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(56) Documents cited
GB 2021391 A GB 1597337 A GB 1436948 A
GB 1334878 A GB 1279240 A GB 1019139 A
EP 0248663 A2 US 4153311 A

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LBDC LSB LSG LSHA LSJ LSX
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(54) Support rack

(57) A support rack (1) includes a pair of first panel members (2) constituting upper and lower panels or left and right panels, a pair of second panel members (5) disposed perpendicular to the first panel members, and a skeletal panel member (7) having substantially the same width as the width of the first panel members and firmly supporting the first and second panel members. The individual panel members are assembled into a frame.

FIG. 1

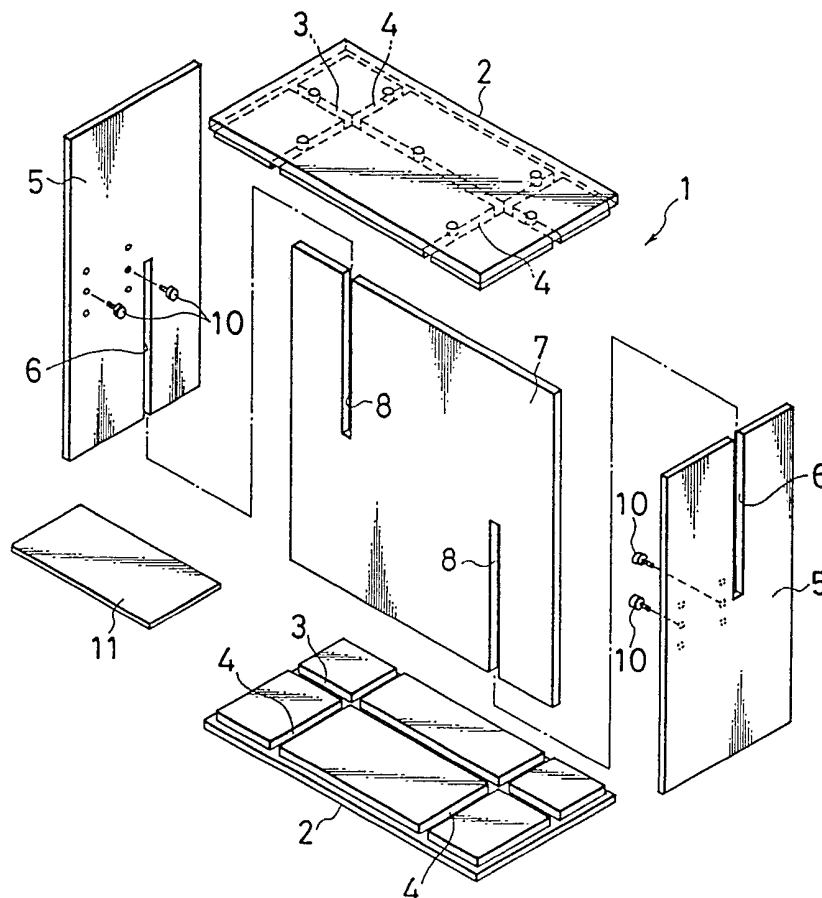


FIG. 1

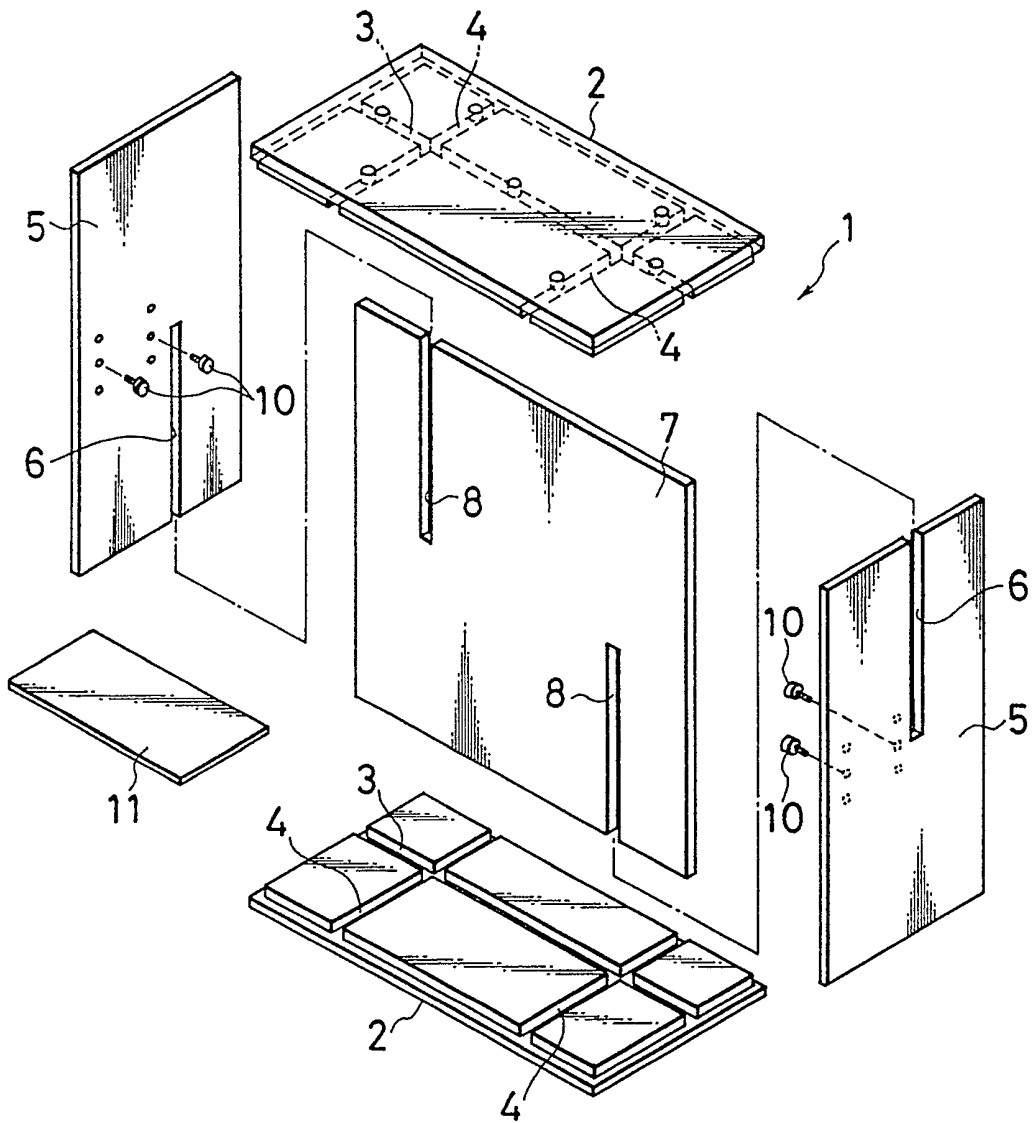


FIG. 2

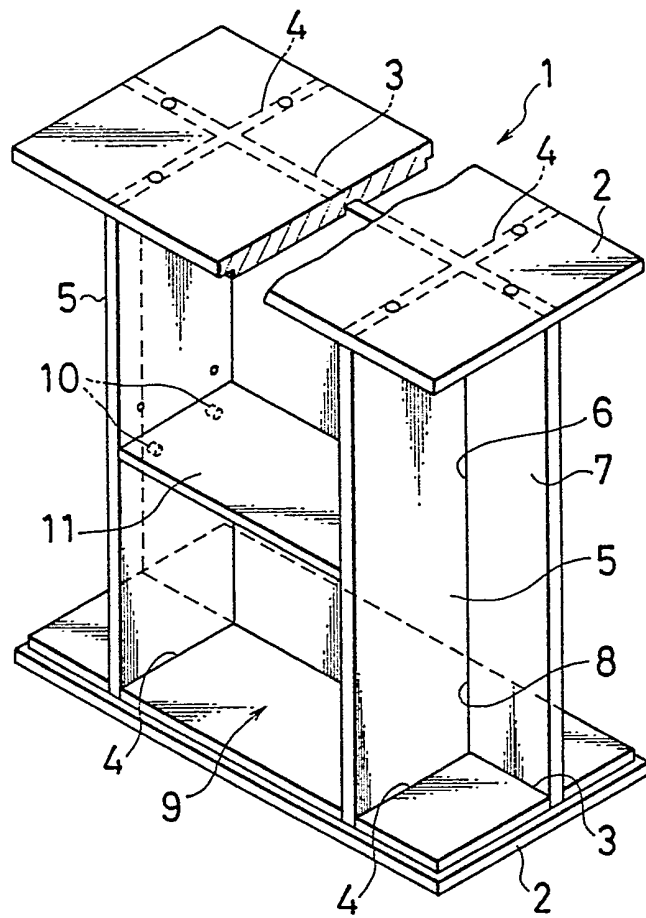


FIG. 3

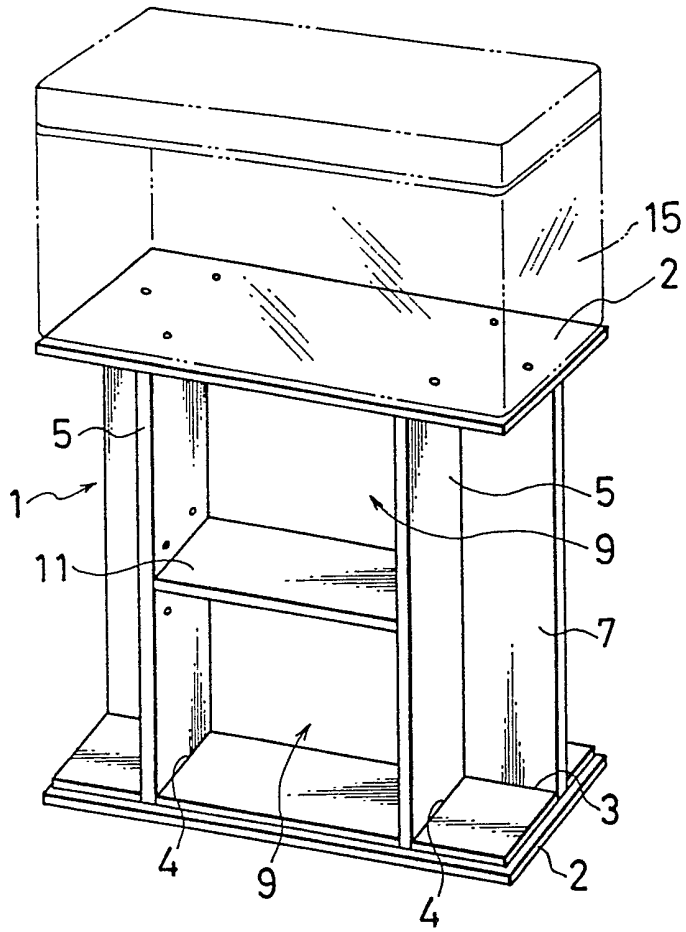


FIG. 4

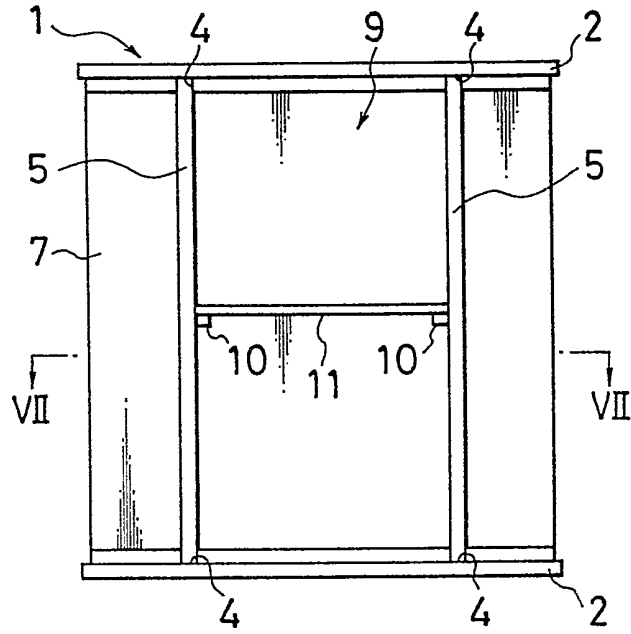


FIG. 5

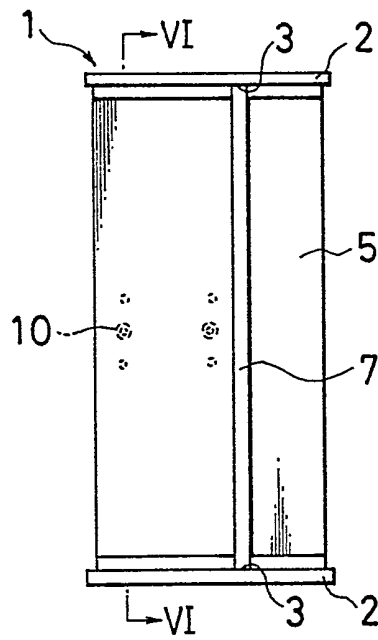


FIG. 6

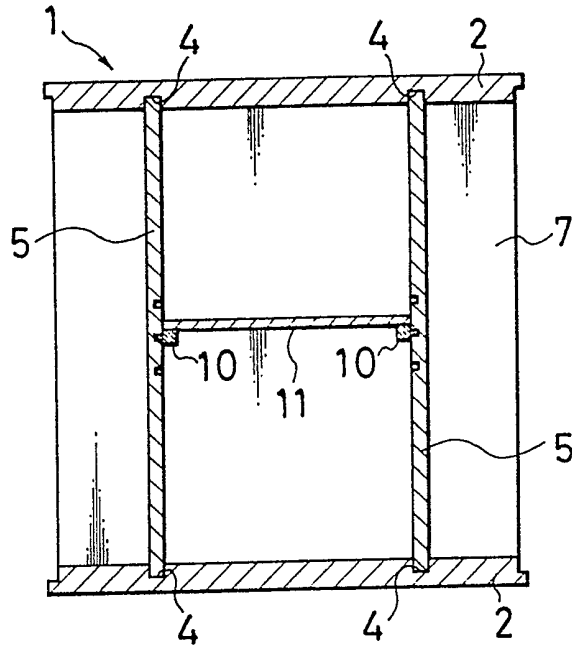
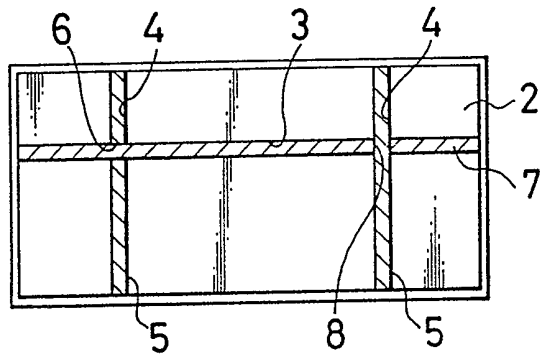


