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(54) **LAMP**

(57) A lamp, suitable to be mounted on a lamp attachment such as a ceiling, comprises a retention unit suitable for fixing the lamp to the lamp attachment, an adjustment element used for adjusting the projecting direction of light beams emitted by a light emitting element disposed at the lamp, a heat dissipation element for dissipating heat, and a heat resistant unit resisting high temperature and difficult to melt. The lamp further comprises a fireproof unit used for reducing the spreading speed of a fire caused by a fire disaster spreading to the outside of the lamp.

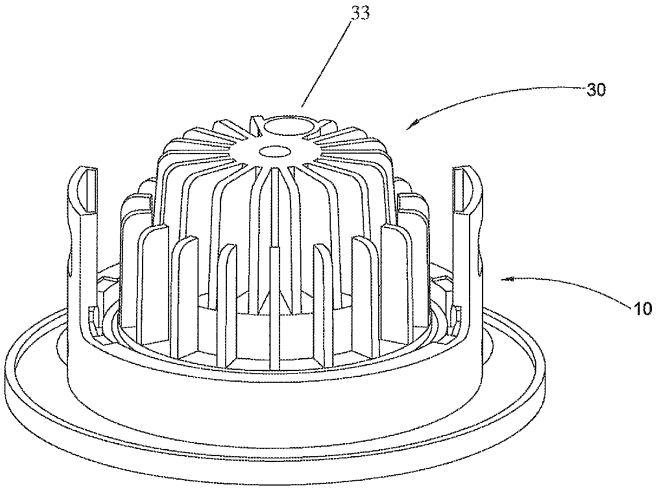

FIG. 1

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Description

FIELD OF THE PRESENT INVENTION

[0001] The present invention relates to a lamp, and more particular to a lamp suitable to be mounted on a lamp attachment such as a ceiling, which has a fireproof unit used for reducing the spread speed of a fire when a fire disaster caused by the lamp occurs.

BACKGROUND OF THE PRESENT INVENTION

[0002] A Ceiling lamp, which is a kind of common lighting lamp in our daily lives. , can be mounted on a ceiling for indoor illumination. The ceiling lamp can be classified into an adjustable ceiling lamp with adjustable lighting angles or a fixed ceiling lamp with a fixed lighting angle based on whether the lighting direction of the light beams thereof can be adjusted or not. Due to the fact that the lighting angle of a fixed ceiling lamp is fixed once the fixed ceiling lamp is installed, so that it is very inconvenient for a user to adjust the lighting angle when necessary. A current adjustable ceiling lamp can realize multi-angle indoor illumination. When a user adjusts the lighting angles, the user can adjust the lighting angle of the lamp manually or automatically based on predetermined parameters, so as to realize the multi-angle illumination.

[0003] A conventional adjustable ceiling lamp usually includes a light emitting element to provide a lighting source; an adjustment element for a user to adjust the lighting angles of the lamp; a fixing unit for installing the lamp on a ceiling for illumination; a connecting element for connecting the fixing unit with the adjusting element; and a heat dissipating element for preventing an excessive accumulation of the heat during the operation of the light emitting element, and for reducing the temperature of the light emitting element. Components of this kind of lamp are usually made of plastic, aluminium metal or aluminium alloy, et al. This kind of lamp which is made of the above mentioned material is rust free, and has a light quality and a beautiful appearance. But this kind of ceiling lamp has a lot of disadvantages. First of all, a ceiling lamp is mounted at a ceiling in an embedded manner in consideration of the aesthetic appearance, so that the lamp gives a considerable adverse effect to the entire fireproof ability of the fireproof ceiling. If components of the lamp are made of material which can only bear temperature not higher than 600°C, such as plastic, aluminium metal and aluminium alloy, once a fire disaster occurs and the temperature amounts to be higher than 600°C, the components of the lamp will melt. A Flame below the ceiling will spread to the position above the ceiling through the cracks formed by the melting of the lamp. On the other hand, a flame above the ceiling will spread to the position below the ceiling. Either of the two conditions will induce the fast spreading of the fire disaster and cause a heavy loss. Secondly, to realize the lighting angel adjustment of the adjustable lamp, it is usually necessary to provide some space between the adjustment element and the retention element of the lamp, which enables the flame in the fire disaster to easily spread to the position above the ceiling through the space, then the flame will spread and burn up quickly, and heavy loss may occur before disaster relief personnel and firefighters arrive at the scene. Thirdly, after the components of the lamp melt down, the melted components will fall off from the ceiling, which will give risk to the safety of the personnel in the room. In addition, after the melted components of the lamp fall off from the ceiling, combustible substance in the room will be burned, and the fire will quickly spread in the room. Finally, after the ceiling lamp was melted, a hole allowing wind going therethrough will be formed in the ceiling, which will also speed up the quick spreading of the fire.

SUMMARY OF THE PRESENT INVENTION

[0004] The invention is advantageous in that it provides a lamp suitable to be mounted at a ceiling, wherein the lamp has a good fireproof performance which will prevent the lamp from interfering the entire fireproof performance of the ceiling when the lamp was embedded into the ceiling.

[0005] Another advantage of the invention is to provide a lamp suitable to be mounted at a ceiling, wherein the lamp comprises a fireproof unit for prevent the fire caused by the fire disaster quickly spreading from a bottom of the ceiling to a top of the ceiling.

[0006] Another advantage of the invention is to provide a lamp suitable to be mounted at a ceiling, wherein the fireproof unit comprises a first fireproof element which is provided between a second retention element of a retention unit of the lamp and an adjustment element. The first fireproof element swells after it is heated, and then it helps to seal the gap between the retention unit and the adjustment element to prevent the fire caused by the fire disaster quickly spreading from the bottom of the ceiling to the top of the ceiling through the gap between the retention unit and the adjustment element.

[0007] Another advantage of the invention is to provide a lamp suitable to be mounted at a ceiling, wherein a connecting element of the lamp, which is used to connect the adjustment element and the retention unit, is made of high temperature resistant material which will help the connecting element to resistant high temperature caused by the fire disaster, and to prevent the lamp from breaking up and falling off from the ceiling in the high temperature environment caused by the fire disaster, and then prevent the fire caused by the fire disaster from spreading to other articles in the room quickly.

[0008] Another advantage of the invention is to provide a lamp suitable to be mounted at a ceiling, wherein the lamp further provides a heat resistant unit, wherein the heat resistant unit comprises a first heat resistant element and a second heat resistant element extending from a back of a light emitting element to the first heat resistant

element along an inner wall of the heat dissipation element. The heat resistant unit is provided to prevent the heat dissipation element of the lamp and the retention unit of the lamp from being easily burn out in the fire disaster.

[0009] Another advantage of the invention is to provide a lamp suitable to be mounted at a ceiling, wherein a safe chamber is formed by the first heat resistant element and the second heat resistant element of the heat resistant unit to prevent the fire caused by the fire disaster from burning the heat dissipation element to melt quickly and prevent the fire from spreading to the ceiling.

[0010] Additional advantages and features of the invention will become apparent from the description which follows, and may be realized by means of the instrumentalities and combinations particular point out in the appended claims.

[0011] According to the present invention, the foregoing and other objects and advantages are attained by a lamp comprising a heat dissipation element which comprises a heat dissipation portion and a mounting portion extended downwardly from the heat dissipation portion to form a first receiving chamber, a retention unit, which forms a second receiving chamber running from a top to a bottom thereof, is suitable to be mounted at a lamp attachment such as a ceiling, an adjustment unit pivotally received at the second receiving chamber formed by the retention unit, wherein the adjustment unit comprises an adjustment body which is pivotally received at the second receiving chamber and a supporting portion extended inwardly from a lower end of the adjustment body, wherein a third receiving chamber with an top opening is defined by the adjustment body and the supporting portion, and the supporting portion defines a light exit allowing light beams going therethrough, and a fireproof unit which comprise a first fireproof element provided between the retention unit and the adjustment element, wherein the first fireproof element is made of heat-swellable material, wherein the first fireproof element will swell to fill the gap between the retention unit and the adjustment element when it is heated, so as to reduce the spreading speed of a fire caused by a fire disaster to a position above the lamp, wherein a bottom of the mounting portion of the heat dissipation element is received at the third receiving chamber of the adjustment element, wherein a top of an inner wall around the first receiving chamber is suitable to install light emitting elements.

[0012] In accordance with another aspect of the invention, the present invention further comprises a heat resistant unit, wherein the heat resistant unit comprises a first heat resistant element provided between the adjustment element and the heat dissipation element, wherein the first heat resistant element is received at the third receiving chamber formed by the adjustment element.

[0013] In accordance with another aspect of the invention, the present invention further comprises a lens which is provided at the adjustment unit and is shaped to match with a shape of the light exit of the adjustment element, wherein light beams emitted by the light emitting element provided at an upper position of the inner wall of the first receiving chamber can pass through the lens, wherein a user can adjust lighting angle of the light being emitted by the light emitting elements passing through the lens by pivotally moving the adjustment element provided at the second receiving chamber of the retention element of the lamp.

[0014] In accordance with another aspect of the invention, a security chamber is defined by the first heat resistant element and the second resistant element of the heat resistant unit of the lamp according to the present invention, wherein the security chamber is provided to reduce the spreading speed of the fire caused by the fire disaster spreading to the position above the lamp.

[0015] Still further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

[0016] These and other objectives, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

FIG. 1 is a front view of a lamp according to a preferred embodiment of the present invention.

FIG. 2 is a bottom view of the lamp according to the above preferred embodiment of the present invention.

FIG. 3 is a longitudinal sectional view of the lamp according to the above preferred embodiment of the present invention.

FIG. 4 is an exploded view of the lamp according to the above preferred embodiment of the present invention, illustrating the structure of the lamp according to the above preferred embodiment of the present invention.

FIG. 5 is a perspective view of an adjustment element of the lamp according to the above preferred embodiment of the present invention.

FIG. 6 is a sectional view of the above adjustment element of the lamp according to the above preferred embodiment of the present invention.

FIG. 7 is a perspective view of a retention unit of the lamp according to the above preferred embodiment of the present invention, illustrating a first retention element and a second retention element of the retention unit.

FIG. 8 is a longitudinal sectional view of the retention unit of the lamp according to the above preferred embodiment of the present invention.

FIG. 9 is an exploded view of a lamp according to an alternative mode of the above preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] The following description is disclosed to enable any person skilled in the art to make and use the present invention. Preferred embodiments are provided in the following description only as examples and modifications will be apparent to those skilled in the art. The general principles defined in the following description would be applied to other embodiments, alternatives, modifications, equivalents, and applications without departing from the spirit and scope of the present invention.

