CLAIMS

1. A steel wall, comprising:

a corrugated-shaped wall body in which a plurality of steel sheet piles are coupled by a joint and in which a projection and a recess are repeated in a longitudinal direction; and

a plurality of reinforcement materials constituted of a steel pipe that reinforces the wall body and is arranged in a longitudinal direction of the wall body at a space with the wall body,

the steel pipe is rotatable, and

wherein a part of the reinforcement material is in a state of being entered into a recessed portion of the wall body, and

the wall body and the reinforcement material are apart such that the wall body and the reinforcement material do not contact each other during construction, and

the wall body is coupled to the reinforcement material only at head portions thereof, such that load transmission is performed between the wall body and the reinforcement material, and a positional misalignment in a vertical direction between the wall body and the reinforcement material is regulated, by coupling at the head portions,

wherein space at a narrowest part between the wall body and the steel pipe is set to 70 mm or more and 300 mm or less.

2. The steel wall according to claim 1, wherein the reinforcement material is installed to every other steel sheet pile or every two or more steel sheet piles.

3. The steel wall according to claim 1, wherein the wall body is coupled to the

reinforcement material at head portions thereof by concrete, which is driven across the head portion thereof.

4. The steel wall according to claim 1, wherein the wall body and the reinforcement material are coupled at head portions thereof by each being joined to a steel sheet installed therebetween by welding.

5. The steel wall according to claim 4, wherein the wall body and the reinforcement material are coupled at head portions thereof by concrete driven across the head portions thereof.

6. The steel wall according to claim 1, wherein a pitch L of the reinforcement material and a wall height H of the wall body satisfies $L \leq 4H / 7$.

7. A method of constructing the steel wall as claimed in any one of the preceding claims comprising:

driving a plurality of steel sheet piles into the ground in which a projection and a recess are repeated in a longitudinal direction; and

driving a plurality of reinforcement materials constituted of a steel pipe into the ground in a manner that reinforces a wall body once formed and is arranged in a longitudinal direction of the wall body at a space with the wall body,

coupling adjacent piles to form a corrugated shaped wall body

wherein the steel pipe is devoid of a coupling joint, and is rotatable, and

a part of the reinforcement material is in a state of being entered into a recessed portion of the wall body, once formed and

the wall body once formed and the reinforcement material do not contact each other during construction, and wherein

the wall body once formed is coupled to the reinforcement material only at head portions thereof, such that load transmission is performed between the wall body and the reinforcement material, and a positional misalignment in a vertical direction between the wall body and the reinforcement material is regulated, by coupling at the head portions,

wherein space at a narrowest part between the wall body and the steel pipe is set to 70 mm or more and 300 mm or less.