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(54) **SELFRECTING STRUCTURE**

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(57) **ABSTRACT**

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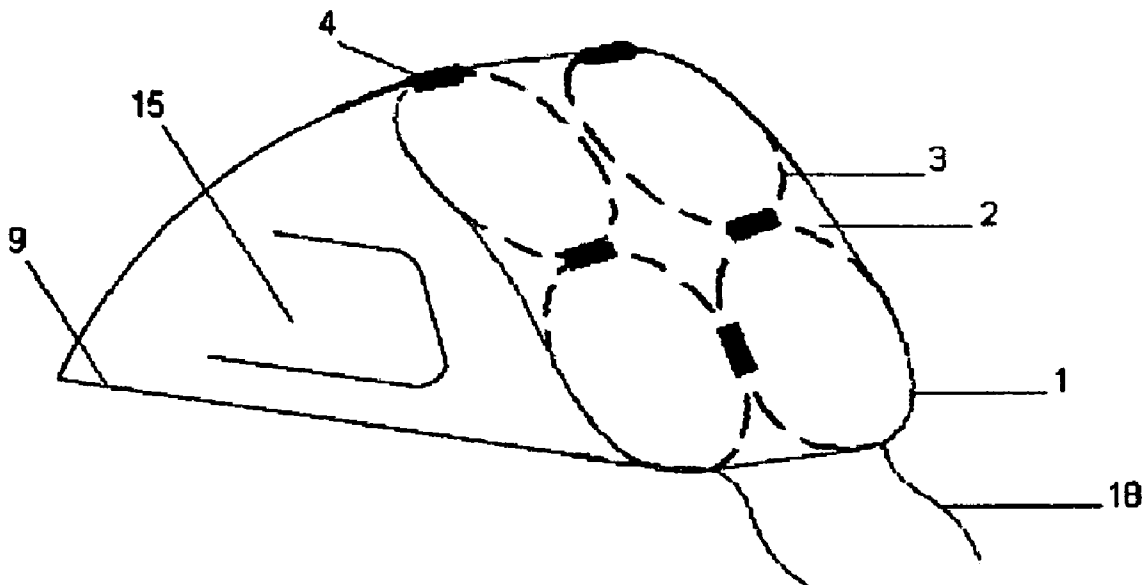
A structure includes a frame formed of one, two, three or more resilient endless forms of rod material in the shape of figure eight or connected on their longitudinal axis one after another such figures of eight or part of it, connected directly together or additionally connected firmly enough together or with other contours to form one rigid structure, covered with sheet material, extending over loops and sewed to the rod material. The places of the crossings of the rod material are accumulating the energy, when folded, which is needed for the unfolding of the structure. In the places of the crossings of the rod material are placed bushes, having the role to define the rate of the unfolding speed.

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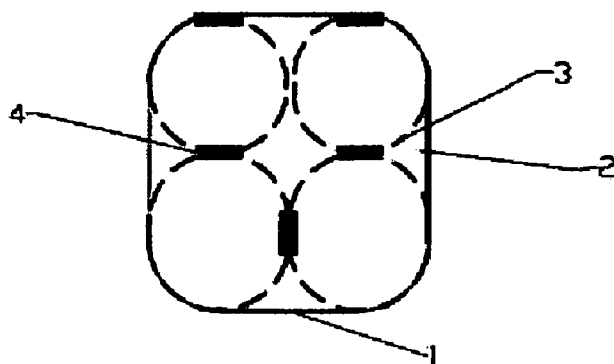


