Provided are a prefabricated scaffolding and a falsework capable of being easily assembled, and having a sufficient strength with high safety. Also provided is a support steel pipe to be used in the prefabricated scaffolding or falsework having a support column and a horizontal member coupled to each other using wedges. The support steel pipe includes a horizontal member coupling portion including a circular outer edge portion on an outer edge of a receiving fitting having a wedge-shaped hole. The horizontal member coupling portions are provided on an outer surface of the support column or an outer surface of assembled support columns at an equal interval. A plurality of hooks of safety belts can be engaged with the circular outer edge portion.
SUPPORT STEEL PIPE AND BRACKET FOR SCAFFOLDING OR FALSEWORK, AND SCAFFOLDING OR FALSEWORK

TECHNICAL FIELD

[0001] The present invention relates to a prefabricated scaffolding or falsework to be used in construction work or the like.

BACKGROUND ART

[0002] A method involving assembling a scaffolding is often employed in work for a building or an exterior wall thereof. The method mainly involves setting a temporary work floor or passage outside the building so that a worker may carry out construction of the building, repair or maintenance of the building, or painting or cleaning of the building. A falsework is a structure for supporting a formwork of a concrete floor or beam in a process of placing of concrete to setting thereof.

[0003] The scaffolding or the falsework is required to be assembled upward in accordance with the height of the building. Thus, a number of horizontal members, guardrails, treadboards, and the like are necessary for the entire construction, and further, the members assembled around the building are required to be removed one by one after the work. Therefore, an amount of the work for setting and disassembling is considerable, thus requiring a longer time period. In recent years, a scaffolding or a falsework having a system of coupling members using wedges and assembling the members into a predetermined structure has been put into practical use due to its easiness in assembling and disassembling (Patent Literature 1 and Non Patent Literature 1), and hence even higher strength and safety are required.

[0004] The scaffolding or the falsework has a perpendicular part for supporting and a horizontal part for movement or work of the worker, and the worker carries out the work while moving vertically and laterally. In order to avoid a risk of falling, a worker at a high place wears a safety belt and attaches a hook of one end of the safety belt to the body and a hook of another end thereof to the scaffolding or the falsework, to thereby enhance safety for assembling or disassembling of the scaffolding or the falsework and movement in construction work. However, the number of places that can engage the hook of the safety belt on the scaffolding or the falsework is relatively small, thereby being difficult to move while constantly engaging the hook of the safety belt on the scaffolding or the falsework and dangerous for the worker. For example, the hooks can be engaged only after a plurality of workers all climb to a predetermined work position, and hence a risk in a movement process is high.

SUMMARY OF INVENTION

Technical Problem

[0007] The present invention has been made to solve the conventional problem described above, and it is an object of the present invention to provide a scaffolding and/or a falsework capable of being easily assembled, and having a sufficient strength with high safety in work or movement.

Solution to Problem

[0008] In order to achieve the above-mentioned object, the inventor of the present invention has found the following aspects of the invention.

1. A support steel pipe for a prefabricated scaffolding or falsework, comprising at least one horizontal member coupling portion comprising:

   [0009] a receiving fitting having a wedge-shaped hole that longitudinally passes through the receiving fitting; and

2. A support steel pipe according to Item 1, wherein the circular outer edge portion is welded to all of a plurality of the receiving fittings so as to form a hook engaging portion of a safety belt.

3. A support steel pipe according to Item 1 or 2, wherein, assuming that a steel pipe having a length of from 250 mm to 400 mm with the one horizontal member coupling portion being provided on a central part thereof is one unit, the support steel pipe has a length of one unit to fifteen units or a length shortened from the length of one unit to fifteen units by a length that is added by a joint tube.

4. A support steel pipe according to anyone of Items 1 to 3, wherein the support steel pipe has holes for a safety pin so that two safety pins, which are provided so as to prevent a wedge portion from falling off, pass through the support steel pipe in a cross shape.

