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CONNECTOR ASSEMBLY

Abstract

An example connector assembly includes a cage, a receptacle connector and a partitioning frame. The receptacle connector is positioned in a rear segment of the cage and has an upper card slot and a lower card slot. The partitioning frame includes a compartment bracket and an extension bracket. The compartment bracket is provided in the cage, and the compartment bracket and the cage together define an upper receiving space and a lower receiving space. The extension bracket is assembled to a rear end of the compartment bracket and is capable of moving relative to the compartment bracket between a front position and a rear position. A side wall of the extension bracket includes a guiding piece, a side wall of the cage includes a guiding rail groove, and the guiding piece is provided to the guiding rail groove such that the extension bracket can slide in a front-rear direction.

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Background/Summary

TECHNICAL FIELD

[0001] The present disclosure relates to a connector assembly, and particularly relates to a connector assembly having a partitioning frame.

BACKGROUND

[0002] Chinese disclosure patent application publication No. CN106469878A (corresponding to United States patent U.S. Pat. No. 10,153,57 B2) discloses a connector system, a cage of the connector system includes an intermediate section, the intermediate section includes an upper wall and a lower wall, the upper wall and the lower wall together define an upper port and a lower port in the cage, the lower wall includes a hole formed thereon to make the intermediate section and the lower port communicated. A biasing heat sink of the connector system is arranged in the intermediate section which is between the upper port and the lower port, the biasing heat sink passes through the hole and extends into the lower port. The cage disclosed in such a connector system is positioned over a stack-type connector, an opening formed to a bottom portion of the cage makes that the stack-type connector can be arranged in the inside of the cage, a rear end of the intermediate section necessarily extends to between two receptacles of the stack-type connector which are arranged in an up-down direction. Therefore, when an assembling sequence between the stack-type connector and the cage is after an assembling sequence between the intermediate section and the cage, the intermediate section of the cage would interfere with the stack-type connector, such that the stack-type connector cannot smoothly enters into the cage.

SUMMARY

[0003] Therefore, an object of the present disclosure is to provide a cage assembly and a connector assembly which can improve at least one deficiency in the prior art.

[0004] An example assembly includes a cage and a partitioning frame comprising a compartment bracket and an extension bracket. The compartment bracket is provided in the cage, and the compartment bracket and the cage together defining an upper receiving space and a lower receiving space. The extension bracket is assembled to a rear end of the compartment bracket. The extension bracket is capable of moving relative to the compartment bracket between a front position and a rear position.

[0005] In one aspect of the embodiments, a side wall of the extension bracket includes a guiding piece, a side wall of the cage includes a guiding rail groove, and the guiding piece of the extension bracket is provided to the guiding rail groove of the cage such that the extension bracket can slide in a front-rear direction. A side wall of the compartment bracket includes a guiding piece receiving notch which is positioned to a rear end of the side wall, and when the extension bracket is positioned in the front position, the guiding piece is received in the guiding piece receiving notch.

[0006] In other aspects, the assembly further includes a holding member. The extension bracket has a first holding portion which latches to the holding member when the extension bracket is in the front position and a second holding portion which latches to the holding member when the extension bracket is in the rear position. The holding member is an elastic holding piece on a side

wall of the cage, and a side wall of the extension bracket comprises a side plate which correspondingly engages with the elastic holding piece. The side wall of the extension bracket further includes a limiting hole which is positioned behind the side plate and is adjacent to the side plate, and the side wall of the cage comprises a limiting piece which correspondingly enters into the limiting hole. A front inner side edge of the limiting hole and a rear edge of the side plate comprise the first holding portion. A side wall of the compartment bracket includes cutouts which allow the elastic holding piece and the limiting piece to pass through respectively.

[0007] In other aspects, the extension bracket includes a lower stopping portion which enters into the lower receiving space, and when the extension bracket is in the front position, a pluggable module which enters into the lower receiving space can push the lower stopping portion to make the extension bracket move rearwardly to the rear position. The compartment bracket has an upper wall and a lower wall which together define an interior receiving space. The lower wall is formed with a lower window which makes the interior receiving space communicated to the lower receiving space.

