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(54) **Kit of sanding blocks and sanding blocks to treat variously shaped surfaces**

Schleifklotzensatz und Schleifklotzen zum Bearbeiten von unterschiedlich geformten Oberflächen

Jeu de blocs de ponçage et blocs de ponçage pour traiter des surfaces de formes variées

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(56) References cited:
EP-A- 0 351 273 **DE-B- 1 090 993**
GB-A- 2 074 062 **US-A- 1 927 574**
US-A- 2 413 147 **US-A- 2 818 690**

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Description

Field of the Invention

[0001] The present invention refers to a kit of sanding blocks suitable to treat variously shaped surfaces. 5

[0002] Abrasive paper sheets or disks are used to sand surfaces, and in particular to sand the body panels of cars. These disks, or paper sheets, have to be handled with the help of suitable sanding supports, herein-after called "blocks", to which they are coupled. 10

[0003] The blocks are mechanically resistant elements bearing the abrasive sheet or disks.

[0004] An intermediate layer of a specific material, known as "velcro" (registered Trademark), is provided to join the abrasive sheet, or disk, to a block. The velcro material consists of two sheets which can be coupled approaching the one to the other and then easily detached. In practice, one sheet of the velcro, and specifically a sheet provided with plastic hooks, is applied to the bottom surface of the block, while the other sheet, which is made of a soft material suitable to adhere to said hooks, is applied to the non-abrasive side of the abrasive disk. 15

[0005] The bottom surface of the already known sanding blocks, which defines the active surface of the blocks during the sanding operation, has a flat shape. For this reason the conventional blocks are not suitable to treat curvilinear and/or variously shaped surfaces. 20

[0006] Furthermore, the shape of the bottom surface of these blocks can not be modified when the shape of the surface to be treated changes. 25

[0007] The German Patent n. 1 090 993 describes a device for smoothing and polishing surfaces, comprising an element acting as a handle for the user and a perforated element containing a polishing material which is connected to the side walls of the handle and covers the lower surface of the handle. 30

Summary of the Invention

[0008] invention refers to a Kit comprising a main block which acts as an handle for the user and several fitting blocks having active surfaces of different shapes so that they are suitable to be used to treat curvilinear and/or variously shaped surfaces. The fitting blocks have a first coupling surface corresponding to the bottom surface of the main block and a second coupling surface which can be variously shaped and which can be coupled with the non-abrasive side of an abrasive disk. 35

Brief description of the Drawings

[0009] Further advantages will be evident from the following description and the annexed drawings, given as non limiting examples, in which: 40

Fig.1 shows an upper perspective view of a possible embodiment of the kit according to the invention, in which a main block and several fitting blocks are provided.

Fig.2a-2b show a sanding block not falling within the scope of the invention. In the drawings, reference number 1 refers to the main block and numbers 2a, 2b,2c,2d,2e refer to five fitting blocks of the sanding kit. 45

Detailed description of the invention

[0010] The main block 1 consists of a body which is preferably made of a synthetic resin and which presents an upper portion 3 anatomically shaped in order to act as an handle for the user during the sanding operation. 50

[0011] The hand grip is made easier by several grooves 4 which define an anatomically shaped housing for the parts of the user's hand which rest on the main block. 55

[0012] Main block 1 presents a bottom portion 5 having a shape and/or a coating which makes it suitable to be joined with both a fitting block and an abrasive disk using a "velcro" layer. In the described embodiment, also lateral surfaces 6 of the main block 1 are made in a similar manner to portion 5.

[0013] The main block can be used separately (without any fitting block applied thereto).

[0014] In this case, an abrasive disk is directly applied on the main block 1. The abrasive disk matches the frontal and rear outline of surface 5 of the main block, while the portions of the disk exceeding the lateral outline of the bottom surface 5 can be applied on the semicircular lateral surfaces 6 of main block 1.

