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(54) COMBER BOARD FOREVER FOR JACQUARD WEAVING MACHINES

(57) - The invention relates to Comber Board Forever AGB - WS (10), had invented to be used in jacquard weaving machines, and is characterized as consisting of the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30) interconnected with each other, The Special ceramic tubes (40) located on the Special aluminum alloy down layer (20) which is independent of each other.

- And made from special aluminium and ceramic materials which has a special specifications (ultra-smooth surfaces and high hardness) . comber board for ever AGB
- WS (10) is characterized in that it consists of preferably two layers (20- 30) made from aluminium material, and Special ceramic tubes (40) made from ceramic material special specifications (ultra-smooth surfaces and high hardness) independent of each other.

- The Comber Board forever AGB - WS (10) structure's is divided into parts. The fragmented structure reduces maintenance and repair costs by allowing the part of the problem (only) to be replaced, instead of the whole board (10).

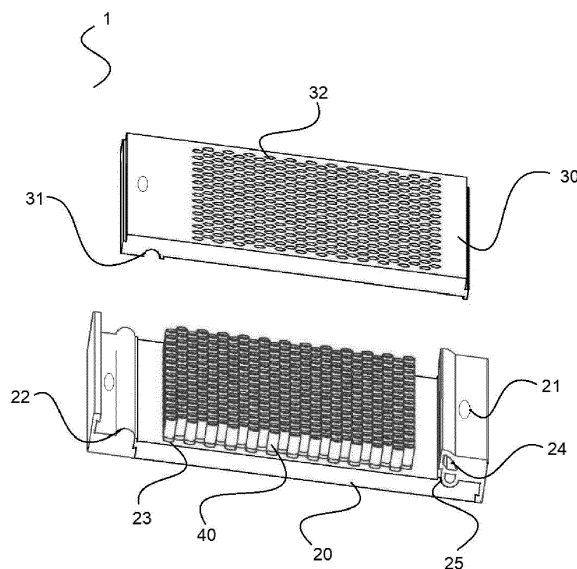


Figure - 1

Description**The Invention Related**

[0001] - The invention related to the design of a completely new system for the Comber board, to find a solution for Wearing out in the traditional boards, and Wearing out the yarns and adding an automatic cleaning process, and the possibility of having a colors map on the surface of the board to facilitate handling of colors as well as to save time, effort and costs in the process of replacement of traditional boards.
Our new invention is called COMBER BOARD FOREVER (AGB - W).

Background of the Invention**[0002]**

- Today, the weaving machinery benefit from the state of technology, as well as are able to carry out production at very high speed, the number of movements may reach more than 800 per minute. As well as woven width is up to large sizes such as 5 meters , which reflected negatively on the efficiency of the traditional pieces used and the quickly of Wearing out and repeatedly.
- At present, the traditional boards used in the current weaving machines are made of fiber material. The yarns passing through the holes that distributed on the board surface which made of fibers to carry out the weaving process, and the yarns are Wearing out With the passage of time due to friction.
- As a result, the temperature increases due to the movement of yarns has the refraction of the yarns occurs. Also, traditional boards may be damaged due to wear and friction continuously and fast.
- Also, because of the distortion that occurs in the yarns with traditional board, we may need to replace the damaged parts of the yarns. This is not only (the loss of efficiency), but it is also a defect financially because of the maintenance and repair costs when we must to replace the entire body of the traditional board.
- Due to all previous problems, the device may cause a lot of noise and vibrations may occur. This may damage other parts of the machine.
- SO, to keep up with this development in weaving machines and high speed carpet machines, specifically jacquard machines,
- Our company, after studies and continuously research and development have created a final alternative solution to the most of the problems related to our subject above, so that we have created Comber Board Forever AGB - W With two advantages as follows:

1-COMBER BOARD FOREVER (AGB - W)

Without automatic dust cleaning device.

2- COMBER BOARD FOREVER (AGB - WS) which contains automatic dust cleaning device.

[0003] As an additional choice for carpet industry companies or textile industry companies.

- The comber Board Forever became a permanent piece and have long life within the overall structure of the weaving machine, having been classified in the traditional boards as a frequent piece replacement switch.
- By the completely eliminating friction in Comber Board forever, compared with the traditional boards, the erosion rate in the harness cord yarn had decreased about 90
- 95 percent,
- SO, the yarns became slippery on the ceramic surfaces (ultra-smooth and high hardness), which reflected positively on the mechanical and electronic parts of the jacquard.
- In addition to the automatic cleaning system in the Comber Board Forever (AGB - WS), compared with the traditional board became very unlikely to the accumulation of dust in the holes, and dust will no longer hinder the movement of yarns up and down.
- Based on all that has been explained above, the process of frequent and infinite replacement of traditional boards, yarns and jacquard pieces due to the proportion of high friction is not necessary, and we were able to save the time and effort and financial costs resulting from this frequent replacement in the traditional cases when using Comber Board forever (AGB - WS).

