CLAIMS

[Claim 1] A pipe joint construction characterized by that:

a cylindrical compressed deformation sleeve (7), stored within a cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), is provided;

a bottom thin wall portion (13) of concave peripheral groove is formed on an inner portion of the concave peripheral groove (9) in the compressed deformation sleeve (7); and

the bottom thin wall portion (13), receiving compressing force (F) in axial direction of the sleeve (7) by screwing the cap nut (3), is plastically deformed as to protrude to a radial inner direction of the sleeve (7) with reducing a width dimension (W) of the concave peripheral groove (9) to bite into a peripheral face (14) of an inserted aluminum pipe (4) for stopping the aluminum pipe (4).

[Claim 2] A pipe joint construction characterized by that:

a cylindrical compressed deformation sleeve (7), stored within a cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), is provided;

a bottom thin wall portion (13) of concave peripheral groove is formed on an inner portion of the concave peripheral groove (9) in the compressed deformation sleeve (7); and

the bottom thin wall portion (13), receiving compressing force (F) in axial direction of the sleeve (7) by screwing the cap nut (3), is plastically deformed as to protrude to a radial inner direction of the sleeve (7) with reducing a width dimension (W) of the concave peripheral groove (9) to bite into a peripheral face (14) of an inserted copper pipe (40) for stopping the copper pipe (40).

[Claim 3] The pipe joint construction as set forth in claim 1 or claim 2, wherein an inner peripheral face (11) of the compressed deformation sleeve (7) is formed as a smooth peripheral face on an area (45) corresponding to the bottom thin wall portion (13) and its near portion.

[Claim 4] A pipe joint construction provided with a joint main body (l) with a male screw and a cap nut (3) screwed to a male screw (2) of the joint main body (1) to connect an aluminum pipe (4), characterized by a cylindrical compressed deformation sleeve (7), stored in an inner storing space (10) of the cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), in which a bottom thin wall portion (13) of concave groove, receiving compressing force (F) in axial direction of the sleeve (7) from the joint main body (l) and the cap nut (3) when the cap nut (3) and the male screw (2) of the joint main body (1) are screwed, is plastically deformed in a radial inner direction of the sleeve (7) to bite into a peripheral face (14) of an inserted aluminum pipe (4) for stopping the aluminum pipe (4).

[Claim 5] The pipe joint construction as set forth in claim 4, wherein the compressed deformation sleeve (7) is composed of aluminum or copper covered with aluminum.

[Claim 6] A pipe joint construction provided with a joint main body (1) with a male screw and a cap nut (3) screwed to a male screw (2) of the joint main body (1) to connect an copper pipe (40), characterized by a cylindrical compressed deformation sleeve (7), stored in an inner storing space (10) of the cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve

(7), in which a bottom thin wall portion (13) of concave groove, receiving compressing force (F) in axial direction of the sleeve (7) from the joint main body (1) and the cap nut (3) when the cap nut (3) and the male screw (2) of the joint main body (l) are screwed, is plastically deformed in a radial inner direction of the sleeve (7) to bite into a peripheral face (14) of an inserted copper pipe (40) for stopping.

[Claim 7] The pipe joint construction as set forth in claim 6, wherein the compressed deformation sleeve (7) is composed of copper.

[Claim 8] The pipe joint construction as set forth in claim 1, 2, 3, 4, 5, 6, or 7, wherein the concave groove (9) is U-shaped.

[Claim 9] The pipe joint construction as set forth in claim 1, 2, 3, 4, 5, 6, 7, or 8, wherein a sealing layer (12) is preliminarily formed unitedly with the inner peripheral face (11) of the compressed deformation sleeve (7) to make tight seal state in the biting.[Claim 10] The pipe joint construct ion as set forth in claim 1, 2, 3, 4, 5, 6, 7, 8, or 9, wherein the compressed deformation sleeve (7) has a sealing groove (22) on the inner peripheral face (11) and a sealing material (23) is set into the sealing groove (22)

[Claim 11] The pipe joint construction as set forth in claim 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10, wherein a cylindrical cover member (24) for promotion of relative rotational slide is disposed between an inner peripheral face (3B) of the cap nut (3) and a peripheral face of the compressed deformation sleeve (7).

