A shielding-type rack upright post includes a first upright plate and a second upright plate which are spaced at an angle, each of the first upright plate and the second upright plate having a plurality of combination holes arranged at intervals vertically, wherein a first shielding plate is spaced at an interval from an external surface of the first upright plate and is parallel to the first upright plate, and a second shielding plate is spaced at an interval from an external surface of the second upright plate and is parallel to the second upright plate. The first and second shielding plates are used for shielding the combination holes of the first and second upright plates, and an end portion of a transverse beam engaged with the combination holes; and also for reinforcing the rack upright post structure.
SHIELDING-TYPE RACK UPRIGHT POST

BACKGROUND

[0001] 1. Field of Invention

[0002] The present invention relates to a rack upright post. More particularly, the present invention relates to a shielding-type rack upright post.

[0003] 2. Description of Related Art

[0004] A rack is a structure for holding articles, and typically includes a plurality of upright posts, a set of transverse beams mounted on the upright posts, and a board disposed across the top surfaces of the transverse beams for placing articles.

[0005] FIG. 1 is a schematic exploded view showing the appearance of a conventional rack upright post assembled with a transverse beam. As shown in FIG. 1, the conventional rack upright post 500 is an L-shaped rack upright post suitable for use as a peripheral post of a rack. The conventional rack upright post 500 includes a first upright plate 510 and a second upright plate 520 which are spaced at an angle of 90 degrees, each of the first upright plate and the second upright plate having a plurality of combination holes 511 arranged at intervals vertically, wherein each combination hole 511 typically is a keyhole slot with two connected parts of which the upper one is a larger hole 512 and the lower part is a smaller hole 513, provided for combining with a transverse beam 400.

[0006] A combination surface 410 of the transverse beam 400 is disposed with two combination buttons 420 corresponding to the combination holes 511. The combination button 420 has an inner neck portion 421 and an outer head portion 422 connected to each other, wherein the diameter of the inner neck portion 421 is smaller than that of the smaller hole 513, and the diameter of the outer head portion 422 is larger than that of the smaller hole 513. For assembling the transverse beam 400 with the rack upright post 500, the combination buttons 420 of the transverse beam 400 first respectively pass through the larger holes 512 of the combination holes 511 formed on the rack upright post 500, and then the transverse beam 400 is pressed downwards to push the respective inner neck portions 421 of the combination buttons 420 into the smaller holes 513 of the combination holes 511, and also to make the respective outer head portions 422 of the combination buttons 420 protrude out of the smaller holes 513, and thus the assembly of the transverse beam 400 and the rack upright post 500 is completed. Then, a board (not shown) is disposed across the transverse beam 400.

[0007] However, the aforementioned conventional rack upright post 500 has the following shortcomings when being applied.

[0008] (1) After the transverse beam 400 is assembled with the rack upright post 500, the outer head portions 422 of the combination buttons 420 protrude out of the rack upright post 500, and are likely to damage other articles, such as hook damages or injuries to a user’s clothes or hands; and

[0009] (2) The exposures of the outer head portions 422 and the combination holes 511 result in an unpleasant appearance and unwholesome view of the overall rack structure.

[0010] FIG. 2 is a schematic view showing the appearance of another conventional rack upright post. The conventional rack upright post 600 is a T-shaped rack upright post suitable for use as a middle post of a rack, and both lateral sides of the rack upright post 600 can be assembled with transverse beams. The conventional rack upright post 600 includes a first upright plate 610 and a second upright plate 620 which are spaced at an angle of 180 degrees; and a third upright plate 630 and a fourth upright plate 640 which are parallel to each other and are disposed between the first upright plate 610 and the second upright plate 620. The third upright plate 630 and the first upright plate 610 are spaced at an angle of 90 degrees, and the fourth upright plate 640 and the second upright plate 620 are spaced at an angle of 90 degrees. Each upright plate has a plurality of combination holes 611 arranged at intervals vertically, wherein each combination hole 611 is composed of a larger hole 612 and a smaller hole 613, provided for engaging with the combination button 420 of the transverse beam 400. Just like the aforementioned rack upright post 500, the rack upright post 600 also has the shortcomings that the outer head portions 422 of the combination buttons 420 protrude out of the rack upright post 600 and are likely to damage other articles and result in an unpleasant appearance.