Fig. 1

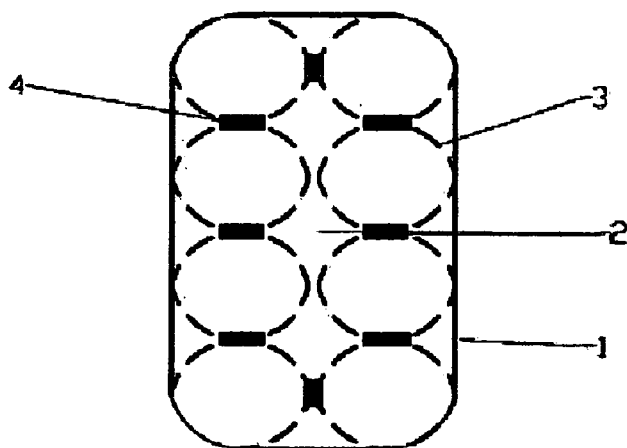


Fig. 2

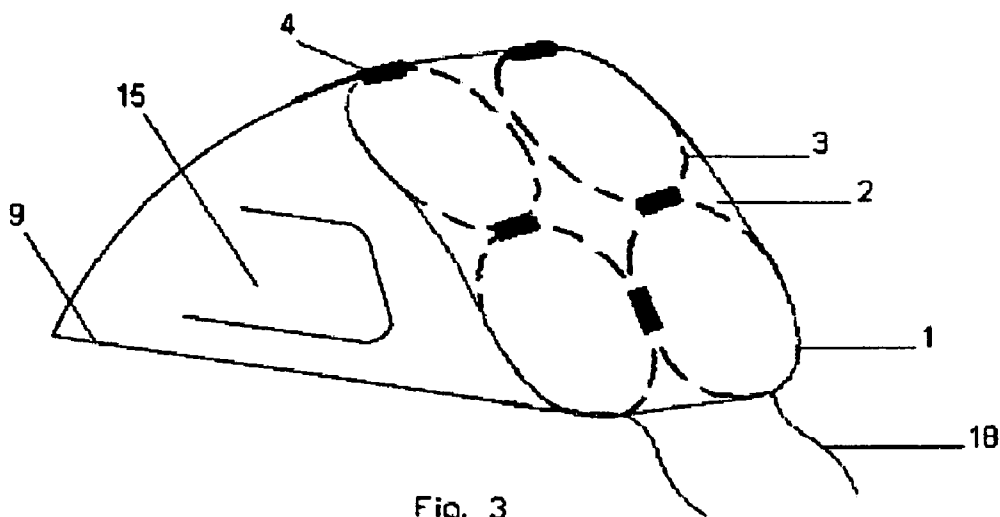


Fig. 3

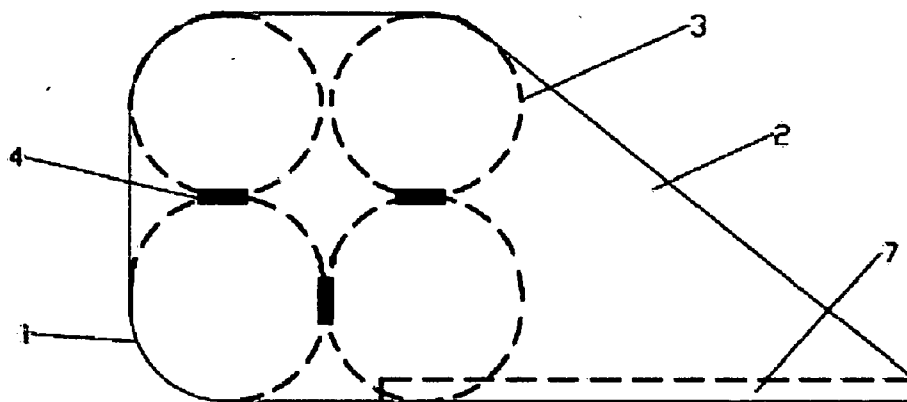