[0015] As already said, the present kit comprises several fitting blocks 2a-2e, the number and the shape of which can change. Each fitting block is provided with a coupling surface 7 (the bottom surface in the drawings) which corresponds and can be coupled to the bottom surface 5 of the main block 1. Each fitting block is also provided with an active surface 8 (in the drawings the upper surface) intended to be joined with the non-abrasive side of an abrasive disk. 60

[0016] Accordingly, a fitting block can be joined with a main block simply approaching the coupling surfaces 7 and 5, so that the non-abrasive side of a disk can be applied on and adhere to the active surface 8 of the fitting block. 65

[0017] In this way is possible to treat with an abrasive disk whatever curvilinear or flat surface.

[0018] For example, the fitting blocks of the drawings present active surfaces 8 having various curvilinear shapes which make it possible to treat both convex and concave surfaces having various radii of curvature.

[0019] The fitting blocks 2a,2b of fig.1 present concave active surfaces 8 and lateral surfaces 9 which can be joined with the non-abrasive side of an abrasive disk. In particular, the fitting block 2a, having a slightly con- 70

cave active surface 8, is suitable to treat slightly convex surfaces, and the fitting block 2b, having a remarkably convex active surface 8, is suitable to treat very concave surfaces.

[0020] In a similar way, the fitting blocks 2c-2e can be used to treat variously shaped surfaces, depending on their radius of curvature.

[0021] Sanding blocks 1' having an upper portion 3' similar to the upper portion 3 of the already described main block 1 and curvilinear coupling surfaces 8' similar to the already described second coupling surfaces 8 of said fitting blocks 2a-2e are shown in figures 2a and 2b.

[0022] In this case the upper portion and the coupling surface do not present sharpe edges, and lateral coupling surfaces 6' of the main block are provided to be coupled with the lateral portions of the non-abrasive side of an abrasive disk which possibly exceed the lateral outline of the bottom surface 8' of the block 1'. Said sanding blocks 1' do not fall within the scope of the present invention.

[0023] Advantageously, the coupling surfaces 5,6,8' of blocks 1,1' and the coupling surfaces 8 of the fitting blocks 2a -2e are suitable to be coupled with the abrasive disks already known in the market which have a diameter of 150 mm and which are provided with a coupling surface coated with a velcro soft sheet.

[0024] The present invention has been described with reference to preferred embodiments, is anyway obvious that equivalent changes can be made, without going outside the scope of the invention.

Claims

1. Kit of sanding blocks, especially for use with abrasive disks or similar abrasive sheets having an abrasive side and a non-abrasive side, **characterised in that** it consists of a main block (1) and a plurality of fitting blocks (2A-2E), the main block (1) having an upper portion (3) acting as an handle for the user and a bottom surface (5) which is a coupling surface with one of said disks or with one of the plurality of fitting blocks (2a-2e) each of them has a first coupling surface (7) corresponding to said coupling surface (5) of the main block (1) and a second coupling surface (8) defining a coupling surface with the non-abrasive side of one of said disks, the second coupling surfaces of said fitting blocks having different curvilinear shapes in order to be suitable to the sanding of variously shaped surfaces to be treated.
2. Kit according to claim 1, **characterised in that** said second coupling surfaces (8) are concave.
3. Kit according to claim 1, **characterised in that** said second coupling surfaces (8) are convex.

4. Kit according to claim 1, **characterised in that** said bottom surface (5) and said first coupling surfaces are flat.
5. Kit according to claim 1, **characterised in that** said upper portion (3) of the main block (1) is rounded.
6. Kit according to claim 1, **characterised in that** said upper portion (3) of the main block (1) has a plurality of grooves (4) in order to be anatomically shaped for an hand grip.
7. Kit according top claim 1, **characterised in that** the coupling surfaces (7) of said fitting blocks are provided with at least layer of a material suitable to be coupled with the bottom surface (5) of said main block (1) and removed again.
8. Kit according to claim 1, **characterised in that** said main block (1) has lateral surfaces (6) suitable to be coupled with the lateral portion of the non-abrasive side of a disk applied to the block (1) and exceeding the lateral outline of its bottom surface (5).
9. Kit according to claim 1, **characterised in that** said fitting blocks have lateral surfaces (9) suitable to be coupled with the lateral portion of the non-abrasive side of a disk applied to the second coupling surface (8) of a fitting block and exceeding its lateral outline.

