

DESCRIPTION

INTERIOR CONSTRUCTION DEVICE

5 Technical Field

[0001]

The present invention relates to an interior
constructing apparatus for applying a board such as a plaster
board, a decorative plywood, or the like for use in interior
10 construction of a building structure to an interior base.

Background Art

[0002]

A board such as a plaster board for use in the interior
15 construction of a building structure has a size of, for
example, 910 mm width, 1820 mm length, and 9.5 mm thickness,
in many cases. For this reason, when such boards are applied
to an interior base such as an inner wall base or a ceiling
base to form a wall surface or a ceiling surface of a room,
20 a worker for applying the boards conventionally applies them
in a method of screwing or nailing the boards onto the interior
base by hand work. Hence, it takes a lot of time and work
to apply the boards.

[0003]

25 Therefore, there is a proposal of a method for
automatically applying a board to an interior base by use of
an interior constructing apparatus provide with: a
self-propelled carriage; a vertical rotation shaft provided

on the self-propelled carriage to move up and down; an
extensible and retractable arm supported by the vertical
rotation shaft to be capable of tilting up and down; a posture
fine adjustment apparatus provided at an end side of the arm
5 via a vertical adjustment apparatus and a horizontal
adjustment apparatus; a board applying accessory apparatus
provided at an end of the arm via the posture fine adjustment
apparatus; multiple suction pads applied with the board
applying accessory apparatus; and a screw mechanism for
10 screwing the board sucked by the suction pads onto the
interior base (for example, see Patent Document 1).

Prior Art Document

Patent Document

15 [0004]

Patent Document 1: JP Patent Number 2935808 B

Summary of the Invention

Problem to be Solved

20 [0005]

In the interior constructing apparatus for use in the
above-described technology, however, the vertical
adjustment apparatus or the horizontal adjustment apparatus
for adjusting the position of the board sucked by the suction
25 pads or the posture fine adjustment apparatus is required,
thereby raising a drawback of increasing the production costs.
Besides, after the position of the board sucked by the suction
pads is adjusted by the vertical adjustment apparatus or the

horizontal adjustment apparatus, the board is screwed onto the interior base. Hence, it takes a lot of time to apply the board onto the interior base after the board is sucked, thereby raising another drawback.

5 The present invention has been made in view of the above-described problems, and has an object to provide an interior constructing apparatus, whereby boards for use in the interior construction of a building structure are applied onto an interior base of the building structure without taking
10 a lot of time or increasing the costs.

Solution to the Problem

[0006]

In order to solve the above problem, according to an
15 invention as recited in claim 1, there is provided an interior constructing apparatus comprising: a board holding stand having a plurality of suction pads for sucking a board for use in interior construction of a building structure; a board securing mechanism for securing the board sucked by the
20 plurality of suction pads of the board holding stand with a plurality of stoppers to an interior base of the building structure; a pair of left and right stand supporting arms for supporting the board holding stand to be rotatable around a horizontal shaft; a first stand driving mechanism for driving
25 the board holding stand to rotate around the horizontal shaft via the stand supporting arms; a second stand driving mechanism for driving the board holding stand to move in front-rear direction via the first stand driving mechanism;

a third stand driving mechanism for driving the board holding stand to rotate around a vertical axis via the second stand driving mechanism; a fourth stand driving mechanism for driving the board holding stand to move in left-right
5 direction via the third stand driving mechanism; a fifth stand driving mechanism for driving the board holding stand to move vertically via the fourth stand driving mechanism; and further comprising a board position adjustment mechanism including: a board position adjusting member facing the board
10 sucked by the plurality of suction pads, and attached to the pair of left and right stand supporting arms; a first stand supporting mechanism for supporting the board holding stand to be capable of tilting in left-right direction in a perpendicular plane with respect to the board position
15 adjusting member; and a second stand supporting mechanism for supporting the board holding stand to be rotatable around the vertical axis in a horizontal plane with respect to the board position adjusting member, so as to manually adjust a position of the board sucked by the plurality of suction pads.

