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(54) **ALUMINUM FRAME FOR THE CONSTRUCTION OF A SUNSHADE WITH DOUBLE LAYER OF FABRIC AND ADJUSTABLE TO ANY KIND OF SUNSHADE**

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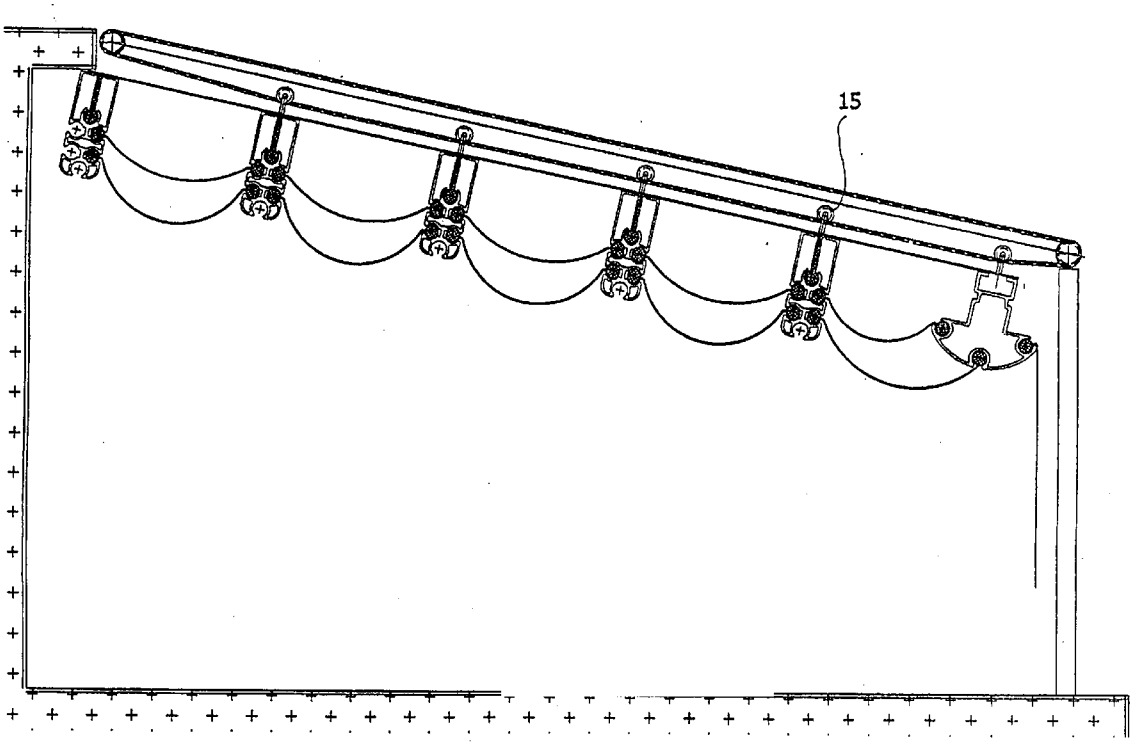
(57) **ABSTRACT**

An aluminum frame for the construction of a sunshade with double layers of sunshade fabric which is adjustable to any kind of sunshade characterized in that on its one end it comprises a rectangular notch (**1**) to which a PVC frame is fitted on which the fabric of the exterior sunshade is glued or sewed and to the two adjacent sides there are two respective adjacent circular notches (**3**) to which the fabric of the interior sunshade is fitted. To the other end of the aluminum frame there is a circular notch (**2**) to which an advertising panel (**8**) can be fitted. In order for the invented frame to be used for the construction of greater surfaces, it is of rectangular shape with three notches (**9**), (**10**) and (**11**) on its upper part and three notches (**12**), (**13**), (**14**) on its lower part.