Fig. 4

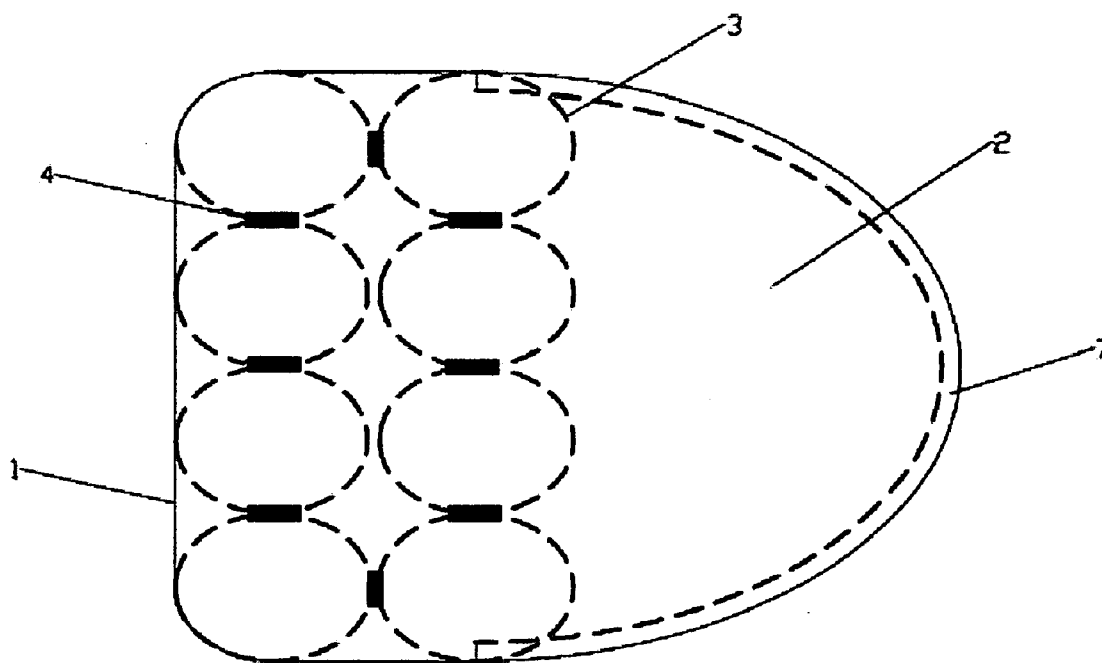


Fig. 5

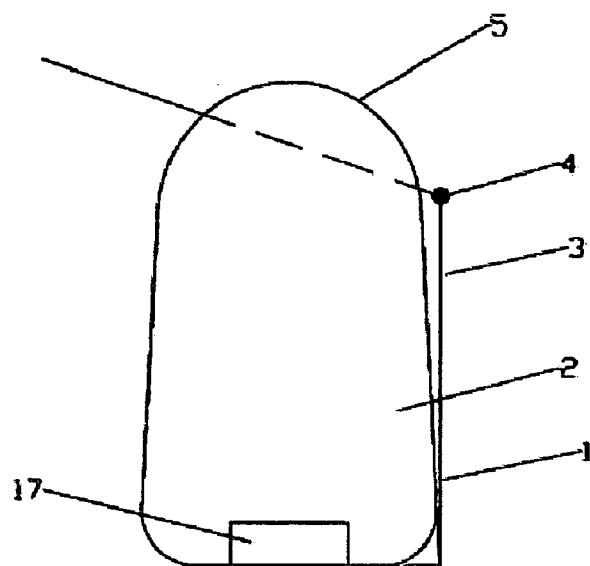


Fig. 6

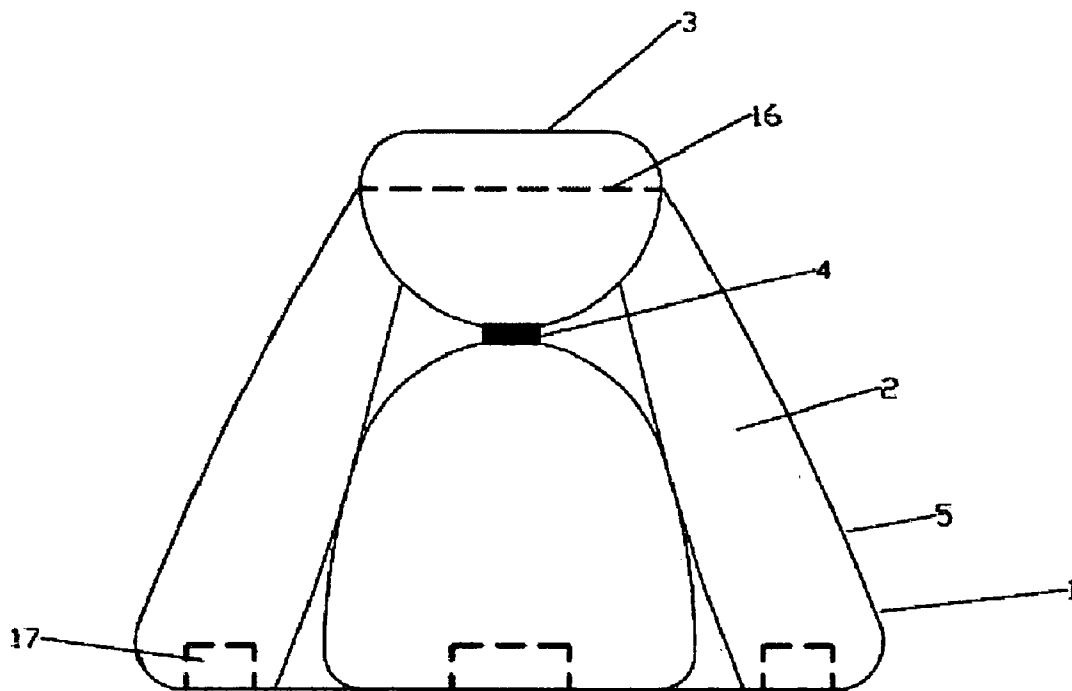