20 [0007]

In an invention as recited in claim 2, in the interior constructing apparatus according to claim 1, the board position adjustment mechanism may include: an upper
horizontal face horizontally provided between the stand
25 supporting arms; a lower horizontal face provided in parallel with the upper horizontal face; a pair of left and right outer side faces provided at both sides of the upper horizontal face and the lower horizontal face; a front side vertical face

provided perpendicularly to the upper horizontal face and between the pair of left and right outer side faces; and a rear side vertical face provided in parallel with the front side vertical face.

5 [0008]

In an invention as recited in claim 3, in the interior constructing apparatus according to claim 2, the first stand supporting mechanism may include: a spherical member in abutment with the upper horizontal face; and an air cylinder
10 for driving the spherical member in a direction of contacting with or separating from the upper horizontal face, and the first stand supporting mechanism may be provided at the board holding stand to face the upper horizontal face.

In an invention as recited in claim 4, in the interior
15 constructing apparatus according to claim 2, the second stand supporting mechanism may include: a spherical member in abutment with the front side vertical face; and an air cylinder for driving the spherical member in a direction of contacting with or separating from the front side vertical
20 face, and the second stand supporting mechanism may be provided at the board holding stand to face the front side vertical face.

[0009]

In an invention as recited in claim 5, in the interior
25 constructing apparatus according to claim 4, the board holding stand may include a plurality of spherical projections facing the spherical member of the second stand

supporting mechanism, and abutting with the rear side vertical face of the board position adjusting member.

In an invention as recited in claim 6, in the interior constructing apparatus according to any one of claim 2 to
5 claim 5, the board holding stand may include a plurality of air cylinders for abutting with the pair of left and right outer side faces to secure the position of the board sucked by the plurality of suction pads.

[0010]

10 In an invention as recited in claim 7, in the interior constructing apparatus according to any one of claim 2 to claim 6, the board holding stand may include a plurality of air cylinders for abutting with the lower horizontal face to secure the position of the board sucked by the plurality of
15 suction pads.

In an invention as recited in claim 8, in the interior constructing apparatus according to any one of claim 1 to claim 7, the board position adjusting member may be detachably attached to the pair of left and right board supporting arms.

20 [0011]

In an invention as recited in claim 9, in the interior constructing apparatus according to any one of claim 1 to claim 8, the board holding stand may include a plurality of positioning tools for positioning the board to be secured onto
25 the interior base at a predefined position with respect to the board securing mechanism.

In an invention as recited in claim 10, in the interior constructing apparatus according to claim 9, the plurality

of positioning tools each may have a letter L shaped engagement portion to be engaged with one side face of the board.

[0012]

5 In an invention as recited in claim 11, in the interior constructing apparatus according to any one of claim 1 to claim 10, the board holding stand may include a pair of left and right board supporting tools for supporting the board in a state of making the board apart from a floor face.

10 In an invention as recited in claim 12, in the interior constructing apparatus according to claim 11, each of the pair of left and right board supporting tools may include: a shaft projecting from a lower end of the board holding stand to support a lower end of the board; and a shaft holding portion
15 for holding the shaft to be slidable in front-rear direction of the board holding stand.

[0013]

 In an invention as recited in claim 13, in the interior constructing apparatus according to any one of claim 1 to
20 claim 12, the board securing mechanism may include: a plurality of screw drivers for entwisting screws as the plurality of stoppers into the board held on a front face of the interior base, respectively, by the board holding stand; a plurality of air cylinders for pressing ends of the screw
25 drivers onto the board, respectively; and a slide mechanism for vertically moving the plurality of air cylinders and the plurality of screw drivers.

[0014]

In an invention as recited in claim 14, in the interior constructing apparatus according to any one of claim 1 to claim 12, the board securing mechanism may include: a plurality of tacker insertion machines for inserting tacker
5 pins as the plurality of stoppers into the board held on the front face of the interior base by the board holding stand; a plurality of air cylinders for pressing ends of the tacker insertion machines onto the board, respectively; and a slide mechanism for vertically moving the plurality of air
10 cylinders and the plurality of tacker insertion machines.

In an invention as recited in claim 15, in the interior constructing apparatus according to any one of claim 1 to claim 14, the fifth stand driving mechanism may include: an up-and-down table mounting the third stand driving mechanism
15 thereon; and a lift mechanism for moving up and down the up-and-down table, and the lift mechanism may be mounted on a self-propelled moving carriage.