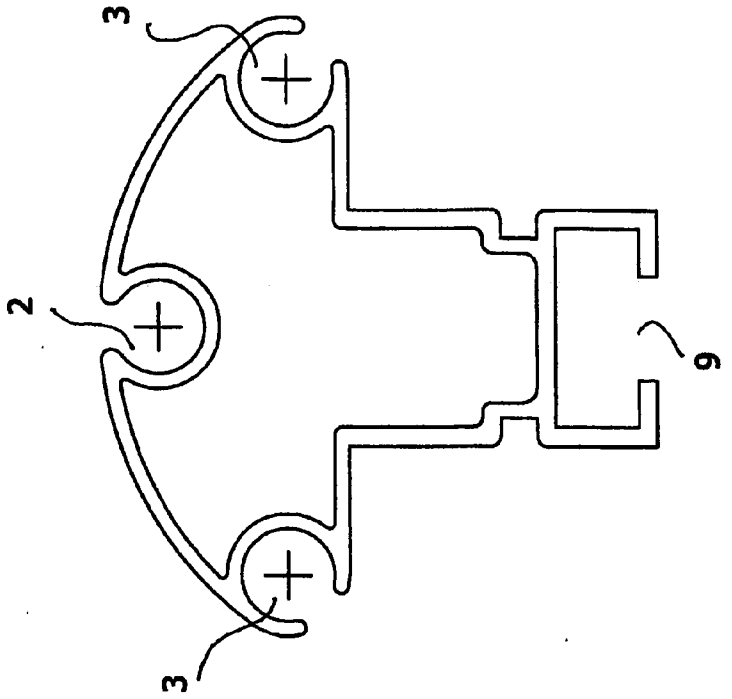


Figure 2

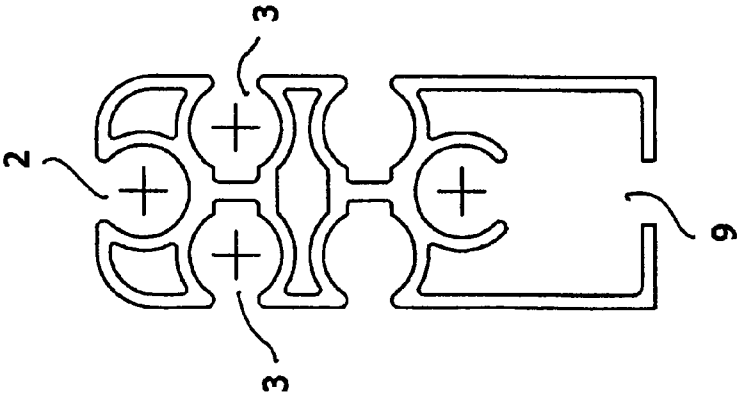


Figure 3

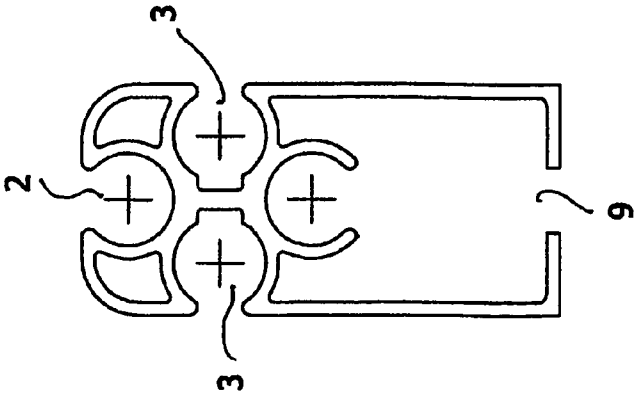


Figure 1

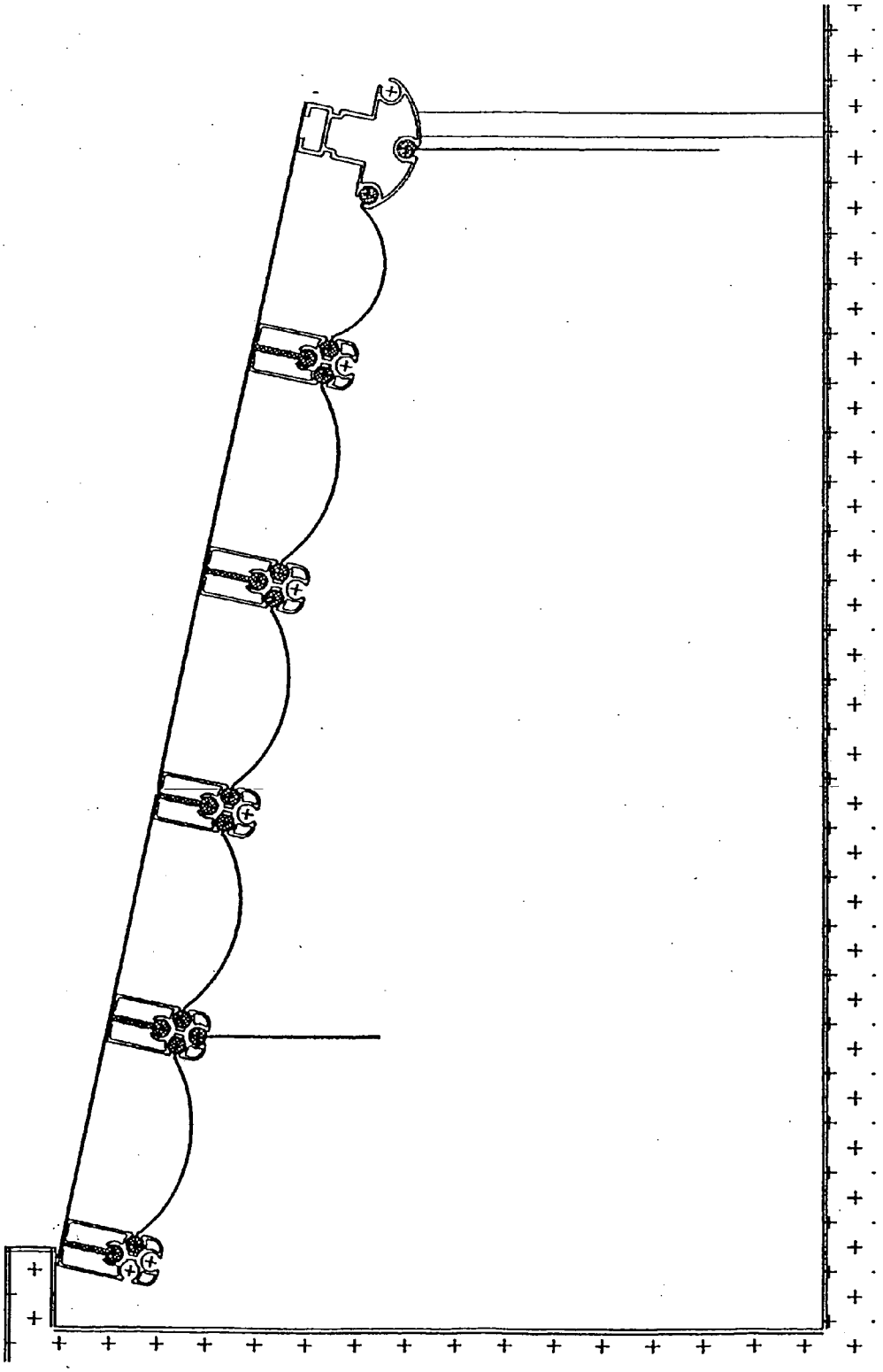