5. A prefabricated scaffolding or falsework, comprising:

6. A prefabricated scaffolding or falsework according to Item 5 or 6, wherein the horizontal member is formed of a steel pipe that is welded to three surfaces of the wedge portion, the three surfaces comprising a front surface and both side surfaces of the wedge portion.

7. A prefabricated scaffolding or falsework according to Item 5 or 6, wherein the horizontal member is formed of a steel pipe that is welded to three surfaces of the wedge portion, the three surfaces comprising a front surface and both side surfaces of the wedge portion.

8. A bracket, comprising:

   [0014] a support steel pipe portion formed of the support steel pipe according to any one of Items 1 to 4;

   [0015] a first support arm having a wedge portion on one end portion thereof, and another end portion welded and

CITATION LIST

Patent Literature

[0005] [PTL 1] JP 2002-276152 A

Non Patent Literature

[0006] [NPL1] Public works management journal, November 2000, p. 57 “scaffolding and falsework”
joined to an outer surface of the support steel pipe portion, which is positioned above a horizontal member coupling portion, at a right angle;

[0016] a first perpendicular support portion having one end portion welded and joined to an outer surface of the first support arm at a right angle,

[0017] the first perpendicular support portion being parallel to a support column;

[0018] the first perpendicular support portion having one or more wedge portions each insertable into a wedge-shaped hole of the horizontal member coupling portion of the support column; and

[0019] a second support arm having one end portion welded and joined to an outer surface of the first perpendicular support portion at a right angle, and another end portion welded and joined to the outer surface of the support steel pipe portion, which is positioned below the horizontal member coupling portion, at a right angle,

[0020] the second support arm being parallel to the first support arm.

9. A prefabricated scaffolding or falswork according to Items 5 to 7, further comprising the bracket according to Item 8.

Advantageous Effects of Invention

[0021] The circular outer edge portion of the horizontal member coupling portion of the support steel pipe according to the present invention reinforces the strength of the receiving fitting, and also serves as the hook engaging portion. A plurality of hooks of safety belts can be engaged with the hook engaging portion. A plurality of the horizontal member coupling portions are provided to a support column of the scaffolding or the falswork thus assembled at an equal interval (every one unit). Therefore, any of the hook engaging portions for a safety belt is always close to the worker, and thus safety of the worker at the time of the movement or the work can be ensured.

[0022] The falswork using the support steel pipe according to the present invention may be used as a part of the scaffolding with a function of the falswork. The falswork using the support steel pipe according to the present invention may be assembled together with brackets, treadboards, guardrails, horizontal couplers, other support steel pipes according to the present invention, and the like. In this manner, the scaffolding can be constructed.

[0023] Further, the scaffolding or the falswork can be assembled easily and promptly using the support steel pipe according to the present invention and the bracket according to the present invention in combination. Further, scaffolding members below the bracket can be alternatively used as scaffolding members above the bracket. For example, after the work for an exterior wall in the lower part is completed, support steel pipes and horizontal members on an outer surface of the scaffolding in the lower part are removed, and the support steel pipes and the horizontal members can be fixed in the part above the bracket, thereby being used as the scaffolding for work in the upper part. As described above, the scaffolding members are alternatively used so that the number of the scaffolding members can be reduced.

[0024] Further, the support steel pipe can be supported by the safety pin, which is provided so as to prevent the wedge portion of the horizontal member from falling off, and hence even when coupling between the wedge portion and the wedge-shaped hole is loosened due to rocking, vibration, or the like, there is no fear in that the wedge portion falls off the wedge-shaped hole. Thus, the safety is significantly excellent.

[0025] Further, the surface, on which the wedge portion is held in contact with the steel pipe outer surface, is the arc-shaped curved surface that is equivalent to that of the steel pipe outer surface, and hence the contact area between the wedge portion and the steel pipe is large. Thus, the wedge portion is stabilized, and further, an axis of the wedge portion is not rotated. Therefore, the strength is excellent.