Advantageous Effects of the Invention

20 [0015]

According to an interior constructing apparatus according to an aspect of the present invention, there is provided a board position adjustment mechanism including: a board position adjusting member facing the board sucked by
25 suction pads, and attached to a pair of left and right stand supporting arms; a first stand supporting mechanism for supporting the board holding stand to be capable of tilting in left-right direction in a perpendicular plane with respect

to the board position adjusting member; and a second stand supporting mechanism for supporting the board holding stand to be rotatable around the vertical axis in a horizontal plane with respect to the board position adjusting member. Thus, 5 a board applying position onto an interior base can be adjusted manually. Accordingly, this eliminates the need of a vertical adjustment apparatus, a horizontal adjustment apparatus, or a posture fine adjustment apparatus, thereby applying the board for use in the interior construction of 10 a building structure onto the interior base of the building structure without taking a lot of time or increasing the costs.

Brief Description of the Drawings

15 [0016]

FIG. 1 is a side view of an interior constructing apparatus according to a first embodiment of the present invention;

20 FIG. 2 is a front view of the interior constructing apparatus according to the first embodiment of the present invention;

FIG. 3 is a side view partially illustrating the interior constructing apparatus according to the first embodiment of the present invention;

25 FIG. 4 is a sectional view taken along line A-A of FIG. 3;

FIG. 5 is a sectional view taken along line B-B of FIG. 4;

FIG. 6 is a sectional view taken along line C-C of FIG. 2;

FIG. 7 is a sectional view taken along line D-D of FIG. 2;

5 FIG. 8 is a view illustrating a state where a board holding stand of the interior constructing apparatus according to the first embodiment of the present invention is removed from a pair of left and right stand supporting arms; and

10 FIG. 9 is a view partially illustrating the interior constructing apparatus according to a second embodiment of the present invention.

Description of Embodiments

15 [0017]

A first embodiment of the present invention will be described with reference to FIG. 1 to FIG. 8.

Referring to FIG. 1 and FIG. 2, an interior constructing apparatus according to the first embodiment of the present invention is provided with: a board holding stand 12; a board
20 securing mechanism 14; stand supporting arms 18a and 18b; a first stand driving mechanism 20; a second stand driving mechanism 22; a third stand driving mechanism 25; a fourth stand driving mechanism 28; a fifth stand driving mechanism 32; a moving carriage 36; outriggers 37a, 37b, 37c, and 37d; and a board position adjustment mechanism 38.

[0018]

The board holding stand 12 sucks and holds a board 11 such as a plaster board for use in the interior construction (hereinafter, referred to as "interior board") of a building structure with multiple (for example, six) suction pads 13, and is made of multiple metal square rod members.

The board securing mechanism 14 secures the interior board 11 sucked by the suction pads 13 of the board holding stand 12 onto the interior base of a building structure with multiple stoppers such as screws or tacker pins (staples). The board securing mechanism 14 includes: multiple (for example, three) screw drivers 15 for entwisting the screws as stoppers into the interior board 11 held on the front face of the interior base by the board holding stand 12 with an electromotive force of, for example, an electric motor; multiple air cylinders 16 for pressing ends of the respective screw drivers 15 onto the board; and a slide mechanism 17 for vertically moving the screw drivers 15 and the air cylinders 16.

[0019]

The slide mechanism 17 of the board securing mechanism 14 includes: a slider 171; guide rails 172 and 173; a slider driving motor 174; a timing belt 175; and a slider driving timing pulley 176. The screw drivers 15 and the air cylinders 16 are mounted on the slider 171 of the slide mechanism 17 at given intervals in a horizontal direction.

The stand supporting arms 18a and 18b support the board holding stand 12 to be rotatable around a horizontal shaft

19, and are installed at both ends of the horizontal shaft 19.

[0020]

The first stand driving mechanism 20 drives the board
5 holding stand 12 to rotate around the horizontal shaft 19 via
the stand supporting arms 18a and 18b. The first stand
driving mechanism 20 includes a pair of left and right air
cylinders 21 coupled to the stand supporting arms 18a and 18b,
respectively.

10 The air cylinders 21 of the first stand driving mechanism
20 each has a predefined stroke and the air cylinders 21 extend,
thereby changing the posture of the board holding stand 12
from a vertical one indicated by a solid line to a horizontal
one indicated by an alternate long and two short dashes line.