FIGURE 4

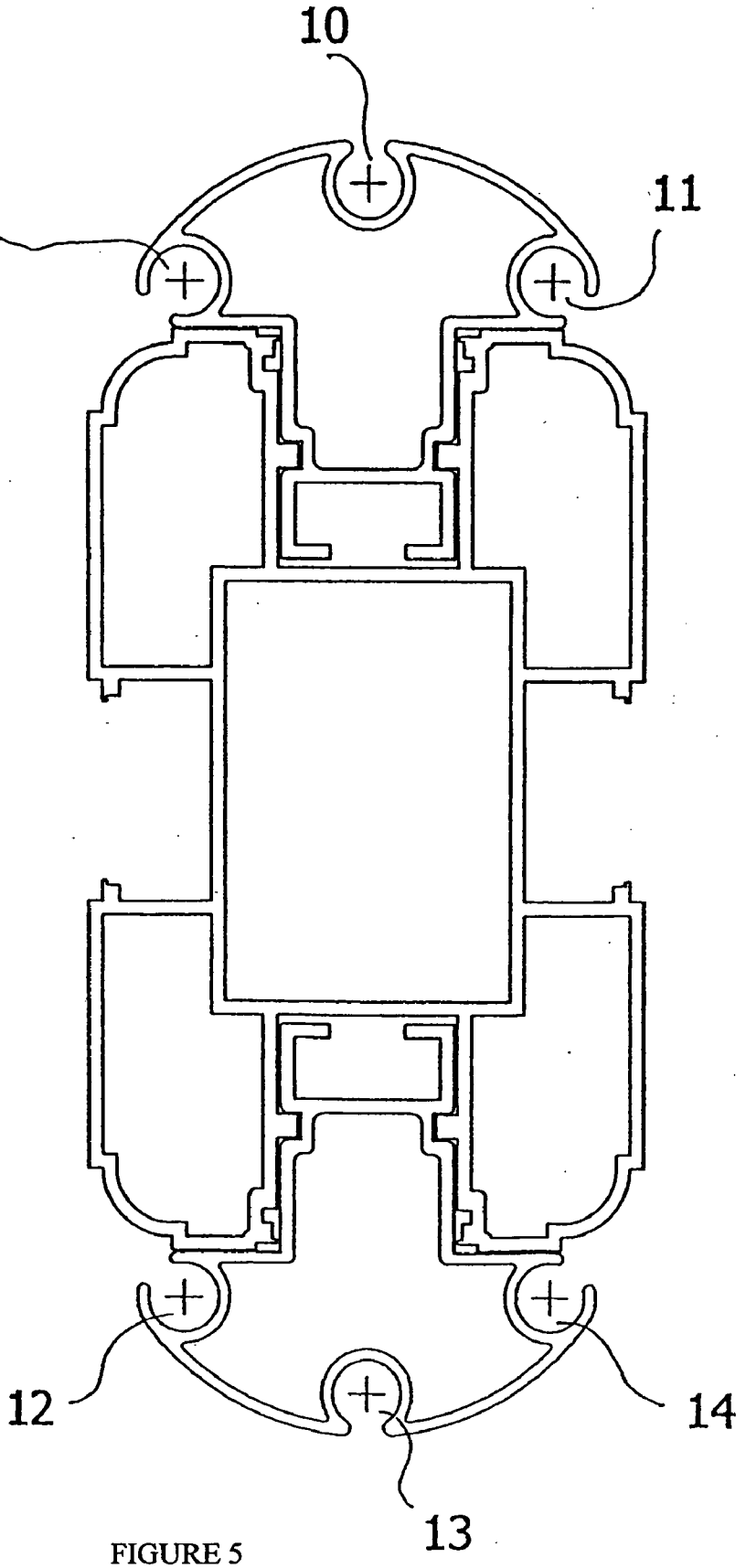


FIGURE 5

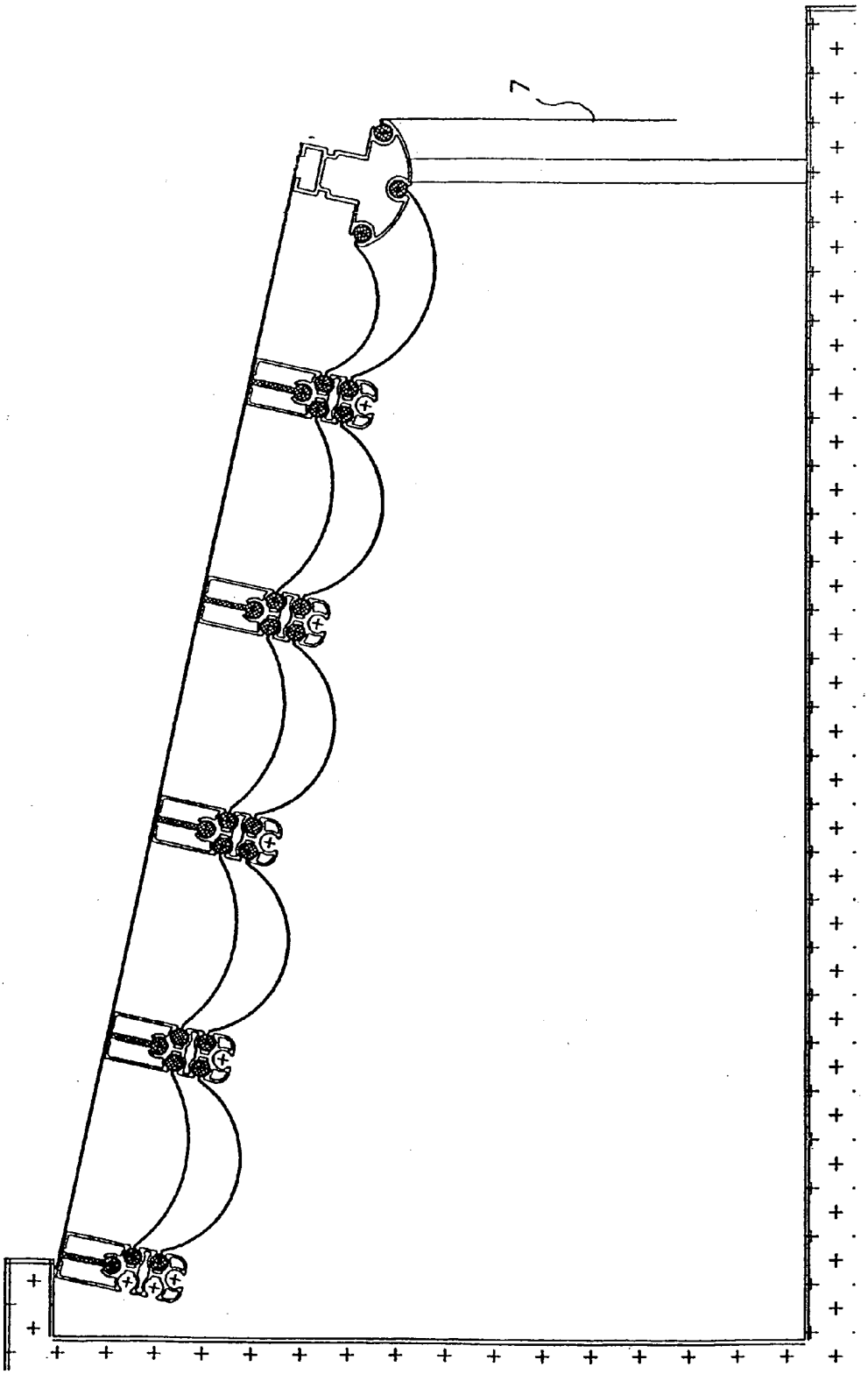


FIGURE 6

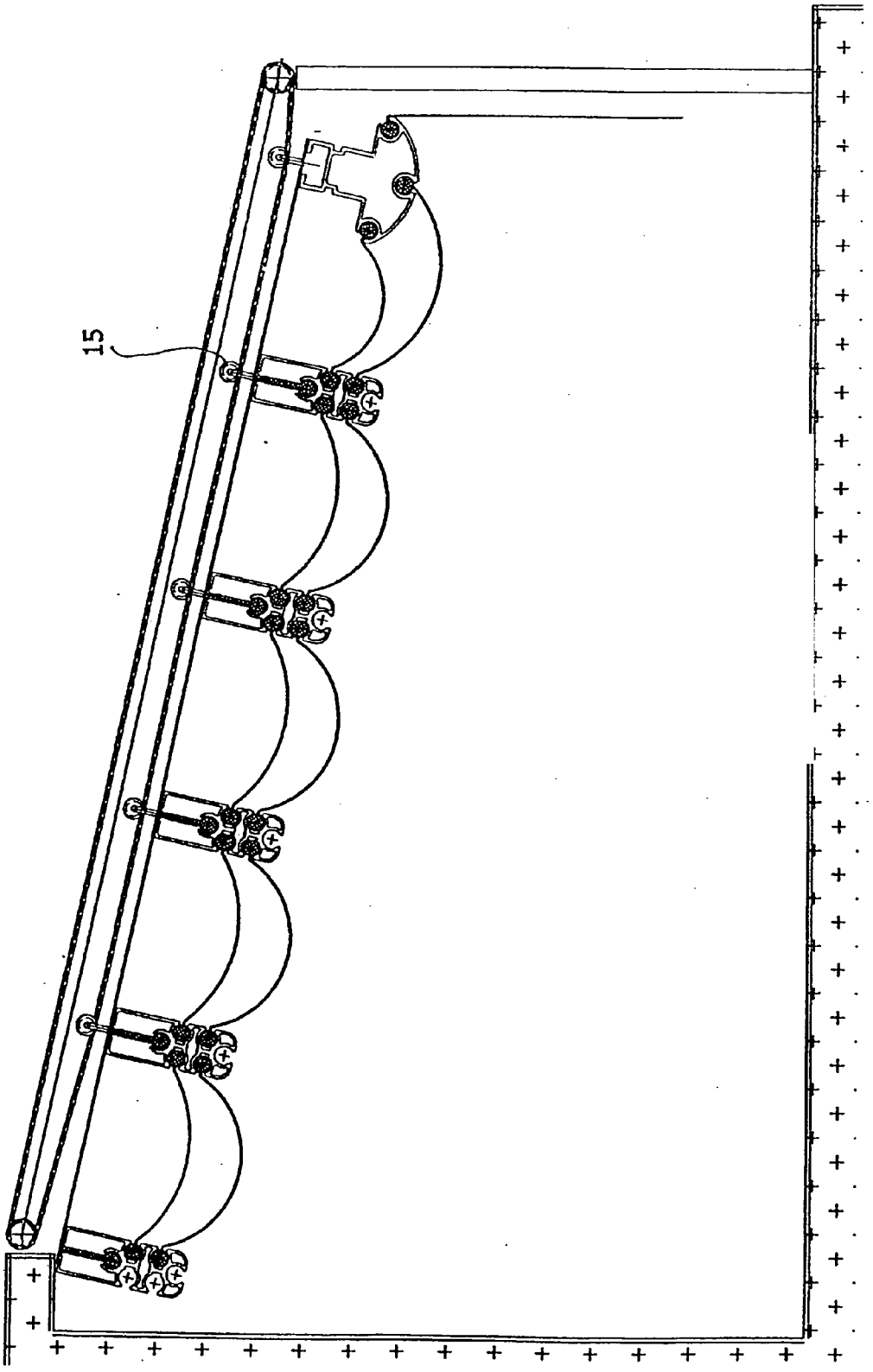


FIGURE 7

