The scheme of assembly in the channel of the multiplier is shown in Figure 1.

Melting of the aluminum specimen was conducted in a graphite crucible 1 10 mm in diameter and 14 mm high placed inside the heating element 2 made of Nichrome wire. In order that the graphite should not close the coils of the Nichrome spiral, the crucible was isolated from it by a thin layer of mica. The melting temperature of aluminum under pressure was measured by a differential platinum-platinorhodium thermocouple 3. To prevent the "hot" junction of the thermocouple from dissolving in the molten aluminum, it was placed in a thin quartz jacket 4 fastened in the graphite lid of the crucible. The "cold" junction of the thermocouple was placed deep in the electric lead-in 5. Its temperature was measured by another thermocouple 6 introduced into the casing of the electric lead-in from the outside; the distance of the junction of this thermocouple from the "cold" junction of thermocouple 3 did not exceed 6 mm.

In order to thermally insulate the furnace from the walls of the channel of the cone the entire free space in the channel of the multiplier was filled with fine powder of aluminum oxide with the exception of the upper part in which the piston is situated. The emf of both thermocouples was measured by two potentiometers type PP-1. To determine the pressure in the channel of the multiplier the coil of a manganinin manometer 7 was mounted on the electric lead-in. Measurement of the resistance of the manganin coil was accomplished by a MVL-47 resistance bridge. The accuracy of measurements of the pressure and temperature was ± 100 kg/cm^2 and $\pm 2^{\circ}$ respectively.

Figure 1. Schematic cross section of the measuring device in the channel of the vessel for superhigh pressure

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Figure 2. Dependence of the melting temperature of aluminum on pressure: 1) in an argon medium; 2) in a nitrogen medium

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