Fig. 7

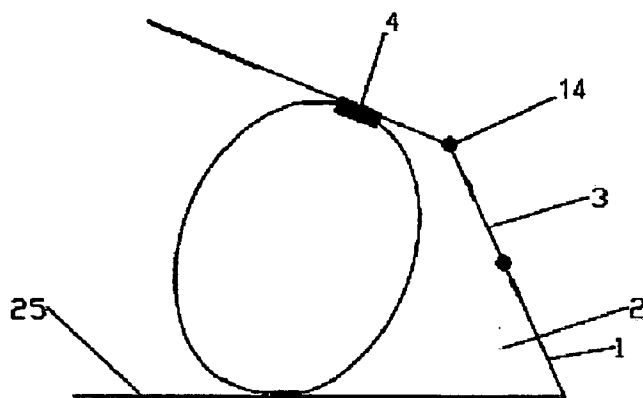


Fig. 8

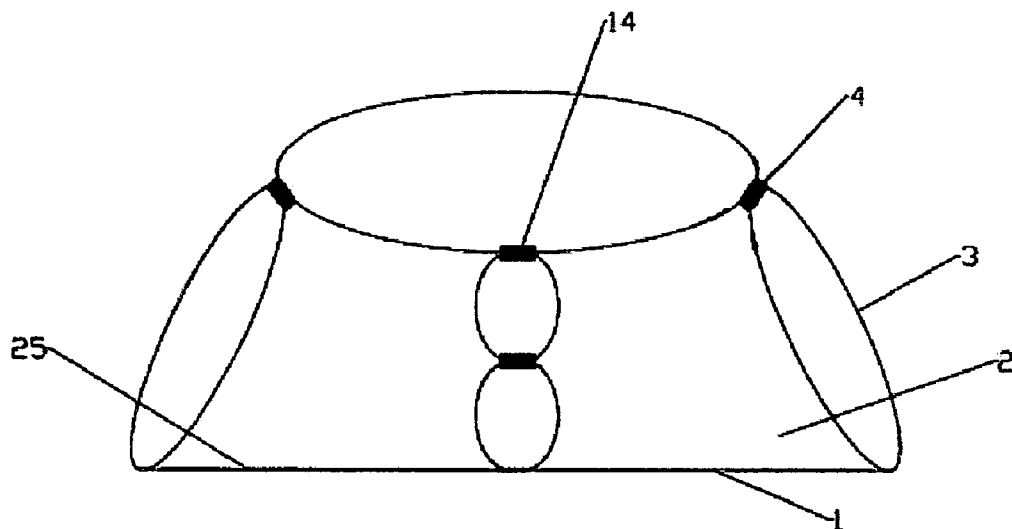
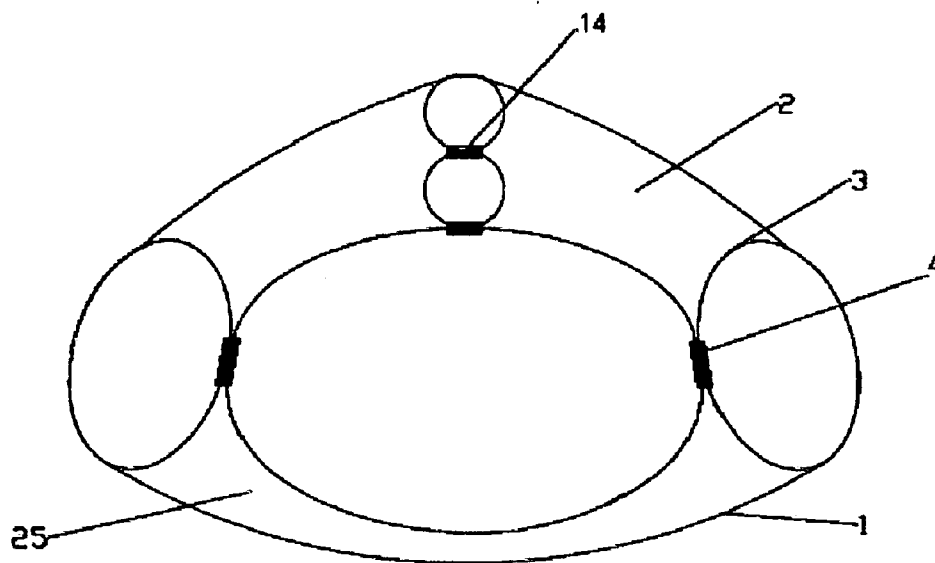


