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(54) **Support for abrasive discs and abrasive disc comprising said support**

(57) A support (2) for abrasive discs (3) is described, particularly for the roughing and lapping of marble, stone, metals and similar, made by moulding plastic, in particular polyamide 66 reinforced with 30% fibreglass.

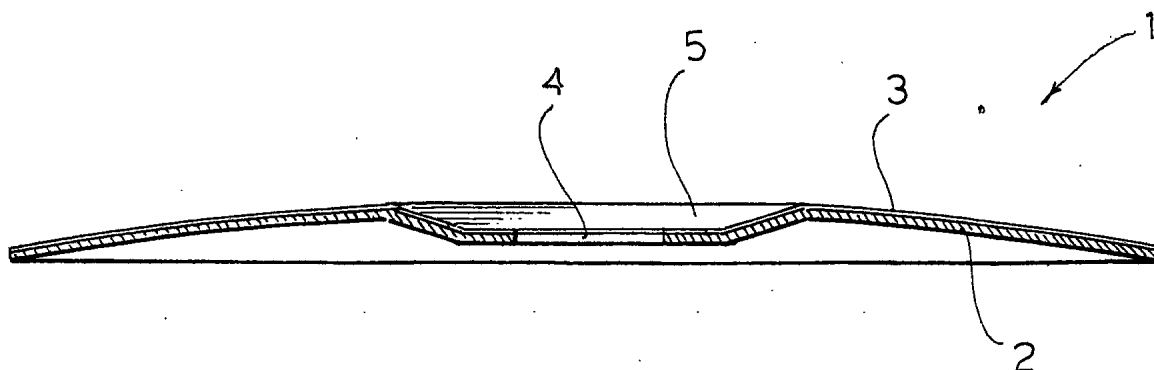


FIG. 2

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Description

[0001] The present invention concerns a support for flexible or semi-rigid abrasive discs, particularly for the roughing and lapping of marble, stone, metals and similar, as well as abrasive discs comprising said support.

[0002] As is known, an abrasive disc of the above type comprises a support on which an abrasive granulate is applied by means of a resin coating.

[0003] The support is normally made of vulcanised vegetable fibre, entirely cellulose or with a cellulose base.

[0004] In practice, a strip is formed, composed of overlapping layers of cellulose or of paper with a cellulose base, between which are layers of adhesive are laid, until the desired thickness is obtained. The strip thus obtained is pressed, dried and then rolled into reels. From the strip, the support is cut into the desired shape, onto which the adhesive and the abrasive are applied so as to obtain an abrasive disc.

[0005] The supports made in this way have various drawbacks.

[0006] Above all they are rather expensive, both on account of the cost of the raw material used, cellulose, and on account of the complexity of the procedure with which they are obtained.

[0007] These supports of vegetable fibre, and therefore the respective discs, especially thin flexible ones, tend to become warped in contact with the air. For this reason they are normally vacuum-packed.

[0008] Moreover, due to possible faults in production, such as imperfect pressing and gluing of the various cellulose layers, the supports tend to flake off.

[0009] Again, especially thin supports have difficulty in maintaining the convex outline necessary for these types of discs.

[0010] The aim of the invention is to eliminate the aforesaid inconveniences, providing a support for abrasive discs which is inexpensive, simple to produce, maintains its shape and has a greater strength while having the same thickness as the traditional supports.

[0011] This aim is achieved, according to the invention, with the characteristics stated in the enclosed independent claim 1.

[0012] Advantageous embodiments of the invention are described in the dependent claims.

[0013] In substance, the support for abrasive discs according to the invention is obtained by moulding plastic material.

[0014] The plastics of which the support is composed is a particular polyamide (nylon) 66, reinforced with fibreglass. The percentage of reinforcing fibreglass ranges normally from 20 to 50% and is advantageously 30%.

[0015] Further characteristics of the invention will be more clearly understood from the following detailed description, referring to a purely exemplary unrestrictive embodiment, illustrated in the enclosed drawings, in which:

fig. 1 is a top plan view of an abrasive disc comprising a support according to the invention;

fig. 2 is a sectional view taken along line II-II of fig. 1.

[0016] Referring to the figures, with reference 1 indicates as a whole an abrasive disc for roughing or lapping marble, stone, metals and similar.

[0017] The disc 1 comprises a support 2 and a layer of abrasive material 3, applied on it with adhesive.

[0018] The disc 1 may be of a flexible or semi-rigid type, depending on the thickness of the support and of the abrasive layer, according to the use for which the disc is intended.

