ABSTRACT

A water treatment apparatus includes: a trough-shaped flow path portion (2) on which treatment target water (W) flows; a high-voltage portion (3) having a plurality of high-voltage electrodes (4) disposed above the flow path portion (2) spacing therebetween in a direction orthogonal to a direction in which the treatment target water (W) flows; and an electric field relaxation portion (5) having first members (6) and second members (7) provided so as to extend around the high-voltage portion (3). Water treatment is performed by applying a high voltage from a pulse power supply (8) to the high-voltage portion (3), the first members (6), and the second members (7) in order to generate electric discharge between the high-voltage electrodes (4) and the flow path portion (2). And water treatment is performed by dissolving generated active species such as ozone and hydroxyl radicals into the treatment target water.