

Description

Title of Invention:

DECK PLATE ASSEMBLY AND METHOD FOR INSTALLING THE SAME

Technical Field

[0001] The present invention relates to a deck plate assembly and a method for installing the same.

Background Art

[0002] A deck plate is known as a rational material that is lightweight and capable of shortening a construction period, and is used as a base for an external heat insulation dry construction roof where concrete is not placed. Furthermore, since a composite deck slab formed by integrating a deck plate and concrete is excellent in workability and cost-effectiveness, it is widely used as a standard floor material for steel-framed buildings (for example, see Patent Literature 1). Composite deck slabs and roof underlayment deck plates are often required to be subjected to ceiling-finishing.

[0003]

Document List

Patent Literature

Patent Literature 1: Japanese Patent Application Publication No. 2020-41348

Summary of Invention

Technical Problem

[0004] In construction sites, ceiling-finishing as described above is dangerous because it involves upward work, and it is not easy to improve precision of construction.

[0005] The present invention is made in view of the above-described problem, and it is an object of the present invention to improve a deck plate to improve safety and precision during construction and further provide a rational method for installing the improved deck plate.

Solution to Problem

[0006] One embodiment according to the present invention is a deck plate assembly including a deck plate; and a decorative material provided on a bottom surface of the deck plate and having a unit width equal to a unit width of the deck plate, and characterized in that the deck plate includes a first fitting part formed in a hook shape curved upward by bending an end of the deck plate, and a second fitting part formed in a hook shape curved vertically opposite to the first fitting part, the first fitting part is provided at one of end portions in a transverse direction, of the deck plate so as to be recessed with respect to an end portion of the decorative material provided on the bottom surface of the deck plate, and the second fitting part is provided at another one of the end portions in the transverse direction, of the deck plate so as to protrude with respect to an end portion of the decorative material provided on the bottom surface of the deck plate, and the first fitting part and the second fitting part are formed so that when two of the deck plate assemblies adjacent to each other are fitted to each other, bottom surfaces of the decorative materials provided on the two deck plate assemblies are substantially flush with each other.

[0007] According to the above, since a unit width of the deck plate assembly in the transverse direction is clearly defined by the decorative material, the

decorative material can also serve as an adjustment guide for a play that occurs between the first fitting part and the second fitting part that are to be fitted together in the transverse direction, and as a result, it is possible to save time and effort to plan careful construction of the deck plates for securing the unit width according to the design value.

[0008] Furthermore, it is preferable that an end portion of the decorative material provided on a first fitting part side extends in the transverse direction further than the first fitting part.

[0009] According to the above, it is possible to suppress concrete slurry leakage from a gap between the decorative materials when concrete is poured on the deck plate, and aesthetic appearance of the bottom surface of the deck plate is improved.

[0010] Furthermore, it is preferable that a coupling joint for fitting two of the decorative materials to be in contact with each other is provided on each of side surfaces of end portions in the transverse direction of the decorative materials.

[0011] According to the above, strong fitting of the deck plate assemblies is made possible, which contributes to improving functionality in terms of construction and aesthetic appearance such as suppressing concrete slurry leakage and defining the shape of the entire deck plate assembly that is laid, and further improving structural performance, fire resistance performance, habitability, and the like.

[0012] Furthermore, the deck plate may be a deck plate formed of a ridge part and a valley part that extend in a longitudinal direction, a flat deck plate in which a rib is formed on a flat plate part, or a reinforced deck plate equipped with a reinforcing truss.

[0013] Furthermore, when the deck plate is a deck plate formed of a ridge part and a valley part that extend in the longitudinal direction, building equipment

or electrical equipment such as air-conditioning equipment, fire extinguishing equipment, or wiring equipment may be provided between the ridge part of the deck plate and the decorative material.

[0014] Another embodiment according to the present invention is a method for installing two of the deck plate assemblies adjacent to each other, and characterized by including the steps of placing an end portion on a second fitting part side, of the decorative material in one of the deck plate assemblies, on an end portion on a first fitting part side, of the decorative material in another one of the deck plate assemblies, tilting the end portion on the second fitting part side of the decorative material until a side surface of the end portion contacts the first fitting part, with a corner on a lower side of the end portion as an axis, sliding the corner on the lower side of the end portion on the second fitting part side of the decorative material to an edge of the end portion on the first fitting part side of the decorative material, and pivoting the one of the deck plate assemblies downward with respect to the other one of the deck plate assemblies, in a state in which the first fitting part and the second fitting part are in contact with each other.