Fig. 9



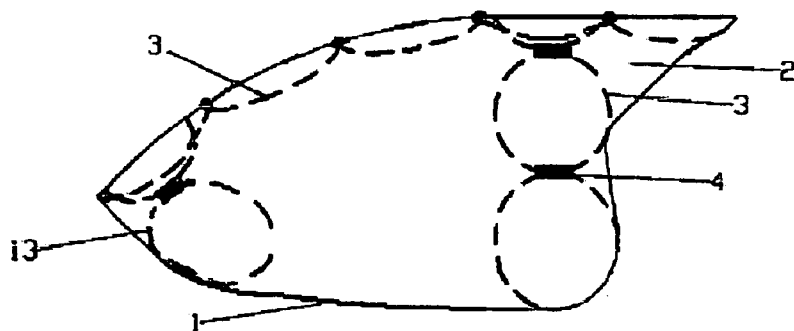


Fig. 11

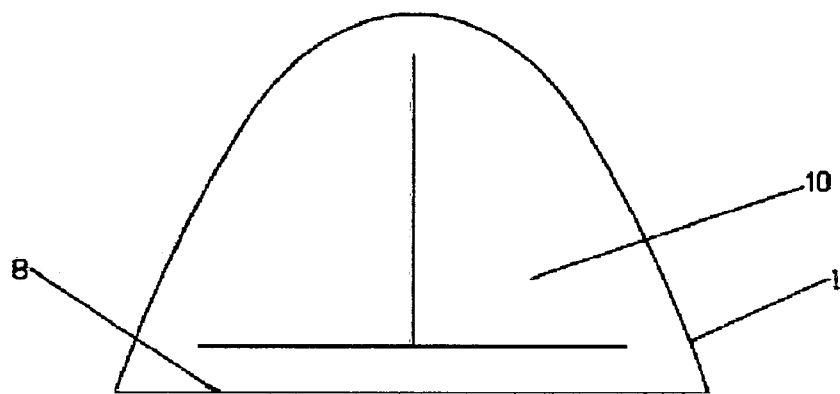


Fig. 12

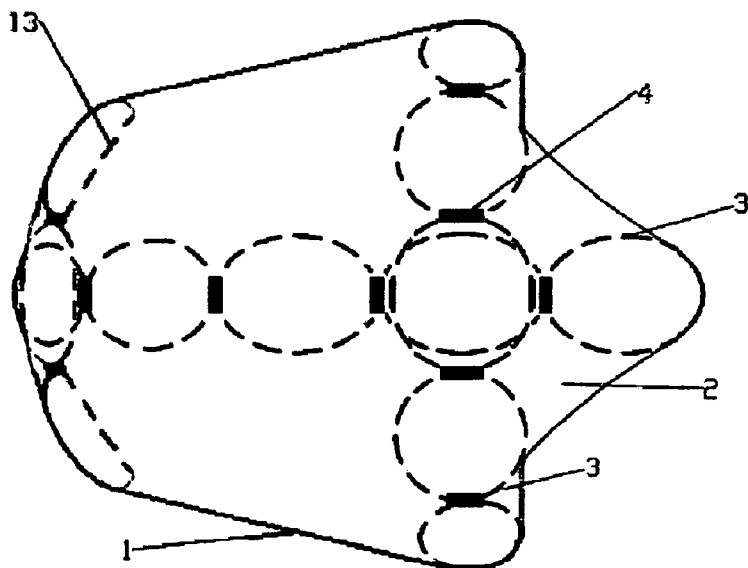


Fig. 13

## SELFERECTING STRUCTURE

### FIELD OF THE INVENTION

[0001] The present invention relates to a selferecting structure and, more particular, to a multi-purpose structure made of flexible frame elements and sheet material to form different shade providing devices or antimosquito net frames.

### BACKGROUND OF THE INVENTION

[0002] Structures, which are composed of one or more continuous flexible figure eight loops with fabric extending over and between sections of the loops to define a partial or full enclosure, have been developed, which can be quickly erected or collapsed. Such devices are illustrated in U.S. Pat. No. 3,990,463; U.S. Pat. No. 6,302,127, the disclosure of which are incorporated herein by reference.