[0019] Referring to FIGS. 1 to 8 of the drawings, a lamp according to a preferred embodiment of the present invention is illustrated, wherein the lamp comprises a retention unit 10 which is suitable to be fixed to a lamp attachment such as a ceiling, an adjustment element 20 used for adjusting the direction of light beams emitted by a light emitting element 60, and a heat dissipation element 30 for dissipating heat.

[0020] As shown in FIGS. 1 to 3, the retention unit 10 of the lamp according to the preferred embodiment of the present invention forms a first containing chamber 100 running from a top to a bottom. At the same time, the retention unit 10 is suitable to be mounted to a lamp attachment, such as a ceiling, to fix the lamp at a proper position.

[0021] It is worth noting that the retention unit 10 of the lamp is made of high-temperature-resistant material, which keeps its shape in a longer period of time even in a high-temperature environment, so as to prevent the lamp according to the present invention from falling off a lamp attachment, such as a ceiling, in the high-temperature environment, due to the melting of the retention unit 10.

[0022] The adjustment element 20 is pivotally contained at the first containing chamber 100 formed by the retention unit 10, wherein the adjustment element 20 comprises an adjustment body 21 which is pivotally contained at the first containing chamber 100 formed by the retention unit 10.. The adjustment body 21 forms a light passage 211 suitable to allow the light beams emitted by the light emitting element 60 to pass therethrough. Furthermore, the adjustment element 20 further comprises a lower end portion 22 provided at a bottom of the adjustment body 21, wherein the adjustment body 21 together with the lower end portion 22 forms a second containing chamber 200 with an upper opening. At the same time, the lower end portion 22 forms a light outlet 221 communicating with the light passage 211, wherein the light outlet 221 allows the light beams emitted by the light emitting element 60 to pass therethrough.

[0023] The heat dissipation element 30 comprises a heat dissipation portion 31 and a mounting portion 32 extending from the heat dissipation portion 31. The light emitting element 60 is provided at the bottom of the mounting portion 32 of the heat-dissipation element 30 while the bottom of the mounting portion 32 of the heat-dissipation element 30 is suitable to be contained at the second receiving chamber 200 formed by the adjustment element 20 to couple the bottom of the heat-dissipation element 30 and the adjustment element 20. Furthermore, the mounting portion 32 is extended downwardly from the heat dissipating portion 31 and forms a third receiving chamber 300 which has a lower opening. The heat dissipation portion 31 of the heat dissipation element 30 provides a wire passage 33. A power wire passes through the wire passage 33 and electrically connects with the light emitting element 60 provided at a top position of an inner wall of the third receiving chamber 300 to supply electrical power for the light emitting element 60. Furthermore, the heat dissipation portion 31 of the heat dissipation element 30 comprises a dissipation body 311 and a offset of sheet-shaped heat dissipation members 312 provided at the dissipation body 311. The sheet heat dissipation members 312 are provided to improve the heat dissipating performance of the heat dissipation element 30.

[0024] Preferably, the mounting portion 32 of the heat dissipation element 30 and the adjustment element 20 are integrated with each other to form a one-piece structure, so that when a user adjusts the position of the adjustment element 20 of the lamp to direct the light beams passing through the light passage 211 of the adjustment element 20 to project with a desired angle, the heat dissipation element 30 will pivotally rotate along with the pivotal rotation of the adjusting element 30, so as to reduce operation procedures. Preferably, the mounting portion 32 of the heat dissipation element 30 is integrally connected with the adjustment body 21 of the adjustment element 20.

[0025] It can be understood that the mounting portion 32 of the heat dissipation element 30 can also be integrally connected with the lower end portion 22 of the adjustment element 20 or can be integrally connected with both of the adjustment body 21 of the adjustment element 20 and the lower end portion 22 of the adjustment element 20, so that when a user adjusts the position of the adjustment element 20 of the lamp to direct the light beams passing through the light passage 211 of the adjustment element 20 to project with a desired angle, the heat dissipation element 30 will pivotally rotate along with the pivotal rotation of the adjusting element 30, so as to reduce operation procedures.

[0026] It is worth mentioning that the position of the heat dissipation portion 31 of the heat dissipation element 30 may be higher than the position of a top end of a second retention element 12 of the retention unit 10 of

the lamp to help the heat dissipation element 30 to dissipate heat. Furthermore, the position of the mounting portion 32 of the heat dissipation element 30 may be higher than the position of a top end of a second retention element 12 of the retention unit 10 of the lamp to help the heat dissipation element 30 to dissipate heat.

[0027] As shown in FIGS. 3 to 4 of the drawings, the lamp according to the preferred embodiment further comprises a heat resistant unit 40, wherein the heat resistant unit 40 comprises a first heat resistant element 41 received at the second receiving chamber 200 formed by the adjustment element 20. The first heat resistant element 41 , which is provided between the adjustment element 20 and the mounting portion 32of the heat dissipation element 30, is made of high-temperature resistant material to prevent it from melting and to keep its shape in a relatively long period of time in a high-temperature environment and to further reduce the speed of melting of the components of the lamp and to prevent the lamp from breaking up. Furthermore, the first heat resistant element 41 comprises a first heat resistant portion 411 and a second heat resistant portion 412 extended inwardly from a lower end of the first heat resistant portion 411, wherein the first heat resistant portion 411 is provided between an outer side of the mounting portion 32 of the heat dissipation element 30 and an inner side of the adjustment body 21 of the adjustment element 20. The second heat resistant portion 412 is provided below the mounting portion 32 of the heat dissipation element 30. In other words, the second heat resistant portion 412 of the first heat resistant element 41 is provided between the mounting portion 32 of the heat dissipation element 30 and the lower end portion 22 of the adjustment element 20 to prevent the fire caused by a fire disaster passing through the gap between the adjustment element 20 and the heat dissipation element 30 to spread to the position above the lamp.

[0028] It is worth mentioning that the outer shape of the first heat resistant element 41 can be the same as the outer shape of the adjustment element 20 of the lamp and the first heat resistant element 41 is provided inside the adjustment element 20, wherein the second heat resistant portion 412 of the first heat resistant element 41 has a light exit 410 overlapping with the light outlet 221 of the adjustment element 20 to make the light beams emitted by the light emitting element 60 provided at the lamp pass through the light exit 410 and the light outlet 221 of the adjustment element 20 , so as to reach the external of the lamp. In other words, the first heat resistant element 41 is shaped to match with the second receiving chamber 200 formed by the adjustment element 20, so that the first heat resistant element 41 is suitable to be received in the second receiving chamber 200 formed by the adjustment element 20, and the outer side of the first heat resistant element 41 is close to the inner side of the adjustment element 20. The light exit 410 defined by the second heat resistant portion 412 of the first heat resistant element 41 allows the light beams emitted by the light emitting element 60 to pass therethrough to reach the light outlet 221 of the adjustment element 20.

[0029] As shown in FIGS. 3 to 4 of the drawings, the heat resistant unit 40 of the lamp according to the preferred embodiment of the present invention further comprises a second heat resistant element 42 provided at the third receiving chamber 300 formed by the heat dissipation element 30. The second heat resistant element 42 is made of high-temperature resistant material. The second heat resistant element 42 is extended downwardly from a rear side of the light emitting element 60 which is provided at the inner wall around the third receiving chamber 300 to the first heat resistant element 41 of the heat resistant unit 40 along the inner wall around the third receiving chamber 300 light emitting , so that the first heat resistant element 41 of the heat resistant unit 40 and the second heat resistant element 42 of the heat resistant unit 40 define a safe chamber 400 to reduce the spreading speed of the fire caused by the fire disaster in the third receiving chamber 300.

[0030] It is worth noting that a vertical length of the security chamber 400 is greater than a transverse width of the security chamber 400, so the journey of the fire caused by the fire disaster in the security chamber 400 is lengthened and the time for the fire reaching the top of the security chamber 400 is lengthened, so that the spreading speed of the fire caused by the fire disaster in the third receiving chamber 300 is reduced.

[0031] As illustrated in FIGS. 1 to 4 of the drawings, the lamp according to the preferred embodiment of the present invention further comprises a lens 50 provided at the lower end portion 22 of the adjustment element 20 of the lamp. The size of the lens 50 is not smaller than the size of the light outlet 221 of the adjustment element 20, so the lens 50 completely seals the light outlet 221, and thus the security chamber 400 defined by the first heat resistant element 41 of the heat resistant unit 40 and the second heat resistant element 42 of the heat resistant unit 40 is sealed by the lens 50 to prevent the fire caused by the fire disaster spreading to the above of the lamp. In other words, due to the first heat resistant element 41 of the heat resistant unit 40 and the second heat resistant element 42 of the heat resistant unit 40 are both made of high-temperature resistant material, and they can keep their shapes in a relative long period of time, so that the heat resistant unit 40 forms a heat resistant mechanism which reduces the speed of the fire caused by the fire disaster spreading to the position above the lamp. Hence, the speed of the fire caused by the fire disaster spreading to the position above the lamp is reduced.

[0032] As illustrated in FIGS. 7 and 8 of the drawings, the retention unit 10 of the lamp according to the preferred embodiment of the present invention comprises a first retention element 11 and a second retention element 12 provided at an outer side of the first retention element 11. The second retention element 12 is suitable to be mounted to a lamp attachment, such as a ceiling. The

first retention element 11 forms a first receiving chamber 100which is used to pivotally receive the adjustment element 20, so that the adjustment element 20 is pivotally provided at the first receiving chamber 100.

[0033] Furthermore, the lamp according to the preferred embodiment of the present invention comprises the light emitting element 60 which is provided at a top position of the inner wall around the third receiving chamber 300 formed by the heat dissipation element 30 of the lamp. The light beams emitted by the light emitting element 60 are suitable to project out through the light outlet 221 of the adjustment element 20. Preferably, the light emitting element 60 is an LED lighting member.