Brief Description of the Invention**[0004]**

- The invention relates to the COMBER BOARED FOREVER (AGB - WS), in order to meet above requirements, and eliminating all defects and problems and provide some additional benefits, and consists of two layers:
- The top layer and dawn layer, made of special aluminum material and ultra-hard, soft ceramic materials, which have been developed for using in the jacquard weaving machines to produce products such as carpets, clothes and blankets.
- The purpose of the invention is to enable the replacement of the part that suffers from the problem just, instead of replacing the board body completely in the case of traditional board when any wear out or problems occur there, By virtue of the ingredients of the comber board forever structure feature , by di-

viding of the new comber board forever body to five parts.

- The other purpose of the Comber Board forever invention is to provide prevention of loss of time while passing strings by pointing to the places where the yarns passes, through the colors map on the Comber Board forever.
- Another purpose of the invention Comber Board Forever is to provide prevention of heating that occurs for yarns, and damage occurring as a result of this heating, By virtue of the cooling effect which characterized by its ceramic material (ultra-smooth surfaces and high hardness) that made them in the surface contacting yarn in the comber board forever.
- The other purpose of the invention to prevent wear, and thus prevent failure caused by the wear and provide a reduction in maintenance and repair costs, and also thanks to the use of ceramic material (ultra-smooth surfaces and high hardness) At the point of contact the yarns with Comber Board forever.
- Also, concerns us provide automatic cleaning device, through the automatic air channel attached with comber Board Forever (AGB - WS), thus reducing the loss of efficiency in the flow of yarns up and down within the board holes.
- Another purpose of the Comber Board Forever invention , is to eliminate the vibration and sound that occurs in the machine over time, through the helping of the advanced structure of board, which consisting of aluminum with special specifications and ceramic material (ultra-smooth surfaces and high hardness).
- The structural and characteristics features of the invention and all advantages will be understood better in detailed descriptions with the figures given below and with reference to the figures, and therefore, the assessment should be made taking into account the figures and detailed explanations.

Brief Description of Figures

[0005]

- In order to make the new details are entirely to the present invention Comber Board Forever (AGB - WS), as well as making the benefits more clearly to understand better, it should be assessed by reference to the figures described below.
- Figure 1 is the general schematic presentation of Comber Board forever AGB - WS submitted under the invention.

- Figure 2 shows an overview of the independent unit of ceramic (ultra-smooth surfaces and high hardness).

5 Reference Numbers

[0006]

- 10 . Comber board forever (AGB - WS).
- 20 . Special aluminum alloy down layer.
- 21 . Fixing slot.
- 22 . Male grove guide .
- 23 . Aluminum hole for fixing the ceramic location .
- 24 . Air pipe .
- 25 . Air pipe .
- 30 . Special aluminum alloy top layer.
- 31 . Female Grove guide .
- 32 . Aluminum hole for fixing the ceramic location .
- 40 . Special ceramic tube .
- 41 . Ceramic tube teeth for fixing .

Detailed Description of the Invention

[0007]

- being subject of the invention has been disclosed only as an illustrative example for the purpose of better understanding of the subject and described in a manner not causing any restrictive effects.
- In this detailed description, Comber Board forever AGB - WS (10) was created to be used in jacquard weaving machine to produce products such as carpets, textiles and blankets. Its structure consists of two layers, the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30), two layers are made of aluminum material with special specifications. And Special ceramic tube (40) made of ceramic material with special specifications (ultra-smooth surfaces and high hardness).
- The ceramic tubes are independent from each other and be installed at certain distances between the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30).
- The Comber Board forever AGB - WS (10) structure's is divided into parts. The fragmented structure reduces maintenance and repair costs by allowing the part of the problem (only) to be replaced, instead of the whole board (10).
- Also, the places colorful illustration (colors map), which the yarns are distributing through holes in the comber board forever (10) to prevent a loss of time while passing and distribution the yarns in holes mentioned.

