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(54) **Fugatisztító szerszám**

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.

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JOINT GAP CLEANING DEVICE

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The invention relates to a joint-cleaning device.

For the cleaning of joints there are practically no reasonable devices, so that it is necessary to resort to only a few suitable devices such as pan-cleaning sponges and the like.

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DE 10 2004 063828 A1 describes a joint brush with a handle and a receiving arrangement which is connected to the handle. One single elongate brush is provided on the underside of the receiving arrangement. A similar joint brush is described in DE 20 2004 016043 U1. WO 2004/037451 A1 describes a joint-cleaning device with a rotating brush.

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The object of the invention is to create a joint-cleaning device which enables convenient and thorough cleaning of joints of all types. The invention is applicable to mineral and permanently elastic joints indoors and outdoors, for example joints in a tiled surface or between terrace slabs. Such joints usually have a width of a few millimetres, for example one to eight millimetres, more especially approximately two to six millimetres and, even more especially, approximately four to six millimetres. The invention is not limited to any specific joint width.

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The object is achieved according to the invention by the features of claim 1. Further embodiments of the invention are described and protected in the subordinate claims.

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The invention is based on a handle and a narrow brush strip with brushes with a width less than or equal to the joint width to receive brushes. Both the material and the strength of the brushes are adapted to the joints to be worked on and are known to the person skilled in the art. As a rule this involves a plurality of very precise, quite rigid but elastic synthetic fibres, which can be arranged adjacent to each other or one behind the other to form a single elongate brush strand or a plurality of small brush bundles. An example of a suitable brush material is polypropylene copolymer with a proportion of approximately 20% talc. This material is also known under the name Karilen®. The brush body can be made of the same material as the bristles, and of course also of a different

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material from the above-mentioned example. According to the invention the width of the brushes is adapted to the joint width. Thus although the invention is not limited to a specific brush width, the width of the brushes is defined by the intended application and can be determined without difficulty by the person skilled in the art.

5 The brushes or brush bundles can be fastened in corresponding cavities on the lower fastening plane of the brush strip, and can for example be fitted under pressure and optionally additionally glued.

10 One single long brush strip can be provided on the lower edge of the device, or additionally a shorter vertical brush strip can be provided on an adjoining short, substantially vertical side edge of the device. Furthermore, a connecting brush strip which preferably consists of one single brush bundle can be arranged between the lower brush strip and the vertical brush strip at an angle of approximately 45° to said strips. The shorter brush strip, designated as the vertical brush strip, does not necessarily have to be at an angle of 90° to the lower long brush strip but can also enclose an angle
15 therewith which is close to 90° , for example in the range from 70° to 110° . The connecting brush strip also does not have to be oriented at an angle of 45° to the lower long brush strip, but can also be arranged at an angle between approximately 30° and 60° relative to the lower long brush strip.

20 The mounting and the brush strip are formed integrally in a brush body, wherein the lower narrow side of the cleaning device facing the joint has cleaning brushes or a row of cleaning brush bundles, and an additional vertical row of brush bundles, between which a connecting brush bundle is arranged, is preferably provided on an adjacent side edge of the device. A convenient handle, which is adapted to the hand and has an elongate retaining eyelet, is formed as an extension of the brush strip outwards away
25 from the joint to be cleaned.

30 Brush bundles are preferably provided which have a diameter of approximately 4 to 6 mm and consist of a plurality of very fine and relatively rigid plastic fibres, the preferred length of the brush bundle being 2 to 10 mm, in particular between 4 and 6 mm, and an intermediate space from 1 to 6 mm, preferably 2 is 4 mm, is preferably provided between the individual brush bundles.

Before being worked on by the device, the joints are preferably first worked on for a certain time by corresponding chemical substances in the form of liquids or pastes,

such as for example a chlorinated chemical compound. Acidic and alkaline cleaning agents can be used.

According to a preferred exemplary embodiment, the brush strip is formed integrally with the handle of the device in a brush body. The thickness of the handle will usually be greater than the width of the brush strip, so that the handle rests conveniently in the hand and nevertheless the brush width is not increased.