[0034] As shown in FIGS. 4 to 6 of drawings, the lamp according to the preferred embodiment of the present invention further comprises a fireproof unit 70 which comprises a first fireproof element 71 provided between the retention unit 10 and the adjustment element 20. An outer side of the first fireproof element 71 provided between the retention unit 10 and the adjustment element 20 is shaped and designed to match with a shape of an inner side of the retention unit 10 and an inner side of the fireproof unit 70 of the fireproof unit 70 is shaped and designed to match with a shape of an outer side of the adjustment body 21 of the adjustment element 20, so that the first fireproof element 71 of the fireproof unit 70 is suitable to be provided between the retention unit 10 and the adjustment element 20. Hence, when the first fireproof element 71 is heated to swell in a high-temperature environment, the first fireproof element 71 seals a gap between the retention unit 10 and the adjustment element 20 to prevent the fire caused by the fire disaster quickly spreading to the position above the lamp through the gap between the retention unit 10 and the adjustment element 20. Furthermore, a position of the top of the second retention element 12 of the retention unit 10 of the lamp may be higher than a position of the top of the first retention element 11. The first fireproof element 71 of the fireproof unit 70 is provided between the second retention element 12 of the retention unit 10 and the adjustment element 20. The first fireproof element 71 is made of heat-swellable material, which swells in a high temperature environment to form a sealing which seals the gap between the retention unit 10 and the adjustment element 20. Therefore, the first fireproof element 71 prevents the fire caused by the fire disaster from spreading quickly to the outside of the lamp through the gap between the retention unit 10 and the adjustment element 20. Preferably, the first fireproof element 71 of the fireproof unit 70 is provided at the outer side of the adjustment element 20 of the lamp, and the first fireproof element 71 does not contact with the adjustment element 20 of the lamp to interfere the pivotal movement of the adjustment element 30. Preferably, the first fireproof element 71 of the fireproof unit 70 is extended downwardly from the top of the first retention element 11 of the retention unit 10 in a direction facing towards the adjustment element 20 of the lamp, so that when the adjustment element 20 pivotally moves, the first fireproof element 71 does not contact with the adjustment element 20 of the lamp. Hence, the first fireproof element 71 of the fireproof unit 70 does not block the pivotal movement of the adjustment element 20. In other words, the outer side of the first fireproof element 71 provided between the second retention element 12 of the retention unit 10 and the adjustment element 20 is shaped to match with the shape of the inner side of the second retention element 12 and the inner side of the first fireproof element 71 of the fireproof unit 70 is shaped to match with the shape the outer side of the adjustment body 21 of the adjustment element 20, so that the first fireproof element 71 of the fireproof unit 70 is suitable to be provide between the second retention element 12 of the retention unit 10 and the adjustment element 20. Hence, while being heated to swell in the high temperature environment, the first fireproof element 71 seals the gap between the retention unit 10 and the adjustment element 20 and further prevents the fire caused by the fire disaster from spreading quickly to the position above the lamp through the gap between the retention unit 10 and the adjustment element 20. The first fireproof element 71 of the fireproof unit 70 extends outwardly and upwardly from the outer side of the top of the first retention element 11 of the retention unit 10 to the inner side of the second retention element 12 of the retention unit 10, so that it is provided at the inner side of the second retention element 12 of the retention unit 10, and thus the first fireproof element 71 of the fireproof unit 70 does not interfere the pivotal movement of the adjustment element 20.

[0035] Furthermore, the fireproof unit 70 of the lamp according to the preferred embodiment of the present invention further may comprise a second fireproof element (not illustrated in the drawings) provided between the first retention element 11 of the retention unit 10 and the second retention element 12 of the retention unit 10. The second fireproof element is made of heat-swellable material, which swells in a high temperature environment to seal the gap between the first retention element 11 of the retention unit 10 and the second retention element 12 of the retention unit 10. In other words, the second fireproof element is provided between the first retention element 11 of the retention unit 10 and the second retention element 12 of the retention unit 10. The second fireproof element swells in the high-temperature environment caused by the fire disaster and forms a sealing between the first retention element 11 of the retention unit 10 and the second retention element 12 of the retention unit 10 to prevent the fire caused by the fire disaster from spreading to the outside of the lamp through the gap between the first retention element 11 of the retention unit 10 and the second retention element 12 of the retention unit 10.

[0036] In addition, the retention unit 10 of the lamp, especially the second retention element 12 of the retention unit 10 is made of high-temperature resistant material to avoid being melted and to keep its shape in the

high-temperature environment caused by the fire disaster, so the speed of the fire spreading to the surrounding of the lamp is reduced.

[0037] It is worth noting that when the retention unit 10 of the lamp is made of high-temperature resistant material, the retention unit 10 of the lamp, the first heat resistant element 41 of the heat resistant unit 40, the second heat resistant element 42 of the heat resistant unit 40, and the first fireproof element 71 of the fireproof unit 70 provided between the retention unit 10 of the lamp and the adjustment element 20 of the lamp together give the lamp an entire good fireproof ability. Hence, when the lamp is embedded into a fireproof ceiling, the lamp does not damage the entire fireproof ability of the fireproof ceiling.

[0038] It can be understood that the heat-swellable material refers to material which swells after being heated, and more particularly referring to high-temperature resistant material or fireproof material with a coefficient of thermal expansion greater than 4.0, wherein the coefficient of thermal expansion is understood by one skilled in the art. More preferably, the fireproof material with a coefficient of thermal expansion greater than 20.0 is selected. The heat-swellable material can consist of a single material which swells after being heated. The heat-swellable material can also contain various material comprising of a plurality of materials which swells after being heated. The high-swellable material can even be a heat-swellable composite comprising of heat-sellable substances which are attached to a carrier, such as a heat-swellable composite formed by attaching graphite to a carrier. The carrier can be cloth, fiber, ceramic, or some other fireproof carriers like that.

[0039]]As shown in FIGS. 1 to 8 of the drawings, the lamp according to the preferred embodiment of the present invention further comprises a set of connecting elements 80 each of which is made of high-temperature resistant material. The connecting element 80 comprises a connector 81 which couples the retention unit 10 with the adjustment element 20 of the lamp. In other words, the connector 81 is made of high-temperature resistant material and the connector 81 couples the retention unit 10 with the adjustment element 20 of the lamp. Furthermore, the connector 81 extends from the outer side of the retention unit 10 to the inner side of the adjustment element 20, and pivotally retains the adjusting element 20 of the lamp at the first receiving chamber 100 form by the retention unit 10.

[0040] As shown in FIG. 3 of the drawings, the lamp according to the preferred embodiment of the present invention preferably comprises two symmetrical connectors 81 which pivotally retain the adjusting element 20 of the lamp at the first receiving chamber 100 form by the retention unit 10. Accordingly, the connectors 81, which are made of high-temperature resistant material, extend from the outer side of the retention unit 10 to the inner side of the adjustment element 20 to couple the retention unit 10 with the adjustment element 20 of the lamp. Furthermore, the connectors 81 extend from the outside of the retention unit 10 to the heat dissipation element 30 of the lamp and further couple the retention unit 10, the adjustment element 20, and the heat dissipation element 30 together.

[0041] It is worth noting that in order to couple all of the retention unit 10, the adjustment element 20, and the heat dissipation element 30 together, the connectors 81 of the connecting element 80 pass through the retention unit 10 and the adjustment element 20 and extend to the heat dissipation element 30 while extending along a horizontal direction.

[0042] Preferably, the first fireproof element 71 and the second fireproof element of the fireproof unit 70 are provided above the connectors 81. When the fire caused by the fire disaster bums the lamp from the bottom of the lamp, the first fireproof element 71 of the fireproof unit 70 does not fall off from the position between the retention unit 10 and the adjustment element 20 because of the quick melting of the first retention element 11 and the second retention element 12 of the retention unit 10 of the lamp. Hence, the first fireproof element 71 of the fireproof unit 70 can be heated to swell in the high-temperature environment and effectively seas the gap between the retention unit 10 and the adjustment element 20 to prevent the fire caused by the fire disaster passing through the gap between the retention unit 10 and the adjustment element 20 to spread to the outside of the lamp.

[0043] In addition, the connector 81, which is made of high-temperature resistant material, will keep its shape for a relative long period of time to reduce the speed of breaking up of the lamp and further reduce the speed of the fire caused by the fire disaster spreading to the outside of the lamp. In other words, the position of the first fireproof element 71 of the fireproof unit 70 can be higher than the position of the connectors 81. The first fireproof element 71 is heated to swell in the high-temperature environment, so the first fireproof element 71 seals the gap between the retention unit 10 and the adjustment element 20 and forms a seal between the retention unit 10 and the adjustment element 20 to avoid the fire spreading quickly to the position above the lamp. In other words, the connector 81, which is made of high-temperature resistant material, and the first fireproof element 71 of the fireproof unit 70 which is provide between the retention unit 10 and the adjustment element 20 at a position higher than the connector 81, reduce the speed of the breaking up of the lamp in the high temperature environment and further reduce the speed of the fire caused by the fire disaster spreading to the position above the lamp.

[0044] As shown in FIGS. 1 to 8 of the drawings, the inner wall of the first retention element 11 of the retention unit 10 of the lamp according to the preferred embodiment of the present invention provides two symmetry retaining openings 111. Accordingly, the adjustment body 21 of the adjustment element 20 provides two corre-

sponding symmetrical pivot shafts 24 each is suitable to be pivotally secured at the corresponding retaining openings 111 of the first retention element 11. In other words, a user can pivotally adjust the position of the adjustment element 20 and further adjust the emitting angle of the light beams emitted by the light emitting element 60 which is supported by the lamp.

[0045] As shown in FIGS. 7 to 8 of the drawings, the second retention element 12 of the retention unit 10 of the lamp according to the preferred embodiment of the present invention comprises a second retention body 121 and has an upper edge 122 extending inwardly from the top of the second retention body 121 to the inner wall of the first retention element 11, so that the first fireproof element 71 provided between the first retention element 11 and the second retention element 12 is sealed between the first retention element 11 and the second retention element 12 by the upper edge 122 of the second retention element 12.

[0046] It is worth noting that the upper edge 122 of the second retention element 12 can extend inwardly from the top of the second retention body 121 to the top of the first fireproof element 71 of the fireproof unit 70, which is provided between the first retention element 11 and the adjustment element 20. When the first fireproof element 71 of the fireproof unit 70 swells in the high temperature environment, the upper edge 122 of the second retention element 12 of the retention unit 10 is suitable to make the heat-swelled first fireproof element 71 extend downwardly. Hence, the gap between the first retention element 11 and the adjustment element 20 is sealed to prevent the fire caused by the fire disaster spreading to the outside of the lamp through the gap between the first retention element 11 and the adjustment element 20. In addition, the upper edge 122 of the second retention element 12 further provides a co-sealing function, in the high-temperature environment, the upper edge 122 can cooperate with the first fireproof element 71 of the fireproof unit 70 to seal the gap between the first retention element 11 of the retention unit 10 and the adjustment element 20 to prevent the fire caused by the fire disaster spreading to the outside of the lamp through the gap between the first retention element 11 and the adjustment element 20. In other words, in the high temperature environment, the upper edge 122 of the second retention element 12 cooperates with the first fireproof element 71 of the fireproof unit 70 to seal the gap between the first retention element 11 and the adjustment element 20 and further prevent the fire caused by the fire disaster spreading to the outside of the lamp through the gap between the first retention element 11 and the adjustment element 20.

[0047] As shown in FIG. 7 of the drawings, the lamp according to the preferred embodiment of the present invention further comprises a set of location elements 90 provided at the inner wall of the first retention element 11 of the retention unit 10 and extending upwardly from the inner wall of the first retention element 11, which is used to locate the first fireproof element 71 of the fireproof unit 70 to a proper position between the second retention element 12 of the retention unit 10 and the adjustment element 20. Hence, the first fireproof element 71 of the fireproof unit 70 does not interfere the pivotal movement of the adjustment element 20 of the lamp.