[0015] According to the above, it is possible to omit ceiling-finishing work that involves dangerous upward work by combining it with deck plate construction, falling-off of the deck plate assembly is prevented, and precise mounting work becomes possible.

Effects of Invention

[0016] According to the present invention, it is possible to perform laying and ceiling-finishing of the deck plate assembly safely and efficiently at the same time, and it is possible to enhance precision of the installation work.

Brief Description of Drawings

[0017]

[Fig. 1] A perspective view illustrating a deck plate assembly of one unit width.

[Fig. 2] A sectional view of a deck plate assembly subjected to ceiling-finishing.

[Fig. 3] (a) to (d) are views illustrating a method for installing deck plate assemblies.

[Fig. 4] A sectional view in a transverse direction of two deck plate assemblies that are fitted together.

[Fig. 5] A sectional view in a transverse direction of two deck plate assemblies that are fitted together according to another embodiment.

Description of Embodiments

[0018] Hereinafter, several embodiments of the present invention will be described with reference to the drawings. It should be noted that, in the following description, drawings are schematic, and dimensional relations of elements, proportions of the elements, and the like may be different from those in reality. Among the drawings, portions may be included, in which, dimensional relations, proportions, and the like differ from one another.

[0019] Fig. 1 is a perspective view of a deck plate assembly 1 according to one embodiment of the present invention. The deck plate assembly 1 includes a deck plate 10 and a decorative material 20. The deck plate 10 is a steel plate in a corrugated shape formed by applying roll-forming or the like to a steel plate in a thin plate shape to which surface treatment such as zinc plating is applied. Note that surface treatment such as plating may not be applied to the deck plate 10. In the deck plate 10, a plurality of ridge parts 11 and valley parts 13 that respectively extend in a longitudinal direction L are alternately formed, and the deck plate 10 has a structure in which the ridge parts 11 and the valley parts 13 adjacent to each

other are connected by inclined parts 15, and thereby forming a corrugated shape in which the ridge parts 11 and the valley parts 13 are continuous in a transverse direction W. As shown in Fig. 2, in a state in which the deck plate assemblies 1 are bridged between a support beam B1 and another support beam B2 adjacent thereto (hereinafter, also referred to as a "bridged state"), the ridge parts 11 are parts that are formed to be flat and positioned on an upper side with respect to top surfaces of the support beams B1 and B2, and are parts in a plate shape that extend in the longitudinal direction L. The valley parts 13 are parallel or substantially parallel with respect to the ridge parts 11, and are parts formed to be flat. In the bridged state, the valley parts 13 of the deck plate 10 that are in contact with the support beams B1 and B2 and positioned on outermost sides in the transverse direction W are placed on the support beams B1 and B2 respectively. The inclined part 15 is a part that connects the ridge part 11 and the valley part 13, and is a part in a plate shape that extends in the longitudinal direction L. The inclined part 15 obliquely extends towards a side edge of the valley part 13 obliquely from a side edge of the ridge part 11 in the transverse direction W.

[0020] The deck plate 10 has, for example, two ridge parts 11, one valley part 13, and two pairs of inclined parts 15, in one unit width X in the transverse direction W, and is formed in a corrugated shape in a section along the transverse direction W. Note that depending on a dimension in the transverse direction W of the deck plate assembly 1, one or three or more ridge parts 11 may be provided in the deck plate 10 of the one unit width X. Further, at both end portions in the transverse direction W of the deck plate 10, at least parts of the valley part 13 are provided, and when the deck plate assembly 1 is coupled to another deck plate assembly 1 in the transverse direction W, coupling parts of the deck plate assemblies 1 function as the valley part 13. Furthermore, end-closure processing

(hereinafter, also referred to as "end-closure forming") in both end portions in the longitudinal direction L may be applied.

