A receiving plate supporting device includes a base, a supporting portion, a plate and a pair of rods. The base has a pair of piece-like bodies which are spaced with a pre-determined distance and are installed at a wall. A supporting portion is installed at the two piece-like bodies having an upper slide path and a lower slide path. The plate is a rectangular plate with a width corresponding to a distance between two piece-like bodies. The pair of rods is corresponding to the supporting portion and is installed at lateral sides of the plate. The plate can be placed horizontally or vertically as desired. Therefore, it is space-efficient and convenient. Furthermore, the receiving plate supporting device can be assembled easily, and structure of each component is easy and is cost-effective.
RECEIVING PLATE SUPPORTING DEVICE

FIELD OF THE INVENTION

[0001] The present invention relates to supporting structures, and particularly to a receiving plate supporting device.

BACKGROUND OF THE INVENTION

[0002] Due to the small lodging volume, each space in the room must be used efficiently. Therefore, receiving plates are commonly used in many places for receiving objects in a small space. However, often the receiving plate is not used and must be stored. Consequently, it has an eager demand for a novel receiving plate with can be expanded and folded as desired. All these objects can be complete by a well designed supporting structure.

[0003] The receiving plate supporting device of the prior art is illustrated in FIG. 1. The receiving plate supporting device mainly comprises a plate 90 for receiving objects and a supporting portion 91. The supporting portion 91 has two rods 911. One end of each rod 911 is pivotally connected to one end of another rod, and another ends are pivotally connected to a plate 90 and a seat 92 pivotally connected to the plate 90. By bending the supporting portion 91, the plate 90 can swing so as to expand the plate 90 horizontally and store the plat 90 vertically.

[0004] However, above prior art has a poor ability for bearing heavy objects. Since it is connected pivotally, when the two rods 911 suffer from an un-expect force or do not expand completely, the supporting portion 90 is easily to be bent so that the plate 90 will tilt. Thereby, the objects on the plate 90 will fall down. Moreover, when the prior art is assembled, two ends of the supporting portion 91 will be installed to the plate 90 and the seat 92 exactly, otherwise after the plate 90 is expanded, it can not be arranged horizontally completely and thus the effect for receiving objects are lost completely.

SUMMARY OF THE INVENTION

[0005] Accordingly, the primary object of the present invention is to provide a receiving plate supporting device 1, wherein a plate can be placed horizontally or vertically as desired. Therefore, it is space-efficient and convenient.

[0006] Another object of the present invention is to provide a receiving plate supporting device which can be assembled easily. The structure of each component is easy and is cost-effective.

[0007] To achieve the object, the present invention provides a receiving plate supporting device including a base, a supporting portion, a plate and a pair of rods. The base has a pair of piece-like bodies which are spaced with a predetermined distance and are installed at a wall. A supporting portion is installed at the two piece-like bodies having an upper slide path and a lower slide path. The plate is a rectangular plate with a width corresponding to a distance between two piece-like bodies. The pair of rods are corresponding to the supporting portion and is installed at lateral sides of the plate. The plate can be placed horizontally or vertically as desired. Therefore, it is space-efficient and convenient.

[0008] The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a schematic perspective view of a prior receiving plate supporting device.

[0010] FIG. 2 is a schematic perspective view of the preferred embodiment of the present invention.

[0011] FIG. 3 is an exploded perspective view of the preferred embodiment of the present invention.

[0012] FIG. 4 is a view showing the plate being lifted in the preferred embodiment of the present invention.

[0013] FIG. 5 is a view showing a condition of the plate which is lifted in the preferred embodiment of the present invention.

[0014] FIG. 6 is a view showing the plate being stored in the preferred embodiment of the present invention.

[0015] FIG. 7 is a view showing a condition of the plate which will be stored in the preferred embodiment of the present invention.

[0016] FIG. 8 is a view showing the plate being stored in a further preferred embodiment of the present invention.

[0017] FIG. 9 shows the plate being lifted which is a continuation of FIG. 8.

[0018] FIG. 10 is a view showing the plate being stored in a further preferred embodiment of the present invention.

[0019] FIG. 11 shows an operation of the plate which is a continuation of FIG. 10.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] Referring to FIGS. 2 and 3, the receiving plate supporting device 1 of the present invention is illustrated. The receiving plate supporting device 1 includes a base 12, a supporting portion 14, a plate 16, and a pair of rods 18.

[0021] The base 12 includes a pair of piece-like bodies 22 which are spaced with a predetermined distance and are installed at a wall 24.

[0022] The supporting portion 14 is installed at the two piece-like bodies 22 and upper slide paths 42 and lower slide paths 44. The upper slide path 42 is a long hole which extends leftwards and rightwards with a predetermined length. The lower slide path 44 is a cambered hole oriented downwards from one end of the upper slide path 42 and toward the upper slide path 42 with a predetermined curvature.

[0023] The plate 16 is a rectangular plate with a width corresponding to the distance between two piece-like bodies 22.