[0003] The simplest of the structures disclosed in the aforementioned patents is formed by a single figure eight frame made of endless band. Structures using this frame construction are not stable in the erected position and especially when placed on steep slopes, because are having only two support points to ground. There is a structure, that is constructed by two figure eight frames, placed at a distance from each other, but the separate frames are not connected steady and firmly between them in one rigid frame and so need additional strengthening, tightening and fastening elements like pegs, ropes and fabric as a linking element to keep the structure upright. Unfolding of those structures is not fully independent.

### SUMMARY OF THE INVENTION

[0004] The present invention is directed to a structure including a frame, formed of one, two, three or more resilient endless forms of rod material in the shape of figure eight or connected on their longitudinal axis one after another such figures of eight or part of it (hereafter referred as figure eight type contours), connected directly or additionally firmly enough together or with other contours to form one rigid structure, covered by sheet material, extending over loops and sewed to the rod material. The places of the crossings of the rod material are accumulating the energy, when folded, that is needed for the unfolding of the structure. In the places of the crossings of the rod material are placed bushes, having the role to define the rate of the unfolding speed.

[0005] The advantages of thus presented invention are because of the use of one, two, three or more contours in the form of figure eight formations of flexible rod material, connected together or with other contours and with the help of the sheet material on them, form a rigid and stable construction with at least three, four, five or more support points to ground. The inner useful space is enlarged and the space, needed when in folded position, is low to a level, that they can be placed in a personal bag.

[0006] Accordingly, the present invention is to provide an improved structure, defined by a frame of one, two, three or more selfconnected endless contours, composed of crossed rod material and additional contours and sheet material, extending over the loops. Other and further objects and advantages will appear hereinafter.

[0007] It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0008] These, as well as other features of the present invention, will become apparent upon reference to the drawings wherein:

[0009] FIG. 1 is a side view showing a selferecting structure consisting of two figure eight type contours.

[0010] FIG. 2 is a top view showing a selferecting structure consisting of two figure eight type contours.

[0011] FIG. 3 is a perspective view showing a selferecting structure consisting of two figure eight type contours.

[0012] FIG. 4 is a side view showing a selferecting structure consisting of two figure eight type contours expanded additionally.

[0013] FIG. 5 is a top view showing a selferecting structure consisting of two figure eight type contours expanded additionally.

[0014] FIG. 6 is a side view showing a selferecting structure consisting of one figure eight type contour with two side contours.

[0015] FIG. 7 is a front view showing a selferecting structure consisting of one figure eight type contour with two side contours.

[0016] FIG. 8 is a side view showing a selferecting structure consisting of one figure eight type contour with T-figure connection among the loops.

[0017] FIG. 9 is a front view showing a selferecting structure consisting of one figure eight type contour with T-figure connection among the loops.

[0018] FIG. 10 is a top view showing a selferecting structure consisting of one figure eight type contour with T-figure connection among the loops.

[0019] FIG. 11 is a side view showing a selferecting structure consisting of three figure eight type contours with cross type connections between contours.

[0020] FIG. 12 is a front view showing a selferecting structure consisting of three figure eight type contours with cross type connections between contours.

[0021] FIG. 13 is a top view showing a selferecting structure consisting of three figure eight type contours with cross type connections between contours.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] Reference will now be made in detail to the preferred embodiments of the present 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.

[0023] Turning in detail to the Figures, FIG. 1, FIG. 2 and FIG. 3 are showing selferecting structure 1 with two figure

eight type contours **3** made of elastic rods, connected together, sheet material **2** such as fabric material, sewed on the contours and bushes **4** placed on the crossings, to define the rate of unfolding speed. On FIG. **3** is shown door opening **15** and the straps **18** for tightening to the soldier's bed, if the sheet material **2** is a mosquito net. The structure is folded by folding the first, nearest to the door opening **15** contour, then folding it on to the second contour and then folding the thus formed two loops one over the other to form one ring. Then the one end of the thus formed ring is twisted 180 degrees relative to the other and the two new formed loops are folded one over the other. Thus folded structure is placed in a bag possessing similar dimensions. The structure unfolds automatically when pulled out of the containing bag.