[0011] In view of the foregoing reasons, the conventional rack upright posts have poor applicability.

SUMMARY

[0012] With respect to the shortcomings of the conventional rack upright posts, an object of the present invention is to provide a shielding-type rack upright post which has a strong structure and can shield the combination buttons and holes.

[0013] According to the aforementioned object, an aspect of the present invention is to provide a shielding-type rack upright post including a first upright plate, a second upright plate, a first shielding plate and a second shielding plate. The first upright plate and the second upright plate are spaced at an angle, and each of the first upright plate and the second upright plate has a plurality of combination holes arranged at intervals vertically. Each of the combination holes has a larger hole and a smaller hole adjoining below the larger hole. The first shielding plate is spaced at an interval from an external surface of the first upright plate, and is parallel to the first upright plate. The second shielding plate is spaced at an interval from an external surface of the second upright plate, and is parallel to the second upright plate. The first shielding plate and the second shielding plate are used for shielding the combination holes of the first and second upright plates and the head portions of the combination buttons disposed on a transverse beam engaged with the combination holes, and also for reinforcing the rack upright post structure.

[0014] In one embodiment, the shielding-type rack upright post is an L-shaped rack upright post, wherein the first upright plate is connected to the first shielding plate via a first angled portion, and the first shielding plate is connected to the second shielding plate via a third angled portion, and the second shielding plate is connected to the second upright plate via a second angled portion, thereby monolithically forming the structure of the L-shaped rack upright post.

[0015] According to the aforementioned object, another aspect of the present invention is to provide a shielding-type rack upright post including a first upright plate, a second upright plate, a third upright plate, a fourth upright plate, a first shielding plate and a second shielding plate. The first upright plate and the second upright plate are spaced at an angle, and the third upright plate and the fourth upright plate are parallel to each other and are disposed between the first upright plate and the second upright plate. Each of the first upright plate, the second upright plate, the third upright plate and the fourth upright plate has a plurality of combination holes arranged at intervals vertically. Each of the combination buttons...
holes has a larger hole and a smaller hole adjoining below the larger hole. The first shielding plate is parallel to and spaced at an interval from an external surface of the first upright plate. The second shielding plate is parallel to and spaced at an interval from an external surface of the second upright plate. The first shielding plate and the second shielding plate are used for shielding the combination holes of the first and second upright plates and the head portions of the combination buttons disposed on a transverse beam engaged with the combination holes, and also for reinforcing the rack upright post structure.

[0016] In one embodiment, the shielding-type rack upright post is a T-shaped rack upright post, wherein the first upright plate is connected to the first shielding plate via a first angled portion, and the first shielding plate is connected to the fourth upright plate via a fourth angled portion, and the fourth upright plate is connected to the third upright plate via a fifth angled portion, and the third upright plate is connected to the second shielding plate via a sixth angled portion, and the second shielding plate is connected to the second upright plate via a second angled portion, thereby monolithically forming the structure of the T-shaped rack upright post.

[0017] In another embodiment, the shielding-type rack upright post is a T-shaped rack upright post, wherein the first shielding plate is connected to the first upright plate via a first angled portion, and the first upright plate is connected to the fourth upright plate via a seventh angled portion, and the fourth upright plate is connected to the third upright plate via a fifth angled portion, and the third upright plate is connected to the second upright plate via an eighth angled portion, and the second upright plate is connected to the second shielding plate via a second angled portion, thereby monolithically forming the structure of the T-shaped rack upright post.

[0018] In another embodiment, the shielding-type rack upright post is a T-shaped rack upright post, wherein the fourth upright plate is connected to the first upright plate via a seventh angled portion, and the first upright plate is connected to the first shielding plate and the second shielding plate via a first angled portion, and the second shielding plate is connected to the second upright plate via a second angled portion, and the second upright plate is connected to the third upright plate via an eighth angled portion, thereby monolithically forming the structure of the T-shaped rack upright post.