[0026] Further, the horizontal member is formed of the steel pipe (horizontal member steel pipe) that is welded to the three surfaces of the wedge portion, that is, the front surface and both the side surfaces thereof, and hence the welding area between the steel pipe and the wedge portion is large. Therefore, the strength is excellent.

BRIEF DESCRIPTION OF DRAWINGS

[0027] FIG. 1 is a perspective view of an example of a support steel pipe (one unit) according to the present invention.

[0028] FIG. 2 is a front view of the example of the support steel pipe (one unit) according to the present invention.

[0029] FIG. 3 is a schematic view of assembling of the support steel pipe and a horizontal member.

[0030] FIG. 4 are (1) a plan view of a wedge portion and (2) a side view of a horizontal member end portion.

[0031] FIG. 5 is a schematic view of a cross section taken along the line a1-a2 of FIG. 4.

[0032] FIG. 6 is a schematic view illustrating coupling between the support steel pipes according to the present invention.

[0033] FIG. 7 is a side view of a bracket according to the present invention, which is coupled to a support column formed of the support steel pipes according to the present invention.

DESCRIPTION OF EMBODIMENT

[0034] A support steel pipe according to the present invention is to be assembled and used as a scaffolding or a falswork, or used both as the scaffolding and the falswork. Desired horizontal members are respectively bridged between a plurality of the support steel pipes, and the support steel pipes are built at a predetermined interval at a site at which the scaffolding or the falswork is needed. Further, the support steel pipes are connected to each other in an axial direction of the support steel pipe, and the scaffolding or the falswork is built up to a desired height. A wedge portion provided on an end portion of the horizontal member is inserted into a wedge-shaped hole of a receiving fitting of a horizontal member coupling portion, which is provided on an outer surface of the support steel pipe. Thus, the horizontal member is coupled to the support steel pipe so that the scaffolding or the falswork is assembled into a predetermined structure.

[0035] In a support steel pipe 10 according to the present invention, at least one horizontal member coupling portion 20 is provided to an outer surface of a steel pipe 21. Further, the horizontal member coupling portion 20 includes receiving fittings 22 each having a wedge-shaped hole 222 that longitudinally passes therethrough, and a circular outer edge portion 23 held in contact with outer edges of the respective receiving fittings. An outer diameter of the support steel pipe
according to the present invention is not particularly limited, but it is preferred to use a steel pipe having a diameter of 48.6

A plurality of the receiving fittings 22, preferably two to four receiving fittings 22 are provided on the outer surface of the support steel pipe at the same height so as to project perpendicularly to the axial direction. It is preferred that the respective receiving fittings be provided perpendicularly to each other or provided in opposite directions (180°) to each other. The wedge-shaped hole 222 is formed in each of the receiving fittings 22 so as to vertically pass therethrough. In the wedge-shaped hole, the area of an upper end opening portion thereof is larger, the sectional area thereof becomes gradually smaller, and the area of a lower end opening portion thereof is the smallest. A material of the receiving fitting or a coupling method between the receiving fitting and a support column is not particularly limited. However, it is preferred that a metal plate such as a steel plate be bent into a U-shape, and be welded and joined to an outer surface 21 of the steel pipe.

A length of the receiving fitting 22 in the axial direction is, for example, from 40 mm to 80 mm, preferably from 50 mm to 70 mm, further preferably from 55 mm to 65 mm, most preferably 60 mm. A lateral width of the upper end opening portion of the wedge-shaped hole 222 is from 15 mm to 30 mm, preferably from 18 mm to 25 mm, further preferably 20 mm. A longitudinal width thereof is set approximately equal to the lateral width.

The circular outer edge portion 23 is provided so as to cover the receiving fittings 22 while being held in contact with the outer edges of the respective receiving fittings 22. The circular outer edge portion 23 reinforces the strength of the receiving fittings, and also serves as hook engaging portions 231 for a safety belt. Spaces 226 for engaging a hook are secured at portions each defined by the circular outer edge portion 23 and two adjacent receiving fittings 22. Parts of the circular outer edge portion, which correspond to the respective spaces, each serve as the hook engaging portion 231. One or a plurality of hooks of safety belts for workers can be engaged with the hook engaging portions 231, respectively. Thus, safety protection is achieved. Note that, also when the receiving fittings 22 are linearly covered with a flat steel plate for reinforcement, spaces are secured at portions each defined by the steel plate and two adjacent receiving fittings 22.

