

Nail brace applicator for nail brace application

The present patent application claims the priority of the German application 10 2023 209 249.2 and German utility model 20 2023 105 639.3, the
5 respective content of which is fully incorporated into this application by reference.

The invention relates to a nail brace applicator and a method for applying a nail brace provided with a brace magnet element to a nail of a toe or finger
10 to be corrected.

Nail braces and nail brace applicators are already known, for example, from EP 2 596 772 B1.

15 Accordingly, one object of the present invention is to improve a nail brace applicator in terms of its handling and to design it in particular to be more user-friendly.

This object is achieved according to the invention by a nail brace applicator
20 having the features set out in Claim 1.

The base body longitudinal direction extends in particular in the direction of the longest extension of the base body of the nail brace applicator. The base body depth direction extends in particular along the smallest extension
25 of the nail brace applicator. The base body width direction is in particular perpendicular both to the base body longitudinal direction and to the base body depth direction.

The nail brace is held on, in particular attached to, the first end face of the nail brace applicator thanks to the interaction of the brace magnet element and the applicator magnet element.

- 5 The brace can be applied to the nail in a particularly efficient and user-friendly manner thanks to the magnetic retention of the nail brace on the nail brace applicator. It is in particular not necessary to manually hold and/or align the nail brace. As a result, the accuracy with which the nail brace is applied to the nail can be improved. Overall, applying the nail
10 brace with the nail brace applicator according to the invention is not only more user-friendly, but also effectively results in improved medical results.

In particular, the concave pressing recess extends from the first base body end face into the base body in the base body longitudinal direction and
15 preferably extends in the base body depth direction over the entire depth of the base body.

The concave pressing recess can have a central axis. The central axis can in particular constitute an axis of symmetry of the concave pressing recess. It
20 is also possible that the concave pressing recess is designed without inherent symmetries.

The concave pressing recess can in particular be formed as a cut-out of a lateral surface of a right circular cylinder. In such a case, the concave
25 pressing recess has in particular a constant radius of curvature and constant main curvatures.

It is also possible that the concave pressing recess is formed as part of the lateral surface of a general body of revolution, such as an ellipsoid of revolution or a paraboloid of revolution. In such a case, the radius of curvature of the concave pressing recess would not be constant.

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Due to the concave pressing recess, a nail brace is at least partially pressed into the concave pressing recess when it is applied to the nail of a toe or finger. As a result, the nail brace designed substantially as a cuboid-shaped body is deformed in accordance with the shape of the concave pressing recess. In particular, the nail brace assumes the curvature of the concave pressing recess as a result of this deformation.

Ideally, the curvature of the nail brace should in such a case correspond, at least partially, to the curvature of a toenail or fingernail. As a result, the nail brace can be applied in a particularly simple and efficient manner to the nail to be treated.

In general, when the nail brace is applied to a nail, the nail and/or the nail brace is/are treated with an adhesive such that the adhesive force that occurs between the nail brace and the nail overcomes the magnetic force between the brace magnet element and the applicator magnet element, thereby releasing the nail brace from the nail brace applicator.

Without a concave pressing recess according to the invention in accordance with Claim 1, a nail brace applicator has to be moved around the toe or finger by hand in an arc shape. This not only requires a lot of skill, but also entails the risk of inaccurate and in particular incorrect application of the nail brace to the nail such that the nail brace cannot fulfil its health-promot-

ing and in particular healing effects. A nail brace applicator having the features of Claim 1 dispenses with said requisite application skill. Thanks to the adjustment of the shape of the nail brace to the concave pressing recess, the shape of the nail brace is also adjusted to the shape of the nail. The nail
5 nail brace merely has to be pressed onto the nail with the applicator. The nail brace applicator can then be removed. As a result, the nail brace is attached to the nail in a particularly user-friendly, simple and in particular safe and efficient manner and can take full effect.

10 A nail brace applicator according to Claim 2 can be used in a particularly simple manner. Thanks to the arrangement of the concave pressing recess centrally in the first base body end face of the base body in the width direction, a user of the nail brace applicator does not have to manually compensate for any asymmetrical offset between the nail brace and the nail brace
15 applicator.

A nail brace applicator according to Claim 3 can be produced in a particularly simple manner. A blind hole-like depression is formed on the base of the concave pressing recess, preferably centrally to the concave pressing
20 recess in the base body of the nail applicator. A central arrangement is understood in particular to mean that the geometric centroid of the blind hole-like depression coincides with the geometric centroid of the concave pressing recess.