The angle between the lower fastening edge for the brushes on the brush strip and at least one adjoining vertical rear side edge of the brush body should be somewhat less than 90° , preferably 88 to 94° . In this way the brush can clean right up to the wall, for example in the case of tiles which meet perpendicularly.

A hole to receive a shaft can be provided in the handle in order also to be able to work with the joint brush in an upright position.

Exemplary embodiments of the invention are illustrated in the drawings. In the drawings:

Figure 1 shows an example of the joint-cleaning device which is not configured according to the invention,

Figure 2 shows the device illustrated in Figure 1 from the rear,

Figure 3 shows an exemplary embodiment of a device according to the invention from the rear with an integrally formed brush strip,

Figure 4 shows an exemplary embodiment of the invention from the rear with a handle which widens upwards,

Figure 5 shows the device illustrated in Figure 4 from above,

Figure 6 shows the device illustrated in Figure 4 and Figure 5 in a perspective view from the side,

Figure 7 shows a further exemplary embodiment of the invention in a perspective view from the front with an upwardly widening handle, wherein the brushes have been omitted in this illustration and would have to be added.

Figure 8 shows the device illustrated in Figure 7 from the side.

In Figure 1 the upper handle of the device according to the invention is designated generally by 10, the brush strip associated therewith is designated by 20, and the elongate handle eyelet is designated by 12. A unitary brush body is formed by these components.

On the lower edge 25 of the brush strip 20 a number of round brush bundles 26 are arranged one behind the other or adjacent to one another and are fastened to corresponding fastening eyelets 23. The angle α between the lower fastening plane of the lower edge 25 and the narrow, upwardly extending front edges 14 and rear edges 15 of the brush body is preferably less than 90° , preferably 84 to 88° , in order to reach into the corners of the joints during cleaning, for example in the case of two tile walls which meet one another at an angle of 90° . The intermediate spaces between the individual brush bundles 26 are designated by 28. A retaining strip which contains the fastening eyelet 23 is designated by 22. Instead of the use of fastening eyelets, the brush bundles 26 in the example illustrated in Figure 1 can also be cast directly into a plastic mass inside the retaining strip 22.

A vertical short brush strip 122, which likewise comprises individual brush bundles 26, is arranged perpendicularly to the lower brush strip 20.

A connecting brush strip 121, which in the illustrated example consists of one single brush bundle and is arranged substantially at a 45° angle to the long lower brush strip 20 and the shorter vertical brush strip 122, is arranged between the two brush strips 20, 122.

In this way improved cleaning is possible in particular in the region between horizontally and vertically aligned tiles.

Figure 2 shows the illustration according to Figure 1 from the rear in a sectional view, in which the details of the lower long brush strip 20 and of a brush bundle 26 are illustrated. The vertical brush strip, which is not shown, can be formed in the same way, or can also consist of individual brush bundles directly integrated into the device.

The material used for the brushes can be rigid but elastic plastic material which is readily available commercially, such as is known for other cleaning brushes, for example also for household use. An example of a suitable material for the main body is polypropylene copolymer with a proportion of approximately 20% talc. This material is also known under the name Karilen®. The brush body can be made of the same material as the bristles, and of course also of a different material from the above-mentioned example. The material used for the bristles can for example be polyamide 66, which is commercially available under the name Stylon 66.

Figure 3 shows another exemplary embodiment of the invention, namely a device with a handle 51 which is formed integrally with the brush strip and is narrowed

in the lower region 54 towards the lower fastening edge or fastening plane 55 on which the brush bundles 58 are fastened by means of retaining eyelets 56 provided on the lower edge 55.

Figure 4, Figure 5 and Figure 6 show a preferred embodiment of the invention. The device generally designated by 100 extends from the lower narrow fastening plane 105 for the individual brush bundles 108, which are fastened in corresponding fastening eyelets 106, and widens upwards.