[0019] The embodiment illustrated is therefore purely an exemplary form of a disc, in which a certain convexity or crowning can be seen, that is a concave shaping of the side opposite the one on which the abrasive layer 3 is applied, as well as a central hole 4, for fitting the disc onto the chuck of the tool that is to rotate it in the operative phase.

[0020] Also in the example shown, the central part of the disc, around the hole 4, has a depression 5, with concave shaping opposite the aforesaid crowning, for better use.

[0021] According to the invention, the support 2 is obtained by moulding plastic.

[0022] In this way it is possible to obtain a perfectly shaped support 2, which maintains its convex form even after the application of the abrasive layer 3.

[0023] Conveniently the plastic used for the support 2 is polyamide 66, reinforced with fibreglass, in a percentage interval ranging from 20 to 50%.

[0024] Preferable, the reinforcing fibreglass amounts to 30%.

[0025] It has been ascertained that polyamide 66 with 30% reinforcing fibreglass gives the best characteristics to the abrasive disc 1, in terms of consistency, with a same thickness, rigidity in use, removal capacity, resistance of the outline.

[0026] Below are listed some technical data of the polyamide 66 with 30% fibreglass used for moulding the support 2 according to the invention.

TRANSFORMATION DATA	
Moulding temperature	260-290°C
PHYSICAL PROPERTIES	
Density (23°C)	1.37 g/m ³
Water absorption to saturation (23°C)	5%
Water absorption in 24 h (23°C)	0.6%
Longitudinal shrinkage on moulding (3.2 mm)	0.3%
Transverse shrinkage on moulding (3.2 mm)	0.5%
MECHANICAL PROPERTIES	
Yield strength under tensile stress (23°C)	170 MPa
Ultimate elongation (23°C)	2.5%
Maximum blending load (23°C)	260 MPa
Modulus of elasticity under bending stress(23°C)	8500 MPa
Modulus of elasticity under bending stress (90°C)	550 MPa
IZOD impact strength with notch 3.2 mm (23°C)	11 KJ/m ²
CHARPY impact strength without notch 3.2 mm (23°C)	55 KJ/m ²
THERMAL PROPERTIES	
Inflection temperature HDT 1.82 N/mm ²	250°C
Inflection temperature HDT 0.45 N/mm ²	260°C
Softening temperature VICAT 49 N	255°C
Continuous use temperature (20000 h)	115°C
ELECTRICAL PROPERTIES	
Dielectric rigidity	21 KV/m
Resistance to creeping currents (CTI)	500 V
FLAMMABILITY	
Self-extinguishing (1.6 mm)	HD
Incandescent wire 2 mm	650°C
LOI	20%

Claims

- Support for an abrasive disc particularly for the roughing and lapping of marble, stone, metals and similar, **characterised in that** it is obtained by moulding plastic.
- Support according to claim 1, **characterised in that** said plastic is polyamide 66 reinforced with fibreglass.
- Support according to claim 2, **characterised in that** said reinforcing fibreglass is in a percentage from 20 to 50%.
- Support according to claim 3, **characterised in that** said reinforcing fibreglass is in a percentage of 30%.
- Support according to any one of the previous claims, **characterised in that** it has a regular convex shape, with concave part facing towards the surface opposite the one on which a layer of abrasive material is to be applied.
- Abrasive disc particularly for the roughing and lapping of marble, stone, metals and similar, comprising a support (2) and a layer of abrasive material (3) applied on the support (2) with adhesive, **characterised in that** said support is obtained by moulding plastic.
- Abrasive disc according to claim 6, **characterised in that** said plastic of which the support (2) is composed is polyamide 66 reinforced with fibreglass.

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8. Abrasive disc according to claim 7, **characterised in that** said fibreglass for reinforcing the polyamide 66 is in a percentage from 20 to 50%.
9. Abrasive disc according to claim 8, **characterised in that** said fibreglass for reinforcing the polyamide 66 is in a percentage of 30%.
10. Abrasive disc according to any one of the claims from 6 to 9, **characterised in that** it has a regular convex shape, with concave part facing towards the surface opposite the one containing said layer of abrasive material (3).