[0048] It is worth noting that the high-temperature in the present invention refers to a temperature greater than 1000°C preferably. The high-temperature resistant material refers to a material which can bear a temperature not lower than 1000°C, including high-temperature metallic materials and high-temperature non-metallic materials. Preferably, the high-temperature metallic materials are metallic material having a melting point greater than 1000°C, such as Fe, Cu, Au, and Mn. More preferably, the high-temperature metallic materials is refractory metal, such as W, Mo, Ta, Nb, V, Cr, Ti, Zr, or the boride, carbide, nitride, silicide, phosphide, and sulfide of rare earth metals. The high-temperature non-metallic material can be boron carbide, silicon carbide, boron nitride, silicon nitride, boron phosphide, silicon phosphide, et al. The high-temperature resistant material also includes alloy materials which can bear high-temperature, including high-temperature resistant iron-base alloy, nickel base alloy, aluminium base alloy, et al. The high-temperature resistant material can also be composite materials, such as high-temperature resistant ceramics, kaolin, silicate, expanded perlite, and other similar composite materials which can bear the high-temperature. In addition, The high-temperature resistant material further comprises carbonaceous material made of CNT (carbon nano tube) and other similar materials which can bear the high-temperature.

[0049] As shown in FIG. 9 of the drawings, an alternative mode of the lamp according to the preferred embodiment of the present invention is illustrated, and the difference from the lamp according to the above preferred embodiment of the present invention is that the lamp according to the alternative mode comprises a plurality of connecting elements 80A. The connecting element 80A comprises a connector 81A and two maintaining members 82A adjacent to each other. The connector 81A extends horizontally from the outer side of the second retention element 12 of the retention unit 10 to the inner side of the first retention element 11. The maintaining members 82A are respectively provided at the top of the first retention element 11 and the top of the second retention element 12. The maintaining members 82A respectively extend upwardly from the top of the first retention element 11 and the top of the second retention element 12 to couple with the connector 81A of the connecting elements 80A in a detachable connecting manner, so that the first retention element 11 and the second retention element 12 couple with the connector 81A of the connecting elements 80A. The position of the connector 81A of each of the connecting elements 80A is higher than the position of the top of the first retention element 11 and the second retention element 12 of the retention

unit 10.

[0050] It is worth noting that according to the alternative mode, the first fireproof element 71 and the second fireproof element of the fireproof unit 70 are preferably provided below the connectors 81A. When the fire caused by the fire disaster bums the lamp from the bottom of the lamp, the first fireproof element 71 of the fireproof unit 70 will swell and seal the gap between the first retention element 11 of the retention unit 10 and the adjustment element 20 before the connectors 81A melt, so that the fire caused by the fire disaster is prevented from spreading to the outside of the lamp through the gap between the retention unit 10 and the adjustment element 20. In addition, due to the connectors 81A of the lamp are made of high-temperature resistant material, each of the connectors 81A can keep its shape in the high-temperature environment in a relatively long period time to reduce the speed of breaking up of the lamp and further reduce the speed of the fire caused by the fire disaster spreading to the outside of the lamp. In other words, the position of the first fireproof element 71 of the fireproof unit 70 is lower than the position of the connectors 81A. The first fireproof element 71 is heated to swell in the high-temperature environment before the lamp is melted, so that the first fireproof element 71 seals the gap between the retention unit 10 and the adjustment element 20 and forms a seal between the retention unit 10 and the adjustment element 20 to prevent the fire spreading quickly to the position above the lamp. In other words, each of the connector 81A which is made of high-temperature resistant material, and the first fireproof element 71 of the fireproof unit 70, which is provided between the retention unit 10 and the adjustment element 20 at a position lower than the connectors 81A, reduce the speed of the breaking up of the lamp in the high temperature environment and further reduce the speed of the fire caused by the fire disaster spreading to the position above the lamp.

[0051] One skilled in the art will understand that the embodiment of the present invention as shown in the drawings and described above is exemplary only and not intended to be limiting.

[0052] It will thus be seen that the objects of the present invention have been fully and effectively accomplished. The embodiments have been shown and described for the purposes of illustrating the functional and structural principles of the present invention and is subject to change without departure from such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.

Claims

1. A lamp for supporting a light emitting element, comprising:

   a retention unit which is suitable to be fixed to a lamp attachment, wherein said retention unit forms a first receiving chamber running from a top to a bottom thereof;

   an adjustment element used for adjusting a projecting direction of light beams emitted by the light emitting element, wherein said adjustment element, which is pivotally received at said first receiving chamber formed by said retention unit, comprises an adjustment body which is pivotally received at said first receiving chamber, defining a light passage suitable to allow light beams emitted by the light emitting element to pass therethrough; and

   a heat dissipation element which comprises a heat dissipation portion and a mounting portion extended from said heat dissipation portion for mounting the light emitting element in position, wherein said mounting portion comprises a lower portion coupled with said adjustment element.

2. The lamp, as recited in claim 1, wherein said mounting portion of said heat dissipation element of said lamp extends downwardly from said heat dissipation portion to form a third receiving chamber with a bottom opening for receiving the light emitting element.

3. The lamp, as recited in claim 1, further comprising a fireproof unit which comprises a first fireproof element provided between said retention unit and said adjustment element, wherein said first fireproof element, which is made of heat-swellable material, swells in a high temperature environment to form a seal between said retention unit and said adjustment element, wherein said first fireproof element prevents a fire caused by a fire disaster from spreading quickly to an outside of said lamp through said seal between said retention unit and said adjustment element.

4. The lamp, as recited in claim 2, further comprising a fireproof unit which comprises a first fireproof element provided between said retention unit and said adjustment element, wherein said first fireproof element, which is made of heat-swellable material, swells in a high temperature environment to form a seal between said retention unit and said adjustment element, wherein said first fireproof element prevents a fire caused by a fire disaster from spreading quickly to an outside of said lamp through said seal between said retention unit and said adjustment element.

5. The lamp, as recited in claim 3, wherein an outer side of said first fireproof element of said fireproof unit is shaped to match with a shape of an inner side of said retention unit, wherein an inner side of said first fireproof element is shaped to match with a shape of an outer side of said adjustment body of

said adjustment element, wherein said first fireproof element of said fireproof unit is suitable to be provided between said retention unit and said adjustment element, wherein while being heated to swell in the high temperature environment, said first fireproof element forms said seal between said retention unit and said adjustment element.

6. The lamp, as recited in claim 4, wherein an outer side of said first fireproof element of said fireproof unit is shaped to match with a shape of an inner side of said retention unit, wherein an inner side of said first fireproof element is shaped to match with a shape of an outer side of said adjustment body of said adjustment element, wherein said first fireproof element of said fireproof unit is suitable to be provided between said retention unit and said adjustment element, wherein while being heated to swell in the high temperature environment, said first fireproof element forms said seal between said retention unit and said adjustment element.

7. The lamp, as recited in claim 1, further comprising a connecting element which is made of a high-temperature resistant material, wherein said connecting element comprises at least one connector extended from an outer side of said retention unit to an inner side of said adjustment element, and pivotally retain said adjustment element of said lamp at said first receiving chamber formed by said retention unit.

8. The lamp, as recited in claim 6, further comprising a connecting element which is made of a high-temperature resistant material, wherein said connecting element comprises at least one connector extended from an outer side of said retention unit to an inner side of said adjustment element, and pivotally retain said adjustment element of said lamp at said first receiving chamber formed by said retention unit.

9. The lamp, as recited in claim 8, wherein said first fireproof element of said fireproof unit is provided above said connector.

10. The lamp, as recited in claim 1, wherein said retention unit comprises a first retention element defining an outer side and a second retention element provided at said outer side of said first retention element, wherein said second retention element is suitable to be mounted to the lamp attachment to retain said lamp at in position, wherein said first retention element forms said first receiving chamber which is used for pivotally receiving said adjustment element.

11. The lamp, as recited in claim 4, wherein said retention unit comprises a first retention element defining an outer side and a second retention element provided at said outer side of said first retention element, wherein said second retention element is suitable to be mounted to the lamp attachment to retain said lamp in position, wherein said first retention element forms said first receiving chamber which is used for pivotally receiving said adjustment element.

12. The lamp, as recited in claim 9, wherein said retention unit comprises a first retention element defining an outer side and a second retention element provided at said outer side of said first retention element, wherein said second retention element is suitable to be mounted to the lamp attachment to retain said lamp in position, wherein said first retention element forms said first receiving chamber which is used for pivotally receiving said adjustment element.

13. The lamp, as recited in claim 11, wherein said first fireproof element of said fireproof unit, which has a top edge, is provided between said second retention element of said retention unit and said adjustment element, wherein said second retention element comprises a second fixing body having a top and an upper edge extended inwardly from said top of said second fixing body to said top edge of said first fireproof element, wherein when said first fireproof element swells in the high temperature environment, said upper edge of said second retention element and said first fireproof element seal said gap between said retention unit and said adjustment element to prevent the fire caused by the fire disaster spreading to said outside of said lamp through said gap between said retention unit and said adjustment element.

14. The lamp, as recited in claim 12, wherein said first fireproof element of said fireproof unit, which has a top edge, is provided between said second retention element of said retention unit and said adjustment element, wherein said second retention element comprises a second fixing body having a top and an upper edge extended inwardly from said top of said second fixing body to said top edge of said first fireproof element, wherein when said first fireproof element swells in the high temperature environment, said upper edge of said second retention element and said first fireproof element form a seal between said retention unit and said adjustment element to prevent the fire caused by the fire disaster spreading to said outside of said lamp through said gap between said retention unit and said adjustment element.

15. The lamp, as recited in claim 10, wherein said first retention element of said retention unit has an inner wall, wherein two symmetrical retention openings are formed in said inner wall, wherein said adjustment body of said adjustment element comprises two symmetrical pivot shafts corresponding to said

two retention openings, wherein each of said pivot shaft of said adjustment element is pivotally secured at said corresponding retention opening of said first retention element for enabling a user to pivotally adjust an emitting angle of the light beams emitted by said light emitting element.

16. The lamp, as recited in claim 14, wherein said first retention element of said retention unit has an inner wall, wherein two symmetrical retention openings are formed in said inner wall, wherein said adjustment body of said adjustment element comprises two symmetrical pivot shafts corresponding to said two retention openings, wherein each of said pivot shaft of said adjustment element is pivotally secured at said corresponding retention opening of said first retention element for enabling a user to pivotally adjust an emitting angle of the light beams emitted by said light emitting element.

17. The lamp, as recited in claim 2, further comprising a heat resistant unit which comprises a first heat resistant element, wherein said first heat resistant element is provided between said adjustment element and said mounting portion of said heat dissipation element, wherein said first heat resistant element is made of high-temperature resistant material to reduce a speed of breaking up of said lamp in a high temperature environment.