[0021] The decorative material 20 is provided on a bottom surface side of the deck plate 10. For example, the decorative material 20 is fastened to the deck plate 10 at a pitch of 300 to 600 mm in the transverse direction, and a pitch of 300 to 1500 mm in the longitudinal direction, and thereby stably fixing the deck plate 10 and the decorative material 20. The decorative material 20 is, for example, a wooden plate formed in a plate shape, and is fixed to a bottom surface side of the valley part 13 by using a screw or the like. When the decorative material 20 is a wooden plate, it may not be only sawn wood but may be also a wood-based material, such as what is called engineered wood, such as laminated wood or LVL, in which strength or fire resistance and flame-retardancy performance, or both of them are improved by performing, for example, chemical treatment, or resin addition, may be a material in which resistance to mold or wood-decay fungi is improved. When the decorative material 20 is formed of wood, environmental considerations such as CO₂ stock effects, and improvement of living environments such as moisture absorption and sound absorption can also be achieved at the same time. Furthermore, attachment of the decorative material 20 to the deck plate 10 is not limited to screws, and attachment may be by an adhesive and other means, and the method of attaching it is not limited. Furthermore, the decorative material 20 is not limited to a case in which it is attached so as to be in direct contact with the bottom surface of the valley part 13 of the deck plate 10, and the decorative material 20 may be attached in a state of being spaced apart from the bottom surface of the valley part 13 of the deck plate 10 via a member of a pipe material, a steel material or the like. That is to say, in the deck plate assembly 1, the decorative material 20 can be directly or indirectly attached to the bottom surface side of the deck plate 10 by some means. The

decorative material 20 may be a design finishing material that covers the bottom surface of the deck plate assembly 1 that is exposed on a floor directly below from between the support beams B1 and B2 in a state in which the deck plate assembly 1 is placed on the support beams B, and improves outward appearance.

[0022] At the deck plate 10, a first fitting part 21 formed in a hook shape that is curved upwards by bending an end of the valley part 13, and a second fitting part 22 formed in a hook shape that is curved vertically opposite to the first fitting part 21 are formed, the first fitting part 21 is provided at one of end portions in the transverse direction W of the deck plate 10 so as to be recessed with respect to an end portion of the decorative material 20 provided on the bottom surface of the deck plate 10, and the second fitting part 22 is provided at another one of the end portions in the transverse direction W of the deck plate 10 so as to protrude with respect to an end portion of the decorative material 20 provided on the bottom surface of the deck plate 10. Accordingly, the end portion of the decorative material 20 provided on a first fitting part 21 side extends in the transverse direction further than the first fitting part 21. The first fitting part 21 and the second fitting part 22 are formed so that when two deck plate assemblies 1 are fitted together as described later, bottom surfaces of the respective decorative materials 20 are substantially flush with each other. Note that the first fitting part 21 may be provided at one of the end portions in the transverse direction W of the deck plate 10 so as to protrude with respect to the end portion of the decorative material 20 provided on the bottom surface of the deck plate 10, whereas the second fitting part 22 may be provided at the other one of the end portions in the transverse direction W so as to be recessed with respect to the end portion of the decorative material 20 provided on the bottom surface of the deck plate 10, and the end portions of the deck plate 10 and the end portions of the decorative material 20 may be on a same surface in the height direction.

[0023] According to an advantageous embodiment, a decorative material 20 having a unit width equal to a unit width X of a deck plate 10 is assembled to a bottom surface side of the deck plate 10 in advance in a factory or the like. When a deck plate assembly 1 having such a configuration is installed at a construction site, the decorative material 20 also serves as an adjustment guide for a play that occurs in principle between the first fitting part 21 and the second fitting part 22 that are to be fitted, in the transverse direction W, and therefore it is possible to save time and effort for planning careful construction of the deck plate assembly 1 for securing the unit width according to the design value. Therefore, it is possible to enable efficient and precise work on the occasion of the upward work in the ceiling finishing construction. Furthermore, it is possible to house the decorative material 20 in an appropriate dimension between the support beam B1 and the support beam B2 in the transverse direction W on which the deck plate 10 is placed.

[0024] Furthermore, although not illustrated, in order to further strengthen connection between the decorative materials 20, it is possible to provide a coupling joint such as a connection for fitting the two decorative materials 20 in contact with each other, on each of the side surfaces of the end portions in the transverse direction W of the decorative materials 20.