Patentansprüche

1. Schleifklotzatz insbesondere für den Einsatz mit Schmirgelscheiben oder ähnlichen schmirgelnden Blättern, welche eine schmirgelnde Seite und eine nicht schmirgelnde Seite aufweisen, **dadurch gekennzeichnet, dass** er aus einem Hauptklotz (1) und einer Anzahl von Passklötzen (2A - 2E) besteht, wobei der Hauptklotz (1) ein Oberteil (3) aufweist, welches als Griff für den Benutzer dient, sowie eine Bodenfläche (5), welche eine Koppelfläche mit einer der genannten Scheiben oder mit einem aus der Anzahl von Passklötzen (2a - 2e) darstellt, wobei jeder von ihnen eine erste Koppelfläche (7) aufweist, welche der genannten Koppelfläche (5) des Hauptklotzes (1) entspricht, sowie eine zweite Koppelfläche (8), welche eine Koppelfläche mit der nicht schmirgelnden Seite von einer der genannten Scheiben festlegt, wobei die zweiten Koppelflächen der genannten Passklötze unterschiedliche krummlinige Formen aufweisen, damit sie für das Schleifen der zu bearbeitenden verschiedenartig geformten Flächen geeignet sind.
2. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die genannten zweiten Koppelflächen (8) konkav sind.

3. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die genannten zweiten Koppelflächen (8) konvex sind.
4. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die genannte Bodenfläche (5) und die genannten ersten Koppelflächen eben sind. 5
5. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** das genannte Oberteil (3) des Hauptklotzes (1) abgerundet ist. 10
6. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** das genannte Oberteil (3) des Hauptklotzes (1) eine Anzahl von Furchen (4) aufweist, damit es für einen Griff anatomisch gestaltet ist. 15
7. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Koppelflächen (7) der genannten Passklötze mit mindestens einer Schicht eines Materials versehen sind, welches geeignet ist, mit der Bodenfläche (5) des genannten Hauptklotzes (1) gekoppelt und wieder von ihr getrennt zu werden. 20
8. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der genannte Hauptklotz (1) Seitenflächen (6) aufweist, die geeignet sind, mit dem seitlichen Teil der nicht schmirgelnden Seite einer Scheibe gekoppelt zu werden, die auf dem Klotz (1) angebracht ist und die die seitliche Umrisslinie seiner Bodenfläche (5) überragt. 25
9. Satz gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die genannten Passklötze Seitenflächen (9) aufweisen, die geeignet sind, mit dem seitlichen Teil der nicht schmirgelnden Seite einer Scheibe gekoppelt zu werden, die an der zweiten Koppelfläche (8) eines Passklotzes angebracht ist und die über seine seitliche Umrisslinie hinaus ragt. 30
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- ques, les secondes surfaces de couplage desdits blocs d'adaptation ayant des formes curvilignes différentes pour convenir pour le ponçage de surfaces de formes variées à traiter.
2. Jeu selon la revendication 1, **caractérisé en ce que** lesdites secondes surfaces de couplage (8) sont concaves.
3. Jeu selon la revendication 1, **caractérisé en ce que** lesdites secondes surfaces de couplage (8) sont convexes.
4. Jeu selon la revendication 1, **caractérisé en ce que** ladite surface inférieure (5) et lesdites premières surfaces de couplage sont plates.
5. Jeu selon la revendication 1, **caractérisé en ce que** ladite portion supérieure (3) du bloc principal (1) est arrondie.
6. Jeu selon la revendication 1, **caractérisé en ce que** ladite portion supérieure (3) du bloc principal (1) présente plusieurs rainures (4) pour être configurée d'une manière anatomique en vue d'une préhension à la main.
7. Jeu selon la revendication 1, **caractérisé en ce que** les surfaces de couplage (7) desdits blocs d'adaptation présentent au moins une couche d'un matériau apte à être couplé avec la surface inférieure (5) dudit bloc principal (1) et à être retiré de nouveau.
8. Jeu selon la revendication 1, **caractérisé en ce que** ledit bloc principal (1) présente des surfaces latérales (6) qui conviennent pour être couplées avec la portion latérale du côté non-abrasif d'un disque appliqué au bloc (1) et dépassant le contour latéral de sa surface inférieure (5).
9. Jeu selon la revendication 1, **caractérisé en ce que** lesdits blocs d'adaptation ont des surfaces latérales (9) qui conviennent pour être couplées avec la portion latérale du côté non-abrasif d'un disque appliquée à la seconde surface de couplage (8) d'un bloc d'adaptation et dépassant son contour latéral.