18. The lamp, as recited in claim 16, further comprising a heat resistant unit which comprises a first heat resistant element, wherein said first heat resistant element is provided between said adjustment element and said mounting portion of said heat dissipation element, wherein said first heat resistant element is made of high-temperature resistant material to reduce a speed of breaking up of said lamp in the high temperature environment.

19. The lamp, as recited in claim 17, wherein said first heat resistant element of said heat resistant unit comprises a first heat resistant portion having a lower end and a second heat resistant portion extended inwardly from said lower end of said first heat resistant portion, wherein said first heat resistant portion is provided between an outer side of said mounting portion of said heat dissipation element and an inner side of said adjustment body of said adjustment element, wherein said second heat resistant portion is provided below said heat dissipation element to prevent the fire caused by the fire disaster passing through said gap between said adjustment element and said mounting portion of said heat dissipation element to spread to a position above said lamp.

20. The lamp, as recited in claim 18, wherein said first heat resistant element of said heat resistant unit comprises a first heat resistant portion having a lower end and a second heat resistant portion extended inwardly from said lower end of said first heat resistant portion, wherein said first heat resistant portion is provided between an outer side of said mounting portion of said heat dissipation element and an inner side of said adjustment body of said adjustment element, wherein said second heat resistant portion is provided below said heat dissipation element to prevent the fire caused by the fire disaster passing through said gap between said adjustment element and said mounting portion of said heat dissipation element to spread to a position above said lamp.

21. The lamp, as recited in claim 17, wherein said heat resistant unit further comprises a second heat resistant element provided at said third receiving chamber, wherein an inner wall of said mounting portion of said heat dissipation element defines said third receiving chamber, wherein said second heat resistant element is extended from a back side of the light emitting element which is provided at said inner wall around said third receiving chamber to said first heat resistant element of said heat resistant unit along said inner wall around said third receiving chamber in such a manner that a security chamber is defined by said first and second heat resistant elements of said heat resistant unit for preventing the fire caused by the fire disaster from spreading to the position above said lamp.

22. The lamp, as recited in claim 20, wherein said heat resistant unit further comprises a second heat resistant element provided at said third receiving chamber, wherein an inner wall of said mounting portion of said heat dissipation element defines said third receiving chamber, wherein said second heat resistant element is extended from a back side of the light emitting element which is provided at said inner wall around said third receiving chamber to said first heat resistant element of said heat resistant unit along said inner wall around said third receiving chamber in such a manner that a security chamber is defined by said first and second heat resistant elements of said heat resistant unit for preventing the fire caused by the fire disaster from spreading to the position above said lamp.

23. The lamp, as recited in claim 17, wherein said adjustment element of said lamp further comprises a lower end portion provided at a bottom side of said adjustment body, wherein said lower end portion forms a light outlet communicating with said light passage, wherein a shape of an outer side of said first heat resistant element of said heat resistant unit is the same as a shape of an outer side of said adjustment element, wherein said first heat resistant element has a light exit aligned with said light outlet

formed by said lower end portion of said adjustment element to allow the light beams emitted by said light emitting element to pass therethrough and reach said light outlet of said adjustment element.

24. The lamp, as recited in claim 22, wherein said adjustment element of said lamp further comprises a lower end portion provided at a bottom side of said adjustment body, wherein said lower end portion forms a light outlet communicating with said light passage, wherein a shape of an outer side of said first heat resistant element of said heat resistant unit is the same as a shape of an outer side of said adjustment element, wherein said first heat resistant element has a light exit aligned with said light outlet formed by said lower end portion of said adjustment element to allow the light beams emitted by said light emitting element to pass therethrough and reach said light outlet of said adjustment element.

25. The lamp, as recited in claim 23, wherein said light emitting element is mounted at a top of said inner wall defining said third receiving chamber for allowing the light beams emitted by the light emitting element to pass through said light outlet of said adjustment element..

26. The lamp, as recited in claim 24, wherein said light emitting element is mounted at a top of said inner wall defining said third receiving chamber for allowing the light beams emitted by the light emitting element to pass through said light outlet of said adjustment element.

27. The lamp, as recited in claim 26, wherein the light emitting element is an LED lighting element.

28. The lamp, as recited in claim 1, wherein said heat dissipation element and said adjustment element of said lamp are integrated with each other, wherein when a user adjusts the position of said adjustment element of said lamp to direct the light beams to pass through said light passage of said adjustment element in a desired angle, said heat dissipation element is capable of pivotally moving when said adjustment element pivotally moves.

29. The lamp, as recited in claim 27, wherein said heat dissipation element and said adjustment element of said lamp are integrated with each other, wherein when a user adjusts the position of said adjustment element of said lamp to direct the light beams to pass through said light passage of said adjustment element in a desired angle, said heat dissipation element is capable of pivotally moving when said adjustment element pivotally moves.

30. The lamp, as recited in claim 21, wherein a vertical length of said security chamber is greater than a transverse width of said security chamber, wherein an inner wall which forms said security chamber is gas impermeable.

31. The lamp, as recited in claim 29, wherein a vertical length of said security chamber is greater than a transverse width of said security chamber, wherein an inner wall which forms said security chamber is gas impermeable.

32. The lamp, as recited in claim 31, wherein said heat dissipation portion of said heat dissipation element comprises a dissipation body and a plurality of sheet-shaped heat dissipation members provided at said dissipation body.

33. The lamp, as recited in claim 22, wherein said retention unit of said lamp is made of high-temperature resistant material, wherein said retention unit of said lamp, said first and second heat resistant elements of said heat resistant unit, and said first fireproof element of said fireproof unit provided between said retention unit of said lamp and said adjustment element of said lamp together give said lamp an entire fireproof ability, so that when said lamp is embedded into a fireproof ceiling, said lamp does not damage said entire fireproof ability of the fireproof ceiling.

34. The lamp, as recited in claim 32, wherein said retention unit of said lamp is made of high-temperature resistant material, wherein said retention unit of said lamp, said first and second heat resistant elements of said heat resistant unit, and said first fireproof element of said fireproof unit provided between said retention unit of said lamp and said adjustment element of said lamp together give said lamp an entire fireproof ability, so that when said lamp is embedded into a fireproof ceiling, said lamp does not damage said entire fireproof ability of the fireproof ceiling.

35. The lamp, as recited in claim 11, wherein said second retention element has a top, wherein said first fireproof element of said fireproof unit extends downwardly from said top of said second retention element of said retention unit in a direction towards said adjustment element of said lamp, wherein when said adjustment element pivotally moves, said first fireproof element does not contact with said adjustment element of said lamp, so as to enable said first fireproof element of said fireproof unit not to hinder the pivotal movement of said adjustment element.

36. The lamp, as recited in claim 12, wherein said second retention element has a top, wherein said first fireproof element of said fireproof unit extends downwardly from said top of said second retention element of said retention unit in a direction towards said

adjustment element of said lamp, wherein when said adjustment element pivotally moves, said first fireproof element does not contact with said adjustment element of said lamp, so as to enable said first fireproof element of said fireproof unit not to hinder the pivotal movement of said adjustment element.

37. The lamp, as recited in claim 34, wherein said second retention element has a top, wherein said first fireproof element of said fireproof unit extends downwardly from said top of said second retention element of said retention unit in a direction towards said adjustment element of said lamp, wherein when said adjustment element pivotally moves, said first fireproof element does not contact with said adjustment element of said lamp, so as to enable said first fireproof element of said fireproof unit not to hinder the pivotal movement of said adjustment element.

38. The lamp, as recited in claim 37, wherein said second retention element has a top, wherein said first fireproof element of said fireproof unit extends downwardly from said top of said second retention element of said retention unit in a direction towards said adjustment element of said lamp, wherein when said adjustment element pivotally moves, said first fireproof element does not contact with said adjustment element of said lamp, so as to enable said first fireproof element of said fireproof unit not to hinder the pivotal movement of said adjustment element.

39. The lamp, as recited in claim 11, wherein said first retention element has an inner wall, wherein said lamp further comprises a set of location elements extended from said inner wall of said first retention element of said retention unit for retaining said first fireproof element of said fireproof unit at a proper position between said second retention element of said retention unit and said adjustment element of said lamp, enabling said first fireproof element of said fireproof unit not hindering the pivotal movement of said adjustment element of said lamp.

40. The lamp, as recited in claim 37, wherein said first retention element has an inner wall, wherein said lamp further comprises a set of location elements extended from said inner wall of said first retention element of said retention unit for retaining said first fireproof element of said fireproof unit at a proper position between said second retention element of said retention unit and said adjustment element of said lamp, enabling said first fireproof element of said fireproof unit not hindering the pivotal movement of said adjustment element of said lamp.

41. The lamp, as recited in claim 38, wherein said first retention element has an inner wall, wherein said lamp further comprises a set of location elements extended from said inner wall of said first retention element of said retention unit for retaining said first fireproof element of said fireproof unit at a proper position between said second retention element of said retention unit and said adjustment element of said lamp, enabling said first fireproof element of said fireproof unit not hindering the pivotal movement of said adjustment element of said lamp.

42. The lamp, as recited in claim 2, wherein said retention unit comprises a second retention element having a top, wherein a position of said heat dissipation portion of said heat dissipation element is higher than a position of said top of said second retention element of said retention unit of said lamp.

43. The lamp, as recited in claim 41, wherein a position of said heat dissipation portion of said heat dissipation element is higher than a position of a top of said second retention element of said retention unit of said lamp.

44. The lamp, as recited in claim 43, wherein a position of said mounting portion of said heat dissipation element is higher than the position of said top of said second retention element of said retention unit of said lamp.

45. The lamp, as recited in claim 2, further comprising a fireproof unit which comprises a first fireproof element provided between said retention unit and said adjustment element, wherein said retention unit comprises a first retention element defining an outer side and a second retention element provided at said outer side of said first retention element, wherein said second retention element is suitable to be mounted to the lamp attachment to retain said lamp at in position, wherein said first retention element forms said first receiving chamber which is used for pivotally receiving said adjustment element, wherein a position of a top of said second retention element is higher than a position of a top of said first retention element,, wherein said first fireproof element of said fireproof unit is provided between said second retention element of said retention unit and said adjustment element, wherein said first fireproof element swells in a high temperature environment to form a seal between said retention unit and said adjustment element to prevent a fire caused by a fire disaster from quickly spreading to an outside of said lamp through said gap between said retention unit and said adjustment element.

