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The invention relates to thermoelectric devices without passage through various materials and, in particular to single-crystal anisotropic thermocouples for converting thermal energy into electrical potential, namely to converters using the temperature difference or thermal flow.

The cross-type single-crystal anisotropic thermocouple with anisotropy of thermo-electromotive force is made in the shape of bar, with the crystallographic axes  $x_1$  and  $x_2$ , arranged in the plane of the bar, in the thermoelectromotive force and current generating mode at the ends of the bar by maintaining the upper part at a temperature  $T_1$  and the lower part at a different temperature  $T_2$ . The thermocouple is made in the shape of wire compactly assembled in a single plane and wherein the temperature gradient is perpendicular to the given plane, while the crystallographic axis  $x_1$  and  $x_2$  are arranged at an angle greater than 0 and less than  $90^\circ$  with respect to the temperature gradient, the wire may be wrapped in the shape of a flat spiral and in dielectric isolation, including glass.

Claims: 4

Fig.: 2