including a fluorine compound containing Na and K, an optimum alloy component, and a chemical component containing a deoxidizer. In addition, the present inventors have found that it is possible to improve low-temperature cracking resistance also in a weld metal having high strength by eliminating a seam in a steel outer skin.

[0011]

That is, an abstract of the present invention is characterized by a flux-cored wire for carbon dioxide gas shielded arc welding obtained by filling a flux into a steel outer skin, including, in terms of % by mass with respect to a total mass of the wire, as a total in the steel outer skin and the flux, 0.03 to 0.08% of C, 0.2 to 0.6% of Si, 1.2 to 2.8% of Mn, 0.01 to 0.5% of Cu, 0.2 to 0.7% of Ni, 0.1 to 0.6% of Ti, 0.005 to 0.020% of B, and 0.05% or less of Al, and further including, in terms of % by mass with respect to the total mass of the wire, in the flux, 4.0 to 8.0% of a Ti oxide in terms of TiO_2 in total, 0.1 to 0.6% of a Si oxide in terms of SiO_2 in total, 0.02 to 0.3% of an Al oxide in terms of Al_2O_3 in total, 0.1 to 0.8% of Mg, 0.05 to 0.3% of a fluorine compound in terms of F in total, 0.05 to 0.3% of one kind or two kinds of Na and K in the fluorine compound in terms of Na and K in total, 0.05 to 0.2% of one kind or two kinds of Na_2O and K_2O in total, and 0.2% or less of a Zr oxide in terms of ZrO_2 in total, the balance being Fe in the steel outer skin, iron powder added for adjusting components, a Fe component of iron alloy powder, and inevitable impurities.

[0012]

CLAIMS

[Claim 1]

A flux-cored wire for carbon dioxide gas shielded arc welding obtained by filling a flux into a steel outer skin, comprising;

in terms of % by mass with respect to a total mass of the wire, as a total in the steel outer skin and the flux,

0.03 to 0.08% of C;

0.2 to 0.6% of Si;

1.2 to 2.8% of Mn;

0.01 to 0.5% of Cu;

0.2 to 0.7% of Ni;

0.1 to 0.6% of Ti;

0.005 to 0.020% of B; and

0.05% or less of Al, and

further comprising:

in terms of % by mass with respect to the total mass of the wire, in the flux,

4.0 to 8.0% of a Ti oxide in terms of TiO_2 in total;

0.1 to 0.6% of a Si oxide in terms of SiO_2 in total;

0.02 to 0.3% of an Al oxide in terms of Al_2O_3 in total;

0.1 to 0.8% of Mg;

0.05 to 0.3% of a fluorine compound in terms of F in total;

0.05 to 0.3% of one kind or two kinds of Na and K in the fluorine compound in terms of Na and K in total;

0.05 to 0.2% of one kind or two kinds of Na_2O and K_2O in

total; and

0.2% or less of a Zr oxide in terms of ZrO_2 in total,

the balance being Fe in the steel outer skin, iron powder added for adjusting components, a Fe component of iron alloy powder, and inevitable impurities.

[Claim 2]

The flux-cored wire for carbon dioxide gas shielded arc welding according to claim 1, wherein a seam in the molded steel outer skin is eliminated by welding a joint of the steel outer skin.