

[Abstract]

In a friction stir welding apparatus, workpiece fixing surface plates (3a, 3b) are installed on a framework (1). In addition, a welding apparatus main body (8) including a bobbin tool (5) having a probe (5a) protruding upward from a gap (4), a spindle (6) configured to attach the bobbin tool (5) to an upper end section thereof, and a spindle driving apparatus (7) configured to pivot the spindle (6) is movably installed at the framework (1) in a longitudinal direction of the gap (4) via linear guide mechanisms (9) installed at both sides of the welding apparatus main body (8). Further, a moving apparatus (10) is installed to move the welding apparatus main body (8) in the longitudinal direction of the gap (4). According to the friction stir welding apparatus, since the welding apparatus main body (8) is supported by the framework (1) via both of the linear guide mechanisms (9), a large welding reaction force can be sufficiently received. In addition, since workpieces (2a, 2b) are welded from a lower side, the workpiece size is not limited by a size of the apparatus.



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