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(54) Striped and celled venetian blind slats of synthetic plastic material and method of making same.

(57) A striped and celled Venetian blind slat is made of a poly carbonate material mixed with the additives such as water, PE-wax, barium sulfate (BaSO4), Calcium carbonate (CaCO3), talc, antimony (III) Oxide (Sb203), and acrylic compounds. The mixture is extruded by an extruder at a temperature ranging between 200 and 300 degrees in Celsius. The extruded mixture is foamed and is then formed in a vacuum mold into the slat of uneven thickness and having irregular stripes (24) and cells (25).

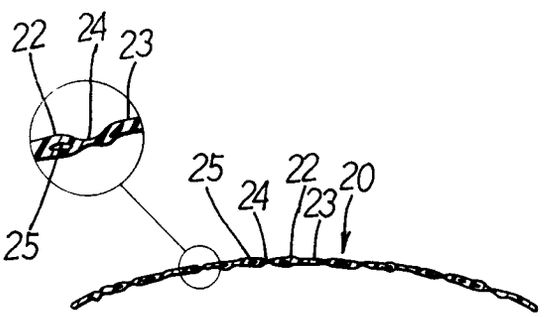

FIG.4

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FIELD OF THE INVENTION

The present invention relates generally to slats of a Venetian blind, and more particularly to the Venetian blind slats, which are striped and celled and which are made of a synthetic plastic material.

BACKGROUND OF THE INVENTION

As shown in FIGS. 1 and 2 , the slats 10 of a conventional Venetian blind is made of PVC material by extrusion, molding and cooling. Such conventional slats 10 are therefore provided with a flat and smooth surface and with a cross section of uniform thickness. Without an additional finishing work, the slats 10 are generally devoid of any streak.

The conventional slats 10 described above are by no means defective functionally. In other words, the slats 10 can be set together at any angle to regulate the light and the air passing through or be drawn up together to the top of the window by means of cords, so as to achieve the expected effects of safeguarding the privacy and decorating the room. However, in view of the fact that the molecular organization of the slats 10 is intensive and uniform, the slats 10 have the following shortcomings that are described hereinafter.

The production cost of the slats 10 is relatively high in view of the fact that the weight per unit of the slats 10 is so increased as to result in a relative increase in the quantity of the material that is used to make the slats 10.

The molecular organization of the slat 10 is so intensive that the combustibility of the slat 10 is greatly increased. As a result, the slat 10 is a potential fire hazard.

The slat 10 is flat, uniform in thickness, devoid of artistic stripes and monotonous in appearance. As a result, the aesthetic effect of the slat 10 is compromised.

The slat 10 is a potential pollutant of the environment in view of the fact that the slat 10 is made of polyvinyl chloride (PVC), which is potentially toxic.

SUMMARY OF THE INVENTION

It is therefore the primary objective of the present invention to provide the improved slats of a Venetian blind, which overcome all the shortcomings of the conventional slats of a Venetian blind described above.

It is another objective of the present invention to provide a low-cost method of making the striped, celled and lightweight Venetian blind slats of synthetic plastic material.

It is still another objective of the present invention to provide the striped and celled Venetian blind slats of synthetic plastic material, which are immune to a continuous heat conduction and are therefore resistant to fire.

It is still another objective of the present invention to provide the striped and celled Venetian blind slats of synthetic plastic material, which are slightly pervious to light to cause the surface of the slats to show the stripes of different brightness, so as to enhance the aesthetic effect of the slats.

In Keeping with the principles of the present invention, the foregoing objectives of the present invention are attained by a method of making the striped and celled Venetian blind slats, in which the poly carbonate material is mixed with the additives such as water, PE-wax, barium sulfate (BaSO4), Calcium carbonate (CaCO3), talc, antimony(III) Oxide (Sb203), and acrylic products. The mixture is then extruded by an extruder at a temperature ranging between 200 and 300 degrees in Celsius. The extruded mixture is foamed to form a slat of uneven thickness and having irregular stripes and cells.

BRIEF DESCRIPTION OF DRAWINGS

FIG.1 shows a perspective schematic view of a Venetian blind slat of the prior art.