FIG. 7



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FIG. 8

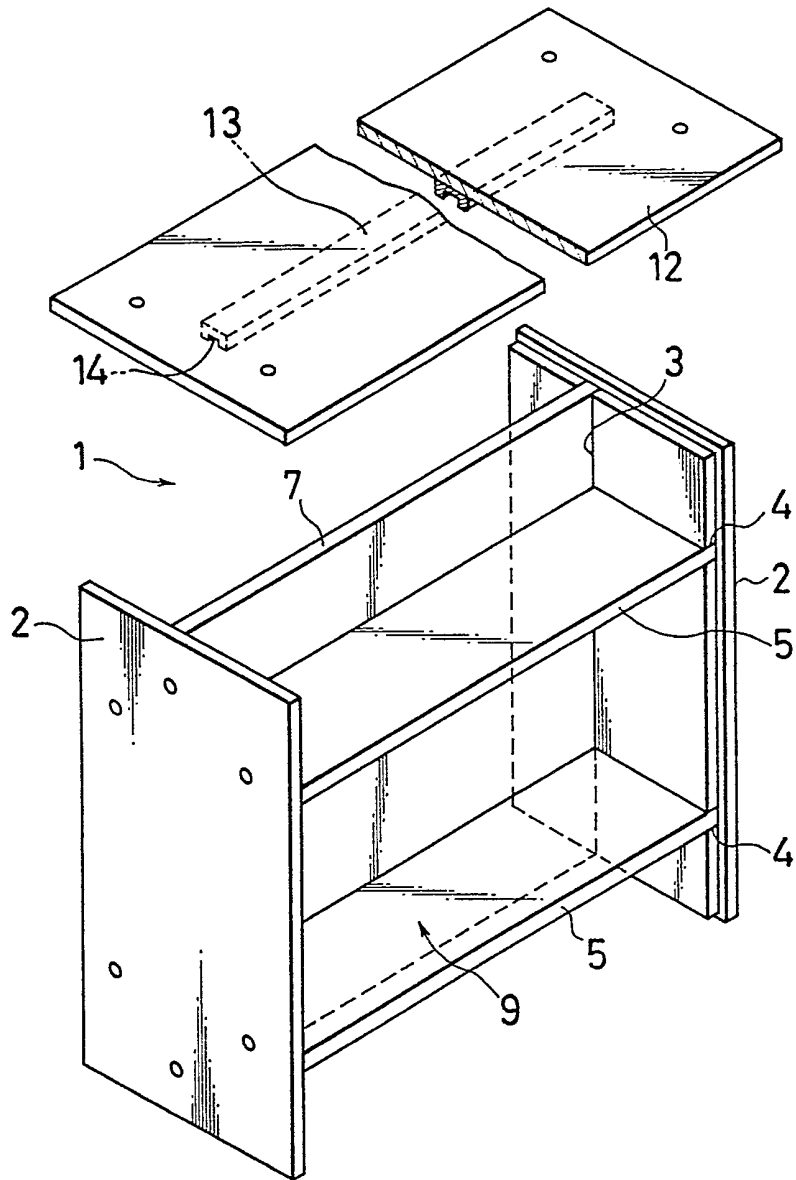


FIG. 9