[0024] On FIG. **4** and FIG. **5** is shown the same selferecting structure expanded additionally in the rear side by a hose like appendage **7**. The structure is folded by folding the first nearest to the door opening **15** contour, then folding it on to the second contour and then folding the thus formed two loops one over the other to form one ring. Then the one end of the thus formed ring is twisted 180 degrees relative to the other and the two new formed loops are folded one over the other. Then the hose like appendage **7** is rolled over them. Thus folded structure is placed in a bag possessing similar dimensions. The structure unfolds automatically when pulled out of the containing bag.

[0025] FIG. **6** and FIG. **7** show selferecting structure **1** with one figure eight type contour **3** and two additional side contours **5**, connected to the lower loop of figure eight type contour **3**, sheet material **2**, sewed on the contours, and bush **4** placed on the crossing. There are sand pockets **17** for better stability. On FIG. **7** is shown rope **16** which fixes the upper loop of the figure eight type contour **3** to its place when unfolded. The structure is folded by folding the upper loop of the figure eight type contour to the lower one. Then over them are folded the two side contours. Then the one end of the thus formed ring is twisted 180 degrees relative to the other and the two new formed loops are folded one over the other. Thus folded structure is placed in a bag possessing similar dimensions. The structure unfolds automatically when pulled out of the containing bag.

[0026] FIG. **8**, FIG. **9** and FIG. **10** show selferecting structure **1** with one figure eight type contour **3** having a T-figure connection between the loops, sheet material **2**, sewed on the contours, and bushes **4** and **14** on the crossings. There is a floor fabric **25**. The structure is folded by folding the two smaller loops in the rear part onto the central upper loop and then the two side loops over them. Then the one end of the thus formed ring is twisted 180 degrees relative to the other and the two new formed loops are folded one over the other. Thus folded structure is placed in a bag possessing similar dimensions. The structure unfolds automatically when pulled out of the containing bag.

[0027] On FIG. **11**, FIG. **12** and FIG. **13** show selferecting structure **1** with two figure eight type contours **3** and one figure eight type contour **13**, having cross type connection between them, sheet material **2**, sewed on the contours, and bushes **4** on the crossings. On FIG. **12** shows the door

opening **10** and floor fabric **8**. The structure is folded by folding the front side loops over the central, then the front upper loop over them, then over them are folded the middle loops, then the two back, aside of the central, loops are folded over the central loop and all of them are folded over the folded so far loops. Thus folded structure is placed in a bag possessing similar dimensions. The structure unfolds automatically when pulled out of the containing bag.

[0028] The structures of this invention are useful as tents, shelters, sunshade covers, sunshade covers on chairs.

[0029] Thus, improved selferecting structures with greater stability and improved form are disclosed. While embodiments and applications of this invention have been disclosed, it would be apparent to those, skilled in the art, that many more modifications are possible without departing from the inventive concepts herein. The invention, therefore is not to be restricted, except in the spirit of the appended claims.

What is claimed is:

1. A selferecting structure comprising a frame formed of two resilient endless forms of rod material in the shape of connected on longitudinal axis one after another figure type contours of eight or part thereof, which are connected directly together or are additionally connected firmly enough together to form one rigid structure, the structure covered with sheet material, extending over loops and sewed to the rod material, wherein places of crossings of the rod material are accumulating energy, when folded, which is needed for unfolding the structure, and in the places of the crossings of the rod material are placed bushes, having a role to define rate of unfolding speed.

2. The selferecting structure of claim 1, further comprising a hose like appendage expanded additionally in a rear side.

3. A selferecting structure comprising a frame formed of one resilient endless form of rod material in the shape of a figure eight type contour, connected firmly to other side contours which are containing sand pockets to improve stability, the structure covered with sheet material, extending over loops and sewed to the rod material, wherein a place of crossing of the rod material is accumulating energy, when folded, which is needed for unfolding the structure, and in the place of the crossing of the rod material is placed bushes, having a role to define rate of unfolding speed.

4. The selferecting structure of claim 1, wherein a figure of letter T is formed with the contours connected directly together in one common contour.

5. A selferecting structure comprising a frame formed of three resilient endless forms of rod material in the shape of the figure eight contours), connected directly or additionally cross type between each other, the structure covered by sheet material, extending over loops and sewed to the rod material, wherein places of crossings of the rod material are accumulating energy, when folded, which is needed for the unfolding of the structure, and in the places of the crossings of the rod material are placed bushes, having a role to define rate of unfolding speed.

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