In Figure 4 a steep widened region 104 is visible, which leads with a lesser widening 110 as far as the upper edge 112. The lower edge 105 to receive the fastening eyelets 106 for the brush bundles 108 is approximately 4 to 6 mm wide, and the upper edge 112 is approximately 12 to 20 mm wide, so that a particularly convenient handle corresponding to the dimensions of the hand is possible. The handle eyelet is designated by 102.

Figure 5 shows the device according to Figure 4 from above, wherein corresponding parts are provided with the same references. The wider edge region 110 and the narrow opposing edge region 104, which has the same width as the brush plane 105, are visible in this case because of the slightly smaller angle α , as can be seen in Figure 1. The additional brush bundles on a narrow edge of the device are not illustrated in Figure 4 and Figure 5.

Figure 6 shows a perspective representation of the device shown in Figure 4 and Figure 5 from the front and from the side, wherein corresponding parts are provided with the same references. It offers a better overview of the device according to the invention, including the widening of the one widened edge 110 upwards, while the opposing narrow edge 104 maintains the same width as the lower brush edge 105. This and the type of handle eyelet serve to achieve a special convenient handle as well as the adaptation to different hand sizes and different operating conditions.

In this case the individual brush bundles are designated by 108, the bores extending into the interior of the devices are designated by 106, and the lower edge of the device is designated by 105. Furthermore, the short vertical fastening strip are illustrated with brush bundles 108 as well as the connecting brush strips 121.

The embodiment according to Figures 7 and 8 differs from the embodiment according to Figure 6 by the design of the handle 100, which is provided with handle recesses 114 in the region of the handle eyelet 102, in order to be better able to grip

and handle the device according to the invention. According to the invention brush bundles are provided along the lower long edge 104, but are not illustrated in Figures 7 and 8. They can be configured in the form of individual bundles, as illustrated in Figure 6, or in the form of a continuous brush and can be connected to the handle body, as described above. Likewise, a brush strip 122 as well as a connecting brush strip 121 can also be provided along the vertical side edge in the embodiment according to Figures 7 and 8. In this respect reference is made to the above description of Figure 6. The same applies to the shaping of the handle 100, which can widen towards the upper edge 112, in order to enable particularly pleasant handling as well as adaptation to different hand sizes.

Furthermore, in the embodiment illustrated in Figures 7 and 8 a hole 116 into which a shaft (not shown) can be inserted is provided in the handle 100, in order to be able to operate comfortably with the device even in the upright position. The hole can also be oriented in a manner different from that shown in the drawings, in order to enable different insertion positions for the shaft.

The aforementioned drawings should constitute an explanation and, in some circumstances, also a supplement to the claims with reference to the drawings.



FUGATISZTÍTÓ SZERSZÁM

SZABADALMI IGÉNYPONTOK

1. Fugatisztító szerszám, amely rendelkezik egy tartófogantyúval (11; 51; 101), legalább egy kefékkel ellátott keskeny kefeléccel (20), és egy tartóléccel (22), amely a tartófogantyúval (11) egy darabban van kialakítva, és rögzítőszemekkel (23) van ellátva egyetlen hosszúkás kefe számára vagy több egymás mellett lévő különálló kefenyaláb (26) számára, amelynél a keféknek a kefeléc hosszirányára merőlegesen mért szélessége kisebb vagy egyenlő a megmunkálandó fugák szélességével, és a kefék műanyagból vannak előállítva.

2. Az 1. igénypont szerinti szerszám, **azzal jellemezve**, hogy a tartófogantyúnak van egy keskeny oldalszéle (14), és ezen oldalszél (14) a kefeléccel (20) 90° -nál valamivel kisebb szöget, előnyösen 84° – 88° -os szöget zár be.

3. Az 1–2. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a tartófogantyú (11; 51; 101) a kefeléc (20) meghosszabbításaként és hosszúkás fogókarikaként van kialakítva a kefeléc kefesíkjával (25; 105) lényegében párhuzamosan.