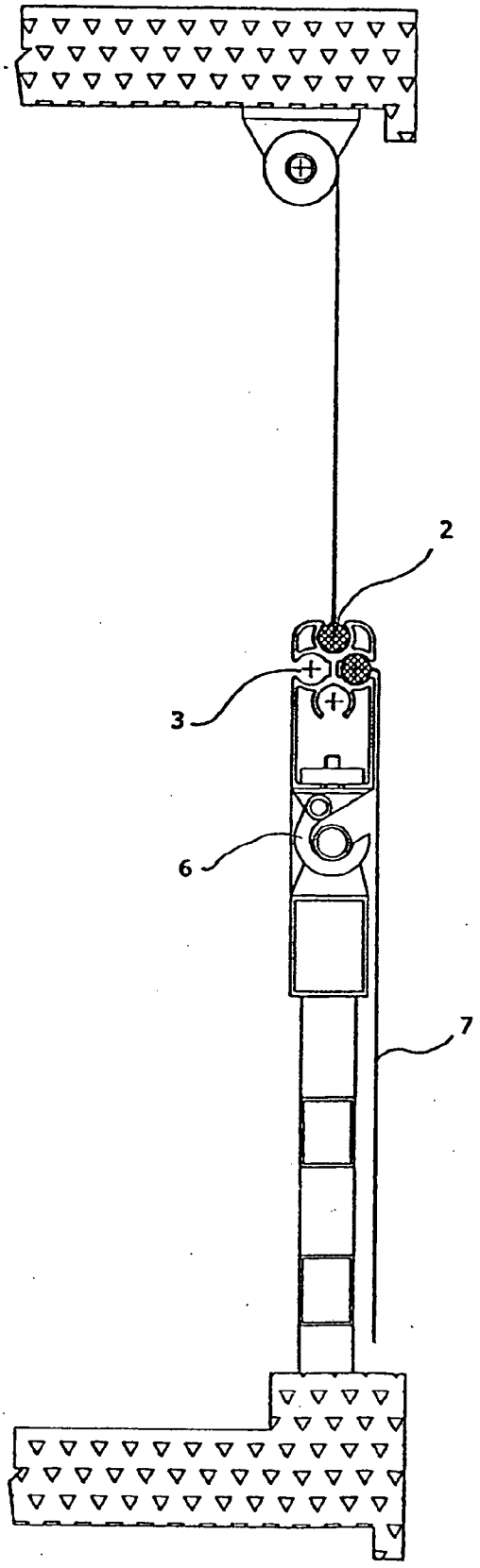
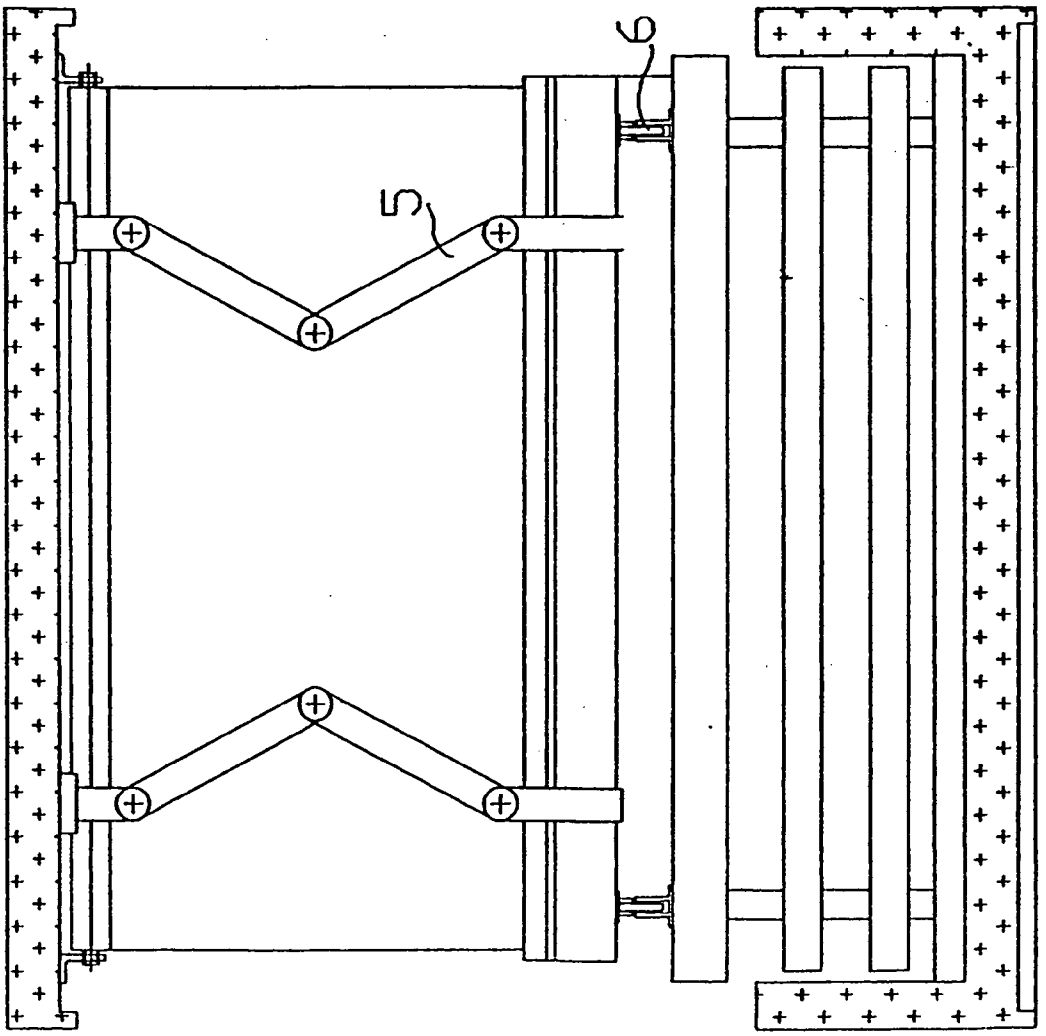


FIGURE 8

FIGURE 9



ALUMINUM FRAME FOR THE CONSTRUCTION OF A SUNSHADE WITH DOUBLE LAYER OF FABRIC AND ADJUSTABLE TO ANY KIND OF SUNSHADE

FIELD OF THE INVENTION

[0001] The present invention relates to an aluminum frame suitable for the construction of a sunshade with double or triple layers of fabric and advertising panel under the sunshade, whilst at the same time the same frame can be used for the construction and/or assembly of any kind of sunshade.