[0008] The assembly further includes an internal biasing heat sink in the interior receiving space of the compartment bracket in one example. The internal biasing heat sink includes an internal heat dissipating member which passes through the lower window and enters into the lower receiving space, the internal heat dissipating member can move in an up-down direction, and the extension bracket sheathes the internal heat dissipating member and is sheathed by the compartment bracket.

[0009] An example connector assembly includes a cage, a receptacle connector positioned in a rear segment of the cage, the receptacle connector having an upper card slot and a lower card slot, and a partitioning frame comprising a compartment bracket and an extension bracket. The compartment bracket is provided in the cage, and the compartment bracket and the cage together define an upper receiving space and a lower receiving space. The extension bracket is assembled to a rear end of the compartment bracket. The extension bracket is capable of moving relative to the compartment bracket between a front position and a rear position.

[0010] In one aspect of the embodiments, a side wall of the extension bracket includes a guiding piece, a side wall of the cage includes a guiding rail groove, and the guiding piece of the extension bracket is provided to the guiding rail groove of the cage such that the extension bracket can slide in a front-rear direction. A side wall of the compartment bracket includes a guiding piece receiving notch which is positioned to a rear end of the side wall, and when the extension bracket is positioned in the front position, the guiding piece is received in the guiding piece receiving notch.

[0011] In other aspects, the connector assembly further includes a holding member. The extension bracket has a first holding portion which latches to the holding member when the extension bracket is in the front position and a second holding portion which latches to the holding member when the extension bracket is in the rear position. The holding member is an elastic holding piece on a side wall of the cage, and a side wall of the extension bracket comprises a side plate which correspondingly engages with the elastic holding piece.

[0012] In another example, the side wall of the extension bracket includes a limiting hole which is positioned behind the side plate and is adjacent to the side plate, and the side wall of the cage comprises a limiting piece which correspondingly enters into the limiting hole. A front inner side edge of the limiting hole and a rear edge of the side plate comprise the first holding portion. A side wall of the compartment bracket includes cutouts which allow the elastic holding piece and the limiting piece to pass through respectively.

[0013] In other aspects, the extension bracket includes a lower stopping portion which enters into the lower receiving space, and when the extension bracket is in the front position, a pluggable module which enters into the lower receiving space can push the lower stopping portion to make the extension bracket move rearwardly to the rear position. The compartment bracket has an upper wall and a lower wall which together define an interior receiving space. The lower wall is formed with a lower window which makes the interior receiving space communicated to the lower

receiving space.

[0014] The connector assembly further includes an internal biasing heat sink in the interior receiving space of the compartment bracket in another example. The internal biasing heat sink includes an internal heat dissipating member which passes through the lower window and enters into the lower receiving space, the internal heat dissipating member can move in an up-down direction, and the extension bracket sheathes the internal heat dissipating member and is sheathed by the compartment bracket.

Description

BRIEF DESCRIPTION OF DRAWINGS

[0015] Other features and effects of the present disclosure will be apparent in an embodiment referring to the accompanying drawings in which:

[0016] FIG. 1 is a perspective view of an embodiment of a connector assembly of the present disclosure mounted on a circuit board and facing a pluggable module;

[0017] FIG. 2 is a perspective exploded view of the embodiment;

[0018] FIG. 3 is a perspective exploded view of a partitioning frame and an internal biasing heat sink of the embodiment;

[0019] FIG. 4 is a cross sectional view of the embodiment, in which an extension bracket of the partitioning frame of the embodiment is positioned in a front position;

[0020] FIG. 5 is a partial perspective view of the embodiment, in which the extension bracket of the partitioning frame of the embodiment is positioned in the front position;

[0021] FIG. 6 is a cross sectional view of the embodiment, in which the extension bracket of the partitioning frame of the embodiment is positioned in a rear position;

[0022] FIG. 7 is a partial perspective view of the embodiment, in which the extension bracket of the partitioning frame of the embodiment is positioned in the rear position;

[0023] FIG. 8 is another cross sectional view of the embodiment viewed from another angle, in which the extension bracket of the partitioning frame of the embodiment is positioned in the front position; and

[0024] FIG. 9 is another cross sectional view of the embodiment viewed from another angle, in which the extension bracket of the partitioning frame of the embodiment is positioned in the rear position.

