The paper deals with modelling the high-speed collision of metal plates. In one-dimensional formulation equations of continuum mechanics are solved numerically, supplemented by equations of a model of dislocation plasticity [1, 2, 3], twinning [4] and destruction [2, 5]. For a numerical solution of equations we use a numerical method [3]. The thermodynamic state of matter is described by means of interpolation equations of state [6]. A comparison with experimental data [7] in the form of velocity profiles of the free rear surface of a target is presented. The influence of parameters of the models of plastic deformation [1, 2, 3, 4] and destruction [2, 5] on the shape and height of an elastic precursor, the shape and amplitude of the plastic shock and rarefaction waves as well as the position of a spall pulse are analyzed. The calculations were performed for aluminum, copper and iron.

Work is supported by the Ministry of Education and Science of the Russian Federation (state task No. 3.1334.2014/K).