Revendications

1. Jeu de blocs de ponçage, particulièrement pour l'utilisation avec des disques abrasifs ou des feuilles abrasives similaires présentant un côté abrasif et un côté non-abrasif, **caractérisé en ce qu'il** est constitué d'un bloc principal (1) et de plusieurs blocs d'adaptation (2A-2E), le bloc principal (1) présentant une portion supérieure (3) servant de poignée à l'utilisateur, et une surface inférieure (5) qui est une surface de couplage avec l'un desdits disques ou avec l'un de la pluralité de blocs d'adaptation (2a-2e), chacun d'eux présente une première surface de couplage (7) correspondant à ladite surface de couplage (5) du bloc principal (1) et une seconde surface de couplage (8) définissant une surface de couplage avec le côté non-abrasif d'un desdits dis-
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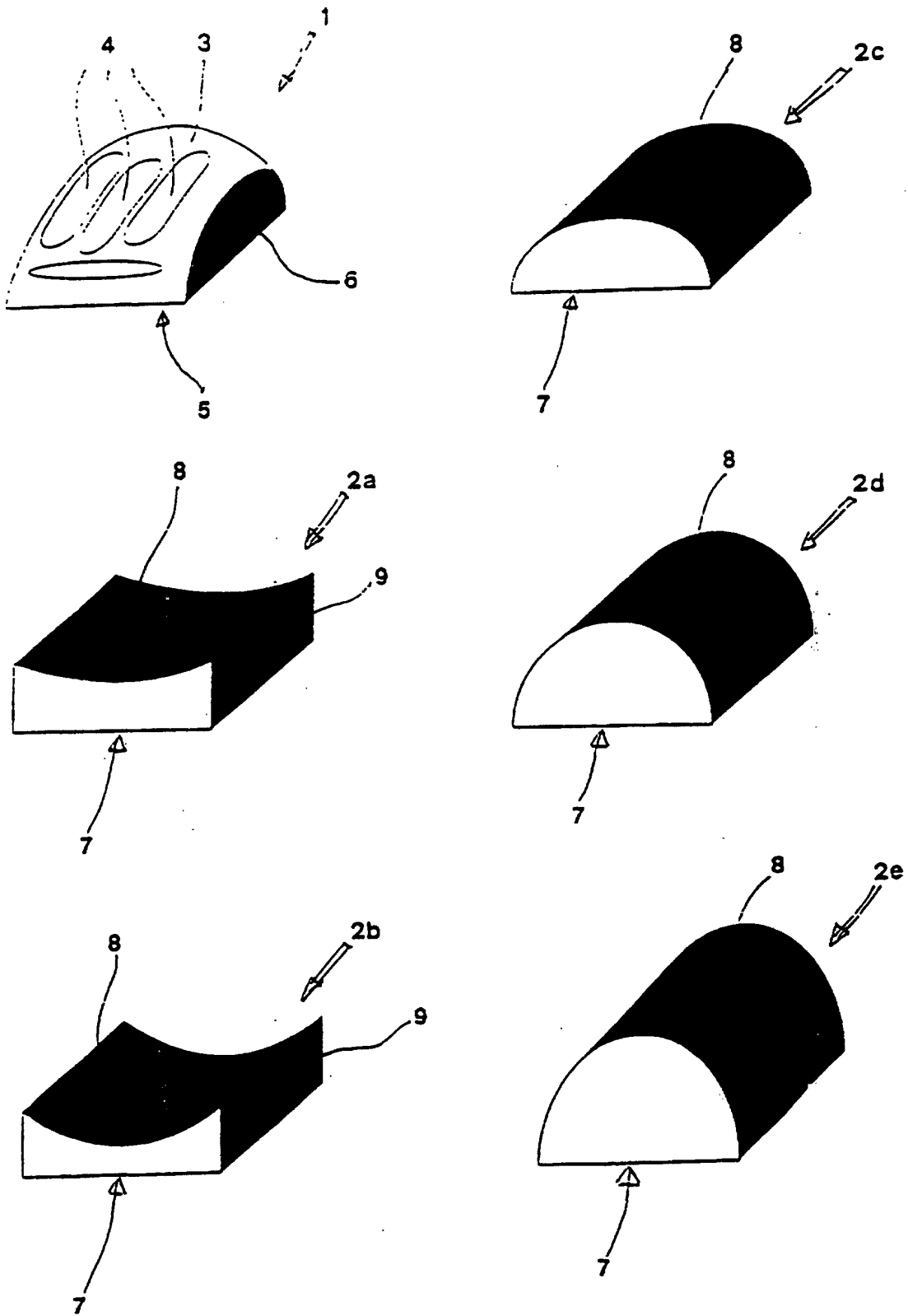