DETAILED DESCRIPTION

[0025] Before the present disclosure is described in detail, it is noted that the similar components are indicated by the same reference numerals in the following description.

[0026] Referring to FIG. 1 to FIG. 4, an embodiment of a connector assembly **100** of the present disclosure is adapted to be provided to a circuit board **200** and is adapted to mate with a pluggable module **300**. The connector assembly **100** includes a cage **1**, a receptacle connector **2**, a partitioning frame **3** and an internal biasing heat sink **4**.

[0027] The cage **1**, which for example can be formed by processing a metal plate through via stamping and bending, extends along a front-rear direction D1 (in which an arrow pointing direction is front and an opposite direction is rear) and has a top wall **11** which is positioned in the up in an up-down direction D2 (in which an arrow pointing direction is up and an opposite direction is down), two side walls **12** which extend downwardly from two sides of the top wall **11** and face each other in a left-right direction D3 (in which an arrow pointing direction is right and an opposite direction is left), a bottom wall **13** which is connected to front segments of bottom edges of the two side walls **12**, a rear wall **14** which is connected to a rear edge of the top wall **11** and rear edges of the two side walls **12**, and a plurality of press fit legs **15** which are formed to the bottom edges of the two side walls **12** and a bottom edge of the rear wall **14**, the plurality of press fit legs

15 are used to press into a plurality of press fit holes **201** of the circuit board **200**, so as to make the cage **1** fixedly provided on the circuit board **200** and capable of being electrically connected to a ground circuit (not shown) of the circuit board **200**.

[0028] The receptacle connector **2** is provided on the circuit board **200** and provided in a rear segment of the cage **1**, the receptacle connector **2** has a housing **21** which is insulative and a plurality of terminals **22** which are provided to the housing **21**, the housing **21** has an upper card slot **211** and a lower card slot **212** which are toward the front and are arranged along the up-down direction **D2**, each terminal **22** has a contact portion **221** which is positioned in the upper card slot **211** or a lower card slot **212** and a tail portion **222** which extends downwardly from a bottom portion of the housing **21** and is used to be mechanically and electrically connected to the circuit board **200**.

[0029] The partitioning frame **3** includes a compartment bracket **31** and an extension bracket **32**, the compartment bracket **31** is provided in the cage **1**, and the compartment bracket **31** and the cage **1** together define an upper receiving space **16** which corresponds to the upper card slot **211** of the receptacle connector **2** and a lower receiving space **17** which corresponds to the lower card slot **212** of the receptacle connector **2**, furthermore, a rear segment of the upper receiving space **16** and a rear segment of the lower receiving space **17** are communicated with each other. The upper receiving space **16** has an insertion port **161** which is positioned in the front and allows the pluggable module **300** to insert into, the lower receiving space **17** has a lower insertion port **171** which is positioned in the front and allows the pluggable module **300** to insert into and a bottom opening **172** which is positioned behind the bottom portion and is defined together by the two side walls **12**, the bottom wall **13** and the rear wall **14** of the cage **1**, the bottom opening **172** allows the receptacle connector **2** to enter into so as to make the receptacle connector **2** received in the rear segment of the upper receiving space **16** and the rear segment of the lower receiving space **17** which are communicated with each other. In the present embodiment, the compartment bracket **31** has a upper wall **311** and a lower wall **312** which face each other in the up-down direction, a front wall **313** which is connected to a front edge of the upper wall **311** and a front edge of the lower wall **312**, and two side walls **314** which are connected to side edges of the upper wall **311** and side edges of the lower wall **312**, the upper wall **311**, the lower wall **312**, the front wall **313** and the two side walls **314** together define an interior receiving space **315**. Each side wall **12** of the cage **1** has a fixing hole **121** which is penetratingly formed, the compartment bracket **31** further has fixing bendable pieces **316** which extend to outer sides of the two side walls **314**, the fixing bendable pieces **316** respectively pass through the fixing holes **121** of the two side walls **12** and then are bent and fixed, therefore the compartment bracket **31** is stably assembled to the cage **1**.

