WHAT IS CLAIMED IS

[Claim 1] An air electrode made of a transition metal selected from a group comprising copper and an alloy thereof, when used for a metal-air cell comprising a neutral or alkaline electrolytic solution, the air electrode as a cathode, and an electrode as an anode made of a typical metal selected from a group comprising aluminum, zinc, magnesium, and an alloy thereof whose electrode potential is base from the air electrode, wherein the electrolytic solution contains hydrogen peroxide, and wherein the air electrode and the electrolytic solution make an electric double layer containing hydrogen peroxide as a dipole which is formed at an interface between the air electrode and the electrolytic solution.

[Claim 2] A metal-air cell comprising a neutral or alkaline electrolytic solution, an air electrode, as a cathode and an electrode as an anode made of a typical metal selected from the group consisting of aluminum, zinc, magnesium, and an alloy thereof, the electrode potential of which is base than that of the air electrode, wherein the electrolytic solution contains hydrogen peroxide, and the air electrode is selected from a group comprising copper and an alloy thereof, wherein an electric double layer containing hydrogen peroxide as a dipole is formed at an interface between the air electrode and the electrolytic solution.

[Claim 3] The metal-air battery according to claim 2, wherein the electrolyte comprises sodium percarbonate and/or hydrogen peroxide solution as a source of hydrogen peroxide, while the electrolyte comprises an electrolyte selected from alkali metal or alkaline earth metal halides.

[Claim 4] The metal-air battery according to claim 2, wherein the anode electrode and the air electrode have at least one pair of electrode structures that are arranged so as to face each other with a predetermined interval for ensuring ion flow through the conductive metal spacer.

[Claim 5] The metal-air battery according to claim 3, wherein the spacer is made of the same metal copper or copper alloy as the air electrode, and the air electrode has a point-like contact portion distributed at regular intervals on the surface of the anode electrode serving as a counter electrode.

[Claim 6] The metal-air cell according to claim 2, which comprises a metal oxidation reaction in the alkaline region on the anode side of $M \rightarrow M^{n+}+ne^-$ (where M is a typical metal selected from magnesium, aluminum, and zinc, and n is a valence), and an oxygen reduction and ionization reaction in the alkaline region on the cathode side of $O_2+2H_2O+4e^- \rightarrow 4OH^-$.

wherein the cell further comprises a hydrogen peroxide reaction in the alkaline region

on the anode side consisting of a reaction of $H_2O_2+2OH^-\rightarrow O_2+2H_2O+2e^-$. and a hydrogen peroxide reaction in the alkaline region on the cathode side consisting of a reaction of $H_2O_2+2H_2O+2e^-\rightarrow 2H_2O+2OH$.