Fig. 1

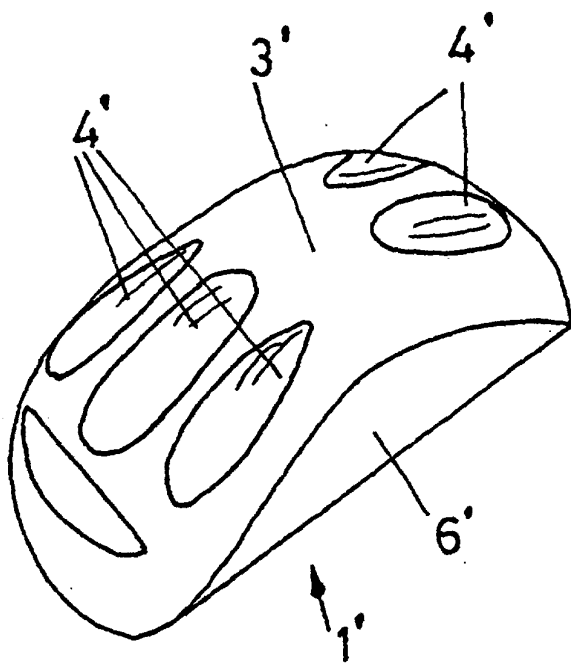


FIG. 2a

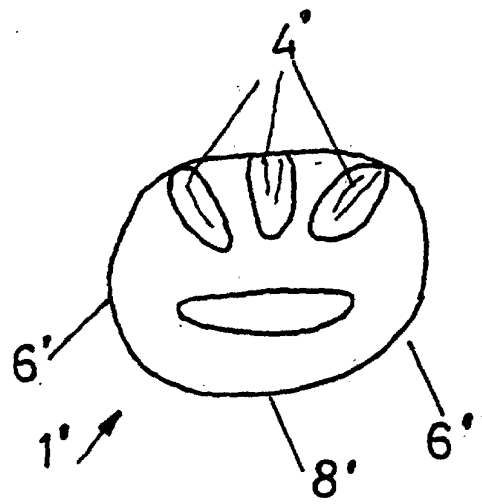


FIG. 2b