FIG.2 shows a sectional schematic view of the Venetian blind slat of the prior art as shown in FIG.1.

FIG.3 shows a plan view of a Venetian blind slat of the present invention and a partial enlarged schematic view of the Venetian blind slat of the present invention.

FIG.4 shows a sectional schematic view of the Venetian blind slat of the present invention as shown in FIG.3.

(Description of the Notations)

10	The conventional slat
20	Slat
21	Irregular stripe
22	Thick area
23	Intermediately thick area
24	Thin area
25	The cell

DETAILED DESCRIPTION OF THE INVENTION

As shown in FIG.3 , a Venetian blind slat 20 embodied in the present invention has a bulged surface and irregular stripes 21. The cross section of the slat 20 shows that the slat 20 has thick areas 22, intermediately thick areas 23 and thin areas 24,

which cross one another, as shown in FIG. 4. The cross section of the slat 20 is shown to comprise a plurality of cells 25.

The slat 20 of the present invention is pervious to light in an uneven fashion, with the thin areas 24 being most pervious to light and with the thick areas 22 being almost impervious to light .In the daytime, the slat 20 of the present invention can be caused by the sunlight to display the stripes 21 having various degrees of brightness. During the night, the surface of the slat 20 of the present invention reflects the lamplight to display, in conjunction with the streaks of the slat 20, a silky appearance. The slat 20 of the present invention is therefore capable of displaying its streaks in two different fashions in the daytime and in the night, in contrast to the prior art slat which displays uniformly in the presence of the sunlight and the lamplight. The aesthetic effect of the slat 20 of the present invention is therefore greatly enhanced by the novel construction of the slat 20 described above.

The slat 20 of the present invention comprises the stripes 21 in addition to the thick areas 22, the intermediately thick areas 23, the thin areas 24, and the cells 25, It is therefore conceivable that the slat 20 of the present invention has a density smaller than the density of the prior art Venetian blind slats. However, the density of the slat 20 of the present invention is such that the effect of the slat 20 to obscure sight and keep out light is not compromised. The slat 20 of the present invention is therefore cost effective in view of the fact that the slat 20 can be produced with a less quantity of material, and that the slat 20 is relatively light in weight. The lightweight quality of the slat 20 of the present invention results in a lower cost of transporting the slat 20.

As show in FIG. 4, the slat 20 of the present invention is provided with a plurality of cells 25, which act to obstruct the continuous conduction of the solar heat. In addition, the cells 25 of the slat 20 serve to reduce the combustibility of the slat 20. In other words, the slat 20 of the persent invention is more resistant to fire than the prior art Venetian blind slats.

The slat 20 of the present invention is made of a poly carbonate (PC) plastic material having the specification of MI ranging between 5-20. The manufacturing process includes the step in which the PC plastic material is allowed to absorb additional water molecules for six to ten hours in an environment having a relative humidity ranging between 50% and 70% . Thereafter, the PC plastic material is extruded by an extruder at a temperature ranging between 200 and 300 degrees in Celsius. The extruded PC plastic material is then foamed to form irregular stripes and cells in a vacuum mold in which a constant temperature is kept.

The slat 20 of the present invention can be also made of a poly carbonate (PC) plastic material, which has the specification of MI ranging between 5-20 and which is mixed with additives having a boiling point ranging between 80 and 180 degrees in Celsius. The mixture of the PC plastic material and the additives is then extruded by an extruder at a temperature ranging between 200 and 300 degrees in Celsius. The extruded mixture is then foamed to form a plurality of irregular stripes and cells in a vacuum mold in which a constant temperature is kept.

The additives include PE-wax, barium sulfate ($BaSO_4$), Calcium carbonate ($CaCO_3$), talc, antimony(III) Oxide (Sb_2O_3), and acrylic products. The talc is added to act as a foaming agent responsible for the formation of the stripes and the cells. The antimony(III) Oxide(Sb_2O_3) and the acrylic products are added to act as fireproof agents.