DESCRIPTION OF RELATED ART

[0002] No similar object has been constructed based on the existing prior art. In particular all known kinds of sunshades comprise of a single layer of sunshade fabric, whilst for each one of the above kinds of sunshades different aluminum frames are used.

[0003] Moreover, no aluminum frame is used for the sunshade with rollers. In particular the known frames used for the construction of sunshades, are different with regard to their exterior design but their common characteristic is that they comprise a notch used for the support of the arm and two or more notches for the adjustment of the coverage fabric, which is always a single layer. Moreover, in the case of the sunshade—pergola, the aluminum frames, which are known until today comprise of only one notch, in which the fabric is adjusted.

[0004] The disadvantages of the existing sunshades of single layer of fabric are the following:

[0005] A) Their heat insulation is not sufficient, therefore, a period of long duration under the sunshade, especially during summer, is impossible due to the high temperatures caused.

[0006] B) Their endurance is limited as there are some limitations with regard to the coverage fabric used due to reasons of external appearance and endurance. E.g. in the case where PVC of high endurance is used, high temperatures are created whilst on the other hand cotton fabric is cooler but of limited endurance.

[0007] C) Due to the fact that the existing sunshade—pergolas comprise only of a single piece, sunshades which can cover many square meters cannot be constructed.

[0008] The above technical problems have led to an attempt to find a solution, the result of which Is the object of the present invention.

[0009] The invented frame overcomes all the above-listed drawbacks. In particular

[0010] A) With the use of double layers of sunshade fabric, effective heat insulation is achieved due to the fact that between the two fabrics an air vacuum is created.

[0011] B) The endurance of the system is increased due to the fact that the exterior layer of fabric, which no longer has to take appearance into account, can be constructed from a high endurance material, different from the interior fabric.

[0012] C) Moreover, an advertising panel can be fitted together with the sunshade.

[0013] D) Smaller parts of fabric can be used in the construction and the assembly of these allows for the construction of sunshades of unlimited length and width. At the same time, the parts of the interior sunshade surface can easily be removed and cleaned, a fact which until today required the use of experienced personnel and machines (elevatory machine or crane etc.).

[0014] E) An advertising panel can be fitted in the lower notch of the invented frame and thus a new and original way of advertising is created and also the advertising company can contribute to the sunshade construction expenses or some kind of fee can be paid to the owner of the sunshade.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The technical, constructional and functional characteristics of the present invention, will be comprehensive to those skilled in the art, with reference to the accompanying drawings of the present specification, which show industrial preferred embodiments of the present invention.

[0016] In particular FIG. **1** shows the invented frame.

[0017] FIG. **2** shows the invented frame with its adjacent sides oblated.

[0018] FIG. **3** shows the invented frame with two pairs of side notches.

[0019] FIG. **4** shows an assembly of frames of FIGS. **1**, **2** and **3** used in the construction of multiple square meters.

[0020] FIG. **5** shows a rectangular frame with three notches on the upper part and three on the lower part.

[0021] FIG. **6** shows an embodiment of the invented frame to a sunshade—pergola of double layer of fabric.

[0022] FIG. **7** shows an alternative embodiment of the invented frame with regard to a roller sunshade.

[0023] FIG. **8** shows the alternative embodiment of the invented frame with regard to a drop sunshade.

[0024] FIG. **9** shows another alternative embodiment of invented frame with regard to a folding sunshade with arms.

[0025] The drawings show an example of the present invention. Hereinafter, same reference numbers of the main parts of the object refer to the corresponding reference numbers of those parts in the accompanying drawings. The parts are not depicted to scale but simply in dimensions proportional to one another.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0026] According to the selected indicative embodiment of the invention, the invented frame comprises on its one end a rectangular notch (**1**) to which the arm (**5**) of the sunshade is fitted, in folding sunshades with arms (FIG. **9**), or the rollers (**15**) in roller sunshades (FIG. **6**) are fitted; or the security hook (**6**) of the sunshade is fitted, in drop sunshades.

[0027] On the other end of the invented frame there is a circular notch **2** to which one of the layers of fabric of the sunshade is fitted or the advertising panel is fitted, depending on the kind of sunshade and the orientation of the frame.

[0028] On the side parts of the frame there are two adjacent circular notches (**3**) to which the second layer of fabric is fitted. Depending on the kind of sunshade we wish to construct, the adjacent notches (**3**) can be situated a small distance from the end circular notch **2** or at a greater distance and in this case the frame has the respective oblated shape (see

FIG. 2), which is of greater endurance. An indicative reference is made below to the uses of the invented frame

A: Sunshade—Pergola.

