# CEILING ASSEMBLY STRUCTURE

## Technical Field

The present invention relates to the technical field of building materials, and in particular to a ceiling assembly structure.

## Background Art

In order to ensure stability of connection, a larger ceiling is usually connected to a keel through welding, but the welding is time-consuming and relatively inconvenient.

For example, a ceiling with a length of about 2 m or above and a width of about 1 m or above is connected through welding, a plurality of welding spots are required for connection between the ceiling and the keel. Moreover, differences in manual operations easily lead to inconsistencies in heights and gaps of the ceilings, thereby affecting aesthetics.

## Summary of the Invention

An objective of the present invention is to provide a ceiling assembly structure. A ceiling is assembled through use of a first profile and a second profile, which reduces welding processes, facilitates assembly thereof, and better ensures height consistency and gap consistency between the ceilings, thereby presenting a more aesthetically pleasing appearance.

To achieve the above objective, the present invention adopts the following technical solution:

a ceiling assembly structure, including a keel, a first profile, and a second profile;

a bottom of the keel is connected to the first profile, and the first profile is connected to the second profile;

the first profile is provided with a first slot, the second profile is provided with a second slot, and the first slot is arranged opposite to the second slot;

the first slot is configured to connect a first bent portion of the ceiling; and

the second slot is configured to connect a second bent portion of the ceiling.

In some embodiments, the first profile further includes a first supporting wall, and when the first bent portion is connected to the first slot, a bottom of the first supporting wall abuts against an upper surface of a panel of the ceiling; and

the second profile further includes a second supporting wall, and when the second bent portion is connected to the second slot, a bottom of the second supporting wall abuts against

an upper surface of the panel of the ceiling.

In some embodiments, the first supporting wall is arranged on a side of the first slot in a way of extending vertically; and

the second supporting wall is arranged on a side of the second slot in a way of extending vertically.

In some embodiments, a distance between the first slot and the second slot is 20-30 mm.

In some embodiments, the first profile is provided with a hook groove, and the hook groove is located above the first slot;

the keel includes a vertical wall and a hook portion, and the hook portion is arranged at a bottom of the vertical wall; and

the hook portion is connected to the hook groove.

In some embodiments, the first profile further includes a boss, and the boss is arranged above the hook groove; and

the second profile further includes a recess, and the recess is connected to the boss.

In some embodiments, the assembly structure further includes a pressure strip, and the pressure strip includes a first plate body and a second plate body, where the first plate body is arranged in a way of extending vertically, and the second plate body is arranged in a way of extending horizontally; and

the first plate body is connected to the vertical wall, the second plate body is pressed onto an upper surface of a second wall surface of the second profile, and the second wall surface is provided with the recess.

The present invention has the following beneficial effects: the ceiling is assembled through use of the first profile and the second profile, which reduces welding processes, facilitates assembly thereof, and better ensures height consistency and gap consistency between the ceilings, thereby presenting a more aesthetically pleasing appearance.

## Brief Description of the Drawings

FIG. 1 is a structural diagram of a ceiling assembly structure according to the present invention;

FIG. 2 is a partially enlarged view of a ceiling assembly structure according to the present invention;

FIG. 3 is an exploded view of FIG. 2; and

reference numerals in the figures: 1-keel; 11-vertical wall; 12-hook portion; 4-pressure

strip; 41-first plate body; 42-second plate body; 2-first profile; 21-first slot; 22-first supporting wall; 23-hook groove; 24-boss; 25-first wall surface; 3-second profile; 31-second slot; 32-second supporting wall; 33-recess; 34-second wall surface; 35-third wall surface; 5-ceiling; 50-panel; 51-first bent portion; 52-second bent portion; and 6-bolt.

Detailed Description of the Examples

The present invention will be further described in detail below with reference to the accompanying drawings.

With reference to FIGs. 1-3, a ceiling assembly structure includes a keel 1, a first profile 2, and a second profile 3;

a bottom of the keel 1 is connected to the first profile 2, and the first profile 2 is connected to the second profile 3;

the first profile 2 is provided with a first slot 21, the second profile 3 is provided with a second slot 31, and the first slot 21 is arranged opposite to the second slot 31; for example, an opening of the first slot 21 faces right, and an opening of the second slot 31 faces left;

a ceiling 5 includes a panel 50, a first bent portion 51, and a second bent portion 52, where the first bent portion 51 and the second bent portion 52 are located at both ends of the panel 50, and the first bent portion 51 and the second bent portion 52 are formed by stamping and bending processes, and are of a hook-shaped structure or an inverted L-shaped structure;

the first slot 21 is configured to connect the first bent portion 51 of the ceiling 5;

the second slot 31 is configured to connect the second bent portion 52 of the ceiling 5; and

in this way, the ceiling 5 is connected to the keel 1 through a structure of fitting between the bent portions and the slots, which facilitates assembly and reduces welding processes.

The first profile 2 further includes a first supporting wall 22, and when the first bent portion 51 is connected to the first slot 21, a bottom of the first supporting wall 22 abuts against an upper surface of the panel 50 of the ceiling 5; the first supporting wall 22 can be arranged on a side of the first slot 21 in a way of extending vertically; thus, limiting of the ceiling 5 in a vertical direction is achieved; and the first supporting wall 22 is capable of causing the panel 50 to experience slight elastic deformation under the action of an abutting force, and causing certain friction between a contact point between the first supporting wall 22 and the panel 50 and a contact point between the first bent portion 51 and the first slot 21, thereby enhancing stability of connection.