- The Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30), are made of aluminum material with special specifications and contain all components. As a Male groove guide (22) located on the Special aluminum alloy down layer (20) and the Female Groove guide (31) located in the Special aluminum alloy top layer (30), which provides a link between the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30). 5
- The Fixing slot (21) was placed in order to stabilize the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30) in their place. 10
- the Special ceramic tube (40) positioned in the Aluminum hole for fixing the ceramic location (23, 32) located on the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30) at certain distances are made of ceramic material with special specifications (ultra-smooth surfaces and high hardness), And provides resistance against friction in the yarns and prevents the heating of yarns spinning the emerging of friction, also prevents the damage that may occur as a result of friction. 15
- The air pipe (24) placed on the Special aluminum alloy down layer (20) to provide the automatic cleaning for the Comber Board forever (10) in a short period of time without the need for additional work effort. 20
- Placed Special ceramic tube (40) shown in Figure 2 in the Aluminum holes for fixing the ceramic location (23, 32) that was provided on the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30) at certain distances independently from each other. 25
- The Special ceramic tubes (40) are provide the same effect of coolant when connected with the yarns. Thus preventing damage to the yarns. As well as damage to the Special ceramic tubes (40). As a result of friction prevention, the lifetime of ceramic tubes (40) becomes long. 30
- The Ceramic tube teeth for fixing (41) on all ceramic tubes (40) prevents the movement of the tubes up or down, Also prevents the tubes from getting out of place. 35
- The Special aluminum alloy down layer (20), and the Special aluminum alloy top layer (30) closed on each other, and the Male groove guide (22) and the Female Groove guide (31) interconnected. 40
- In the blank area around the Ceramic tube teeth for fixing (41). This space is filled by using a special silicone material. The silicon glue, which is pasting 45

the Air pipe (25) that is located on the Special aluminum alloy down layer (20), and it serves as a filler and vibrations absorber.

Claims

1. The invention is Comber Board Forever AGB - WS (10), had invented to be used in jacquard weaving machines, and is characterized as consisting of the Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30) interconnected with each other, The Special ceramic tubes (40) located on the Special aluminum alloy down layer (20) which is independent of each other. 50
2. The Comber Board Forever (10) that is **characterized by** the Special aluminum alloy down layer mentioned (20) is made of aluminum with special material specifications. 55
3. The Comber Board Forever (10) that is **characterized by** the Special aluminum alloy top layer mentioned (30) is made of aluminum with special material specifications. 60
4. The Comber Board Forever (10) is **characterized by** that mentioned Special ceramic tubes (40) is made of ceramic material with special specifications (ultra-smooth surfaces and high hardness), which cooled the yarns and providing resistance against wear out. 65
5. The Comber board Forever (10) is **characterized by** the consisting of Aluminum holes for fixing the ceramic location (23) which are located on the Special aluminum alloy down layer mentioned (20) and provide a separate place for The Special ceramic tubes (40). 70
6. The Comber Board Forever (10) is **characterized by** containing the Aluminum holes for fixing the ceramic location (32) which are located on the Special aluminum alloy top layer mentioned (30) and providing the delivery of Special ceramic tubes (40). 75
7. The Comber Board Forever (10) is **characterized by** the body which is contains a Male groove guide (22) located on the bottom of the Special aluminum alloy down layer (20) which is connected channel positioning of the Female Groove guide (31). 80
8. The Comber Board Forever (10) is **characterized by** containing a Fixing slot (21) in order to provide the existing installation of Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30). 85

9. The Comber Board Forever (10) is **characterized by** containing air pipe (24) that providing automatic cleaning for the Comber Board Forever (10).
10. The Comber Board Forever (10) is **characterized by** containing Ceramic tube teeth for fixing (41) on its surface to prevent the fall or the movement of the mentioned Special ceramic tubes (40) up or down. 5
11. The comber board forever (10) is **characterized by** containing Ceramic tube teeth for fixing (41) to provide the remaining space is inserted so that the area between Special aluminum alloy down layer (20) and the Special aluminum alloy top layer (30) after the Male grove guide (22) and the Female Grove guide (31) in each other. 10 15
12. The Comber Board Forever (10) is **characterized by** the space that the space formed by the pins marks (41) filled with silicon material with special specifications. 20
13. The Comber Board Forever (10) is **characterized by** containing the Air pipe (25) which is located on the Special aluminum alloy down layer (20). 25
14. The Comber Board Forever (10) is **characterized by** containing In the blank area around the Ceramic tube teeth for fixing (41). This space is filled by using a special silicone material. The silicon glue, which is pasting the Air pipe (25) that is located on the Special aluminum alloy down layer (20),and it is serves as a filler and vibrations absorber. 30