25 The blind hole-like depression can in particular be designed as a rectangular blind hole. It is possible that the corners of the rectangular blind hole depression are rounded. Other shapes of the blind hole-like depression are also possible.

It is also possible that the blind hole-like depression has a rotationally symmetrical shape, in particular a cylindrical shape, at least in sections.

5 The blind hole-like depression can in particular have a plurality of sub-chambers, which can respectively have a different extension in the base body width direction.

It is in particular possible that the blind hole-like depression has a magnetic chamber and/or a restoring chamber. It is further possible that the blind
10 hole-like depression tapers towards an opening of the blind hole-like depression.

The taper can in particular have the smallest extension in the base body width direction. The magnetic chamber can in particular have the greatest
15 extension in the base body width direction. The extension of the restoring chamber in the base body width direction can in particular be between the extension of the taper in the base body width direction and the extension of the magnetic chamber in the base body width direction.

20 The applicator magnet element can be particularly easily and efficiently inserted into the blind hole-like depression. The applicator magnet element can be held in the blind hole-like depression of the concave pressing recess, for example, by means of a form fit or material bond.

25 The applicator magnet element can in particular be arranged in the magnetic chamber. The applicator magnet element can be arranged in the magnetic chamber so that it is movable in particular along the base body longitudinal direction.

The nail brace can, for its part, have an extended ferromagnetic element, for example in the form of a flat ferromagnetic plate, on its side associated with the concave pressing recess. It is also possible that the nail brace is coated with a ferromagnetic paint on its side facing the concave pressing
 5 recess.

In both cases, the magnetic force between the nail brace applicator and the nail brace can be precisely controlled thanks to the arrangement of the applicator magnet element in the blind hole-like depression. As a result, it can
 10 be precisely ensured that the magnetic interaction between the nail brace applicator and the nail brace is selected such that the nail brace is, on the one hand, securely held by the nail brace applicator and, on the other hand, can be easily detached when the nail brace is applied to a nail.

15 A nail brace applicator according to Claim 4 makes it possible to match the magnets in a particularly efficient manner. It is in particular not possible for the applicator magnet element and the brace magnet element to establish physical contact with one another without an external force acting on the brace applicator and/or even the brace.

20 A maximum spacing present in the free intermediate space between the brace magnet element and the applicator magnet element is preferably in the range of 0.9 mm to 3 mm, in particular 1 mm to 2.8 mm, in particular 1.1 mm to 2.6 mm, in particular 1.2 mm to 2.4 mm, in particular 1.3 mm to
 25 2.2 mm, in particular 1.4 mm to 2.0 mm and in particular 1.5 mm to 1.8 mm. This ensures a good magnetic retaining force.

The free intermediate space can, in principle, also be even smaller. It is in particular possible that the free distance is smaller than 1 mm, in particular

smaller than 0.5 mm, in particular smaller than 0.3 mm and in particular smaller than 0.1 mm. It is in particular also possible that the brace magnet element and the applicator magnet element form a direct physical contact. Overall, the magnetic retaining force increases as the free intermediate
 5 space decreases such that a smaller free intermediate space improves the holding power of the nail brace applicator and thus makes it easier to use.

A nail brace applicator according to Claim 5 is particularly user-friendly. When each of the support surfaces extends up to one of the end face trans-
 10 verse edges, a nail brace can be particularly easily attached to the first end face of the base body of the nail brace applicator along its longitudinal extension. In addition, the nail brace can have different brace lengths and in particular also protrude beyond the end face transverse edges.

15 The end face longitudinal edges can in particular extend in the base body width direction and be curved at least in the region of the concave pressing recess. The end face transverse edges can in particular extend in the base body depth direction.

20 A nail brace applicator according to Claim 6 is particularly user-friendly. The guide elements are in particular designed as lateral guide elements. The guide elements are in particular suitable for all brace lengths. It is possible that one brace protrudes beyond the first base body end face of the brace applicator in the base body width direction.

25 A nail brace applicator according to Claim 7 makes it significantly easier to attach the nail brace to the nail brace applicator. Thanks to the design of the guide elements along the base body width direction, a nail brace to be applied can be attached to the first base body end face along its longitudinal

direction. The guide elements guarantee particularly easy guidance of the nail brace to its application position on the first base body end face. The guide elements establish a form-fitting connection to the nail brace along the base body depth direction. It is therefore not possible for the nail brace
5 to slip or tilt in the base body depth direction such that the nail brace is arranged precisely on the first base body end face of the nail brace applicator, which facilitates and improves the attachment of the nail brace to a nail.