However, a distance between the steel plate and the steel pipe outer surface 211 is short, and thus it is impossible or difficult to engage the hook therewith. On the contrary, in the space 226 for engaging a hook according to the present invention, the circular outer edge portion has a circular shape. Therefore, a distance between the hook engaging portion 231 and the steel pipe outer surface 211 is long, and thus the hook can be easily engaged therewith.

A material of the circular outer edge portion 23 or a coupling method between the circular outer edge portion 23 and the support column is not particularly limited. However, it is preferred that annular steel be welded and joined to all of the plurality of the receiving fittings 22. It is preferred that annular steel be welded and joined to the outer edge portions of the respective four receiving fittings 22. A width of the circular outer edge portion 23 is from 10 mm to 40 mm, preferably from 15 mm to 30 mm, more preferably from 17 mm to 25 mm, most preferably 20 mm. When the width thereof is smaller than 10 mm, the strength of the circular outer edge portion 23 becomes lower, and when the width thereof is larger than 40 mm, it is difficult to engage the hook therewith. A diameter of the circular outer edge portion is from 70 mm to 110 mm, preferably from 75 mm to 100 mm, more preferably from 78 mm to 96 mm. When the diameter thereof is smaller than 70 mm, it is difficult to engage the hook therewith. It is preferred that the circular outer edge portion have such a shape that an upper diameter thereof is larger and a lower diameter thereof is smaller.

The support steel pipe according to the present invention can be sectioned by a length of from 200 mm to 500 mm as one unit. The length of one unit may be more preferably from 250 mm to 400 mm, further preferably from 270 mm to 350 mm, still further preferably from 270 mm to 330 mm, most preferably 300 mm. One horizontal member coupling portion 20 is provided at substantially a central part of one unit. There is no limitation on a length of the support steel pipe 10 according to the present invention. However, the support steel pipe 10 has, for example, a length of one to fifteen units. Further, the support steel pipe 10 has, for example, a length of from 175 mm to 4,500 mm. The support steel pipes respectively having various lengths are used in combination, and thus the scaffolding and the falsework can be freely assembled. Note that, in a support steel pipe having two units or more, the horizontal member coupling portion 20 is provided on the outer surface of the steel pipe 21 at a predetermined interval of one unit. That is, when a plurality of the horizontal member coupling portions 20 are provided on the support steel pipe, the horizontal member coupling portions 20 are provided at the interval of one unit, most preferably at an interval of 300 mm.

Also when the support steel pipes according to the present invention are connected to each other, it is preferred that an interval between the horizontal member coupling portions 20 vertically adjacent to each other at a connection part maintain a predetermined interval of one unit. When the support steel pipes are connected to each other using a joint tube 50, an end portion of the support steel pipe can be shortened by a length that is added by the joint tube 50. For example, one unit at a lower end of the support steel pipe can be shortened from a predetermined length of a unit by a length that is added by the joint tube. For example, when one unit is 300 mm and a length of 25 mm is added by the joint tube, a length of the unit at the lower end is 275 mm. Thus, a length of a support steel pipe having one unit according to the present invention can be 275 mm, a length of a support steel pipe having two units according to the present invention can be 575 mm, a length of a support steel pipe having three units according to the present invention can be 875 mm, a length of a support steel pipe having four units according to the present invention can be 1,175 mm, a length of a support steel pipe having five units according to the present invention can be 1,475 mm, a length of a support steel pipe having six units according to the present invention can be 1,775 mm, a length of a support steel pipe having seven units according to the present invention can be 2,075 mm, a length of a support steel pipe having eight units according to the present invention can be 2,375 mm, a length of a support steel pipe having nine units according to the present invention can be 2,675 mm, a length of a support steel pipe having ten units according to the present invention can be 2,975 mm, a length of a support steel pipe having eleven units according to the present invention can be 3,275 mm, a length of a support steel pipe having twelve units according to the present invention can be 3,575 mm, a length of a support steel pipe having thirteen units
according to the present invention can be 3,875 mm, a length of a support steel pipe having fourteen units according to the present invention can be 4,175 mm, and a length of a support steel pipe having fifteen units according to the present invention can be 4,475 mm. The support steel pipes respectively having various lengths are used in combination, and thus the scaffolding and the falsework can be freely assembled. Even if the lengths of the respective support steel pipes are different from one another, the horizontal member coupling portions 20 can be arranged on the support column at a predetermined interval.