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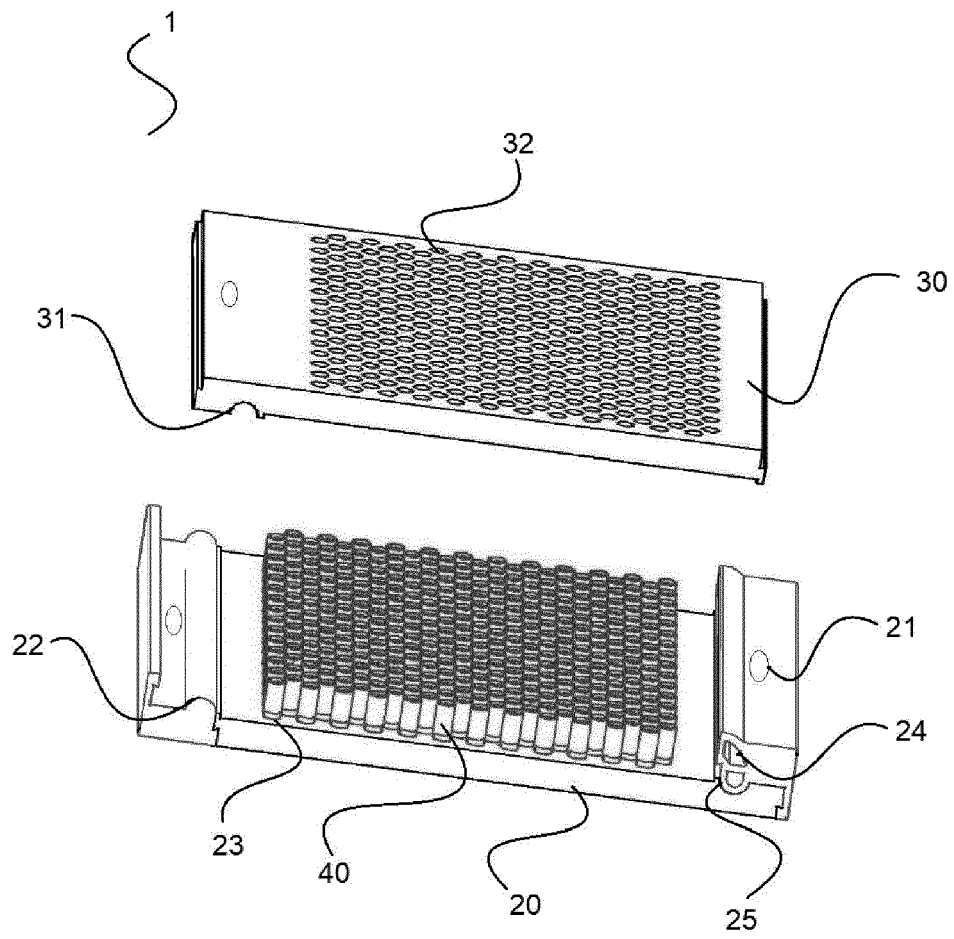


Figure - 1

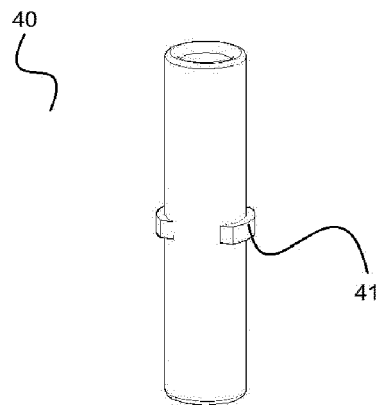


Figure - 2



EUROPEAN SEARCH REPORT

 Application Number
 EP 17 20 7717

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 201 18 363 U1 (TEXTILMA AG [CH]) 17 January 2002 (2002-01-17) * abstract * * claims 1-4 * * figures 6,7,8 * * page 2, line 13 - line 18 * * page 3, line 13 - line 20 * * page 4, line 28 - page 5, line 16 *	1-14	INV. D03C3/38
A	FR 356 725 A (LOUIS AUBIGNAT POUZADOUX [FR]) 7 December 1905 (1905-12-07) * abstract * * figures 1,2 * * page 1, line 1 - line 18 * * page 1, line 47 - line 52 *	1,4-6, 10,11,14	
			TECHNICAL FIELDS SEARCHED (IPC)
			D03C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 March 2018	Examiner Heinzelmann, Eric
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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 EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 20 7717

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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09-03-2018

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82