[Claim 1]

A combined steel wall formed by connecting Z-shaped steel sheet piles and H-beams, each Z-shaped steel sheet pile including a web portion, flange portions provided at both ends of the web portion, and joint portions provided at end portions of the respective flange portions, the combined steel wall comprising:

a combined portion in which a Z-shaped steel sheet pile, an H-beam, and a Z-shaped steel sheet pile are arranged in that order, the H-beam being arranged so that a flange portion thereof extends in an axial direction of the flange portion of one Z-shaped steel sheet pile, the other Z-shaped steel sheet pile being arranged so that the flange portion thereof extends in an axial direction of the flange portion of the H-beam, and end portions of the flange portion of the H-beam being directly connected to the corresponding joint portions of the Z-shaped steel sheet piles,

wherein the joint portions of each Z-shaped steel sheet pile include a first joint portion formed at an end of one flange portion included in the Z-shaped steel sheet pile and a second joint portion formed at an end of the other flange portion included in the Z-shaped steel sheet pile, wherein, when the Z-shaped steel sheet piles are arranged next to other, the first and second joint portions of the Z-shaped steel sheet piles are engageable, and wherein the Z-shaped steel sheet piles at ends of a plurality of the combined portions, each of which includes a Z-shaped steel sheet pile, an H-beam, and a Z-shaped steel sheet pile, are connected to each other,

wherein the first joint portion is a double-claw-type joint portion including a main claw and a sub-claw, the main claw including a protruding portion at an end thereof and being arranged on an inner side of the steel sheet pile, and the sub-claw being formed so as to oppose the main claw and being arranged on an outer side of the steel sheet pile,

wherein the second joint portion is a double-claw-type joint portion including a main claw and a sub-claw, the main claw including a protruding portion at an end thereof and being arranged on the outer side of the steel sheet pile, and the sub-claw being formed so as to oppose the main claw and being arranged on the inner side of the steel sheet pile, and

wherein the flange portion of the H-beam has a projection on an end portion thereof, the projection projecting in a thickness direction of the flange portion.

Claim 2

A combined steel wall formed by connecting Z-shaped steel sheet piles and H-beams, each Z-shaped steel sheet pile including a web portion, flange portions provided at both ends of the web portion, and joint portions provided at end portions of the respective flange portions, the combined steel wall comprising:

a combined portion in which a Z-shaped steel sheet pile, an H-beam, and a Z-shaped steel sheet pile are arranged in that order, the H-beam being arranged so that a flange portion thereof extends in an axial direction of the flange portion of one Z-shaped steel sheet pile, the other Z-shaped steel sheet pile being arranged so that the flange portion thereof

extends in an axial direction of the flange portion of the H-beam, and end portions of the flange portion of the H-beam being directly connected to the corresponding joint portions of the Z-shaped steel sheet piles,

wherein the joint portions of each Z-shaped steel sheet pile include a first joint portion formed at an end of one flange portion included in the Z-shaped steel sheet pile and a second joint portion formed at an end of the other flange portion included in the Z-shaped steel sheet pile, wherein, when the Z-shaped steel sheet piles are arranged next to other, the first and second joint portions of the Z-shaped steel sheet piles are engageable, and wherein the Z-shaped steel sheet piles at ends of a plurality of the combined portions, each of which includes a Z-shaped steel sheet pile, an H-beam, and a Z-shaped steel sheet pile, are connected to each other,

wherein the first joint portion is a double-claw-type joint portion including a main claw and a sub-claw, the main claw including a protruding portion at an end thereof and being arranged on an inner side of the steel sheet pile, and the sub-claw being formed so as to oppose the main claw and being arranged on an outer side of the steel sheet pile,

wherein the second joint portion is a double-claw-type joint portion including a main claw and a sub-claw, the main claw including a protruding portion at an end thereof and being arranged on the outer side of the steel sheet pile, and the sub-claw being formed so as to oppose the main claw and being arranged on the inner side of the steel sheet pile,
and

wherein the flange portion of the H-beam has a groove portion in an end portion thereof.

[Claim 3]

The combined steel wall according to Claim 1 or 2, wherein the first joint portion is provided at the end of the corresponding flange portion with a first curved portion interposed therebetween, the first curved portion being bent toward the inner side of the steel sheet pile and being provided so that an outer surface of the sub-claw does not project toward the outer side of the steel sheet pile from the outer surface of the flange portion, and

wherein the second joint portion is provided at the end of the corresponding flange portion with a second curved portion interposed therebetween, the second curved portion being bent toward the inner side of the steel sheet pile and being provided so that an outer surface of the main claw is shifted toward the inner side of the steel sheet pile by a distance greater than or equal to a thickness of the sub-claw.