[0042] When one unit is from 200 mm to 500 mm, the horizontal member coupling portions are provided at an interval of from 200 mm to 500 mm, and hence the hook engaging portions 231 for a safety belt are provided at an interval of from 200 mm to 500 mm on the support column of the scaffolding or the falsework. Any of the hook engaging portions 231 for a safety belt is always close to a worker, and thus safety at the time of movement or work can be ensured.

[0043] It is preferred that the support steel pipe according to the present invention have holes 40 for a safety pin so as to prevent the wedge portion from falling off. The holes 40 are formed so that two safety pins 401 pass through the support steel pipe in a cross shape. After a wedge portion 31 provided on an end portion of a horizontal member 30 is inserted into the wedge-shaped hole 222, the safety pin 401, which is provided so as to prevent the wedge portion from falling off, is fitted into the hole 40 for a safety pin. It is preferred that the two safety pins 401, which are provided so as to prevent the wedge portion from falling off, be provided correspondingly to the four receiving fittings 22 so as to pass through the support steel pipe in a cross shape. An end portion of the safety pin 401 projects above an upper surface of the wedge portion 31, which is inserted into the wedge-shaped hole 222, so as to prevent the wedge portion 31 from falling off. The safety pin is formed of, for example, a bolt and a nut. With those safety pins, the safety can be further ensured.

[0044] The present invention also relates to a prefabricated scaffolding or falsework including the support steel pipe 10 and the horizontal member 30 having the wedge portion 31 on the end portion thereof. The prefabricated scaffolding or falsework according to the present invention may further include another member, for example, may include a joint tube, a joint pin, or a safety pin.

[0045] In general, the horizontal member 30 is set between two or four horizontal member coupling portions 20, which are respectively provided on different support steel pipes at the same height. As the horizontal member 30, a guardrail, a treadboard, a bracket, a horizontal coupler, or the like may be given. A length or a long side of the horizontal member is from 300 mm to 1,800 mm, preferably from 500 mm to 1,500 mm, further preferably from 700 mm to 1,100 mm.

[0046] The horizontal member 30 has the wedge portion 31 on the end portion thereof. The wedge portion 31 is inserted into and coupled to the wedge-shaped hole 222 of the support steel pipe, and thus the scaffolding or the falsework can be assembled. For example, the wedge portion 31 is provided on each of both ends of the guardrail, and the guardrail is bridged between two support columns. Further, for example, in a case of the treadboard having the wedge portions 31 respectively on four corners thereof, the treadboard is bridged between four support columns. Further, for example, the bracket has a plurality of the wedge portions so as to engage with upper and lower wedge-shaped holes 222 of the same support column.

[0047] The horizontal coupler has the wedge portions 31 respectively on both ends thereof, and is bridged between two support columns. The horizontal coupler may have a fixed length or a variable length. The horizontal coupler having a variable length has, for example, a sliding-bar structure, and can be assembled after the horizontal coupler is adjusted to a length in accordance with a construction site and fixed, for example, with pins. The horizontal coupler having a variable length can be suitably used particularly in the falsework. The horizontal coupler is used suitably in the falsework. When the horizontal coupler is fixed in two or more directions during assembling of the falsework, falling down or sliding can be prevented and the strength can be increased. When the horizontal coupler having the wedge portions 31 is used, the strength can be maintained without using braces.