[0025] As in the present embodiment, when the deck plate 10 is a deck formed of the ridge parts 11 and the valley parts 13 extending in the longitudinal direction, optional equipment such as air-conditioning equipment, fire extinguishing equipment, and wiring equipment may be provided in a space formed between the ridge parts 11 of the deck plate 10 and the decorative material 20. In this way, by storing the equipment that has conventionally been exposed on the bottom surface of the deck plate assembly 1 in many cases, inside

the deck plate assembly 1, aesthetic appearance of the entire deck plate assembly 1 is improved, and efficient space utilization of the ceiling becomes possible.

[0026] According to another embodiment, the deck plate 10 is not limited to the deck plate that is formed of the ridge parts 11 and the valley parts 13 as described above, and may be a flat deck plate in which a rib is formed on a flat plate, or a reinforced deck plate equipped with a reinforcing truss.

[0027] Fig. 3 (a) to (d) are views illustrating a construction method for laying two deck plate assemblies 1A and 1B according to the present embodiment. As shown in Fig. 2, in a first deck plate (the deck plate 10 at a left end in Fig. 2) 20' of the deck plate assembly 1, the width of the decorative material 20 can be shortened by 50 mm in order to place the deck plate of a width of, for example, 50 mm is placed on the support beam B1. In the state in which one end of the first deck plate assembly 1A is supported by the support beam B1, as illustrated in Fig. 3 (a), an end portion 23B on a second fitting part 22B side of a decorative material 20B in the second deck plate assembly 1B is placed on an end portion 23A on a first fitting part 21A side of a decorative material 20A in the first deck plate assembly 1A. Subsequently, as illustrated in Fig. 3 (b), the end portion 23B of the decorative material 20B of the second deck plate assembly 1B is tilted with a corner 25B on a lower side of the end portion 23B as an axis until a side surface of the end portion 23B contacts a first fitting part 21A of the first deck plate 10A. Note that an angle of the tilt can be appropriately set according to shapes and positions of the fitting parts 21A and 22B, thickness of the decorative materials 20A and 20B, and the like. When the corner 25B on the lower side of the end portion 23B of the decorative material 20B is slid towards an edge 24A of the end portion 23A of the decorative material 20A of the first deck plate assembly 1A as illustrated in Fig. 3 (c), in a state in which the second deck plate assembly 1B is sufficiently tilted, the end portion 23B of the second deck plate assembly 1B

eventually detaches from the end portion 23A of the first deck plate assembly 1A as illustrated in Fig. 3 (d). As a result, the first fitting part 21A of the first deck plate 10A contacts the second fitting part 22B of the second deck plate 10B. Thereafter, in a state in which the fitting parts are in contact with each other, the second deck plate assembly 1B is pivoted downward with respect to the first deck plate assembly 1A, and thereby fitting the first fitting part 21A and the second fitting part 22B together. In this way, it is possible to lay the first deck plate assembly 1A and the second deck plate assembly 1B so that bottom surfaces of the decorative materials 20A and 20B are flush with each other. Finally, in locations where the unit width of the deck plate assembly does not match the width of the ceiling, flashing 20" is installed separately (see Fig. 2).

[0028] As described above, since it is possible to use the fitting parts as a reference of installation by applying the method according to the present embodiment, laying work of the deck plates is performed more precisely and efficiently than in the case of a deck single body, and it is possible to easily lay the deck plate assemblies and it is also possible to omit ceiling finishing work that involves upward work. Furthermore, since the unit widths of the decorative material and the deck plate are matched with each other, it is possible to eliminate a play between the adjacent decorative materials after installation of the deck plate assemblies, even when there is a play between the first fitting part and the second fitting part of the adjacent deck plates, whereby error adjustment of construction is not required, and finished aesthetic appearance can be also improved. Furthermore, when the second deck plate assembly 1B is combined with the first deck plate assembly 1A, the second deck plate assembly 1B is placed on the decorative material 20A of the first deck plate assembly 1A to bear part of a weight thereof, whereby it is possible to reduce a workload, and it is possible

to prevent the second deck plate assembly 1B from unintentionally falling off. As a result, it is possible to execute the work safely.

[0029] At the construction site, after laying the deck plate assemblies 1, concrete can be poured onto the top surfaces of the deck plate assemblies 1, and the concrete is allowed to solidify integrally to thereby form a composite deck slab.