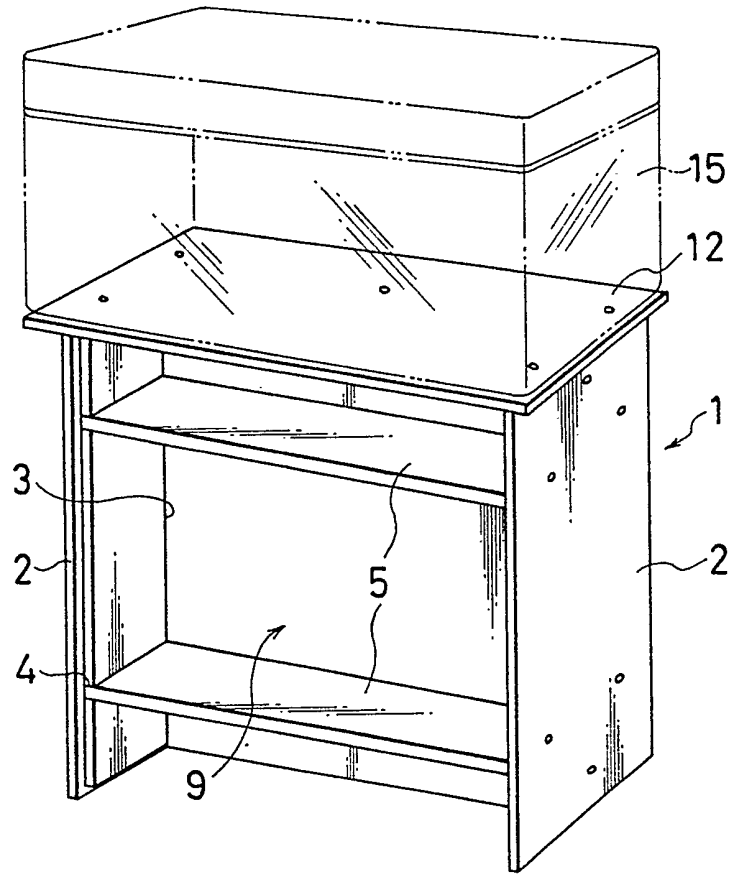


FIG. 10

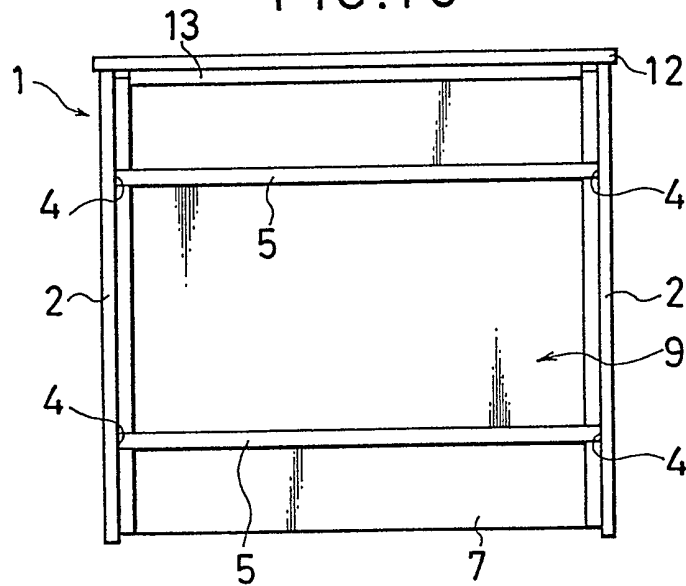
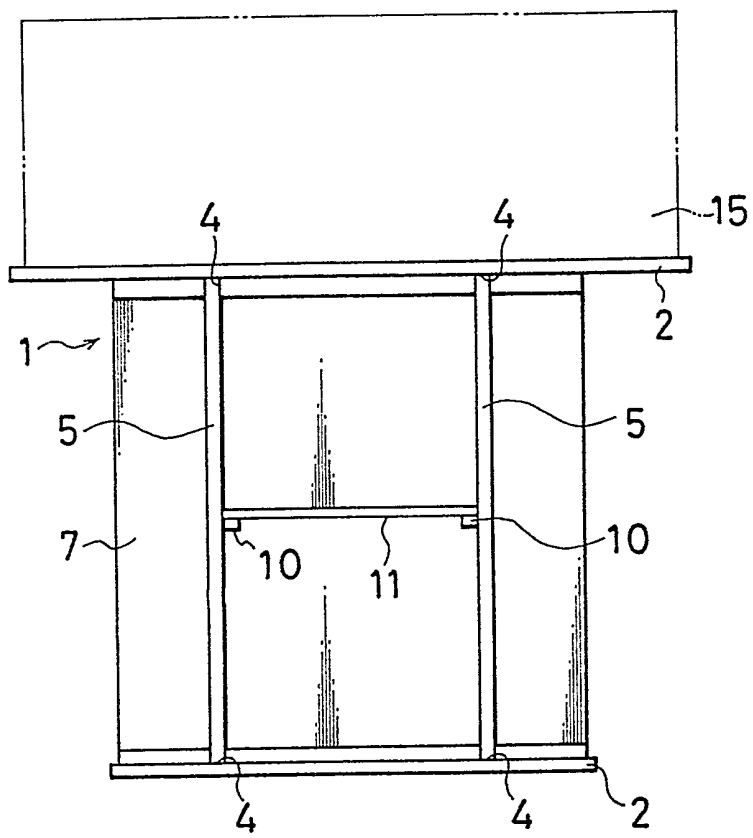