[0048] Both the wedge portions 31 each have a thrust surface 311. The thrust surface 311 is a surface on which the wedge portion 31 is held in contact with the steel pipe outer surface 211. The thrust surface 311 is set along the steel pipe outer surface 211. It is preferred that the thrust surface 311 have a curved surface equivalent to that of the steel pipe outer surface 211. That is, the thrust surface 311 has an arc-shaped curved surface, and it is preferred that a radius of the arc be equal to a radius of the steel pipe 21. With the thrust surface 311 having the curved surface equivalent to that of the steel pipe outer surface, the wedge portion 31 is surely coupled to the steel pipe 21 and can maintain the same axial direction as that of the steel pipe 21, thereby being prevented from rotating. Thus, the safety can be ensured.

[0049] It is preferred that a horizontal member steel pipe 32 constructing the horizontal member 30 be welded to three surfaces of the wedge portion 31, that is, a front surface and both side surfaces thereof. The horizontal member steel pipe 32 is welded to the three surfaces so as to grip the wedge portion. Therefore, the welding and joining area is increased so that the wedge portion 31 and the horizontal member steel pipe 32 can be surely coupled to each other. Thus, the safety can be ensured.

[0050] The joint tube 50 may be used in order to connect the support steel pipes 10 according to the present invention to each other. The joint tube may have a projecting portion on a central part of an outer surface thereof so that an outer surface of the support column is formed in smooth connection to the steel pipe outer surface 211. The joint tube may not have such a projecting portion. The joint tube can be fixed to the support steel pipe with a joint pin 411. The joint pin is removed from the support steel pipe using the joint tube having no projecting portion so that a part of the members of the scaffolding or the falsework thus set can be removed. A part of the members located at a portion at which the strength can be maintained is removed and alternatively used at an upper part of the scaffolding so that the number of the scaffolding members can be reduced. Although there is no limitation on the length added between the support steel pipes by the joint tube, the length is about from 0 mm to 45 mm, preferably from 10 mm to 40 mm, more preferably from 15 mm to 35 mm, further preferably from 20 mm to 30 mm, most preferably 25 mm.

[0051] The present invention also relates to a bracket 60 configured to be coupled to the support column (support column consisting of the support steel pipe or support column including two or more support steel pipes coupled to each other) with a plurality of wedges. The bracket 60 includes a support steel pipe portion 61 having the same structure as that of the support steel pipe, a first support arm 62, a first perpen-
dicular support portion 64, and a second support arm 63. Further, the bracket 60 may include a necessary member such as a second perpendicular support portion.

[0052] The support steel pipe portion 61 has a length of one or two units, and it is preferred that the support steel pipe portion 61 be formed of one unit. The support steel pipe portion is supported by the first support arm and the second support arm. The support steel pipe portion may further be supported from below by another support steel pipe.

[0053] There is no particular limitation on a material and a shape of each of the first support arm 62, the first perpendicular support portion 64, the second support arm 63, and the second perpendicular support portion. However, it is preferred to use a steel pipe and it is particularly preferred to use a steel pipe having an outer diameter of 48.6 mm.

[0054] The first support arm 62 has a wedge portion 621 on one end portion thereof. It is preferred that the first support arm 62 be welded to three surfaces of the wedge portion 621, that is, a front surface and both side surfaces thereof so as to grip the wedge portion. Therefore, the welding and joining area is increased so that the wedge portion 621 and the first support arm 62 can be surely coupled to each other. Thus, the safety can be ensured. Another end portion of the first support arm 62 is welded and joined to an outer surface of the support steel pipe portion 61 above a horizontal member coupling portion 611 at a right angle.