15 [0021]

The second stand driving mechanism 22 drives the board
holding stand 12 to move in front-rear direction via the first
stand driving mechanism 20. The second stand driving
mechanism 22 includes: a slider 23 for moving the first stand
20 driving mechanism 20 in front-rear direction; a ball screw
for feed-driving the slider 23 in front-rear direction; and
a ball screw driving motor 24 for driving the ball screw.

The third stand driving mechanism 25 drives the board
holding stand 12 to rotate around a vertical axis via the
25 second stand driving mechanism 22. The third stand driving
mechanism 25 includes: a rotation table 26 mounting the second
stand driving mechanism 22 thereon; and a table driving motor
27 for driving the rotation table 26 around a vertical axis.

[0022]

The fourth stand driving mechanism 28 drives the board holding stand 12 in left-right direction via the third stand driving mechanism 25. The fourth stand driving mechanism 28
5 includes: a slide table 29 mounting the third stand driving mechanism 25 thereon; a ball screw 30 for feed-driving the slide table 29; and a ball screw driving motor 31 for driving the ball screw 30.

The fifth stand driving mechanism 32 drives the board
10 holding stand 12 vertically via the fourth stand driving mechanism 28, and includes an up-and-down table 33 mounting the fourth stand driving mechanism 28 thereon. In addition, the fifth stand driving mechanism 32 includes a hydraulic lift mechanism 34 for moving up and down the up-and-down table 33,
15 and the hydraulic lift mechanism 34 is mounted on the self-propelled moving carriage 36.

[0023]

The outriggers 37a, 37b, 37c, and 37d support the moving carriage 36 by making the moving carriage 36 apart from the
20 floor face of the site of board applying work, and are arranged at the left, right, front, and rear of the moving carriage 36.

The board position adjustment mechanism 38 is provided for manually adjusting the position of the interior board 11
25 sucked by the suction pads 13. The board position adjustment mechanism 38 includes: a board position adjusting member 39 facing the interior board 11 sucked by the suction pads 13, and attached to the stand supporting arms 18a and 18b; a first

stand supporting mechanism 40 for supporting the board holding stand 12 to be capable of tilting in left-right direction in a perpendicular plane with respect to the board position adjusting member 39; and a second stand supporting
5 mechanism 41 for supporting the board holding stand 12 to be capable of rotating around a vertical axis in a horizontal plane with respect to the board position adjusting member 39.
[0024]

The board position adjusting member 39 is detachably
10 attached to the stand supporting arms 18a and 18b by multiple bolts and nuts. Referring now to FIG. 4 and FIG. 5, the board position adjusting member 39 includes: an upper horizontal face 391 horizontally provided between the stand supporting arms 18a and 18b; a lower horizontal face 392 provided in
15 parallel with the upper horizontal face 391; a pair of left and right outer side faces 393 and 394 provided at both sides of the upper horizontal face 391 and the lower horizontal face 392; a front side vertical face 395 provided perpendicularly to the upper horizontal face 391 and between the pair of left
20 and right outer side faces 393 and 394; and a rear side vertical face 396 provided in parallel with the front side vertical face 395.

[0025]

The first stand supporting mechanism 40 is provided at
25 the board holding stand 12 to face the upper horizontal face 391 of the board position adjusting member 39. In addition, as illustrated in FIG. 4, the first stand supporting mechanism 40 includes: a spherical member 401 in abutment with the upper

horizontal face 391 of the board position adjusting member 39; and an air cylinder 402 for driving the spherical member 401 in a direction of contacting with or separating from the upper horizontal face 391 of the board position adjusting member 39.

[0026]

The second stand supporting mechanism 41 is provided at the board holding stand 12 to face the front side vertical face 395 of the board position adjusting member 39. In addition, as illustrated in FIG. 5, the second stand supporting mechanism 41 includes: multiple (for example, four) spherical members 411 in abutment with the front side vertical face 395 of the board position adjusting member 39; and multiple (for example, four) air cylinders for driving the spherical members 411 in a direction of contacting with or separating from the front side vertical face 395 of the board position adjusting member 39.

