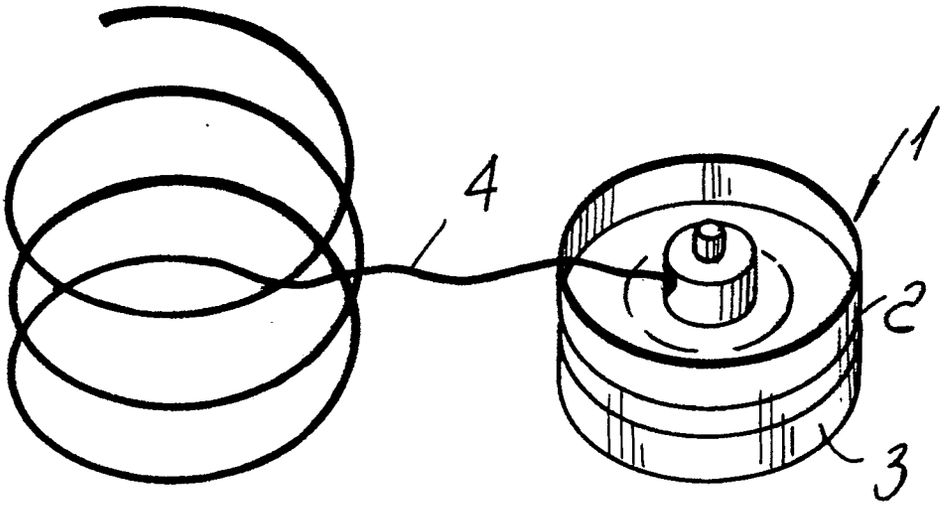

Fig. 1

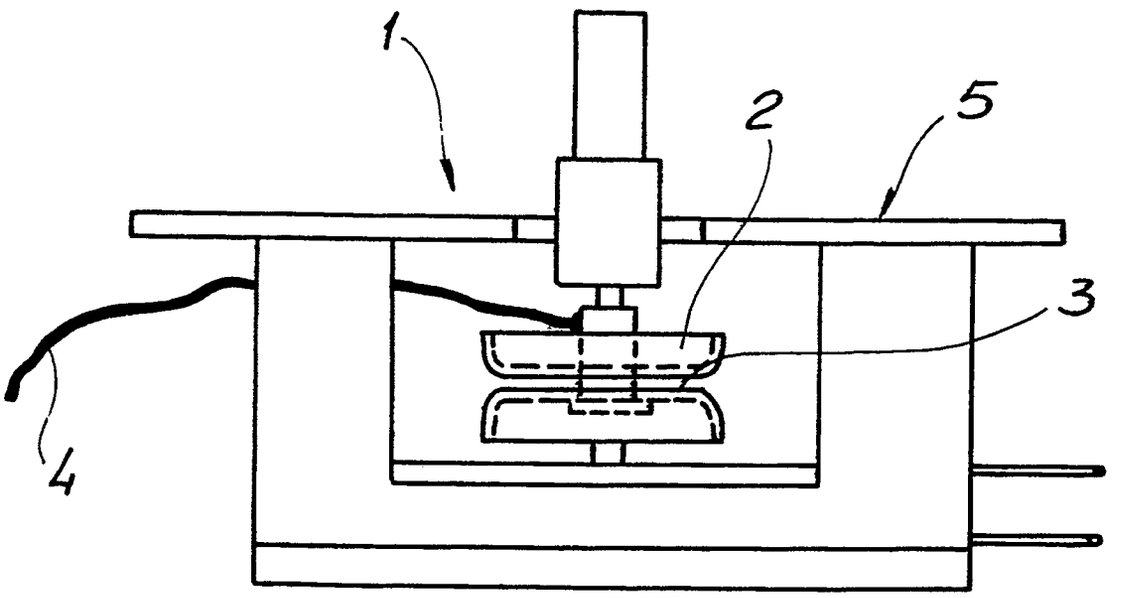

Fig 2