46. The lamp, as recited in claim 4, wherein said lamp further comprises a set of connecting elements each comprising a connector and two maintaining members adjacent to each other, wherein said retention unit comprises a first retention element defining an

outer side and a second retention element provided at said outer side of said first retention element, wherein said second retention element is suitable to be mounted to the lamp attachment to retain said lamp at in position, wherein said first retention element forms said first receiving chamber which is used for pivotally receiving said adjustment element, wherein said connector extends horizontally from an outer side of said second retention element of said retention unit to an inner side of said first retention element, wherein said maintaining members are respectively upwardly extended from a top of said first retention element and a top of said second retention element to couple with said connector in a detachable connecting manner, so as to couple said first and second retention elements to said connector each of said connecting element.

47. The lamp, as recited in claim 46, wherein said first fireproof element of said fireproof unit is provided below said connector, wherein when the fire caused by the fire disaster bums said lamp from a bottom of said lamp, said first fireproof element of said fireproof unit will swell and seal said gap between said first retention element of said retention unit and said adjustment element before said connector melts, so that the fire caused by the fire disaster is prevented from spreading to an outside of said lamp through said gap between said retention unit and said adjustment element.

48. The lamp, as recited in claim 4, wherein said first fireproof element of said fireproof unit is provided at an outer side of said adjustment element of said lamp, wherein when said adjustment element pivotally moves, said first fireproof element does not contact with said adjustment element of said lamp to hinder the pivotal movement of said adjustment element.

49. The lamp, as recited in claim 34, wherein said first fireproof element of said fireproof unit is provided at an outer side of said adjustment element of said lamp, wherein when said adjustment element pivotally moves, said first fireproof element does not contact with said adjustment element of said lamp to hinder the pivotal movement of said adjustment element.

50. The lamp, as recited in claim 23, further comprising a lens coupled to said lower end portion of said adjustment element of said lamp, wherein a size of said lens is not smaller than a size of said light outlet of said adjustment element, so as to completely seal said light outlet to allow the light beams emitted by the light emitting element to emit out through said lens.

51. The lamp, as recited in claim 24, further comprising a lens coupled to said lower end portion of said adjustment element of said lamp, wherein a size of said lens is not smaller than a size of said light outlet of said adjustment element, so as to completely seal said light outlet to allow the light beams emitted by the light emitting element to emit out through said lens.

52. The lamp, as recited in claim 49, further comprising a lens coupled to said lower end portion of said adjustment element of said lamp, wherein a size of said lens is not smaller than a size of said light outlet of said adjustment element, so as to completely seal said light outlet to allow the light beams emitted by the light emitting element to emit out through said lens.

53. The lamp, as recited in claim 52, wherein said security chamber defined by said first heat resistant element and said second heat resistant element of said heat resistant unit is sealed by said lens to prevent the fire caused by the fire disaster spreading to the position above said lamp.

54. A lamp for supporting a light emitting element, comprising:

a retention unit which is suitable to be fixed to a lamp attachment, wherein said retention unit forms a first receiving chamber running from a top to a bottom thereof;

an adjustment element used for adjusting a projecting direction of light beams emitted by the light emitting element, wherein said adjustment element, which is pivotally received at said first receiving chamber formed by said retention unit, comprises an adjustment body which is pivotally received at said first receiving chamber, defining a light passage suitable to allow light beams emitted by the light emitting element to pass therethrough;

a heat dissipation element comprising a heat dissipation portion and a mounting portion extended from said heat dissipation portion for mounting the light emitting element is position, wherein said mounting portion comprises a lower portion coupled with said adjustment element; and

a fireproof unit which comprises a first fireproof element provided between said retention unit and said adjustment element, wherein said retention unit comprises a first retention element defining an outer side and a second retention element provided at said outer side of said first retention element, wherein said second retention element is suitable to be mounted to the lamp attachment to retain said lamp at in posi-

tion, wherein said first retention element forms said first receiving chamber which is used for pivotally receiving said adjustment element, wherein a position of a top of said second retention element is higher than a position of a top of said first retention element, wherein said first fireproof element of said fireproof unit is provided between said second retention element of said retention unit and said adjustment element, wherein said first fireproof element swells in a high temperature environment to form a seal between said retention unit and said adjustment element to prevent a fire caused by a fire disaster from quickly spreading to an outside of said lamp through said seal between said retention unit and said adjustment element.

