outward from the flange portions of the Z-shaped steel sheet piles, and the flatness of the corresponding portions is degraded. Therefore, when a waling member is installed, a larger amount of backfill concrete is required. Thus, the installation process becomes more complicated.

[0007]

A technical problem of the present invention is to provide a combined steel wall in which Z-shaped steel sheet piles and H-beams are connected without using connectors as additional components.

[Solution to Problem]

[0008]

(1) A combined steel wall according to the present invention is 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 includes 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 as to~~ so that the flange portion thereof extends

in an axial direction of the flange

sheet pile being arranged ~~so as to~~ 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. Therefore, it is not necessary to fix the Z-shaped steel sheet pile and the H-beam in advance, and each member can be driven into the ground individually. Thus, the combined steel wall can be readily formed. In addition, the end portions of the flange portion of the H-beam are directly connected to the corresponding joint portions of the Z-shaped steel sheet piles. Therefore, no connectors or the like are required to connect the Z-shaped steel sheet piles and the H-beam. Thus, the combined steel wall can be readily formed and the material cost can be reduced.

[Brief Description of Drawings]

[0014]

[Fig. 1] Fig. 1 is a diagram illustrating a combined steel wall according to an embodiment of the present invention.

[Fig. 2] Fig. 2 is an enlarged view of circled part A in Fig. 1.

[Fig. 3] Fig. 3 is a diagram illustrating a Z-shaped steel sheet pile included in the combined steel wall according to the embodiment of the present invention.

[Fig. 4] Fig. 4 is an enlarged view of circled part C in Fig. 3.

[Fig. 5] Fig. 5 is an enlarged view of circled part D in Fig. 3.

[Fig. 6] Fig. 6 is a diagram illustrating an H-beam included in the combined steel wall according to the embodiment of the present invention.

[Fig. 7] Fig. 7 is a diagram illustrating an H-beam included in the combined steel wall according to another embodiment of the present invention.

[Description of Embodiments]

[0015]

A combined steel wall 1 according to the present embodiment is formed by connecting Z-shaped steel sheet piles 2 and H-beams 4, each Z-shaped steel sheet pile 2 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 1 includes a combined portion in which a Z-shaped steel sheet pile 2, an H-beam 4, and a Z-shaped steel sheet pile 2 are arranged in that order, the H-beam 4 being arranged so that a flange portion thereof extends in an axial direction of the flange portion of one Z-shaped steel sheet pile 2, the other Z-shaped steel sheet pile 2 being arranged ~~so as to~~ so that the flange portion thereof extends

in an axial direction of the flange

5 first joint portion

7 second flange portion

9 second joint portion

11 protruding portion

13 main claw

15 sub-claw

16 web portion

17 joint main portion

19 connecting portion

21 joint inner region

23 first curved portion

25 second curved portion

~~27 steel sheet pile wall~~

35 web portion

37 flange portion

39 projection

40 groove portion

CLAIMS

[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 as to~~ 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.

[Claim 2]

The combined steel wall according to Claim 1, 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