4. Az 1–3. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a tartófogantyú (101) a kefeléc kefesíkjától (105) a felső szél felé a kefeléc mindkét oldalán ki van szélesítve, előnyösen 16–24 mm-re, vagy csak a két oldalsó szél (110) egyikén van kiszélesítve, és hogy a szélmagasság a tartófogantyú (101) egymással szemben lévő részein különböző nagyságú lehet.

5. Az 1–4. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a kefeléc (20) egybefüggő kefével van borítva, előnyösen 4–6 mm szélességben.

6. Az 1–4. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a kefeléc (20) különálló kefenyalábokkal (26; 108) van borítva, előnyösen 4 és 6 mm közötti átmérőjű kefenyalábokkal, amelyek a kefelécen (20) sorban egymás mögött vannak elhelyezve, és közöttük üres terek (28) vannak hagyva, előnyösen 1 és 6 mm közötti, még előnyösebben 2 és 4 mm közötti méretűek.

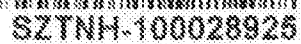
7. Az 1–6. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a kefe magasság a fugák fajtájától és anyagától és a kefeanyagtól függően van megválasztva, előnyösen 2 és 10 mm közötti, még előnyösebben 4 és 6 mm közötti méretűre.

8. Az 1-7. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a kefék anyagául nagy merevségű szokványos rugalmas műanyag van alkalmazva, továbbá nagyobb számú vékony különálló szál össze van sajtolva nyálabbá, és tartószemekbe van nyomva.

9. Az 1-8. igénypont egyike szerinti szerszám, **azzal jellemezve**, hogy a kefélec magában foglal egy hosszú alsó keféleccet (20) a tartóléc (22) alsó szélénél és egy rövidebb függőleges keféleccet (122) az alsó szélre lényegében merőleges oldalszélénél (15) és előnyös módon egy járulékos összekötő keféleccet (121), amely az alsó és a függőleges kefélecre mintegy 45 -os szögben van elhelyezve.

A meghatalmazott:



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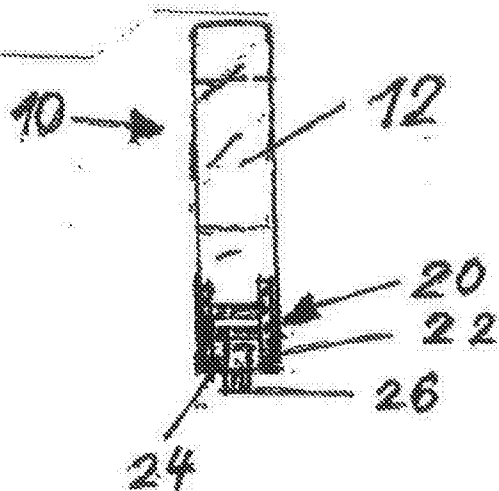