A nail brace applicator according to Claim 8 can be produced in a particularly simple manner. The guide elements can be readily produced as guide
10 pins or guide rails by means of standard material processing methods such as turning, grinding or milling. Other production methods for producing the guide pins or guide rails are also possible.

15 It is also possible that the nail brace applicator and the guide elements are designed as a multi-part construction set, wherein all guide pins or all guide rails are respectively designed as separate components. In such a case, the construction set would have five parts. In such a case, guide pins or guide rails can also be produced in a particularly simple manner by means of
20 common shaping methods such as injection moulding or 3D printing. The nail brace applicator and the guide elements can, for example, be connected to one another by means of a material bond.

A nail brace applicator according to Claim 9 can be used in a particularly
25 versatile and flexible manner. Thanks to the combination of both guide rails and guide pins which form two receiving spacings as seen in the base body depth direction, it is possible to use a nail brace applicator as a combination device for nail braces with different widths. Common nail brace

widths are, for example, 3 mm or also 4 mm. The use of the nail brace applicator as a combination device also saves an operator working time.

5 In such a case, all guide pins and all guide rails can be designed as a separate component such that the construction set has nine parts in total. It is also possible that one guide element respectively, comprising both a guide rail and a guide pin, is designed as one component. In such a case, the construction set comprises 5 parts. Hybrid forms are also possible, in which individual guide elements comprise both the guide pin and the guide rail in
10 one piece, while other guide pins and/or guide rails are designed as one piece.

A nail brace applicator according to Claim 10 enables already centrally positioned nail braces to be permanently fixed and/or repositioned in the edge
15 regions using the two pressing tips spaced apart from one another. The nail brace applicator can thus preferably be used as a universal tool in practically in all steps for applying a nail brace.

A nail brace applicator according to Claim 11 supports the user in the
20 choice of a suitable nail brace. Thanks to the measuring template recesses arranged on one of the base body longitudinal sides, the size of a nail can be measured and in particular determined before a nail brace is applied. A nail brace with an appropriate length can be selected based on this measurement.

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It is particularly advantageous if the nail brace applicator has a plurality of concave measuring template recesses with different sizes along one, particularly preferably both base body longitudinal sides. The nail brace applicator can have at least one, in particular at least two, in particular at least

three, in particular at least four, in particular at least five and in particular at least six measuring template recesses. In this way, a user can, for example, use a heuristic such as trial and error to gradually determine the nail size and thereby select an appropriate nail brace.

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One embodiment of the nail brace applicator where the concave measuring template recesses have a marking is particularly preferable. This marking can, for example, constitute a size specification in arbitrary units, which gives the operator an indication of the size of the nail to be treated. It is also possible that the marking correlates directly with the length, for example in millimetres, of the required nail brace.

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A nail brace applicator according to Claim 12 improves and facilitates the application of nail braces to a nail. The marking aid can be designed as a blind hole-like marking recess. Said blind hole-like marking recess allows the centre of the nail to be corrected to be marked, for example by means of a pen.

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A nail brace applicator according to Claim 13 further increases the precision of the nail brace application. Thanks to the central marking of the application region of the nail brace applicator, it is very readily possible to correctly position the nail brace, namely in particular due to the fact that the central marking of the application region and the central marking applied previously to the nail by means of the measuring template recess and its marking aid match, in particular are flush with one another.

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A nail brace applicator according to Claim 14 can be used in a particularly user-friendly and convenient manner. Thanks to the arrangement of the applicator magnet element on a restoring device, it is in particular possible

that the applicator magnet element is arranged in its in particular extended rest position with a surface parallel and flush with at least one of the two support surfaces, and in particular both support surfaces.

- 5 The applicator magnet element is in particular designed to be movable in the base body longitudinal direction. It is in particular possible that the applicator magnet element is designed to be movable within the blind hole-like depression in the base body longitudinal direction. The applicator magnet element can in particular be moved from its rest position into a pre-tensioned position. For this, it is in particular possible that guide elements, such as guide rails, are arranged on the applicator magnet element, which enable particularly low-friction movement of the applicator magnet element in the base body longitudinal direction.
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- 15 The rest position of the applicator magnet element means the position of the applicator magnet element which the applicator magnet element assumes when no external force is acting on the applicator magnet element. This is in particular the case if a nail brace is not currently being applied to a fingernail or toenail to be treated by means of the nail brace applicator.
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- The pre-tensioned position means that position of the applicator magnet element which the applicator magnet element assumes when the restoring element is in particular fully actuated. This is in particular the case if a nail brace is being applied to a fingernail or toenail to be treated by means of
- 25 the nail brace applicator.