FIG. II



SUPPORT RACK

This invention relates to a support rack, on the top of which may be placed an aquarium tank, electric appliance or any of various other objects and decorative articles.

As is well known in the art, various supports and the like are used to support household electric appliances, other objects and decorative articles.

Most prior art supports of this type are wooden or metallic frames generally provided with a front hinged door made of glass, wood or other material. They are highly useful for accommodating small articles and have excellent decorative effect, and therefore, are commercially valuable and have a wide range of utilization.

However, the prior art supports cannot be used as turned on its side or turned upside down. This means that only articles of a fixed width can be properly supported. Therefore, the size of the support has to be selected depending on the size of the article to be supported. For example, an article having a width greater than that of the support would be instably supported. On the other hand, while an article having a width smaller than that of the support can be supported, the result is very unsatisfactory in appearance.

Particularly, aquarium or fish-raising tanks

contain water and are very heavy, and have to present a pleasing appearance. They therefore require supports which conform to their lateral widths.

Therefore, there is a demand for a support which can provide a number of different widths, is mechanically strong, can be easily assembled and is pleasing in appearance.

An object of the invention is to provide a support rack which permits ready alteration of the width, can be easily assembled and can stably support heavy articles.

According to one aspect of the invention, there is provided a support rack which comprises a pair of first panel members constituting upper and lower panels or left and right panels, a pair of second panel members disposed perpendicular to the first panel members, and a skeletal panel member firmly holding the first and second panel members, the individual panel members being assembled into a frame.

According to another aspect of the invention, there is provided a support rack which comprises a pair of first panel members constituting upper and lower panels or left and right panels, a pair of second panel members disposed perpendicular to the first panel members and on the inner side of the ends of the first panel members, a third panel member disposed parallel to the second panel members and located at one edge of each of the first panel members, the third panel member constituting the top of the support rack when the first panel members constitute the left and right panels, and a skeletal panel member firmly holding the first and second panel members, the individual panel members being assembled into a frame.

The width of one of the pair of second panel members may be set equal to the width of the skeletal

panel member, while the width of the other second panel member is set to be greater. In this case, it is possible to support either of two articles having different widths or lengths by merely turning over the support rack. Further, it is possible to set the support rack as turned by 90 degrees such that the opposed first panel members constitute side panels and secure a third panel member having a different width or length as a top panel to the top of the pair of first panel members.

In either case, the first and second panel members are firmly assembled by the skeletal panel member, and therefore even a heavy article can be stably placed on the support rack.

The invention will now be described in detail in conjunction with embodiments thereof with reference to the accompanying drawings, in which:

Figure 1 is an exploded perspective view showing a first embodiment of the support rack according to the invention;

Figure 2 is a perspective view, partly broken away, showing the support rack of Figure 1 in the assembled state;

Figure 3 is a perspective view showing the support rack of Figure 1 supporting a water tank;

Figure 4 is a front view showing the support rack of Figure 1;

Figure 5 is a side view showing the support rack of Figure 1;

Figure 6 is a sectional view taken along line VI-VI in Figure 5;

Figure 7 is a sectional view taken along line VII-VII in Figure 4;

Figure 8 is a perspective view showing the support rack of Figure 1 after rotation by 90 degrees and

with a third panel member used as a top panel;

Figure 9 is a perspective view showing the support rack of Figure 8; supporting a water tank;

Figure 10 is a front view showing the support rack of Figure 8; and

Figure 11 is a front view showing a second embodiment of the support rack according to the invention.