[0030] Referring to FIGS. **1-4**, in the present embodiment, the connector assembly **100** may be provided to a mounting hole (not shown) of a casing (not shown), the cage **1** is provided with a plurality of first ground members **18** which are positioned at a front end of the cage **1**, the compartment bracket **31** further is provided with a second ground member **317** which is positioned at the front wall **313** and a front segment of the upper wall **311** and a front segment of the lower wall **312**. The first ground member **18** has a plurality of elastic fingers **181** which extend rearwardly from the front end of the cage **1** and are distributed to an outer side of the cage **1** and an inner side of the cage **1**, the elastic finger **181** of the plurality of elastic fingers **181** which is positioned at the outer side of the cage **1** is used to contact an edge of the mounting hole of the casing, the elastic finger **181** of the plurality of elastic fingers **181** which is positioned at the inner side of the cage **1** is used to contact the pluggable module **300**. The second ground member **317** has a sheet body **317a** which is provided to a front side face of the front wall **313** of the compartment bracket **31** and two ground sheets **317b** which respectively extend rearwardly from an upper edge of the sheet body **317a** and a lower edge of the sheet body **317a** to respectively enter into the upper receiving space **16** and the lower receiving space **17**. Each ground sheet **317b** has a plurality of elastic fingers **317c** which extend rearwardly and are used to contact the pluggable module **300**.

[0031] The pluggable module **300** has a shell **301** and a mating circuit board **302**. The shell **301** has an inserting portion **301a** which is used to insert into the upper receiving space **16** or the lower receiving space **17**, the mating circuit board **302** protrudes from the inserting portion **301a**, is provided to the inserting portion **301a** and is used to insert into the upper card slot **211** or the lower card slot **212**. Each side wall **12** of the cage **1** has two openings **122** which respectively correspond to the upper receiving space **16** and the lower receiving space **17**, an inward extension elastic piece **123** is constructed at each opening **122** and obliquely extends rearwardly toward the inside of the cage **1**. Two sides of inserting portion **301a** of the pluggable module **300** in the left-right direction are provided with locking recessed grooves **301b** which correspondingly engage with the inward extension elastic pieces **123**, the inward extension elastic pieces **123** at the openings **122** are used to respectively engage with the locking recessed grooves **301b** of the pluggable module **300** which inserts into the upper receiving space **16** or the lower receiving space **17**, so as to generate a locking effect. In addition, an aligning structure **301c** is further formed at a top portion of a front end of the inserting portion **301a** of the shell **301**. The top wall **11** of the cage **1** is formed with an upper window **111** which is communicated to the upper receiving space **16** and an upper stopping portion **112** which extends downwardly from a rear segment of the upper window **111** into the upper receiving space **16**, the upper stopping portion **112** is used to stop the aligning structure **301c** so as to limit an inserting position of the pluggable module **300**. The lower wall **312** of the compartment bracket **31** is formed with a lower window **312a** which makes the interior receiving space **315** communicated to the lower receiving space **17**.

[0032] The internal biasing heat sink **4** is provided in the interior receiving space **315** of the compartment bracket **31** and has an internal heat dissipating member **41** and a biasing spring **42** which is provided between the internal heat dissipating member **41** and the upper wall **311** of the compartment bracket **31**. The internal heat dissipating member **41** has a base plate **411** and a plurality of heat dissipating fins **412** which are arranged side by side along the left-right direction **D3**, latch with each other and are provided to a top face of the base plate **411**, the base plate **411** has a thermal coupling portion **411a** which passes through the lower window **312a** and enters into the lower receiving space **17**. The biasing spring **42** has a pressing plate **421** which presses against top portions of the heat dissipating fins **412** of the internal heat dissipating member **41** and a plurality of plate-shaped spring pieces **422** which extend from the pressing plate **421** and abut against the upper wall **311** of the compartment bracket **31**, it is noted that, the biasing spring **42** also may be other forms of spring structures and is not limited to the present embodiment. A biasing force applied by the biasing spring **42** makes that the internal heat dissipating member **41** can be moved along the up-down direction **D2** and makes the thermal coupling portion **411a** of the internal heat dissipating member **41** elastically contact the pluggable module **300** which inserts into the lower receiving space **17**, so as to ensure completeness of contact and strengthen heat dissipating performance.