[0027]

The board holding stand 12 includes: multiple (for example, four) spherical projections 42 facing the spherical members 411 of the second stand supporting mechanism 41 and abutting with the rear side vertical face 396 of the board position adjusting member 39; air cylinders 43, 44, 45, and 46 for abutting with the outer side faces 393 and 394 of the board position adjusting member 39 to secure the position of the interior board 11 sucked by the suction pads 13; and air cylinders 47 and 48 for abutting with the lower horizontal face 392 of the board position adjusting member 39 to secure

the position of the interior board 11 sucked by the suction pads 13.

[0028]

Moreover, the board holding stand 12 includes: multiple
5 (for example, two) positioning tools 50; and a pair of left and right board supporting tools 51a and 51b. The positioning tools 50 are provided for positioning the interior board 11 to be secured onto the interior base at a predefined position with respect to the board securing mechanism 14. Referring
10 now to FIG. 6, the positioning tools 50 each include a letter L shaped engagement portion 501 to be engaged with one side face of the interior board 11.

The board supporting tools 51a and 51b support the interior board 11 in a state of making the interior board 11
15 apart from the floor face. Referring now to FIG. 7, the board supporting tools 51a and 51b each include: a shaft 511 projecting from a lower end of the board holding stand 12 to support a lower end of the interior board 11; and a shaft holding portion 512 for holding the shaft 511 to be slidable
20 in front-rear direction of the board holding stand 12.

[0029]

When the interior board 11 is applied onto the interior base of the building structure by use of an interior constructing apparatus according to the first embodiment of
25 the present invention, the interior board 11 is firstly sucked by the suction pads 13 of the board holding stand 12 by hand work. Next, after the interior board 11 held by the board holding stand 12 is caused to face the front face of the

interior base, the board holding stand 12 is moved in left-right direction with the spherical member 401 arranged at the first stand supporting mechanism 40 as a supporting point, and the applying position of the interior board 11 is manually adjusted by use of the board position adjustment mechanism 38. Then, after the position of the interior board 11 is secured by the air cylinders 43 to 48 arranged at the board holding stand 12, the second stand driving mechanism 22 is operated to press the interior board 11 onto the interior base. Subsequently, the board securing mechanism 14 is operated to entwist the screws into multiple points of the interior board 11 to screw the interior board 11 onto the interior base.

[0030]

In addition, when the interior board 11 is attached onto the ceiling base of the building structure, the interior board 11 is firstly sucked by the suction pads 13 of the board holding stand 12 by hand work, and then the first stand driving mechanism 20 is operated to make the interior board 11 held by the board holding stand 12 to face up. Next, after the fifth stand driving mechanism 32 is operated to make the interior board 11 closer to the ceiling base, the board holding stand 12 is made to move around a vertical axis with the spherical member 411 arranged at the second stand supporting mechanism 41 as a supporting point so as to manually adjust the applying position of the interior board 11 by use of the board position adjustment mechanism 38. Subsequently, the position of the interior board 11 is secured

by the air cylinders 43 to 48 arranged at the board holding stand 12, and then the fifth stand driving mechanism 32 is operated to press the interior board 11 onto the ceiling base. After that, the board securing mechanism 14 is operated to
5 entwist the screws into multiple points of the interior board 11 to screw the interior board 11 onto the ceiling base.

[0031]

As described above in the first embodiment of the present invention, the board position adjustment mechanism 38 is
10 provided to include: the board position adjusting member 39 attached to the stand supporting arms 18a and 18b to face the interior board 11 sucked by the suction pads 13; the first stand supporting mechanism 40 for supporting the board holding stand 12 to be capable of tilting in left-right
15 direction in a perpendicular plane with respect to the board position adjusting member 39; and the second stand supporting mechanism 41 for supporting the board holding stand 12 to be rotatable around a vertical axis in a horizontal plane with respect to the board position adjusting member 39. This
20 allows manual adjustment of the applying position of the interior board 11 onto the interior base. Accordingly, this eliminates the need of a vertical adjustment apparatus, a horizontal adjustment apparatus, or a posture fine adjustment apparatus, thereby applying the interior board 11 onto the
25 interior base without taking a lot of time or increasing the costs.