Figure 1 is an exploded perspective view showing a first embodiment of the support rack 1 according to the invention. The support rack 1 comprises a pair of first rectangular panel members 2 constituting upper and lower panels and made of wood or synthetic resin, a pair of second panel members 5 which constitute left and right panels and are assembled with the pair of first panel members 2, and a skeletal panel member 7 firmly supporting the first and second panel members 2 and 5.

The first panel members 2 are comparatively thick and each has its inner surface formed with a first mounting groove 3 extending closer to its rear edge than its front edge and second mounting grooves 4 each extending close to each end. The first and second mounting grooves 3 and 4 have a depth corresponding to about one half the thickness of the first panel members 2. The second panel members 5, like the first panel members 2, are made of wood or synthetic resin. They have substantially the same width as the first panel members 2, and each has a first engagement notch 6 open to one end and extending substantially to one half of its height. The skeletal panel member 7, like the first and second panel members, is made of wood or synthetic resin. It has a length substantially equal to that of the first panel members 2. It has a pair of second engagement notches 8 each open at one end and extending close to each end up to one half of its height. The left and right second

engagement notches 8 are open in a staggered fashion in the vertical direction.

The support rack 1 according to the invention is basically assembled with the first and second panel members 2 and 5 and skeletal panel member 7 noted above.

The assembling is done as follows. First, the lower end of one of the second panel members 5 is fitted in one of the second mounting grooves 4 formed in the top of the lower first panel member 2, and this second panel member 5 is thus held upright with respect to this first panel member 2. Then, the skeletal panel member 7 is fitted such that one of its second engagement notches 8 is fitted on the upright second panel member 5, that it is fitted in the first engagement notch 6 of the second panel member 5 and that its lower edge is fitted in the first mounting groove 3 of the first panel member 2. As a result, the skeletal panel member 7 and one of the second panel members 5 are held upright from one of the first panel members 2 in a crossing fashion. Then, the remaining second panel member 5 is fitted such that its first engagement notch 6 is fitted on the skeletal panel member 7, that it is fitted in the other second engagement notch 8 and its lower end is fitted in the second mounting groove 4.

Thus, the skeletal panel member 7 and left and right second panel members 5 are assembled perpendicular to one another on the top of the lower first panel member 2. Then, the other first panel member 2 is placed on top of the second panel members 5 and skeletal panel member 7, and its first and second mounting grooves 3 and 4 are fitted on the upper edges of the skeletal panel member 7 and second panel members 5.

If necessary, the upper and lower edges of the second panel members 5 and skeletal member 7 may be bonded

to the first panel members 2 by applying adhesive to the first and second mounting grooves 3 and 4 of the first panel members 2. Alternatively, the upper and lower first panel members 2, left and right second panel members 5 and skeletal panel member 7 may be united with one another with nails or bolts driven from the outer surfaces of the first panel members 2.

By assembling the individual panel members in the above manner, it is possible to construct the support rack 1 having the upper and lower first panel members 2. This support rack 1 can be used for supporting and displaying an aquarium tank 15 placed on the upper first panel member 2, as shown in Figure 3. On the front side of this support rack 1, a space 9 open to the front is defined by the opposed surfaces of the upper and lower first panel members 2, the opposed surfaces of the left and right second panel members 5 and the front surface of the skeletal panel member 7. A shelf 11 is provided in the space 9 as supported by support pins 10, which are provided on the opposed surfaces of the second panel members 5 and are capable of height adjustment, as shown in Figure 4. In this way, the space 9 may be utilized for storage or for displaying decorative articles.

With the support rack 1 in the above state, the lateral width thereof is the width of the first panel members 2. Therefore, it is possible to place on the support rack 1 an article whose width corresponds to the width of the upper first panel member 2, that is, the support rack cannot be utilized for articles with widths greater than the width of the first panel member 2.

For overcoming this limitation, a third panel member 12 made of wood, synthetic resin or the like material is utilized as an auxiliary member for the support rack 1 according to the invention.

As shown in Figures 8 to 10, the third panel member 12 has a width substantially equal to the distance between the left and right first panel members 2, i.e., the height of the skeletal panel member 7. The third panel member 12 is used as a top plate when the support rack 1 is set as turned by 90 degrees so that the opposed first panel members 2 are used as left and right side panels. That is, in this case the third panel member 12 is placed on top of the support rack 1. It will be appreciated the arrangement permits a choice between a supporting surface of the width of the first panel members 2 and one of the width of the third panel member 12, that is, a choice between a first state in which the first panel members 2 extend horizontally and a second state which is attained by turning the support rack 90 degrees from the first state, and in which the third panel member 12 serves as the top plate. In this way, it is possible to stably support either an article whose width corresponds to the width of the first panel member 2 or an article whose width corresponds to the width of the third panel member 12.