[0024] The rods 18 are corresponding to the supporting portion 14 and are installed at lateral sides of the plate 16. The two rods 18 are spaced with a predetermined distance and passes through supporting portion 14 by the upper slide paths 42 and the lower slide paths 44. The distance between the two rods 18 is smaller than a length of the upper slide path 42 and the distance between two rods 18 is equal to a ratio of curvature of the lower slide path 44. Thereby, the plate 16 may slide and swing by the two rods 18 and supporting portion 14 and thus the plate 16 can be expand and receive at any time.
A long axis of the upper slide path 42 is horizontally arranged. When the two rods 18 are arranged on the upper slide path 42, a straight line between the two rods 18 is parallel to the long axis of the upper slide path 42. The long axis at the lateral side of the plate 16 of the two rods 18 is parallel to the straight line between the two rods 18. The plate 16 is horizontally arranged at expansion.

Referring to FIGS. 4 and 5, when the plate 16 is arranged longitudinally. The plate 16 is rotated at first. One rod 18 slides along the lower slide path 44 to an outer end of the upper slide path 42. Then, the plate 16 is pushed. The two rods 18 slides to the upper slide path 42 and then the plate 16 is expanded.

Moreover, referring to FIGS. 6, and 7, if it is desired to store the plate 16, firstly, the plate 16 is pulled. One of the rods 18 will slide to an outer end of the upper slide path 42 along the upper slide path 42. Then, the plate 16 is rotated. Thus, the plate 16 can be stored.

The receiving plate supporting device 1 of the present invention has the following advantages.

1. The plate can be placed horizontally or vertically as desired. Therefore, it is space-efficient and convenient.

2. The present invention can be assembled easily. The structure of each component is easy and cost-effective.

In above structure, the long axis of the upper slide path 42 has a predetermined elevation angle. When the two rods 18 are at the upper slide path 42, the line connected the two rods 18 is parallel to the long axis the upper slide path 42. The line connected the two rods 18 and the long axis at the lateral side of the plate 16 of the two rods 18 are formed an angle with a predetermined angle for compensating the predetermined elevational angle of the long axis of the upper slide path 42. Thereby, after the plate 16 is expanded, it is horizontally arranged.

Referring to FIGS. 8 to 11, in the structure of the present invention, the long axis of the upper slide path 42 has a predetermined angle and the supporting portion 14 has further a middle slide path 43.

The middle slide path 43 is extended from a middle section of the upper slide path 42. One rod 18 can slide into the middle slide path 43. Other than the plate 16 being horizontally arranged after expansion, the middle slide path 43 has a buckling effect so as to have a structure which is more safer and steadier.

Moreover, in the structure of the present invention, the long axis of the upper slide path 42 is horizontally arranged, the supporting portion 14 includes the middle slide path 43. The long axis at the lateral side of the plate 16 of the two rods 18 and the line connected the two rods 18 are formed with an angle. Then, it has an effect of compensation. Other than the plate 16 being horizontally arranged after expansion, the middle slide path 43 has a buckling effect so as to have a structure which is more safer and steadier.

Although the present invention has been described with reference to the preferred embodiments, it will be understood that the invention is not limited to the details described thereof. Various substitutions and modifications have been suggested in the foregoing description, and others will occur to those of ordinary skill in the art. Therefore, all such substitutions and modifications are intended to be embraced within the scope of the invention as defined in the appended claims.

What is claimed is:

1. A receiving plate supporting device including:
   a. a base having a pair of piece-like bodies which are spaced with a predetermined distance and are installed at a wall;
   b. a supporting portion installed at the two piece-like bodies having an upper slide path and a lower slide path; the upper slide path being a long hole which extending leftwards and rightwards with a predetermined length;
   c. a lower slide path being a cambered hole oriented downwards from one end of the upper slide path and toward the upper slide path with a predetermined curvature;
   d. a plate being a rectangular plate with a width corresponding to a distance between two piece-like bodies;
   e. a pair of rods being corresponding to the supporting portion and being installed at lateral sides of the plate; the two rods being spaced with a predetermined distance and passing through the supporting portion by the upper slide paths and the lower slide paths; the distance between the two rods being smaller than a length of the upper slide path and the distance between two rods being equal to a ratio of curvature of the lower slide path; thereby, the plate sliding and swinging by the two rods and supporting portion.

2. The receiving plate supporting device as claim 1, wherein a long axis of the upper slide path is horizontally arranged; when the two rods are arranged on the upper slide path, a straight line between the two rods is parallel to the long axis of the upper slide path; and a long axis at the lateral side of the plate of the two rods is parallel to a straight line between the two rods.

3. The receiving plate supporting device as claim 1, wherein a long axis of the upper slide path has a predetermined elevation angle; when the two rods are at the upper slide path, the line connected the two rods is parallel to the long axis the upper slide path; and a long axis at the lateral side of the plate of the two rods forms a predetermined angled section.

4. The receiving plate supporting device as claim 3, wherein the line connected the two rods and the long axis at the lateral side of the plate of the two rods forms a predetermined angled section; thereby, after the plate is expanded, it is horizontally arranged.

5. The receiving plate supporting device as claim 4, wherein the supporting portion has further a middle slide path; the middle slide path has a concave portion extended from a middle section of the upper slide path; thereby, one rod slides into the middle slide path.

6. The receiving plate supporting device as claim 5, wherein by the middle slide path, the plate is horizontally arranged after expansion.

7. The receiving plate supporting device as claim 5, wherein the upper slide path has a predetermined elevation angle along a direction of the long axis.

8. The receiving plate supporting device as claim 6, wherein the upper slide path has a predetermined elevation angle along a direction of the long axis.

9. The receiving plate supporting device as claim 8, wherein the long axis at the lateral side of the plate of the two rods are parallel to the line connected the two rods.