

A welding unit (1) for welding two rails (3) of a track has two rail clamping units (2) that can be moved along unit guides (4) by two compression cylinders (5) in the longitudinal direction of the rails, wherein each of said rail clamping units (2) is provided with clamping jaws (7) that can each be displaced in pairs in a pressure plane, each having a contact area (6) provided for contacting a rail web (30). The clamping jaws (7) are each configured as pivoting clamping levers (10) that can be pivoted around a lever pivot axis (8) in the pressure plane. The contact area (6) provided for contacting the rail web (30) is arranged on a first lever end (11) spaced apart from the lever pivot axis (8). Each of the two contact areas (6) of each rail clamping unit (2) is positioned closer to the opposite rail clamping unit (2) than the two lever pivot axes (8).