[0032]

Additionally, as described above in the first embodiment of the present invention, there are provided multiple positioning tools 50 each having the letter L shaped engagement portion 501 to be engaged with one side face of the interior board 11. This facilitates positioning of the interior board 11 at a predefined position with respect to the board securing mechanism 14, thereby applying the interior board 11 onto the interior base in a more efficient manner.

Furthermore, the pair of left and right board supporting tools 51a and 51b for supporting a lower end of the interior board 11 in a state of making the interior board 11 apart from the floor face are provided at the board holding stand 12, thereby allowing the interior board 11 to be held on the front face of the interior base with an upper end of the interior board 11 projecting from an upper end of the board holding stand 12. This prevents the upper end of the board holding stand 12 from interfering with the ceiling base, when the interior board 11 is applied onto an upper part of the interior base.

Moreover, the board position adjusting member 39 is detachably attached onto the stand supporting arms 18a and 18b, thereby allowing the board holding stand 12 to be detached from the stand supporting arms 18a and 18b, as illustrated in FIG. 8.

[0033]

In the first embodiment of the present invention as described above, as the board securing mechanism for securing

the interior board onto the interior base, a description has been illustrated of the board securing mechanism including: the multiple screw drivers 15 for entwisting the screws into the interior board 11 held on the front face of the interior
5 base by the board holding stand 12; the multiple air cylinders 16 for pressing ends of the respective screw drivers 15 to the board; and the slide mechanism 17 for vertically moving the screw drivers 15 and the air cylinders 16. As a second embodiment illustrated in FIG. 9, however, the board securing
10 mechanism 14 may include: multiple tacker insertion machines 53 for inserting the tacker pins (staples) as stoppers into the interior board 11 held on the front face of the interior base by the board holding stand 12 by, for example, pressure of compressed air; multiple air cylinders 54 for pressing ends
15 of the tacker insertion machines 53 onto the interior board 11; and the slide mechanism 17 for vertically moving the air cylinders 54 and the tacker insertion machines 53.

In addition, for example, plaster board, silicate calcium board, acoustical board, decorative sheet, fire
20 resistive covering material, concrete panel, slate, glass plate, or the like is used for the board to be applied onto the interior base.

Reference Signs List

- 25 [0034]
- 11 interior board
 - 12 board holding stand
 - 13 suction pad

14 board securing mechanism
15 screw driver
18a, 18b stand supporting arm
19 horizontal shaft
5 20 first stand driving mechanism
22 second stand driving mechanism
25 third stand driving mechanism
28 fourth stand driving mechanism
32 fifth stand driving mechanism
10 36 moving carriage
38 board position adjustment mechanism
39 board position adjusting member
40 first stand supporting mechanism
41 second stand supporting mechanism
15 42 spherical projection
43, 44, 45, 46, 47, 48 air cylinder
50 positioning tool
51a, 51b board supporting tool
53 tacker insertion machine

CLAIMS

1. An interior constructing apparatus comprising:
 - a board holding stand having a plurality of suction pads
 - 5 for sucking a board for use in interior construction of a building structure;
 - a board securing mechanism for securing the board sucked by the plurality of suction pads of the board holding stand with a plurality of stoppers to an interior base of the
 - 10 building structure;
 - a pair of left and right stand supporting arms for supporting the board holding stand to be rotatable around a horizontal shaft;
 - a first stand driving mechanism for driving the board
 - 15 holding stand to rotate around the horizontal shaft via the stand supporting arms;
 - a second stand driving mechanism for driving the board holding stand to move in front-rear direction via the first stand driving mechanism;
 - 20 a third stand driving mechanism for driving the board holding stand to rotate around a vertical axis via the second stand driving mechanism;
 - a fourth stand driving mechanism for driving the board holding stand to move in left-right direction via the third
 - 25 stand driving mechanism;
 - a fifth stand driving mechanism for driving the board holding stand to move vertically via the fourth stand driving mechanism; and further comprising

a board position adjustment mechanism including: a board position adjusting member facing the board sucked by the plurality of suction pads, and attached to the pair of left and right stand supporting arms; a first stand supporting mechanism for supporting the board holding stand to be capable of tilting in left-right direction in a perpendicular plane with respect to the board position adjusting member; and a second stand supporting mechanism for supporting the board holding stand to be rotatable around the vertical axis in a horizontal plane with respect to the board position adjusting member, so as to manually adjust a position of the board sucked by the plurality of suction pads.