[0055] One end portion of the first perpendicular support portion 64 is welded and joined to an outer surface of the first support arm at a right angle. The first perpendicular support portion 64 is parallel to the support column, and includes one or more wedge portions 641 insertable into the wedge-shaped holes of the horizontal member coupling portions of the support column. The wedge portion 641 and the wedge portion 621 of the first support arm can be respectively inserted into the wedge-shaped holes of the horizontal member coupling portions on the same support column, which are vertically adjacent to each other. The first perpendicular support portion 64 preferably has one to five wedge portions 641, more preferably one to three wedge portions 641, and more preferably one or two wedge portions 641. Note that, the wedge portion 621 and the wedge portion 641 have the same structure, shape, and feature as those of the wedge portion 31.

[0056] One end portion of the second support arm 63 is welded and joined to an outer surface of the first perpendicular support portion 64 at a right angle, and another end portion thereof is welded and joined to the outer surface of the support steel pipe portion 61 below the horizontal member coupling portion 611 at a right angle. The second support arm 63 is parallel to the first support arm 62. The second support arm functions to reduce a load onto the first support arm and ensure the strength of the bracket. The bracket according to the present invention may further include another support arm.

[0057] A second perpendicular support portion 65 is positioned between the first perpendicular support portion 64 and the support steel pipe portion 61 in parallel to both the members. It is preferred that the second perpendicular support portion 65 be positioned at the center between the first perpendicular support portion 64 and the support steel pipe portion 61. One end of the second perpendicular support portion 65 is welded and joined to the outer surface of the first support arm 62 at a right angle, and another end thereof is welded and joined to an outer surface of the second support arm 63 at a right angle. The second perpendicular support portion of this embodiment functions to ensure the strength of the bracket. The bracket according to the present invention may further include a perpendicular support portion.

[0058] The present invention also relates to the prefabricated scaffolding or falsework further including the bracket 60 according to the present invention. The scaffolding or the falsework can be assembled easily and promptly using the bracket according to the present invention and the support steel pipe according to the present invention in combination. For example, the support columns are assembled into a block using the bracket according to the present invention (three-dimensionally assembled using four or more support columns) to be stabilized, and thus assembly work is facilitated. Further, when the support steel pipe portion of the bracket according to the present invention is supported from below by the support steel pipe according to the present invention, the joint pin of the joint tube (joint tube having no projecting portion), with which the support steel pipe below the bracket is coupled, is removed and the joint tube is shifted. Thus, the support steel pipe below the bracket can be removed. Members such as the support steel pipe thus removed can be alternatively used at an upper part of the prefabricated scaffolding or falsework or another part thereof so that the number of the scaffolding members can be reduced while maintaining the strength.

[0059] The description is given of the present invention by way of the specific examples. The above description is not intended to limit the present invention, and changes and modifications may be made by a person skilled in the art without departing from the scope of the present invention.

INDUSTRIAL APPLICABILITY

[0060] The support steel pipe according to the present invention and the prefabricated scaffolding or falsework including the support steel pipe are used in construction work, repair, or the like, and can be assembled easily even in a narrow site, thereby providing a highly safe work environment.

REFERENCE SIGNS LIST

[0061] 10 support steel pipe
[0062] 20 horizontal member coupling portion
[0063] 21 steel pipe
[0064] 211 steel pipe outer surface
[0065] 22 receiving fitting
[0066] 222 wedge-shaped hole
[0067] 226 space for engaging hook
[0068] 23 circular outer edge portion
[0069] 231 hook engaging portion
[0070] 30 horizontal member
[0071] 31 wedge portion
[0072] 311 thrust surface
[0073] 32 horizontal member steel pipe
[0074] 40 hole for safety pin
[0075] 41 hole for joint pin
[0076] 401 safety pin
[0077] 411 joint pin
[0078] 50 joint tube
[0079] 60 bracket
[0080] 61 support steel pipe portion
[0081] 611 horizontal member coupling portion of support steel pipe portion
[0082] 62 first support arm
1. A support steel pipe for a prefabricated scaffolding or falsework, comprising at least one horizontal member coupling portion comprising:
   a receiving fitting having a wedge-shaped hole that longitudinally passes through the receiving fitting; and
   a circular outer edge portion held in contact with an outer edge of the receiving fitting,
   the at least one horizontal member coupling portion being provided on a steel pipe outer surface of the support steel pipe.