[0019] It is to be understood that both the foregoing general description and the following detailed description are examples, and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

[0021] FIG. 1 is a schematic explosive view showing the appearance of a conventional rack upright post assembled with a transverse beam;

[0022] FIG. 2 is a schematic view showing the appearance of another conventional rack upright post;

[0023] FIG. 3 is a schematic view showing the appearance of a shielding-type rack upright post according to a first embodiment of the present invention;

[0024] FIG. 4 is a schematic enlarged explosive view showing a portion of the shielding-type rack upright post shown in FIG. 3 assembled with a transverse beam;

[0025] FIG. 5 is a schematic cross-sectional view showing the shielding-type rack upright post assembled with a transverse beam as shown in FIG. 4;

[0026] FIG. 6 is a schematic view showing the appearance of a shielding-type rack upright post according to a second embodiment of the present invention;

[0027] FIG. 7 is a schematic view showing a variation of the appearance of the shielding-type rack upright post according to the second embodiment shown in FIG. 6;

[0028] FIG. 8 is a schematic view showing another variation of the appearance of the shielding-type rack upright post according to the second embodiment shown in FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0029] Reference will now be made in detail to the present preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

[0030] FIG. 3 to FIG. 5 are schematic views respectively showing the appearance, enlarged portion and cross-section of a shielding-type rack upright post according to a first embodiment of the present invention. As shown in the figures, in the first embodiment, the shielding-type rack upright post includes a first upright plate 110 and a second upright plate 120 which are spaced at an angle of 90 degrees and form an L-shaped rack upright post suitable for use as a peripheral post of a rack. Each of the first upright plate 110 and the second upright plate 120 has a plurality of combination holes 111 arranged at intervals vertically. Each of the combination holes 111 has two connected holes of which the upper one is a larger hole 112 and the lower part is a smaller hole 113, provided for combining with the transverse beam 400. These structures are similar to those of the conventional rack upright post 500.

[0031] In the first embodiment, the shielding-type rack upright post further includes a first shielding plate 210 and a second shielding plate 220. The first shielding plate 210 is spaced at an interval from an external surface of the first upright plate 110, and is parallel to the first upright plate 110. The second shielding plate 220 is spaced at an interval from an external surface of the second upright plate 120, and is parallel to the second upright plate 120. The distance of the interval between a respective shielding plate and a respective upright plate is used for accommodating the head portions 422 of the combination buttons 420 disposed on the transverse beam 400, and the respective shielding plates are used for shielding the head portions 422 and the combination holes 111 of the upright plates, thereby preventing them from being exposed outwards.

[0032] As shown in FIG. 4 and FIG. 5, just as described above, when the transverse beam 400 is assembled with the shielding-type rack upright post of the present invention, the combination buttons 420 of the transverse beam 400 first respectively pass through the larger holes 112 of the combination holes 111 formed on the rack upright post, and then the transverse beam 400 is pressed downwards to push the respective inner neck portions 421 of the combination buttons 420 into the smaller holes 113 of the combination holes 111, and also to make the respective head portions 422 of the combination buttons 420 protrude out of the smaller holes 113 (i.e. disposed on the external surface of the first or second upright plate), and thus the assembly of the transverse beam
and the shielding-type rack upright post is completed. Since being disposed and spaced at an interval from the external surfaces of the first and second upright plates 110 and 120, the first shielding plate 210 and the second shielding plate 220 can shield the head portions 422 protruding out of the external surfaces of the upright plates and the combinations holes formed on the upright plates, thereby preventing the protrusive head portions 422 from causing hook damages to other articles; and maintaining a pleasant and integral appearance of the shielding-type rack upright post. Particularly, the shielding-type rack upright post of the present invention has a dual-layer structure of the upright plates and the shielding plates, thus reinforcing the structure of the rack upright post.

In practice, the aforementioned structure of the first embodiment can be monolithically formed by one piece of metal plate. In other words, the first upright plate 110 is connected to the first shielding plate 210 via a first angled portion 310, and the first shielding plate 210 is connected to the second shielding plate 220 via a third angled portion 330, and the second shielding plate 220 is connected to the second upright plate 120 via a second angled portion 320, thereby monolithically forming the structure of the T-shaped rack upright post conveniently.