Fig. 2

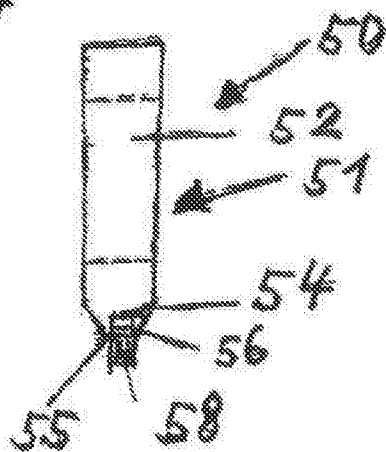


Fig. 3

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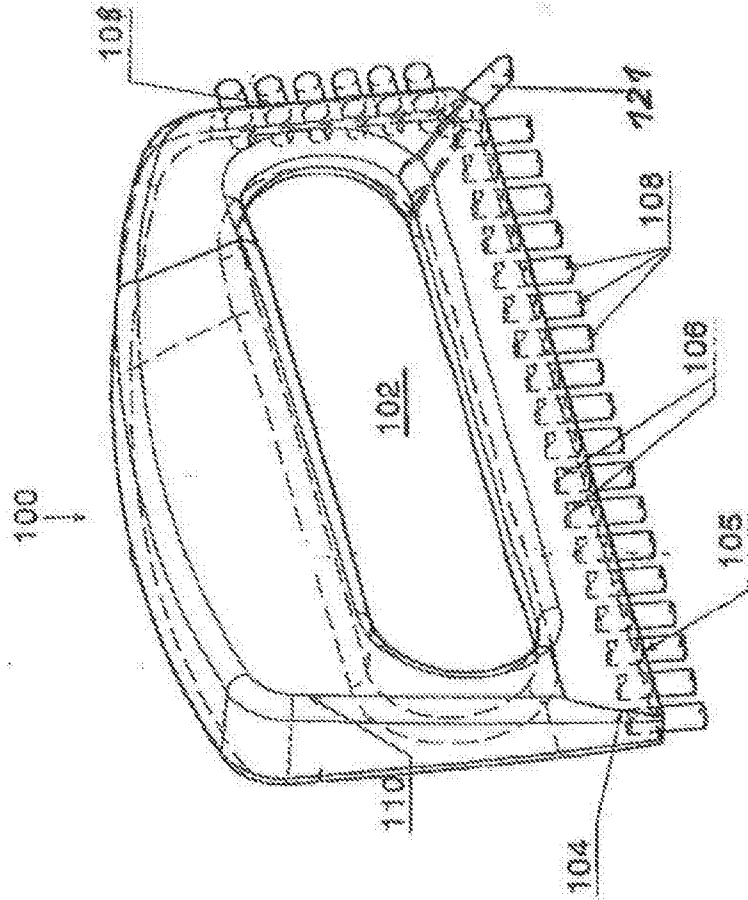


Fig. 6

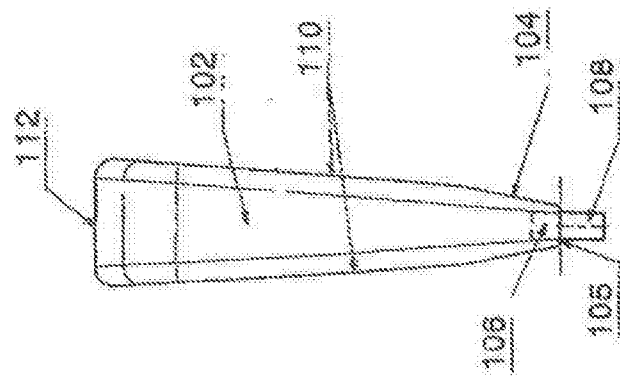


FIG. 4

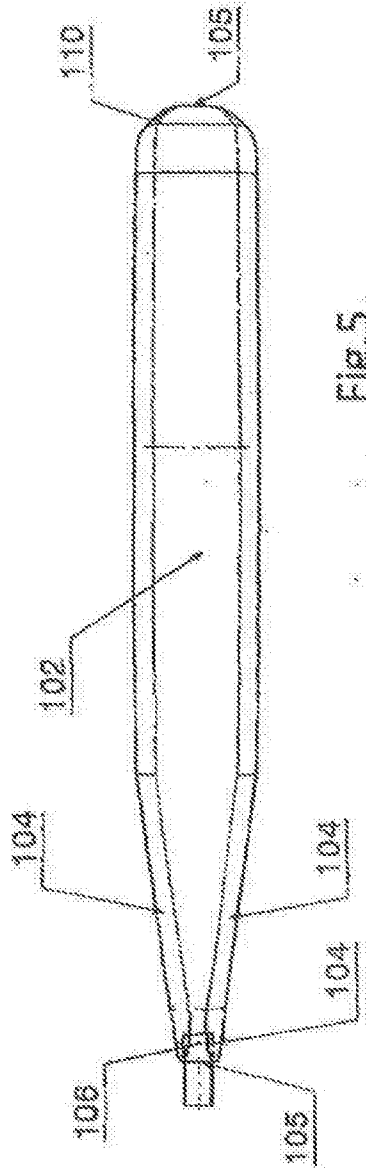


Fig. 5

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