2. A support steel pipe according to claim 1, wherein the circular outer edge portion is welded to the receiving fitting so as to form a hook engaging portion of a safety belt.

3. A support steel pipe according to claim 1, wherein, assuming that a steel pipe having a length of from 250 mm to 400 mm with the one horizontal member coupling portion being provided on a central part thereof is one unit, the support steel pipe has one of a length of one unit to fifteen units and a length shortened from the length of one unit to fifteen units by a length that is added by a joint tube.

4. A support steel pipe according to claim 1, wherein the support steel pipe has holes for a safety pin so that two safety pins, which are provided so as to prevent a wedge portion from falling off, pass through the support steel pipe in a cross shape.

5. A prefabricated scaffolding or falsework, comprising:
   the support steel pipe according to claim 1; and
   a horizontal member having a wedge portion on an end portion thereof.

6. A prefabricated scaffolding or falsework according to claim 5, wherein a surface of the wedge portion, on which the wedge portion is held in contact with the steel pipe outer surface, comprises an arc-shaped curved surface that is equivalent to an arc-shaped curved surface of the steel pipe outer surface.

7. A prefabricated scaffolding or falsework according to claim 5, wherein the horizontal member is formed of a steel pipe that is welded to three surfaces of the wedge portion, the three surfaces comprising a front surface and both side surfaces of the wedge portion.

8. A bracket, comprising:
   a support steel pipe portion formed of the support steel pipe according to claim 1;
   a first support arm having a wedge portion on one end portion thereof, and another end portion welded and joined to an outer surface of the support steel pipe portion, which is positioned above a horizontal member coupling portion, at a right angle;
   a first perpendicular support portion having one end portion welded and joined to an outer surface of the first support arm at a right angle,
   the first perpendicular support portion being parallel to a support column,
   the first perpendicular support portion having at least one wedge portion insertable into a wedge-shaped hole of the horizontal member coupling portion of the support column; and
   a second support arm having one end portion welded and joined to an outer surface of the first perpendicular support portion at a right angle, and another end portion welded and joined to the outer surface of the support steel pipe portion, which is positioned below the horizontal member coupling portion, at a right angle, the second support arm being parallel to the first support arm.

9. A prefabricated scaffolding or falsework according to claim 5, further comprising a bracket, the bracket comprising:
   a support steel pipe portion formed of a support steel pipe, the support steel pipe comprising at least one horizontal member coupling portion comprising:
   a receiving fitting having a wedge-shaped hole that longitudinally passes through the receiving fitting; and
   a circular outer edge portion held in contact with an outer edge of the receiving fitting, at least one horizontal member coupling portion being provided on a steel pipe outer surface of the support steel pipe;
   a first support arm having a wedge portion on one end portion thereof, and another end portion welded and joined to an outer surface of the support steel pipe portion, which is positioned above a horizontal member coupling portion, at a right angle;
   a first perpendicular support portion having one end portion welded and joined to an outer surface of the first support arm at a right angle,
   the first perpendicular support portion being parallel to a support column,
   the first perpendicular support portion having at least one wedge portion insertable into a wedge-shaped hole of the horizontal member coupling portion of the support column; and
   a second support arm having one end portion welded and joined to an outer surface of the first perpendicular support portion at a right angle, and another end portion welded and joined to the outer surface of the support steel pipe portion, which is positioned below the horizontal member coupling portion, at a right angle, the second support arm being parallel to the first support arm.

10. A support steel pipe according to claim 2, wherein the support steel pipe has holes for a safety pin so that two safety pins, which are provided so as to prevent a wedge portion from falling off, pass through the support steel pipe in a cross shape.

11. A prefabricated scaffolding or falsework according to claim 6, wherein the horizontal member is formed of a steel pipe that is welded to three surfaces of the wedge portion, the three surfaces comprising a front surface and both side surfaces of the wedge portion.