2. The interior constructing apparatus according to claim 1, wherein the board position adjustment mechanism includes:

an upper horizontal face horizontally provided between the stand supporting arms;

a lower horizontal face provided in parallel with the upper horizontal face;

a pair of left and right outer side faces provided at both sides of the upper horizontal face and the lower horizontal face;

a front side vertical face provided perpendicularly to the upper horizontal face and between the pair of left and right outer side faces; and

a rear side vertical face provided in parallel with the front side vertical face.

3. The interior constructing apparatus according to claim 2, wherein the first stand supporting mechanism includes:

5 a spherical member in abutment with the upper horizontal face; and

an air cylinder for driving the spherical member in a direction of contacting with or separating from the upper horizontal face, and

10 wherein the first stand supporting mechanism is provided at the board holding stand to face the upper horizontal face.

4. The interior constructing apparatus according to claim 2,

15 wherein the second stand supporting mechanism includes:

a spherical member in abutment with the front side vertical face; and

an air cylinder for driving the spherical member in a direction of contacting with or separating from the front side
20 vertical face, and

wherein the second stand supporting mechanism is provided at the board holding stand to face the front side vertical face.

25 5. The interior constructing apparatus according to claim 4, wherein the board holding stand includes a plurality of spherical projections facing the spherical member of the

second stand supporting mechanism, and abutting with the rear side vertical face of the board position adjusting member.

6. The interior constructing apparatus according to
5 any one of claim 2 to claim 5, wherein the board holding stand includes a plurality of air cylinders for abutting with the pair of left and right outer side faces to secure the position of the board sucked by the plurality of suction pads.

10 7. The interior constructing apparatus according to any one of claim 2 to claim 6, wherein the board holding stand includes a plurality of air cylinders for abutting with the lower horizontal face to secure the position of the board sucked by the plurality of suction pads.

15 8. The interior constructing apparatus according to any one of claim 1 to claim 7, wherein the board position adjusting member is detachably attached to the pair of left and right board supporting arms.

20 9. The interior constructing apparatus according to any one of claim 1 to claim 8, wherein the board holding stand includes a plurality of positioning tools for positioning the board to be secured onto the interior base at a predefined
25 position with respect to the board securing mechanism.

10. The interior constructing apparatus according to claim 9, wherein the plurality of positioning tools each have

a letter L shaped engagement portion to be engaged with one side face of the board.

11. The interior constructing apparatus according to
5 any one of claim 1 to claim 10, wherein the board holding stand includes a pair of left and right board supporting tools for supporting the board in a state of making the board apart from a floor face.

10 12. The interior constructing apparatus according to claim 11, wherein each of the pair of left and right board supporting tools includes:

a shaft projecting from a lower end of the board holding stand to support a lower end of the board; and

15 a shaft holding portion for holding the shaft to be slidable in front-rear direction of the board holding stand.

13. The interior constructing apparatus according to any one of claim 1 to claim 12, wherein the board securing
20 mechanism includes:

a plurality of screw drivers for entwisting screws as the plurality of stoppers into the board held on a front face of the interior base, respectively, by the board holding stand;

25 a plurality of air cylinders for pressing ends of the screw drivers onto the board, respectively; and

a slide mechanism for vertically moving the plurality of air cylinders and the plurality of screw drivers.

14. The interior constructing apparatus according to any one of claim 1 to claim 12, wherein the board securing mechanism includes:

5 a plurality of tacker insertion machines for inserting tacker pins as the plurality of stoppers into the board held on the front face of the interior base by the board holding stand;

a plurality of air cylinders for pressing ends of the
10 tacker insertion machines onto the board, respectively; and

a slide mechanism for vertically moving the plurality of air cylinders and the plurality of tacker insertion machines.

15 15. The interior constructing apparatus according to any one of claim 1 to claim 14,

wherein the fifth stand driving mechanism includes:
an up-and-down table mounting the third stand driving
mechanism thereon; and

20 a lift mechanism for moving up and down the up-and-down table, and

wherein the lift mechanism is mounted on a self-propelled moving carriage.