FIG. 1

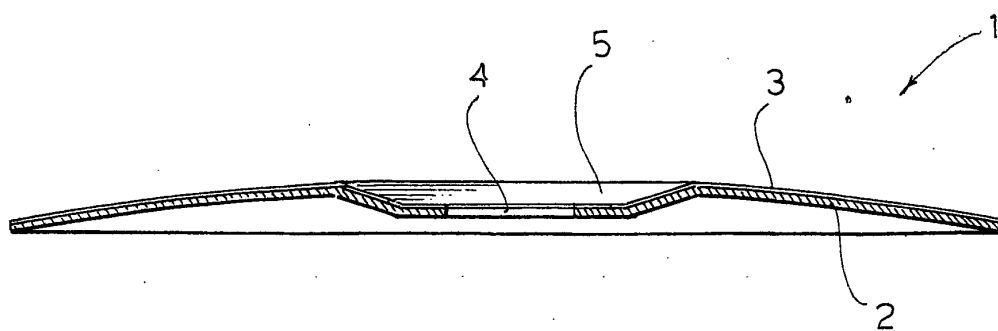
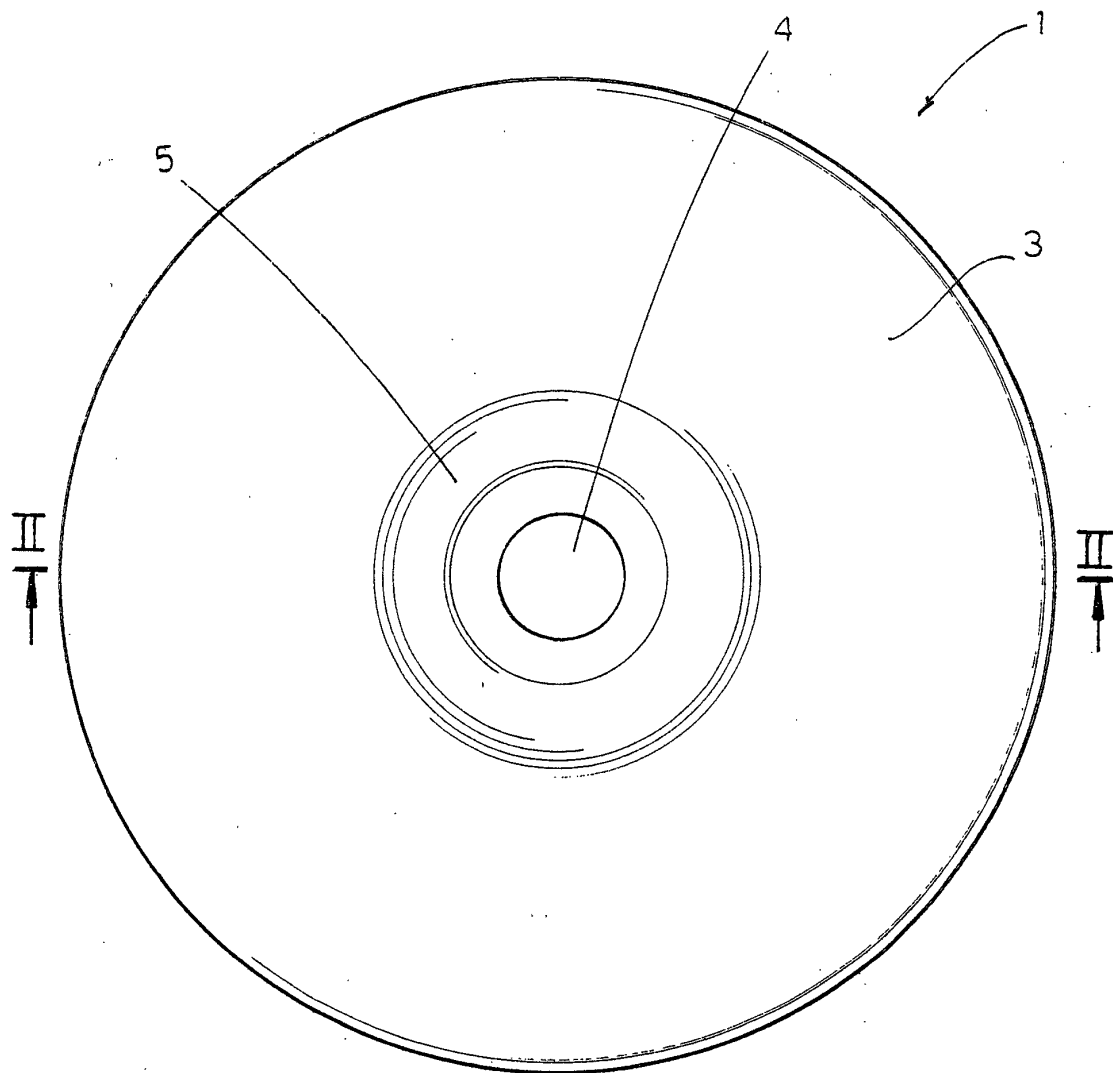


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 02 00 7984

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			B24D B24B
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 26 July 2002	Examiner Koller, S
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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