The extrusion process is carried out at a temperature ranging between 200 and 300 degrees in Celsius, so as to control the speed at which the foaming process of the mixture of the PC plastic material and the additives takes place. It is important that the foaming process must not be carried out excessively, so as to ensure that the slat 20 so made is provided with a structural strength sufficient to prevent the slat 20 from cracking.

The embodiments of the present invention described above are to be regarded in all respects as merely illustrative and not restrictive. Accordingly, the present invention may be embodied in other specific forms without deviating from the spirit thereof.The present invention is therefore to be limited only by the scope of the following appended claims.

Claims

1. A striped and celled Venetian blind slat of synthetic plastic material and having on the surface thereof a plurality of irregular and rough stripes, said slat having a cross section of irregular and uneven thickness, said cross section comprising a plurality of cells.

2. The striped and celled Venetian blind slat of claim 1 wherein said slat is made of a poly carbonate plastic material, which has a specification of MI ranging between 5 and 20, and which is allowed to absorb water molecule for six to ten hours in an environment containing a relative humidity ranging between 50% and 70% before said poly carbonate plastic material is extruded by an extruder at a temperature ranging between 200 and 300 degrees in Celsius so as to become a raw slat, which is

then foamed by said water molecule and is formed subsequently into said slat in a vacuum mold in which a constant temperature is kept , with said slat having thereon a plurality of irregular stripes and having therein a plurality of cells containing said water molecule.

3. The striped and celled Venetian blind slat of claim 1 wherein said slat is made of a poly carbonate plastic material, which has a specification of MI ranging between 5 and 20 and which is mixed with a plurality of additives having a boiling point ranging between 80 and 180 degrees in Celsius, so as to form a mixture, which is then extruded by an extruder at a temperature ranging between 200 and 300 degrees in Celsius to become a raw slat, which is then foamed by said additives and is formed subsequently into said slat in a vacuum mold in which a constant temperature is kept, with said slat having thereon a plurality of irregular stripes and having therein a plurality of cells.