[0033] Referring to FIG. 3 to FIG. 7, a rear end of the compartment bracket **31** is positioned in front of a front end of the upper card slot **211** and a front end of the lower card slot **212**, the extension bracket **32** is assembled to the rear end of the compartment bracket **31**. Specifically, in the present embodiment, the extension bracket **32** sheathes the internal heat dissipating member **41** and is sheathed by the compartment bracket **31**, and the compartment bracket **31** limits movement of the extension bracket **32** in the up-down direction **D2** and the left-right direction **D3** so as to make the extension bracket **32** capable of moving move between a front position which is in front of the front end of the upper card slot **211** and the front end of the lower card slot **212** (see FIG. 4) and a rear position which at least partially enters into between the upper card slot **211** and the lower card slot **212** (see FIG. 6) relative to the compartment bracket **31**. Because in an assembling situation, the receptacle connector **2** is firstly mounted to the circuit board **200**, then the cage **1** provided with the partitioning frame **3** covers the receptacle connector **2** and is fixed to the circuit board **200**, so when the extension bracket **32** is positioned in the front position which is in front of

the front end of the upper card slot **211** and the front end of the lower card slot **212**, the extension bracket **32** can avoid the upper card slot **211** of the receptacle connector **2** so as to avoid the extension bracket **32** interfering with the upper card slot **211** of the receptacle connector **2** to affect the assembling, and after the assembling is completed, the extension bracket **32** may be moved rearwardly to enter into the rear position which is between the upper card slot **211** and the lower card slot **212**, so as to make the partitioning frame **3** play the complete partition function. Generally, with the extension bracket **32** of the partitioning frame **3** which can move between the front position and the rear position, under a precondition that the partitioning frame **3** can play the complete partition function in a subsequent use, a problem that the partitioning frame **3** interferes with the receptacle connector **2** in the assembling process can be avoided so as to be beneficial to assembling operation.

[0034] Referring to FIG. 4 to FIG. 7, in the present embodiment, the extension bracket **32** has an upper wall **321** and a lower wall **322** which face each other in the up-down direction and two side walls **323** which are connected to side edges of the upper wall **321** and side edges of the lower wall **322**. The connector assembly **100** further includes a holding member, the extension bracket **32** has a first holding portion **323c** which latches to the holding member when the extension bracket **32** is in the front position and a second holding portion **323d** which latches to the holding member when the extension bracket **32** is in the rear position. Specifically, in the present embodiment, the holding member is two elastic holding pieces **124** which are respectively constructed on the two side walls **12** of the cage **1** and which makes a tip thereof recessed inwardly, it is noted that, in other implementing manner, the two elastic holding pieces **124** (the holding member) also may be respectively constructed on the two side walls **314** of the compartment bracket **31**, so it is not limited to the present embodiment. Each side wall **323** of the extension bracket **32** has a side plate **323a** which correspondingly engages with the elastic holding piece **124** and a limiting hole **323b** which is positioned behind the side plate **323a** and is adjacent to the side plate **323a**. A front inner side edge **323f** of the limiting hole **323b** and a rear edge **323g** of the side plate **323a** together constitute the first holding portion **323c**, a front edge **323h** of the side plate **323a** constitutes the second holding portion **323d**.