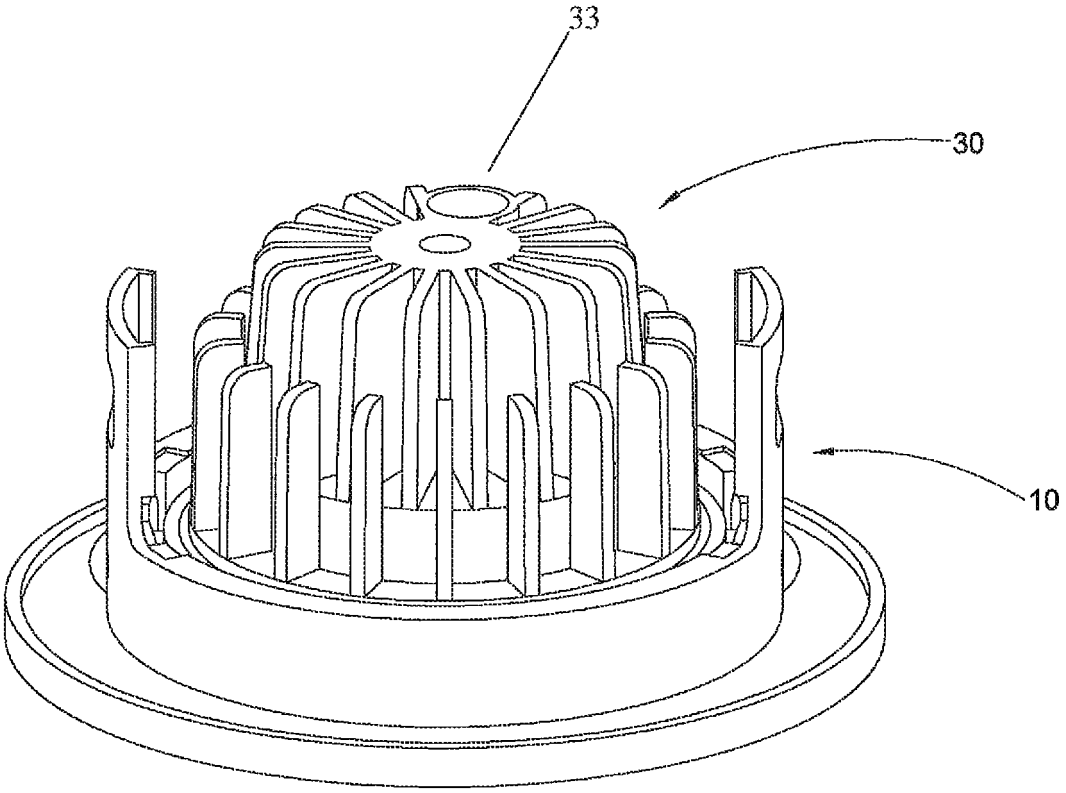

FIG. 1

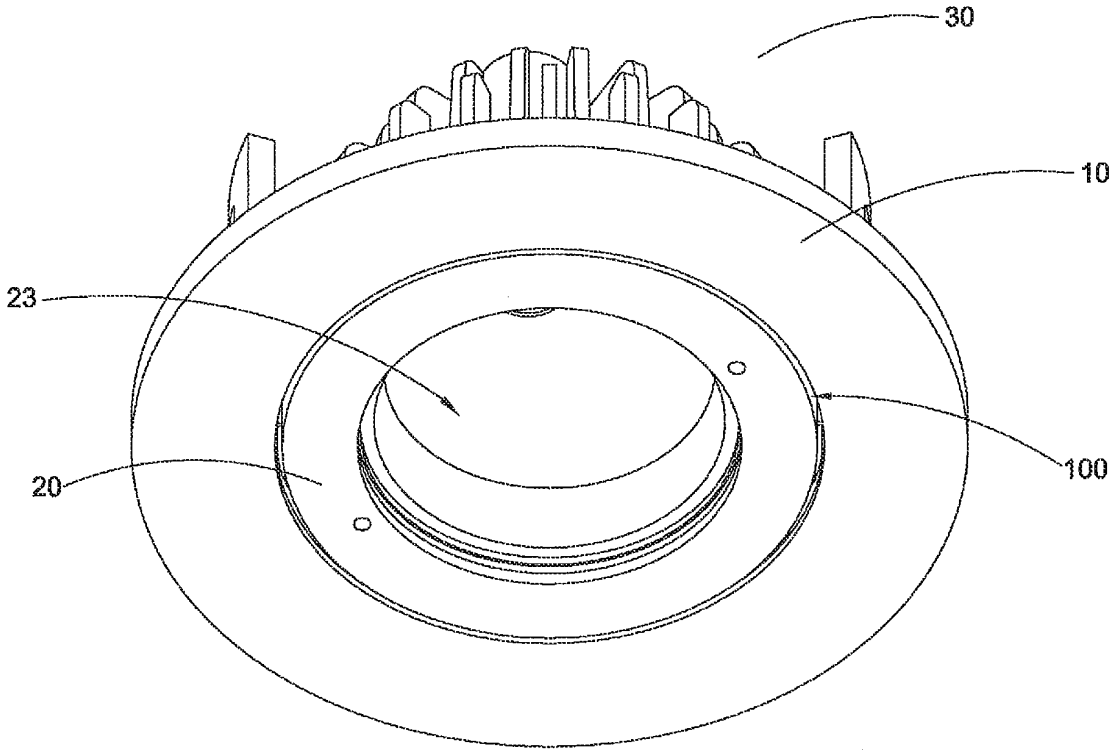

FIG. 2

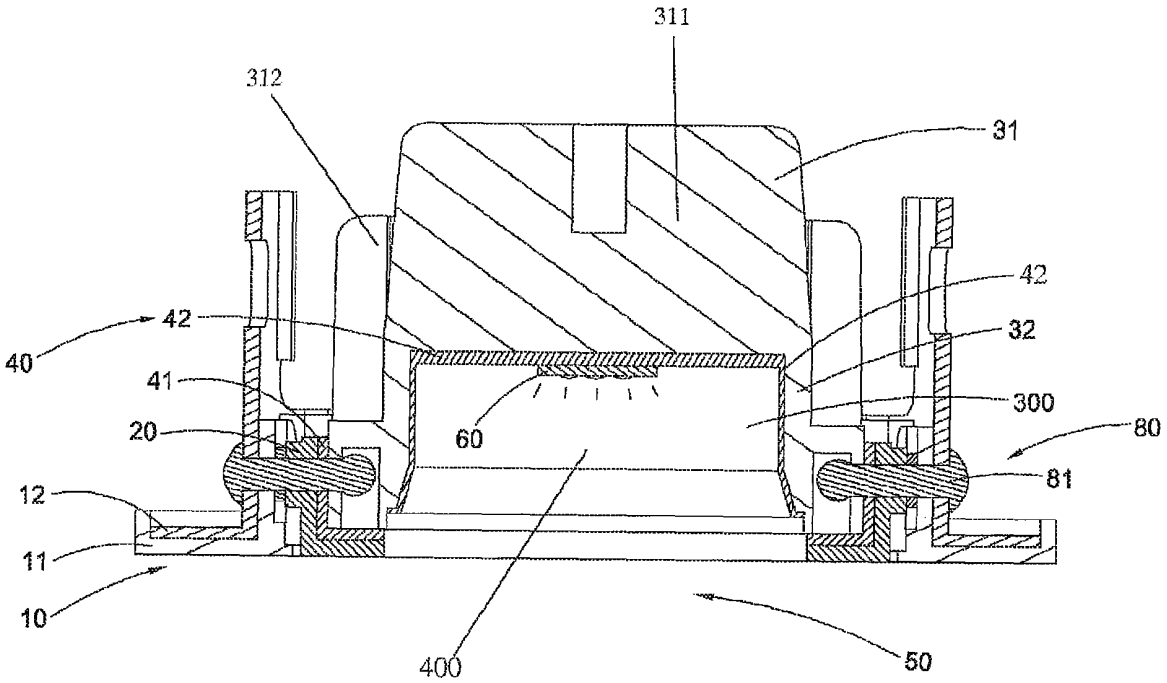

FIG. 3

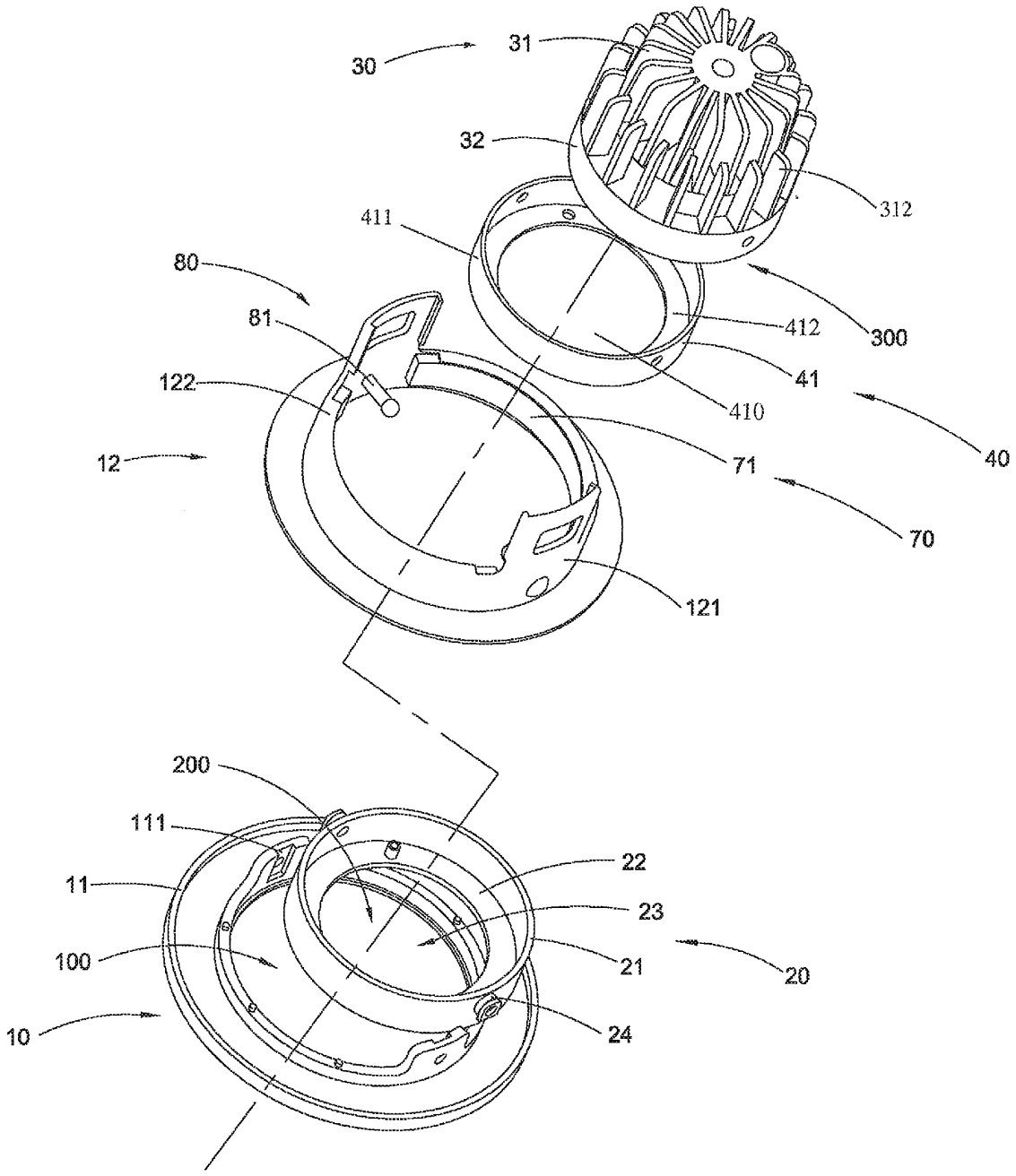
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FIG. 4