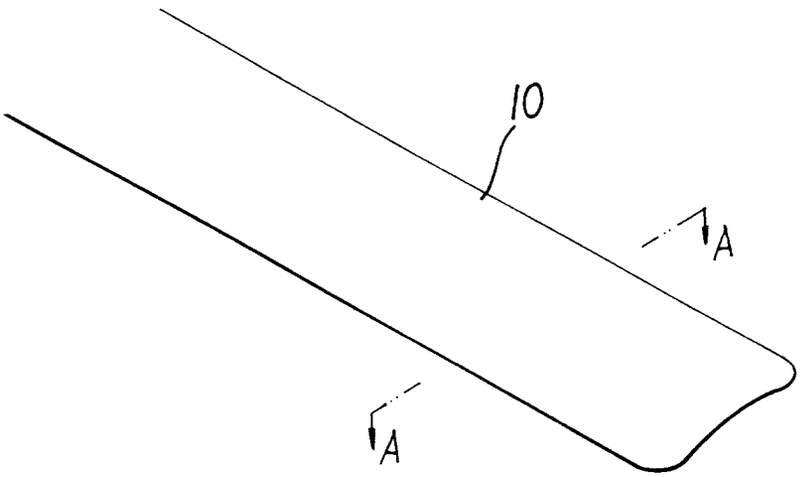

FIG.1

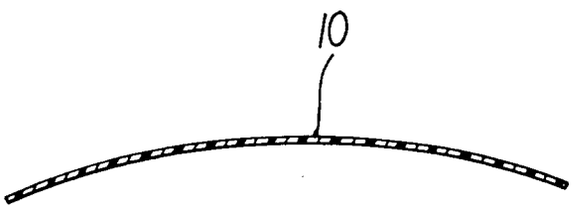

FIG.2

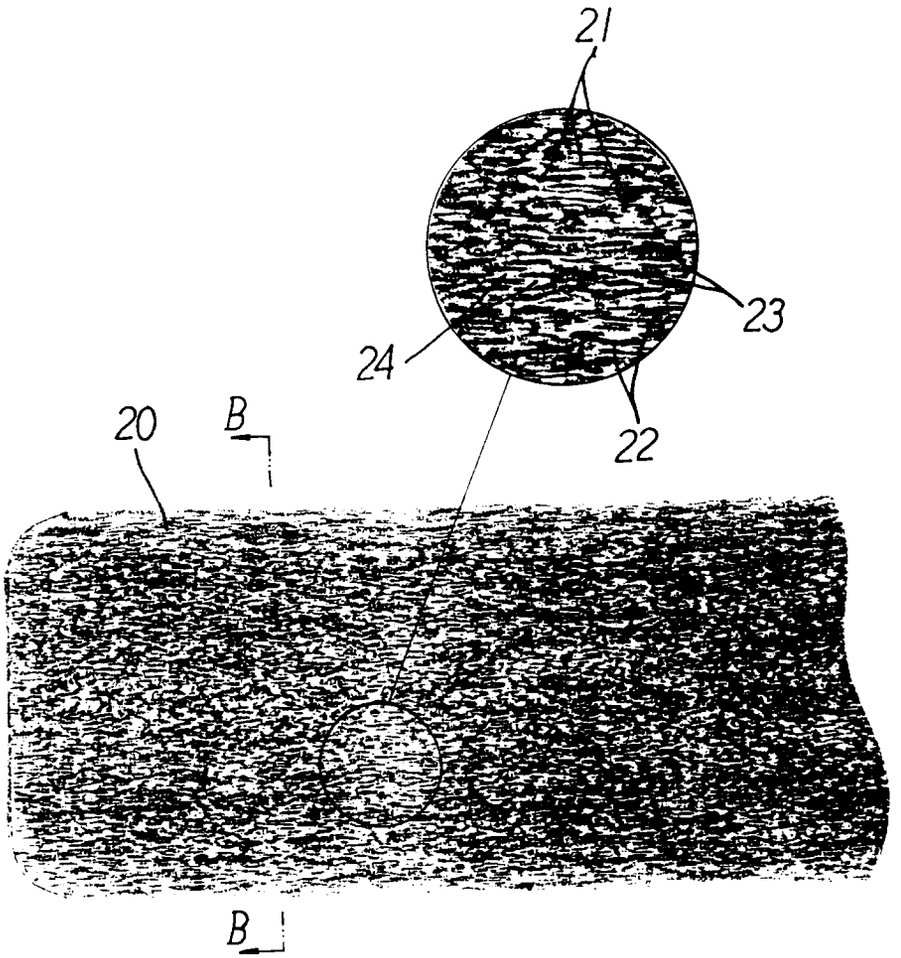

FIG.3

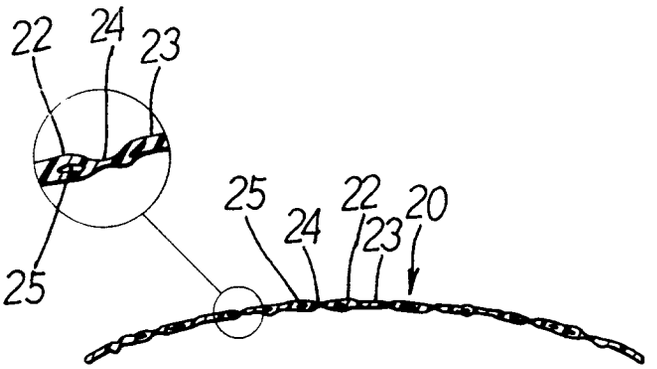

FIG.4

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EUROPEAN SEARCH REPORT

Application Number
EP 93 12 0750

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE-A-16 59 439 (ATLANTIC BAU-KUNSTSTOFF GMBH) * the whole document *	1-3	E06B9/386
A	EP-A-0 505 661 (NIEN MADE ENTERPRISE CO., LTD.) * the whole document *	1-3	
A	EP-A-0 370 120 (RYH JINN METALS INDUSTRY CO., LTD.) * the whole document *	1-3	
A	US-A-5 201 355 (NIEN) * the whole document *	1-3	
A	DATABASE WPI Week 9040, 12 August 1990 Derwent Publications Ltd., London, GB; AN 90-301144 & JP-A-2 212 136 (DAINIPPON PRINTING KK) * abstract *	1-3	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6) E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 May 1994	Kukidis, S

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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