[Claim 12] A pipe joint construction characterized by that:

a cylindrical compressed deformation sleeve (7), stored within a cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), is provided;

a bottom thin wall portion (13) of concave peripheral groove is formed on an inner portion of the concave peripheral groove (9) in the compressed deformation sleeve (7) in a non-compressed state, and a small protrusion (50) is formed on a sleeve inner peripheral face side of the bottom thin wall portion (13);

the bottom thin wall portion (13), receiving compressing force (F) in axial direction of the sleeve (7) by screwing the cap nut (3), is plastically deformed as to protrude to a radial inner direction of the sleeve (7) with reducing a width dimension (W) of the concave peripheral groove (9) to bite into a peripheral face (14) of an inserted aluminum pipe (4) for stopping the aluminum pipe (4); and

the small protrusion (50) shows increasing function of anti drawing force to increase resistance against drawing.

[Claim 13] A pipe joint construction characterized by that:

a cylindrical compressed deformation sleeve (7), stored within a cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), is provided;

a bottom thin wall portion (13) of concave peripheral groove is formed on an inner portion of the concave peripheral groove (9) in the compressed deformation sleeve (7) in a non-compressed state, and a small protrusion (50) is formed on a sleeve inner peripheral face side of the bottom thin wall portion (13);

the bottom thin wall portion (13), receiving compressing force (F) in axial direction of the sleeve (7) by screwing the cap nut (3), is

plastically deformed as to protrude to a radial inner direction of the sleeve (7) with reducing a width dimension (W) of the concave peripheral groove (9) to bite into a peripheral face (14) of an inserted copper pipe (40) for stopping the copper pipe (40); and

the small protrusion (50) shows increasing function of anti drawing force to increase resistance against drawing.

[Claim 14] The pipe joint construction as set forth in claim 12 or 13, wherein the small protrusion (50) is formed with plural notched portions (44) as to be divided along an arc, and the small protrusion (50) is constructed as to show preventing function of pipe rotation in the state biting into the peripheral face (14).

CLAIMS

[Claim 1] A pipe joint construction characterized by that:

a cylindrical compressed deformation sleeve (7), stored within a cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), is provided;

a bottom thin wall portion (13) of concave peripheral groove is formed on an inner portion of the concave peripheral groove (9) in the compressed deformation sleeve (7); and

the bottom thin wall portion (13), receiving compressing force (F) in axial direction of the sleeve (7) by screwing the cap nut (3), is plastically deformed as to protrude to a radial inner direction of the sleeve (7) with reducing a width dimension (W) of the concave peripheral groove (9) to bite into a peripheral face (14) of an inserted aluminum pipe (4) for stopping the aluminum pipe (4).

[Claim 2] A pipe joint construction characterized by that:

a cylindrical compressed deformation sleeve (7), stored within a cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), is provided;

a bottom thin wall portion (13) of concave peripheral groove is formed on an inner portion of the concave peripheral groove (9) in the compressed deformation sleeve (7); and

the bottom thin wall portion (13), receiving compressing force (F) in axial direction of the sleeve (7) by screwing the cap nut (3), is plastically deformed as to protrude to a radial inner direction of the sleeve (7) with reducing a width dimension (W) of the concave peripheral groove (9) to bite into a peripheral face (14) of an inserted copper pipe (40) for stopping the copper pipe (40).

[Claim 3] The pipe joint construction as set forth in claim 1 or claim 2, wherein an inner peripheral face (11) of the compressed deformation sleeve (7) is formed as a smooth peripheral face on an area (45) corresponding to the bottom thin wall portion (13) and its near portion.

[Claim 4] A pipe joint construction provided with a joint main body (l) with a male screw and a cap nut (3) screwed to a male screw (2) of the joint main body (1) to connect an aluminum pipe (4), characterized by a cylindrical compressed deformation sleeve (7), stored in an inner storing space (10) of the cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve (7), in which a bottom thin wall portion (13) of concave groove, receiving compressing force (F) in axial direction of the sleeve (7) from the joint main body (l) and the cap nut (3) when the cap nut (3) and the male screw (2) of the joint main body (1) are screwed, is plastically deformed in a radial inner direction of the sleeve (7) to bite into a peripheral face (14) of an inserted aluminum pipe (4) for stopping the aluminum pipe (4).

[Claim 5] The pipe joint construction as set forth in claim 4, wherein the compressed deformation sleeve (7) is composed of aluminum or copper covered with aluminum.

[Claim 6] A pipe joint construction provided with a joint main body (1) with a male screw and a cap nut (3) screwed to a male screw (2) of the joint main body (1) to connect an copper pipe (40), characterized by a cylindrical compressed deformation sleeve (7), stored in an inner storing space (10) of the cap nut (3) and having a concave peripheral groove (9) on a peripheral face (8) of the sleeve