[0029] The sunshade—pergola constitutes the most common kind of sunshades for professional use. The invented frame can be used for the construction of a sunshade—pergola with double layers of sunshade fabric (see FIG. **5**) as follows:

[0030] On the end rectangular notch (**1**) a frame from PCV or other suitable layers of fabric is fitted, on which the exterior sunshade has been glued or sewed. On the adjacent notches (**3**) the interior sunshade is fitted in same way, which can be stretched or arched (balloon). On the end circular notch (**2**) the advertising panel can be placed.

[0031] Alternatively, for big constructions and in order to avoid use of excessive sunshade parts, which could create many gaps between them, the rectangular frame is used (FIG. **5**) which comprises three circular notches (**9**), (**10**), (**11**) on the upper side and three circular notches (**12**), (**13**), (**14**) on the lower side. On the two upper end notches (**9**), (**11**) the fabric of the exterior layer of sunshade fabric is fitted and on the middle upper notch (**10**) the roller support of the sunshade is fitted and on the two lower-end notches (**11**, **13**) the layer of fabric of the interior sunshade is fitted and on the middle-lower notch (**12**) the advertising panel is fitted.

B. Sunshade with Rollers.

[0032] Until today no aluminum frame has been constructed which could be used in a sunshade with rollers. On the contrary a metallic pipe has been used, which was placed into a suitable fitting in the sunshade fabric and the with the help of the rollers went up and down and moved in this way the sunshade fabric.

[0033] On the contrary the use of the invented frame avoids the use of the existing pipe, and the rollers (**15**) are placed to the end rectangular notch **1** of the frame, the sunshade fabric is placed in a side notch (**3**), the tongue and the end circular notch (**2**) are placed to the opposite adjacent notch (**3**) and the roll of fabric (**7**) is placed to the end circular notch (**2**). In this way the shaded surface or area can be closed off with fabric down to the floor and the full shade of the space should be achieved.

C. Drop Sunshade

[0034] In order for the invented frame to be used for the construction of a drop sunshade to the end rectangular notch **1** of the frame a circular security fitting (**6**) is fitted, which is hooked to the rail, the fabric of the drop sunshade is fitted to the opposite end circular notch (**2**), and the tongue of the sunshade is fitted to the one adjacent notch (**3**), and a fabric roll (**7**), which could close off the shaded surface or area down to the floor, can be placed to the other adjacent notch.

[0035] It should also be noted that the object of the present invention should not be limited to the above described examples. The invented frame can be successfully used for army tents, camp tents, party tents, umbrellas and in general for the construction of any fabric based shelter.

1. An aluminum frame for the construction of a sunshade with double layers of sunshade fabric which is adjustable to any kind of sunshade, characterized in that on one end it comprises a rectangular notch (**1**) to which a PVC frame is fitted, on which the fabric of the exterior sunshade is glued or sewed, and on the two adjacent sides there are two adjacent circular notches (**3**) to which the fabric of the interior sunshade is fitted. On the other end of the aluminum frame there is a circular notch (**2**) to which an advertising panel (**8**) can be fitted.

2. An aluminum frame for the construction of a sunshade with double layers of sunshade fabric which is adjustable to any kind of sunshade according to claim **1**, characterized in that it is used for the coverage of large surfaces and is of rectangular shape with three notches (**9**), (**10**) and (**11**) on its upper side and three notches (**12**), **13**), (**14**) on the lower part, to the upper two end notches (**9**), (**11**) the fabric of the exterior sunshade is fitted, to the middle-upper notch (**10**) the support roller **15** of the sunshade is fitted, to the two lower end notches (**12**) (**14**) the fabric of the interior sunshade is fitted and to the middle-lower notch (**13**) the advertising panel **8** is fitted.

3. An aluminum frame for the construction of a sunshade with double layers of sunshade fabric which is adjustable to any kind of sunshade according to claim **1**, characterized in that in order to be used for the construction of a roller sunshade, the rollers are placed to the end rectangular notch **1** of the frame, the sunshade fabric is placed to one of the adjacent notches (**3**), and the tongue of the sunshade is fitted to the opposite adjacent notch (**3**), and a fabric roll (**7**), which could close off the shaded surface down to the floor, can be placed to the end circular notch (**2**).

4. An aluminum frame for the construction of a sunshade with double layers of sunshade fabric which is adjustable to any kind of sunshade according to claim **1**, characterized in that, in order to be used for the construction of a drop sunshade, to the end rectangular notch **1** of the frame a circular security fitting (**6**) is fitted, which is hooked to the rail, the fabric of the drop sunshade is fitted to the opposite end circular notch (**2**), and the tongue of the sunshade is fitted to the one adjacent notch (**3**), and a fabric roll (**7**), which could close off the shaded surface down to the floor, can be placed to the other adjacent notch (**3**).

5. An aluminum frame for the construction of a sunshade with double layers of sunshade fabric which is adjustable to any kind of sunshade according to claim **1**, characterized in that its adjacent sides could be oblated for greater endurance, it could comprise and/or two pairs of adjacent notches (**3**) or to be an assembly of all the above frames for greater and more complex constructions.

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