FIG. 6 to FIG. 8 are schematic views respectively showing the appearance, and appearance variations of a shielding-type rack upright post according to a second embodiment of the present invention. As shown in the figures, in the second embodiment, the shielding-type rack upright post includes a first upright plate 110, a second upright plate 120, a third upright plate 130 and a fourth upright plate 140. The first upright plate 110 and the second upright plate 120 are spaced at an angle, and the third and fourth upright plates 130 and 140 are parallel to each other and are disposed between the first upright plate 110 and the second upright plate 120. The third upright plate 130 and the first upright plate 110 are spaced at an angle of 90 degrees, and the fourth upright plate 140 and the second upright plate 120 are spaced at an angle of 90 degrees, thereby forming a T-shaped rack upright post suitable for use as a middle post of a rack, and both lateral sides of the T-shaped rack upright post can be assembled with transverse beams. Each of the upright plates 110, 120, 130 and 140 has a plurality of combination holes 111 arranged at intervals vertically. Each of the combination holes 111 has two connected holes of which the upper one is a larger hole 112 and the lower part is a smaller hole 113, provided for engaging with the combination buttons 420 of the transverse beam 400. These structures are similar to those of the conventional rack upright post 600.

In the second embodiment, the shielding-type rack upright post further includes a first shielding plate 210 and a second shielding plate 220. The first shielding plate 210 is spaced at an interval from an external surface of the first upright plate 110, and is parallel to the first upright plate 110. The second shielding plate 220 is spaced at an interval from an external surface of the second upright plate 120, and is parallel to the second upright plate 120. The distance of the interval between a respective shielding plate and a respective upright plate is used for accommodating the head portions 422 of the combination buttons 420 disposed on the traverse beam 400, and the respective shielding plates are used for shielding the head portions 422 and the combination holes 111 of the upright plates; thereby preventing them from being exposed outwards. Thus, the second embodiment has the same efficacy as the first embodiment.

In practice, the aforementioned structure of the second embodiment can be monolithically formed by one piece of metal plate. In other words, as shown in FIG. 6, the first upright plate 110 is connected to the first shielding plate 210 via a first angled portion 310, and the first shielding plate 210 is connected to the fourth upright plate 140 via a fourth angled portion 340, and the fourth upright plate 140 is connected to the third upright plate 130 via a fifth angled portion 350, and the third upright plate 130 is connected to the second shielding plate 220 via a sixth angled portion 360, and the second shielding plate 220 is connected to the second upright plate 120 via a second angled portion 320.

Alternatively, as shown in FIG. 7, the first shielding plate 210 is connected to the first upright plate 110 via a first angled portion 310, and the first upright plate 110 is connected to the fourth upright plate 140 via a seventh angled portion 370, and the fourth upright plate 140 is connected to the third upright plate 130 via a fifth angled portion 350, and the third upright plate 130 is connected to the second upright plate 120 via an eighth angled portion 380, and the second upright plate 120 is connected to the second shielding plate 220 via a second angled portion 320.

Alternatively, as shown in FIG. 8, the fourth upright plate 140 is connected to the first upright plate 110 via a seventh angled portion 370, and the first upright plate 110 is connected to the first shielding plate 210 and the second shielding plate 220 via a first angled portion 310, and the second shielding plate 220 is connected to the second upright plate 120 via a second angled portion 320, and the second upright plate 120 is connected to the third upright plate 130 via an eighth angled portion 380. The aforementioned methods for fabricating the T-shaped rack upright post of the second embodiment are brief and convenient.

According to the shielding-type rack upright posts of the first and second embodiments, the first shielding plate 210 and the second shielding plate 220 can be used to shield the head portions 422 protruding out of the external surfaces of the first and second upright plates 110 and 120 and the combination holes 111 thereof; thus preventing the protrusive head portions 422 from causing hook damages to other articles; and maintaining a pleasant and integral appearance of the shielding-type rack upright post. Particularly, the dual-layer structure of the upright plates and the shielding plates can reinforce the structure of the rack upright post. Thus, the object of the present invention can be actually achieved.