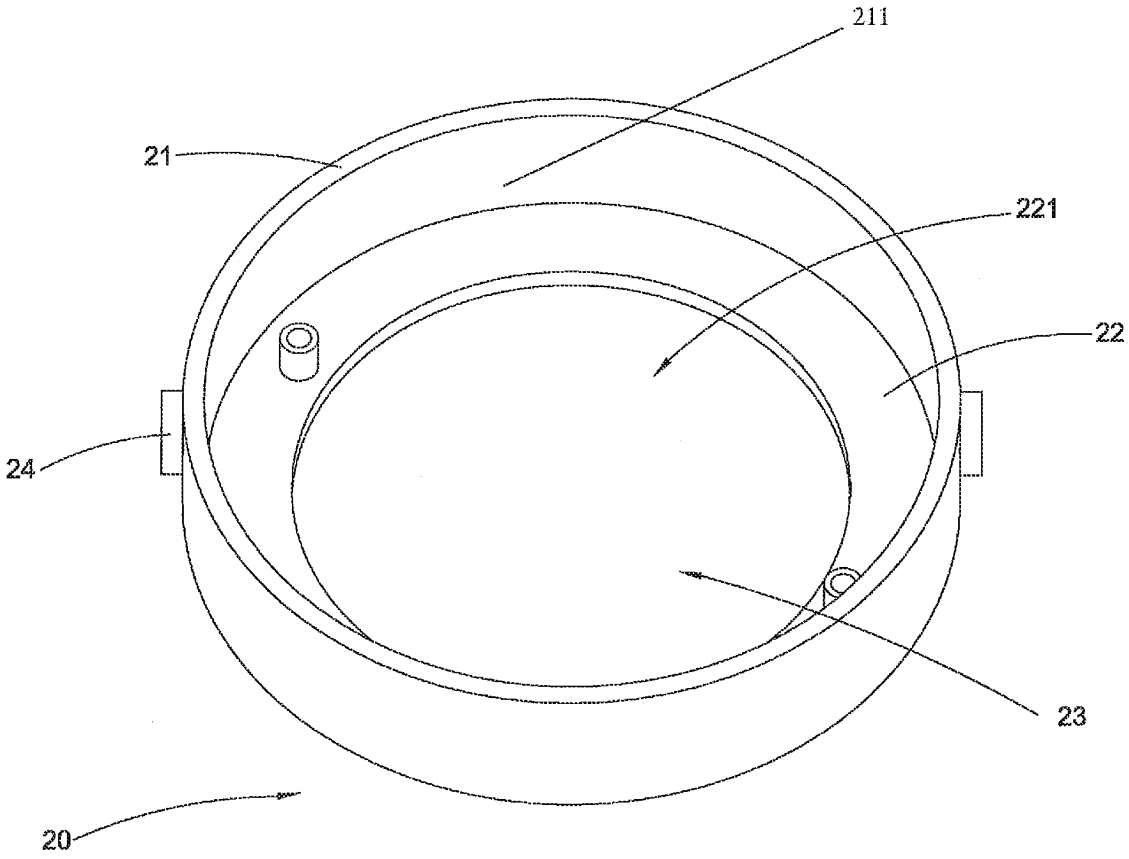

FIG. 5

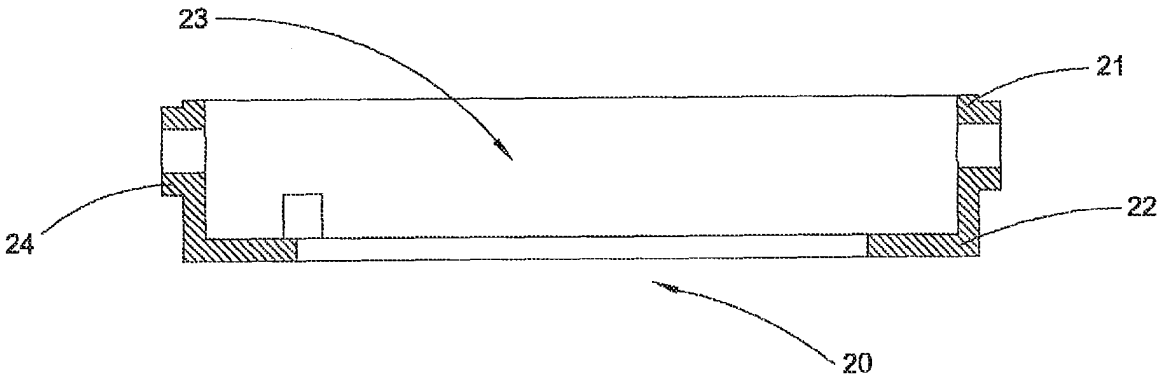

FIG. 6

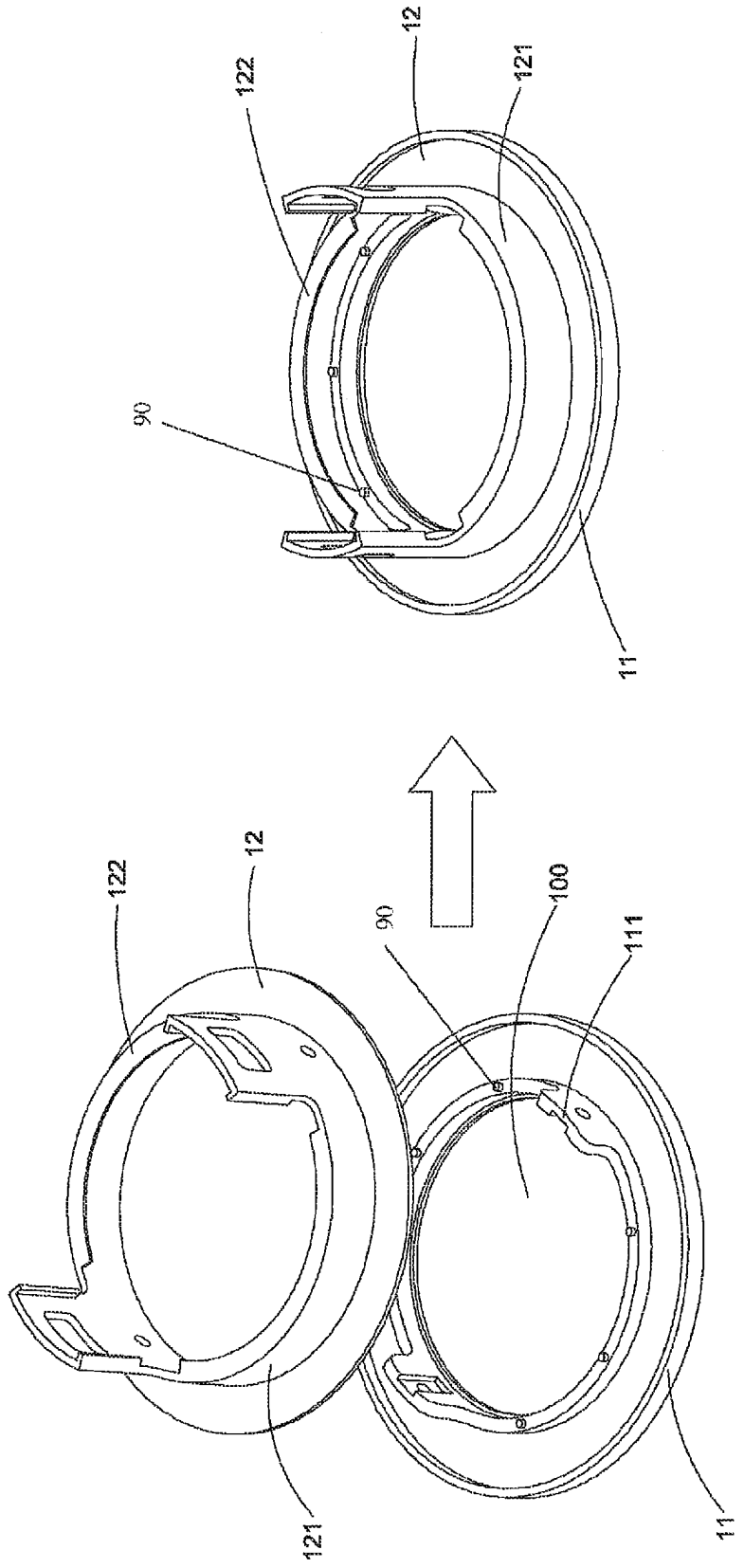

FIG. 7

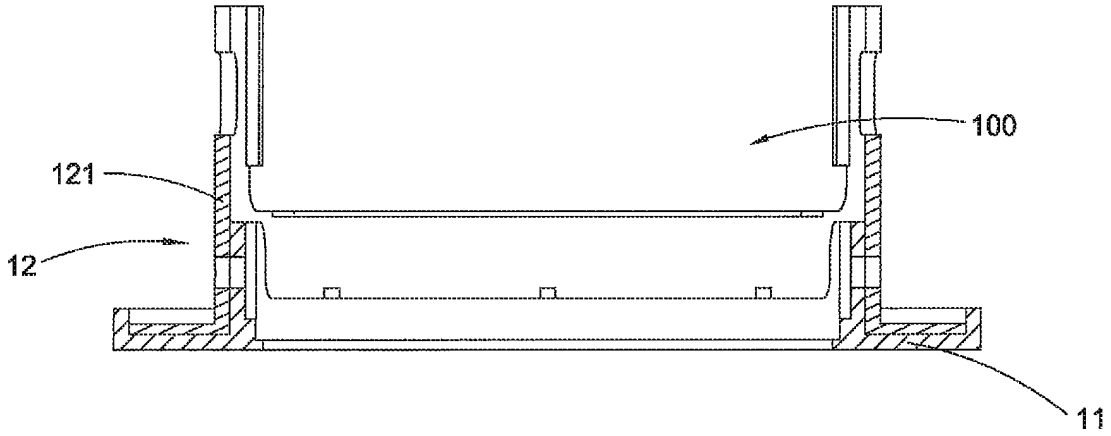

FIG. 8

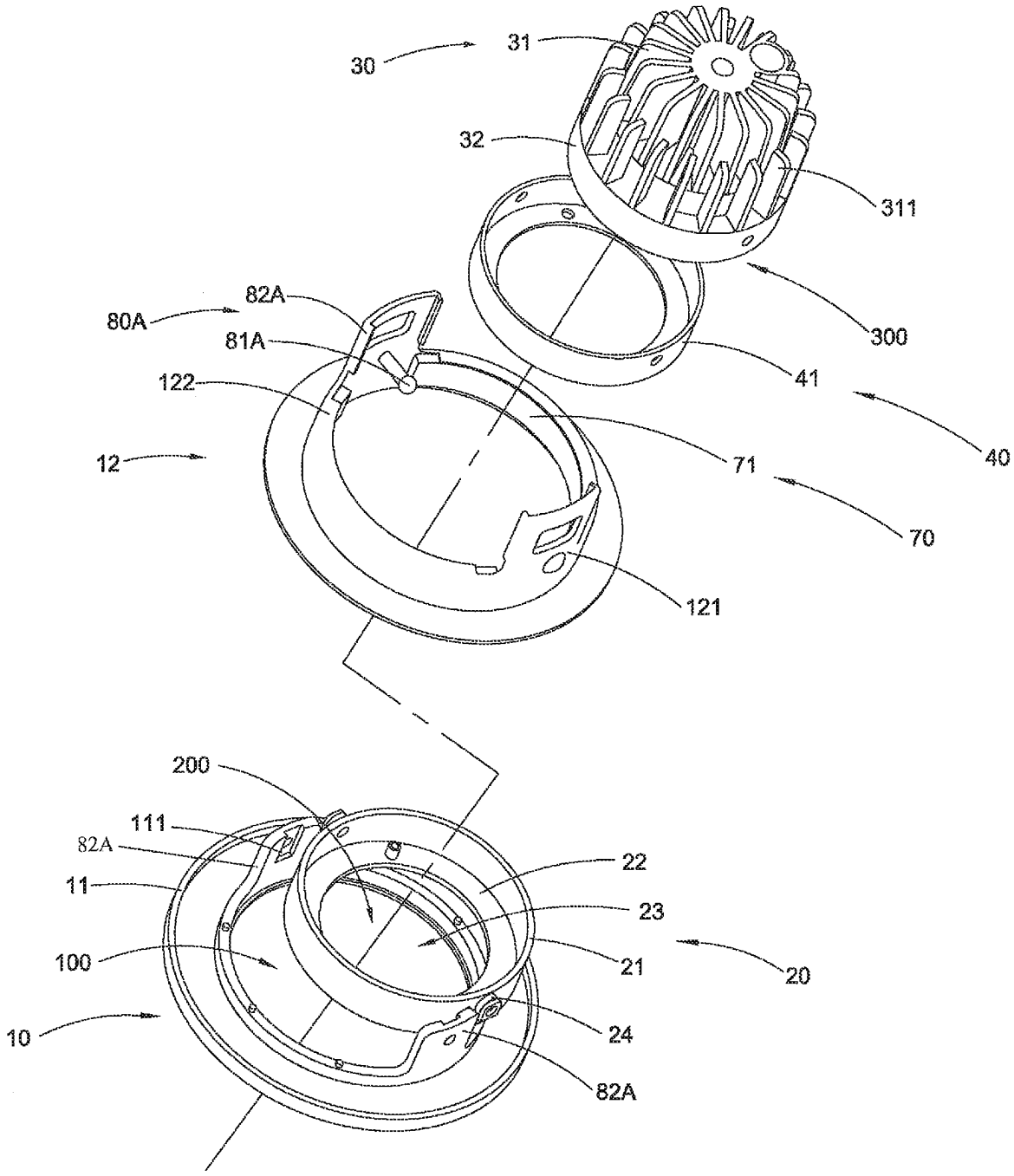
30
31
32
311
300
80A
82A
81A
122
41
40
12
71
70
121
200
111
82A
11
22
23
100
21
20
10
24
82A

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2013/082460

A. CLASSIFICATION OF SUBJECT MATTER

See the extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: F21S, F21V

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, VEN: heat dissipation, fireproof, heat-resistance, high temperature, high heat, inner wall, heat+, thermal+, radiat+, fire+, expans+, expand+, intumes+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 102878504 A (WU, Liangju), 16 January 2013 (16.01.2013), description, paragraphs [0031]-[0062], and figures 1-9	1-54
X	CN 202281145 U (HE, Shiyou), 20 June 2012 (20.06.2012), description, paragraph [0018], and figures 1-6	1-12, 15, 17, 18, 25, 28, 35, 36, 39, 42, 45, 48, 54
Y		21, 30
Y	US 2008165545 A1 (O'BRIEN, A. et al.), 10 July 2008 (10.07.2008), description, paragraphs [0026]-[0031], and figure 2	21, 30
A	CN 202303087 U (SHENZHEN XUAN LIN TECHNOLOGY CO., LTD.), 04 July 2012 (04.07.2012), the whole document	1-54
A	CN 2748777 Y (WU, Liangju), 28 December 2005 (28.12.2005), the whole document	1-54

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 November 2013 (25.11.2013)	**12 December 2013 (12.12.2013)**
Name and mailing address of the ISA/CN: State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No.: (86-10) 62019451	Authorized officer **LI, Jie** Telephone No.: (86-10) **62085764**

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2013/082460

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 201072101 Y (WU, Liangju), 11 June 2008 (11.06.2008), the whole document	1-54
A	CN 101280899 A (SHANGHAI SEALITE INTERNATIONAL TRADE CO., LTD.), 08 October 2008 (08.10.2008), the whole document	1-54

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2013/082460

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 102878504 A	16.01.2013	CN 202884724 U	17.04.2013
CN 202281145 U	20.06.2012	None	
US 2008165545 A1	10.07.2008	US 7651238 B2	26.01.2010
CN 202303087 U	04.07.2012	None	
CN 2748777 Y	28.12.2005	None	
CN 201072101 Y	11.06.2008	WO 2009006786 A1	15.01.2009
		US 2010214790 A1	26.08.2010
		US 8333490 B2	18.12.2012
CN 101280899 A	08.10.2008	CN 101280899 B	01.09.2010

Form PCT/ISA/210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2013/082460

A. CLASSIFICATION OF SUBJECT MATTER

F21S 8/04 (2006.01) i

F21V 17/10 (2006.01) i

F21V 25/12 (2006.01) i

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