ing pressure a "table-like" wave was formed in the partition which imparted an almost constant velocity of motion to the second free surface of the striker; this velocity was measured in special experiments. On impact of the striker on the screen covering the sample two shock waves were produced: one propagated "upwards" through the striker and the other moved "downwards" to the screen and the sample.

The velocities of shock waves in the samples were found using two groups of contacts, K_1 and K_2, which transmitted signals to the inputs of cathode-ray oscillographs with slave sweep. For striker velocities of 1000 m/sec or more we used contacts made of insulated wire (the insulation was 0.01 mm thick) pressed directly against the screen and sample surfaces (Fig. 1b). In the case of low-amplitude shock waves the contacts were in the form of thin bare metal rods separated from the screen and the sample by a gap of 0.03 mm (Fig. 1c).

The pressure-velocity diagram (Fig. 2) shows that the adiabats of the screens, starting from the origin of coordinates, meet the adiabats of the strikers. The intersections of the two types of adiabat (points 1-8) determine the parameters of the shock waves in the screens. The same condition of equality of pressures and velocities is also satisfied at the screen—sample boundaries. If the velocities of shock waves are measured in the sample then the shock compression states lie, according to Eq. (1), on straight lines making angles $\alpha = \tan^{-1}(\rho_0 D)$ with the velocity axis. In practice we obtain the states at the intersections of these straight lines with the screen expansion curves. Together the intersection points give the Hugoniot adiabats for the tested material (potassium chloride in Fig. 2).

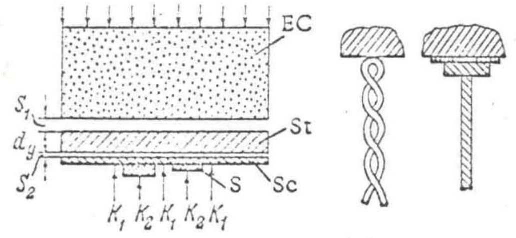

Fig. 1. Block diagram of the apparatus and construction of the contacts. a) EC is the explosive charge; ST is the striker; SC is the screen; O is the sample; K_1 and K_2 are the measuring contacts; b) contacts of insulated wire; c) bare contacts.

The strikers and the screens were made of aluminum, copper or iron. The shock adiabats of these metals were given in [8]. For copper and aluminum screens the isentropic expansion curves were identical with the mirror reflections of the shock adiabats; this was quite in order, as shown by check calculations. For an iron screen compressed by pressures of $1.8 \cdot 10^6$ atm, we allowed for the difference in positions of the adiabat and the isentropic curve (see Fig. 2).

The test samples were single crystals with a cube plane parallel to the screen surface. The lateral dimensions of the samples were 10-15 mm and their thicknesses 3.5 mm; in tests with thin strikers the thickness did not exceed 2.5 mm. Since the salts tested were insulators, the sample ends were covered by thin grounded aluminum foil. Some properties of the halides, including NaCl, under normal conditions are listed in Table 1.

§ 2. Experimental Results

The results of the experiments with shock waves are listed in Table 2. The shock adiabats are shown in wave velocity—mass velocity coordinates in Fig. 3, and in pressure—density coordinates in Fig. 4. The initial

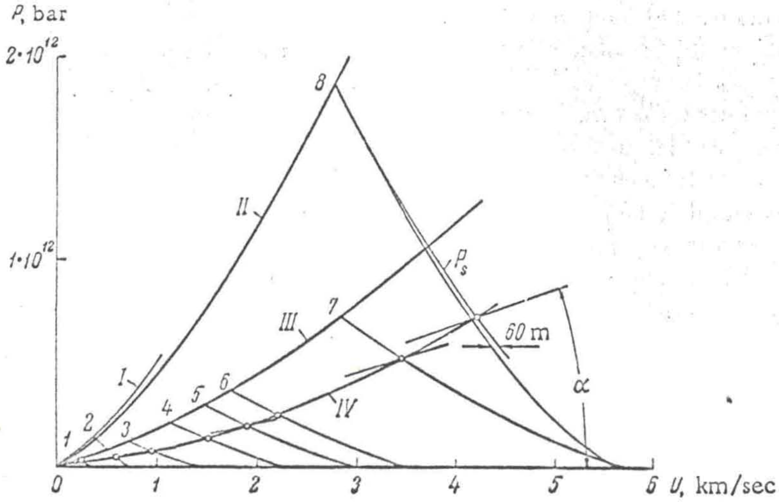

Fig. 2. P—U diagram for potassium chloride. I) Cu; II) Fe; III) Al; IV KCl.