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UNEDITED ROUGH DRAFT TRANSLATION

A SCINTILLATION THERMAL NEUTRON DETECTOR

BY: Yu. K. Khudenskiy, Yu. A. Tsirlin and M. N. Baisova-Karakayeva

English Pages: 2

SOURCE: Byulleten' Izobreteniy, Patent No. 133540, No. 22, 1960,
page 25.

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A SCINTILLATION THERMAL NEUTRON DETECTOR

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Yu. K. Khudenskiy, Yu. A. Tsirlin and
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FIRST LINE OF TEXT

A SCINTILLATION THERMAL NEUTRON DETECTOR.

FIRST LINE OF TITLE

Yu. K. Khudenskiy, Yu. A. Tsirlin, and M. N. Baisova-Karakayeva

The familiar scintillation thermal neutron detectors contain a scintillating composition, glycerine, and boric acid. The use of boric acid when preparing these detectors causes the formation of acrolein which decreases the optical properties and the efficiency of the detector.

In the proposed detector we use, as the boron-containing compound, metaboric acid or boric anhydride, which does not form acrolein.

The use of boric anhydride or metaboric acid increases the efficiency of the detector without lowering its optical properties.

The initial materials for preparing the described detectors are K-5 phosphor, metaboric acid or boric anhydride, and glycerine.

To prepare the described detectors, 4 ml of glycerine is poured into a 50-ml beaker immersed in a glycerine bath, and then heated to 175-190°. Then 9 g of metaboric acid or 6 g of boric anhydride are placed into the beaker with stirring. A boron plastic forms, from which the water of the reaction is removed by further heating. Then 2.5 g of K-5 phosphor are added to the hot plastic. The obtained composition is poured into the aluminum support of the container and covered with a plastic light guide.

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Object of the Invention

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This scintillation thermal neutron detector, containing a scintillating composition, glycerine, and a boron-containing compound, has the following special feature: to increase the efficiency of the detector without lowering its optical properties, metaboric acid or boric anhydride is used as the boron-containing compound.

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