It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention cover modifications and variations of this invention provided they fall within the scope of the following claims and their equivalents.

What is claimed is:
1. A shielding-type rack upright post, comprising:
a first upright plate and a second upright plate which are spaced at an angle, each of the first upright plate and the second upright plate having a plurality of combination holes arranged at intervals vertically;
a first shielding plate spaced at an interval from an external surface of the first upright plate, wherein the first shielding plate is parallel to the first upright plate; and
a second shielding plate spaced at an interval from an
eexternal surface of the second upright plate, wherein the
second shielding plate is parallel to the second upright
plate.

2. The shielding-type rack upright post as claimed in claim
1, wherein the angle formed between the first upright plate
and the second upright plate is 90 degrees, and the first upright
plate and the second upright plate form an L-shaped rack
upright post.

3. The shielding-type rack upright post as claimed in claim
2, wherein the first upright plate is connected to the first
shielding plate via a first angled portion, and the first shield-
ing plate is connected to the second shielding plate via a third
angled portion, and the second shielding plate is connected to
the second upright plate via a second angled portion.

4. The shielding-type rack upright post as claimed in claim
3, wherein each of the combination holes has a larger hole and
a smaller hole adjoining below the larger hole.

5. A shielding-type rack upright post, comprising:
  a first upright plate and a second upright plate which are
  spaced at an angle;
  a third upright plate and a fourth upright plate disposed
  between the first upright plate and the second upright
  plate, wherein the third upright plate is parallel to the
  fourth upright plate, each of the first upright plate, the
  second upright plate, the third upright plate and the
  fourth upright plate has a plurality of combination holes
  arranged at intervals vertically;
  a first shielding plate spaced at an interval from an exter-
  nal surface of the first upright plate, wherein the first shield-
ing plate is parallel to the first upright plate; and
  a second shielding plate spaced at an interval from an exter-
  nal surface of the second upright plate, wherein the
  second shielding plate is parallel to the second upright
  plate.

6. The shielding-type rack upright post as claimed in claim
5, wherein the first upright plate and the second upright plate
are spaced at an angle of 180 degrees, and the third upright
plate and the first upright plate are spaced at an angle of 90
degrees, and the fourth upright plate and the second upright
plate are spaced at an angle of 90 degrees, thereby forming a
T-shaped rack upright post.

7. The shielding-type rack upright post as claimed in claim
6, wherein the first upright plate is connected to the first
shielding plate via a first angled portion, and the first shield-
ing plate is connected to the fourth upright plate via a fourth
angled portion, and the fourth upright plate is connected to the
third upright plate via a fifth angled portion, and the third
upright plate is connected to the second shielding plate via a
sixth angled portion, and the second shielding plate is con-
ected to the second upright plate via a second angled portion.

8. The shielding-type rack upright post as claimed in claim
6, wherein the first shielding plate is connected to the first
upright plate via a first angled portion, and the first upright
plate is connected to the fourth upright plate via a seventh
angled portion, and the fourth upright plate is connected to the
third upright plate via a fifth angled portion, and the third
upright plate is connected to the second shielding plate via an
eighth angled portion, and the second shielding plate is con-
ected to the second upright plate via a second angled portion.

9. The shielding-type rack upright post as claimed in claim
6, wherein the fourth upright plate is connected to the first
upright plate via a seventh angled portion, and the first upright
plate is connected to the first shielding plate and the second
shielding plate is connected to the second upright plate via a
second angled portion, and the second upright plate is con-
ected to the third upright plate via an eighth angled portion.

10. The shielding-type rack upright post as claimed in claim
7, wherein each of the combination holes has a larger
hole and a smaller hole adjoining below the larger hole.

11. The shielding-type rack upright post as claimed in claim
8, wherein each of the combination holes has a larger
hole and a smaller hole adjoining below the larger hole.

12. The shielding-type rack upright post as claimed in claim
9, wherein each of the combination holes has a larger
hole and a smaller hole adjoining below the larger hole.