[0035] Referring to FIG. 5, FIG. 7, FIG. 8 and FIG. 9, in addition, each side wall **12** of the cage **1** further has a limiting piece **125** which is positioned behind the corresponding elastic holding piece **124** and is perpendicularly bent inwardly and recessed inwardly so as to correspondingly enter into the limiting hole **323b**, each side wall **314** of the compartment bracket **31** has cutouts **314a** which allow the elastic holding piece **124** and the limiting piece **125** respectively pass through. And, the two side walls **323** of the extension bracket **32** each have a guiding piece **323e** which extends outwardly and bends upwardly, the two side walls **314** of the compartment bracket **31** each have a guiding piece receiving notch **314b** which is positioned at a rear end of the corresponding side wall **314** and is used to receive a part of the guiding piece **323e** which extends outwardly, the two side walls **12** of the cage **1** each have a guiding rail groove **126**, the part of the guiding piece **323e** which extends outwardly is provided to the guiding rail groove **126** in a manner that the part of the guiding piece **323e** which extends outwardly can slide in the front-rear direction, in addition, an area of a front end of the guiding rail groove **126** is larger, so a part of the guiding piece **323e** which bends upwardly can correspondingly pass through the guiding rail groove **126** in the assembling process.

[0036] Specifically, referring to FIG. 4 to FIG. 6, when the extension bracket **32** is in the front position, the elastic holding piece **124** (the holding member) latches to the first holding portion **323c** which is constituted together by the front inner side edges **323f** of the limiting holes **323b** and the rear edges **323g** of the side plates **323a**, the limiting piece **125** abuts against the rear inner side edge **323i** of the limiting hole **323b**, the guiding piece **323e** is received in the guiding piece receiving notch **314b** and is positioned to the front end of the guiding rail groove **126**; referring to FIG. 7 to FIG. 9, when the extension bracket **32** moves from the front position to the rear position,

the elastic holding piece **124** (the holding member) passes over the side plate **323a** and latches to the second holding portion **323d** which is constituted by the front edge **323h** of the side plate **323a**, the limiting piece **125** abuts against the front inner side edge **323f** of the limiting hole **323b**, the guiding piece **323e** leaves the guiding piece receiving notch **314b** and moves to a rear end of the guiding rail groove **126**. By that the elastic holding piece **124** (the holding member) and the first holding portion **323c** and the second holding portion **323d** correspondingly latch to each other and engage with each other, the extension bracket **32** can be positioned in the front position and the rear position, and by that the limiting piece **125** and the limiting hole **323b** correspondingly engage with each other and the guiding piece **323e** and the guiding rail groove **126** corresponding engage with each other, the extension bracket **32** can be sufficiently guided, limited in position and supported.

[0037] Referring to FIG. 4 to FIG. 7, in addition, in the present embodiment, the lower wall **312** of the compartment bracket **31** further is formed with an aligning portion **312b** which bends downwardly from a position at the lower window **312a**, protrudes to enter into the lower receiving space **17** and is used to align with and guide the aligning structure **301c** of the pluggable module **300** (see FIG. 1), the lower wall **322** of the extension bracket **32** has a lower stopping portion **322a** which enters into the lower receiving space **17** and is used to stop the aligning structure **301c** of the pluggable module **300** so as to limit the inserting position of the pluggable module **300**, when the extension bracket **32** is in the front position, the pluggable module **300** which enters into the lower receiving space **17** can push the lower stopping portion **322a** so as to make the extension bracket **32** move rearwardly to the rear position, so that the pluggable module **300** which enters into the lower receiving space **17** at the first time can use the lower stopping portion **322a** to push the extension bracket **32** rearwardly to the rear position, so as to omit a manual operation step when the assembling is performed.

[0038] In conclusion, in the connector assembly **100** of the present disclosure, with the extension bracket **32** of the partitioning frame **3** which can move between the front position and the rear position, the problem that the partitioning frame **3** interferes with the receptacle connector **2** in the assembling process can be avoided so as to be beneficial to the assembling operation.

[0039] However, the above description is only for the embodiments of the present disclosure and it is not intended to limit the implementing scope of the present disclosure, and the simple equivalent changes and modifications made according to the claims and the contents of the specification are still included in the scope of the present disclosure.