[0030] In the first embodiment, when concrete is poured on the upper surfaces of the deck plate assemblies 1A and 1B after the deck plate assemblies 1A and 1B are laid, concrete slurry C may pass through a gap between the first fitting part 21A and the second fitting part 22B, and may leak out from a joint between the two adjacent decorative materials 20A and 20B, as illustrated in Fig. 4. This may significantly impair aesthetic appearance of the decorative materials 20A and 20B, and thus the entire bottom surfaces of the deck plate assemblies 1A and 1B.

[0031] Therefore, in an improved embodiment, as illustrated in Fig. 5, a decorative material 20A is fixed to a deck plate so that an end portion 23A of the decorative material 20A further extends in the transverse direction by a distance D than the first fitting part 21A. Alternatively, the end portion 23A may be recessed by, for example, the distance D further toward the deck plate 10A side than the first fitting part 21A. According to this embodiment, when two deck plate assemblies 1A and 1B are fitted together, a position where end portions of decorative materials 20A and 20B are in contact with each other can be separated by the distance D to the second fitting part 22B side in the transverse direction W with respect to a position where the first fitting part 21A and a second fitting part 22B are fitted to each other. In this case, even if the concrete slurry C passes through the gap between the first fitting part 21A and the second fitting part 22B, the concrete slurry C can be restrained from leaking out from a joint between the decorative materials 20 because the distance D is provided before it reaches the

position where the decorative materials 20A and 20B are in contact with each other. This improves the aesthetic appearance of bottom surfaces of the deck plate assemblies 1A and 1B. The distance D can be appropriately determined in consideration of fluidity or the like of the concrete slurry C.

[0032] Note that in the case of this embodiment, it is possible to position the second deck plate assembly 1B adjacently to the first deck plate assembly 1A in a similar order to that illustrated in Fig. 3.

[0033] In the case of this embodiment, since the second fitting part 22B greatly protrudes from the decorative material, it is not necessary to shorten the width of the first decorative material 20' in laying the deck plate assembly as illustrated in Fig. 2. Accordingly, since the widths of the decorative materials 20 provided in all the deck plate assemblies 1 can be unified in a same dimension as a unit width X of the deck plate, there are advantages in manufacturing and on-site management.

[0034] According to another advantageous embodiment, by rigidity of a decorative material 20, camber and flatness of laterally curved sections can be set by design for a deck plate 10 that is likely to generate deformation due to being made of a thin steel sheet. That is to say, by appropriately selecting the rigidity and shape of the decorative material 20, the shape of the entire deck plate assembly 1 can be precisely designed and constructed, and in other words, it is possible to appropriately select the properties of the decorative material 20 depending on how the shape of the deck plate assembly 1 is designed or the like. Furthermore, by adding the rigidity and the strength of the decorative material 20 to the deck plate 10, it is also possible to omit necessity of cost-consuming processes such as increasing the plate thickness, increasing the height, installing shoring, and increasing the amount of concrete because performance is not sufficient with the deck plate 10 alone, and it is also possible to achieve

improvement of living environments such as improvement in sound insulation and vibration isolation performance, improvement in moisture absorption and sound absorption performance, and cleaning of air.

[0035] For example, when concrete is poured onto the top surface of the deck plate assembly 1, the entire deck plate assembly 1 may curve towards the lower side due to the weight of the concrete. Anticipating this, by intentionally and quantitatively applying camber that is a curve in the longitudinal direction of the deck plate to the decorative material 20, it is possible to mitigate a curvature caused by the weight of the concrete. It becomes possible to apply the camber quantitatively by carefully figuring out the rigidity, dimensions, the connection and the like of the decorative material 20.

List of Reference Signs

[0036]

1 deck plate assembly,

1A first deck plate assembly,

1B second deck plate assembly,

10, 10A, 10B deck plate,

11 ridge part,

13 valley part,

15 inclined part,

20, 20A, 20B decorative material,

21, 21A first fitting part,

22, 22B second fitting part,

23A, 23B end portion of decorative material,

24A edge of end portion of decorative material,

25B corner on lower side of end portion of decorative material,

C concrete slurry,
B1, B2 support beam,
D distance,
L longitudinal direction,
W transverse direction,
X unit width

Claims

[Claim 1] A deck plate assembly, comprising:

a deck plate; and

a decorative material provided on a bottom surface of the deck plate and having a unit width equal to a unit width of the deck plate, characterized in that

the deck plate comprises a first fitting part formed in a hook shape curved upward by bending the deck plate, and a second fitting part formed in a hook shape curved vertically opposite to the first fitting part,

the first fitting part is provided at one of end portions in a transverse direction, of the deck plate so as to be recessed with respect to an end portion of the decorative material provided on the bottom surface of the deck plate, and the second fitting part is provided at another one of the end portions in the transverse direction, of the deck plate so as to protrude with respect to an end portion of the decorative material provided on the bottom surface of the deck plate, and

the first fitting part and the second fitting part are formed so that when two of the deck plate assemblies adjacent to each other are fitted to each other, bottom surfaces of the decorative materials provided on the two deck plate assemblies are substantially flush with each other.

