includes a plurality of tapered square pipes having a trapezoidal cross-section. The tapered square pipes each may have a coupling protrusion or a coupling groove formed in the longitudinal direction on a first side and a coupling protrusion or a coupling groove formed in the longitudinal direction on a second side.

[0052] In detail, as shown in FIG. 2 (the right tapered square pipe is referred to as a first tapered square pipe and the left tapered square pipe is referred to as a second tapered square pipe for helping understanding), a coupling protrusion 211 may be formed on a first side (left side) of the first tapered square pipe 210 and a coupling groove 212 may be formed on a second side (right side) of the first tapered square pipe 210.

[0053] Further, a coupling protrusion 221 may be formed on a first side (left side) of the second tapered square pipe 220 and a coupling groove 222 may be formed a second side (right side) of the second tapered square pipe 220.

[0054] Further, in the ring-shaped cofferdam and temporary pit excavation structure using tapered square pipes according to an embodiment of the present invention, the tapered square pipes are assembled by coupling the coupling protrusions and the coupling grooves with the long side of two parallel sides of the trapezoid disposed outside and the short side disposed inside, whereby a ring-

and the second tapered square pipe 420b.

[0072]

[0073] Referring to FIG. 5A, in a ring-shaped cofferdam and temporary pit excavation structure using tapered square pipes according to an embodiment of the present invention, when a first tapered square pipe 510a that is one of a plurality of tapered square pipes 510a and 520a has a coupling protrusion 511a formed in the longitudinal direction and a second tapered square pipe 520a that is one of the plurality of tapered square pipes 510a and 520a has a coupling groove 522a formed in the longitudinal direction to fit the coupling protrusion 511a therein, the coupling protrusion 511a of the first tapered square pipe 510a may have a trapezoidal cross-section and the coupling groove 522a of the second tapered square pipe 520a may be formed to correspond go the coupling protrusion 511a.

[0074] Further, referring to FIG. 5B, coupling protrusions 511b may be formed on two sides of the first tapered square pipe 510b and coupling grooves 522b may be formed on two sides of the second tapered square pipe 520b. An entirely ring-shaped structure can be achieved by alternately arranging the first tapered square pipe 510b and the second tapered square pipe 520b.

[0075] In the case of FIG. 5, the supporting force between the first tapered square pipe and the second

CLAIMS

1. A ring-shaped cofferdam and temporary pit excavation structure using tapered square pipes, the structure comprising a plurality of tapered square pipes a trapezoidal cross-section, wherein

the plurality of tapered square pipes each have a coupling protrusion or a coupling groove formed in a longitudinal direction on a first side,

the plurality of tapered square pipes each have a coupling protrusion or a coupling groove formed in the longitudinal direction on a second side,

the plurality of tapered square pipes are assembled by coupling the coupling protrusions and the coupling grooves,

a long side of two parallel sides of the trapezoid is disposed outside, and

a short side is disposed inside.

2. The structure of claim 1, wherein the coupling protrusion of the first tapered square pipe has a rectangular cross-section, and

the coupling groove of the second tapered square pipe is formed to correspond to the coupling protrusion.

3. The structure of claim 1, wherein the coupling

protrusion of the first tapered square pipe has a T-shaped cross-section, and

the coupling groove of the second tapered square pipe is formed to correspond to the coupling protrusion.

4. The structure of claim 1, wherein the coupling protrusion of the first tapered square pipe has a trapezoidal cross-section, and

the coupling groove of the second tapered square pipe is formed to correspond to the coupling protrusion.

5. The structure of claim 1, wherein the first tapered square pipe and the second tapered square pipe are combined by welding four flat plates.

6. The structure of claim 1, further comprising a guide member that is fitted in an upper end of one of the plurality of tapered square pipes,

wherein the guide member has:

a fitting portion that is fitted in an upper end of one of the plurality of tapered square pipes; and

a guide portion that horizontally extends from the fitting portion.

7. The structure of claim 1, wherein tapered cross-

sections of some of the plurality of tapered square pipes are inclined at different angles.

8. The structure of claim 1, further comprising an anchor an anchor member that is fitted in a lower end of one of the plurality of tapered square pipes,

wherein the anchor member has:

a fitting portion formed at an upper end of the anchor member to be fitted in a lower end of one of the plurality of tapered square pipes; and

an anchor portion extending a predetermined length from the fitting portion and decreasing in cross-sectional area toward a lower end, and

an upper end of the anchor portion is larger in cross-sectional area than the fitting portion.

9. A method of constructing a ring-shaped cofferdam and temporary pit excavation structure using tapered square pipes, the method comprising:

driving a first tapered square pipe having a coupling groove formed in a longitudinal direction on a side;

putting a second tapered square pipe having a coupling protrusion formed in a longitudinal direction on a side close to an upper end of the first tapered square pipe;

fitting the coupling protrusion of the second tapered

square pipe into the coupling groove of the first tapered square pipe; and

driving the second tapered square pipe with the coupling protrusion of the second tapered square pipe fitted in the coupling groove of the first tapered square pipe.

10. The method of claim 9, further comprising welding respectively the first tapered square pipe and the second tapered square pipe before the driving of the first tapered square pipe,

wherein, in the welding, the first tapered square pipe and the second tapered square pipe are respectively welded using four flat plates.

11. The method of claim 10, further comprising:

measuring side pressure of an area where the first tapered square pipe and the second tapered square pipe are installed;

determining thickness of the plates in accordance with the result of measuring the side pressure.

12. The method of claim 11, wherein the determining of thickness of the plates in accordance with the result of measuring the side pressure determines the thickness of the

plates as 10% or less of entire width of the first tapered square pipe or the second tapered square pipe when the measured side pressure is less than a predetermined value, as the result of measurement.

13. The method of claim 11, wherein the determining of thickness of the plates in accordance with the result of measuring the side pressure determines the thickness of the plates as 11% or more of entire width of the first tapered square pipe or the second tapered square pipe when the measured side pressure is a predetermined value or more, as the result of measurement.

14. The method of claim 9, wherein the coupling protrusion of the first tapered square pipe has a rectangular cross-section, and

the coupling groove of the second tapered square pipe is formed to correspond to the coupling protrusion.

15. The method of claim 9, wherein the coupling protrusion of the first tapered square pipe has a T-shaped cross-section, and

the coupling groove of the second tapered square pipe is formed to correspond to the coupling protrusion.

16. The method of claim 9, wherein the coupling protrusion of the first tapered square pipe has a trapezoidal cross-section, and

the coupling groove of the second tapered square pipe is formed to correspond to the coupling protrusion.

17. The method of claim 9, further comprising coupling a guide member to the upper end of the first tapered square pipe after the driving of the first tapered square pipe,

wherein the guide member has:

a fitting portion that is fitted in an upper end of one of the plurality of tapered square pipes; and

a guide portion that horizontally extends from the fitting portion.

18. The method of claim 17, comprising, after the coupling of the guide member:

putting the second tapered square pipe to the upper end of the first tapered square pipe;

fitting the coupling protrusion of the second tapered square pipe into the coupling groove of the first tapered square pipe through the guide member; and

driving the second tapered square pipe with the coupling protrusion of the second tapered square pipe fitted in the coupling groove of the first tapered square

pipe.