Claims

1. An assembly comprising: a cage; a partitioning frame in the cage, the partitioning frame comprising a compartment bracket and an extension bracket; an internal biasing heat sink provided in an internal receiving space of the compartment bracket; and a biasing spring provided between the internal biasing heat sink and an upper wall of the compartment bracket.
2. The assembly of claim 1, wherein: the biasing spring comprises a pressing plate, the pressing plate presses against heat dissipating fins of the internal biasing heat sink, and a plurality of plate-shaped spring pieces extend from the pressing plate and abut against the upper wall of the compartment bracket.
3. The assembly of claim 1, wherein a biasing force applied by the biasing spring permits the internal biasing heat sink to move in an up-down direction.
4. The assembly of claim 1, wherein: the compartment bracket comprises the upper wall and a lower wall, the lower wall comprises a lower window, and the internal biasing heat sink comprises an internal heat dissipating member which passes through the lower window and into a lower receiving space of the cage.
5. The assembly of claim 4, wherein a biasing force applied by the biasing spring permits the internal heat dissipating member to move in an up-down direction and elastically contact a

pluggable module in the lower receiving space of the cage.

6. The assembly of claim 4, wherein: the extension bracket is assembled to a rear end of the compartment bracket and is capable of moving relative to the compartment bracket between a front position and a rear position, the internal biasing heat sink comprises an internal heat dissipating member which passes through a lower window of the compartment bracket and into a lower receiving space of the cage, and the extension bracket at least partially sheathes the internal heat dissipating member.

7. The assembly of claim 1, wherein: a side wall of the extension bracket comprises a guiding piece, a side wall of the cage comprises a guiding rail groove, and the guiding piece of the extension bracket is provided to the guiding rail groove of the cage such that the extension bracket can slide in a front-rear direction.

8. The assembly of claim 1, wherein: the cage comprises a holding member, the extension bracket comprises a first holding portion and a second holding portion, the holding member latches to the first holding portion when the extension bracket is in a front position, and the holding member latches to the second holding portion when the extension bracket is in a rear position.

9. An assembly comprising: a cage; a compartment bracket in the cage; an internal biasing heat sink provided in an internal receiving space of the compartment bracket; and a biasing spring provided between the internal biasing heat sink and an upper wall of the compartment bracket.

10. The assembly of claim 9, wherein: the biasing spring comprises a pressing plate, the pressing plate presses against heat dissipating fins of the internal biasing heat sink, and a plate-shaped spring piece extends from the pressing plate and abuts against the upper wall of the compartment bracket.

11. The assembly of claim 9, wherein a biasing force applied by the biasing spring permits the internal biasing heat sink to move in an up-down direction.

12. The assembly of claim 9, wherein: the compartment bracket comprises the upper wall and a lower wall, the lower wall comprises a lower window, and the internal biasing heat sink comprises an internal heat dissipating member which passes through the lower window and into a lower receiving space of the cage.

13. The assembly of claim 12, wherein the internal biasing heat sink comprises a base plate with a thermal coupling portion which passes through the lower window and the lower receiving space of the cage.

14. The assembly of claim 12, wherein: the assembly further comprises an extension bracket assembled to a rear end of the compartment bracket, and the extension bracket is capable of moving relative to the compartment bracket between a front position and a rear position.

15. The assembly of claim 14, wherein the extension bracket at least partially sheathes the internal heat dissipating member.

16. The assembly of claim 14, wherein: a side wall of the extension bracket comprises a guiding piece, a side wall of the cage comprises a guiding rail groove, and the guiding piece of the extension bracket is provided to the guiding rail groove of the cage such that the extension bracket can slide in a front-rear direction.

17. An assembly comprising: a compartment bracket; an internal biasing heat sink provided in an internal receiving space of the compartment bracket and passing through a lower window of the compartment bracket; and a biasing spring provided between the internal biasing heat sink and an upper wall of the compartment bracket.

18. The assembly of claim 17, wherein: the biasing spring comprises a pressing plate, the pressing plate presses against heat dissipating fins of the internal biasing heat sink, and a plate-shaped spring piece extends from the pressing plate and abuts against the upper wall of the compartment bracket.

19. The assembly of claim 17, wherein a biasing force applied by the biasing spring permits the internal biasing heat sink to move in an up-down direction.

20. The assembly of claim 17, wherein: the assembly further comprises an extension bracket

assembled to a rear end of the compartment bracket, and the extension bracket is capable of moving relative to the compartment bracket between a front position and a rear position.
