ABSTRACT

An electric discharge machining apparatus comprises a quill 8 movable in the vertical direction, at least one set of linear motor movers attached to the quill symmetrical about a central axis of the quill, and a single set of linear motor stators facing the set of movers. An electrode mounting device (9) for holding a tool electrode (6) is attached to a lower end of the quill, and coaxially with the quill. Preferably, the set of movers includes magnetic plates (12, 14) attached to the quill and a row of permanent magnets (11, 13, 15, 16) arranged on the magnetic plates, and the set of stators includes a yoke (31, 41) and a coil (32, 42) wound around the yoke. The quill has a hole (8a) in its center extending in the vertical direction, and an air cylinder (61) providing counter balance for the load of the quill is arranged in this hole. The quill has a density of $4g/cm^3$ or less, and is made of, for example, silicon nitride (Si_3N_4) ceramics or a composite material of a light metal and at least 40% by volume of ceramics.