The third panel member 12 may be nailed to the skeletal panel member 7. Alternatively, the inner surface of the third panel member 12 may be formed with grooves like the first panel members 2, and the edges of the first panel members 2 and skeletal panel member 7 may be fitted in these grooves.

Still further, as shown in Figure 8, a rod 13 having an axial groove 14 can be secured to the inner surface of the third panel member 12 such that it extends in the longitudinal direction thereof, and the third panel member 12 be secured to the skeletal panel member 7 by fitting the groove 14 over the edge of the skeletal panel member 7. It is also possible to provide a pair of third

panel members 12, one on either end of the first panel members 2, so that they form a frame together with the opposed first panel members 2 and third panel members 12.

Figure 11 shows another embodiment of the support rack 1 according to the invention. In this instance, the width of one of the pair of first panel members 2 is set to be equal to the width of the skeletal panel member 7, while the width of the other panel member 2 is set to be greater.

This structure can stably support either of two articles having different widths by merely turning over the assembled support rack 1.

In Figures 8 to 11, the reference numerals which have not been explained designate parts like those in the first embodiment.

While the illustrated embodiments of the invention have been described, these embodiments are by no means limitative.

As has been described in the foregoing, the support rack according to the invention comprises a pair of first panel members constituting upper and lower panel members or left and right panel members, a pair of second panel members disposed perpendicular to the first panel members, a skeletal panel member having substantially the same width as that of the first panel members and firmly holding the first and second panel members and, if necessary, a third panel member constituting the top of the support rack when the first panel members constitute the left and right panels. It is thus possible to support articles having different widths on the support rack stably and reliably. That is, a single support rack can be utilized for two or more different size water tanks. In addition, the support rack can be utilized to support various electric appliances. Further, it can be assembled

very easily and has high mechanical strength, and thus it can support heavy articles as well. Further, since it is easy to assemble, it can be handled very easily by packaging and transporting it in a broken-down condition. Further, since it can be assembled and used by the user, it has particularly high practical value as a household support for aquarium tanks or various electric appliances.

Claims:

1. A support rack comprising a pair of first panel members constituting upper and lower panels or left and right panels, a pair of second panel members disposed perpendicular to said first panel members, and a skeletal panel member firmly holding said first and second panel members, said individual panel members being assembled into a frame.

2. The support rack according to claim 1, wherein said skeletal panel member is fitted at a position near the rear edge of said first panel members.

3. The support rack according to claim 1, wherein said skeletal panel member has a width substantially equal to the width of said first panel members.

4. The support rack according to claim 1, wherein said pair of first panel members have different widths and the width of said skeletal panel member is substantially the same as the width of said first panel member having the smaller width.

5. The support rack comprising a pair of first panel members constituting upper and lower panels or

left and right panels, a pair of second panel members disposed perpendicular to said first panel members and on the inner side of the ends of said first panel members, a third panel member disposed parallel to said second panel members and located at one edge of each of said first panel members, said third panel member constituting the top of said support rack when said first panel members constitute the left and right panels, and a skeletal panel member firmly holding said first and second panel members, said individual panel members being assembled into a frame.

6. The support rack according to claim 5, wherein said third panel member is an auxiliary member.

7. A support rack substantially as hereinbefore described with reference to and as shown in Figures 1 to 10 or Figure 11 of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

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Relevant Technical fields

- (i) UK CI (Edition K) A4B A4L (LABA LABB LBDB LBDC
 LSB LSG LSHA LSJ LSX)
- (ii) Int CI (Edition 5) A47B

Search Examiner

MR K MILNE

Databases (see over)

- (i) UK Patent Office
- (ii)

Date of Search

14 SEPTEMBER 1992

Documents considered relevant following a search in respect of claims

1-7

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2021391 A (A BACCHIELLI) see eg Figure 2	1-7
X	GB 1597337 (L GLAVAN) see Figures	1-7
X	GB 1436948 (PITNEY-BOWES) see eg Figures 1 and 2	1-7
X	GB 1334878 (H E WICKS) see Figure	1-7
X	GB 1279240 (A MUNCH) see Figures	1-7
X	GB 1019139 (J STUCKI) see Figures	1-7
X	EP 0248663 A2 (DEL CASTILLO) see Figures	1-7
X	US 4153311 (TAKAHASHI) see Figures	1-7



Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

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