The second profile 3 further includes a second supporting wall 32, and when the second

bent portion 52 is connected to the second slot 31, a bottom of the second supporting wall 32 abuts against an upper surface of the panel 50 of the ceiling 5; the second supporting wall 32 can be arranged on a side of the second slot 31 in a way of extending vertically; thus, limiting of the ceiling 5 in a vertical direction is achieved; and the second supporting wall 32 is capable of causing the panel 50 to experience slight elastic deformation under the action of an abutting force, and causing certain friction between a contact point between the second supporting wall 32 and the panel 50 and a contact point between the second bent portion 52 and the second slot 31, thereby enhancing stability of connection.

A distance D between the first slot 21 and the second slot 31 is 20-30 mm.

The first profile 2 is provided with a hook groove 23, and the hook groove 23 is located above the first slot 21; an opening is formed on a left side of the hook groove 23, which facilitates entry of a hook portion 12 of the keel 1; the hook groove 23 can be connected to the first slot 21 through a first wall surface 25, and the first wall surface 25 is arranged in a way of extending vertically;

the keel 1 includes a vertical wall 11 and the hook portion 12, and the hook portion 12 is arranged at a bottom of the vertical wall 11; and

the hook portion 12 is connected to the hook groove 23. The first profile 2 is connected to the keel 1 in a hanging manner, which facilitates assembly.

The first profile 2 further includes a boss 24, and the boss 24 is arranged above the hook groove 23; and

the second profile 3 further includes a recess 33, the recess 33 is formed at one end of a second wall surface 34, the other end of the second wall surface 34 is connected to a third wall surface 35, a bottom of the third wall surface 35 is connected to the second slot 31, the second wall surface 34 is arranged in a way of extending horizontally, and the third wall surface 35 is arranged in a way of extending vertically; and the recess 33 is connected to the boss 24. In this way, a structure of fitting between the recess 33 and the boss 24 plays a positioning role, causing the first profile 2 and the second profile 3 to be connected firmly.

The assembly structure further includes a pressure strip 4, and the pressure strip 4 includes a first plate body 41 and a second plate body 42, where the first plate body 41 is arranged in a way of extending vertically, and the second plate body 42 is arranged in a way of extending horizontally;

the first plate body 41 is connected to the vertical wall 11, for example, the first plate body 41 can be fixed to the vertical wall 11 by means of a bolt 6; the second plate body 42 is pressed onto an upper surface of the second wall surface 34 of the second profile 3; that is,

in a vertical direction, the second plate body 42, the boss 24, the recess 33, and the hook portion 12 are arranged sequentially; and

in this way, the pressure strip 4 and the hook portion 12 form a clamping structure, which ensures that the hook portion 12 is firmly connected to the hook groove 23, and prevents the hook portion 12 from detaching, thereby ensuring a tight connection between the first profile 2 and the second profile 3.

Therefore, the ceiling 5 is assembled through use of the first profile 2 and the second profile 3, which reduces the welding processes, facilitates the assembly thereof, and better ensures height consistency and gap consistency between the ceilings 5, thereby presenting a more aesthetically pleasing appearance. The assembly structure is particularly suitable for the ceilings 5 with larger sizes, such as the ceilings 5 with a length of about 2 m or above and a width of about 1 m or above.

The above disclosed are merely some embodiments of the present invention. For those of ordinary skill in the art, they may also make several transformations and improvements on the premise of not deviating from the inventive concept of the present invention, and these transformations and improvements shall fall within the scope of protection of the present invention.

## CLAIMS

1. A ceiling assembly structure, comprising a keel , a first profile, and a second profile;

a bottom of the keel is connected to the first profile, and the first profile is connected to the second profile;

the first profile is provided with a first slot, the second profile is provided with a second slot, and the first slot is arranged opposite to the second slot;

the first slot is connected to a first bent portion of a ceiling;

the second slot is connected to a second bent portion of the ceiling.

2. The ceiling assembly structure according to claim 1, wherein the first profile further comprises a first supporting wall, and when the first bent portion is connected to the first slot, a bottom of the first supporting wall abuts against an upper surface of a panel of the ceiling; and

the second profile further comprises a second supporting wall, and when the second bent portion is connected to the second slot, a bottom of the second supporting wall abuts against an upper surface of a panel of the ceiling.

3. The ceiling assembly structure according to claim 2, wherein the first supporting wall is arranged on a side of the first slot in a way of extending vertically; and

the second supporting wall is arranged on a side of the second slot in a way of extending vertically.

4.The ceiling assembly structure according to claim 1, wherein a distance between the first slot and the second slot is 20-30 mm.

5. The ceiling assembly structure according to claim 1, wherein the first profile is provided with a hook groove, and the hook groove is located above the first slot;

the keel comprises a vertical wall and a hook portion, and the hook portion is arranged at a bottom of the vertical wall; and

the hook portion is connected to the hook groove.

6. The ceiling assembly structure according to claim 5, wherein the first profile further comprises a boss, and the boss is arranged above the hook groove; and

the second profile further comprises a recess, and the recess is connected to the boss.

7. The ceiling assembly structure according to claim 6, further comprising a pressure strip, wherein the pressure strip comprises a first plate body and a second plate body, wherein the first plate body is arranged in a way of extending vertically, and the second plate body is arranged in a way of extending horizontally; and

the first plate body is connected to the vertical wall, the second plate body is pressed onto an upper surface of a second wall surface of the second profile, and the second wall surface is provided with the recess.