[Claim 2] A deck plate assembly, comprising:

a deck plate; and

a decorative material provided on a bottom surface of the deck plate and having a unit width equal to a unit width of the deck plate, characterized in that

the deck plate comprises a first fitting part formed in a hook shape curved upward by bending the deck plate, and a second fitting part formed in a hook shape curved vertically opposite to the first fitting part,

the first fitting part is provided at one of end portions in a transverse direction, of the deck plate so as to protrude with respect to an end portion of the decorative material provided on the bottom surface of the deck plate, and the second fitting part is provided at another one of the end portions in the transverse direction, of the deck plate so as to be recessed with respect to an end portion of the decorative material provided on the bottom surface of the deck plate, and

the first fitting part and the second fitting part are formed so that when two of the deck plate assemblies adjacent to each other are fitted to each other, bottom surfaces of the decorative materials provided on the two deck plate assemblies are substantially flush with each other.

[Claim 3] A deck plate assembly, comprising:

a deck plate; and

a decorative material provided on a bottom surface of the deck plate and having a unit width equal to a unit width of the deck plate, characterized in that

the deck plate comprises a first fitting part formed in a hook shape curved upward by bending the deck plate, and a second fitting part formed in a hook shape curved vertically opposite to the first fitting part,

the first fitting part is provided on a same surface in a height direction as an end portion of the decorative material provided on the bottom surface of the deck plate, at one of end portions in a transverse direction, of the deck plate, and the second fitting part is provided on a same surface in the height direction as an end portion of the decorative material provided on the bottom surface of

the deck plate, at another one of the end portions in the transverse direction, of the deck plate, and

the first fitting part and the second fitting part are formed so that when two of the deck plate assemblies adjacent to each other are fitted to each other, bottom surfaces of the decorative materials provided on the two deck plate assemblies are substantially flush with each other.

[Claim 4] The deck plate assembly according to claim 1, characterized in that an end portion of the decorative material on a first fitting part side extends in the transverse direction further than the first fitting part.

[Claim 5] The deck plate assembly according to claim 2, characterized in that an end portion of the decorative material on a second fitting part side extends in the transverse direction further than the second fitting part.

[Claim 6] The deck plate assembly according to claim 1, characterized in that a coupling joint for fitting two of the decorative materials to be in contact with each other is provided on each of side surfaces of end portions in the transverse direction of the decorative materials.

[Claim 7] The deck plate assembly according to claim 1, characterized in that the deck plate is a deck plate formed of a ridge part and a valley part that extend in a longitudinal direction, a flat deck plate in which a rib is formed on a flat plate part, or a reinforced deck plate equipped with a reinforcing truss.

[Claim 8] The deck plate assembly according to claim 7, characterized in that when the deck plate is a deck plate formed of a ridge part and a valley

part that extend in the longitudinal direction, building equipment or electrical equipment such as air-conditioning equipment, fire extinguishing equipment, or wiring equipment is provided between the ridge part of the deck plate and the decorative material.

[Claim 9] A method for installing two of the deck plate assemblies according to any one of claims 1, 4, and 6 to 8 adjacent to each other, characterized by comprising the steps of:

placing an end portion on a second fitting part side, of the decorative material in one of the deck plate assemblies, on an end portion on a first fitting part side, of the decorative material in another one of the deck plate assemblies;

tilting the end portion on the second fitting part side of the decorative material until a side surface of the end portion contacts the first fitting part, with a corner on a lower side of the end portion as an axis;

sliding the corner on the lower side of the end portion on the second fitting part side of the decorative material to an edge of the end portion on the first fitting part side of the decorative material; and

pivoting the one of the deck plate assemblies downward with respect to the other one of the deck plate assemblies, in a state in which the first fitting part and the second fitting part are in contact with each other.