It is in particular possible to significantly improve the holding effect of the nail brace applicator thanks to the parallel and flush arrangement of the

surface of the applicator magnet element with at least one of the two support surfaces.

5 The magnetic attraction between two magnet elements usually rapidly decreases as the free intermediate space between the two magnet elements increases. It is possible to reduce the free intermediate space between the applicator magnet element and the brace magnet element by means of the restoring device. It is in particular possible that the free intermediate space
10 between the applicator magnet element and the brace magnet element is smaller than 1 mm, in particular smaller than 0.5 mm, in particular smaller than 0.3 mm and in particular smaller than 0.1 mm. It is in particular also possible that the applicator magnet element and the brace magnet element are in direct physical contact, i.e. in particular directly touch one another. There is then no free intermediate space.

15 When a nail brace is applied to a fingernail or toenail by means of such a nail brace applicator, a force is exerted on the restoring device, which counteracts a restoring force of the restoring device. As a result, the restoring device is actuated, whereby the applicator magnet element is pressed
20 into the concave pressing recess, and in particular into the blind hole-like depression, at least partially. The nail brace can therefore continue to adapt to the characteristic shape of the nail during application.

It is in particular possible that the restoring device is at least partially and
25 in particular fully arranged in the blind hole-like depression. For this, the blind hole-like depression can have a restoring chamber.

It is possible that the blind hole-like depression has a magnetic chamber, in which the applicator magnet element is at least partially, and in particular

fully, arranged. The magnetic chamber can in particular directly adjoin the restoring chamber.

5 It is in particular possible that the restoring chamber has a restoring extension in the base body width direction, which is smaller than a magnet extension of the magnetic chamber in the base body width direction. As a result, an edge can form at the transition from the magnetic chamber to the restoring chamber.

10 It is in particular possible that the applicator magnet element has a magnet longitudinal body and a magnet width body. The magnet longitudinal body and the magnet width body can in particular be integrally formed. The applicator magnet element can in particular have a T-shaped longitudinal cross-section. Perpendicular thereto, the applicator magnet element can
15 have in particular an angular, preferably rectangular, or circular cross-sectional area. The applicator magnet element can have in particular a cuboid shape or a rotationally symmetrical shape, preferably a cylindrical shape, at least in sections.

20 The magnet width body has a larger extension than the magnet longitudinal body in particular in the base body width direction. The magnet width body is in particular arranged fully within the magnetic chamber. When the restoring device is actuated, the magnet width body can travel a predetermined distance along the base body longitudinal direction until the magnet
25 width body strikes the edge marking the transition from the magnetic chamber to the restoring chamber. This stop constitutes a lower movement end point of the magnet width body. When the magnet width body strikes the edge, the applicator magnet element reaches in particular its pre-tensioned position. It is in particular possible that the surface of the applicator

magnet element, which is arranged in the rest position parallel and flush with at least one of the two support surfaces, is arranged at the lower movement end point of the applicator magnet element parallel and flush with the opening of the blind hole-like depression.

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The blind hole-like depression can in particular be designed to tap towards its opening. It is in particular possible that another edge is formed between the magnetic chamber and a taper of the blind hole-like depression, against which the magnet width body rests in the rest position.

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A nail brace applicator according to Claim 15 can be constructed in a particularly simple manner. A restoring element constitutes the simplest way of producing a restoring device with an associated restoring force.

- 15 It is in particular possible that the restoring device has at least two restoring elements and in particular at least three restoring elements. Thanks to a higher number of restoring elements, the force that acts on the restoring device when a nail brace is applied is in particular distributed evenly across all restoring elements. As a result, wear of individual restoring elements or
- 20 material failure of individual restoring elements can be avoided.

The restoring elements can, for example, be designed as springs. It is in particular possible that the restoring elements are designed as leaf springs.

- 25 The restoring elements can in particular also be designed as spring washers, preferably made of plastic. Furthermore, the restoring elements can in particular be integrally connected.

In addition, the restoring device can preferably be a one-piece plastic component, which has a resilient restoring element, or two or more resilient restoring elements, which is in particular integrally cast.

- 5 If more than one restoring element is used, all restoring elements can be identical in design. It is also possible that different restoring elements have different properties. It is, for example, possible to use three spring washers with different elastic properties. The combination of spring washers and leaf springs is also possible.

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- A method for applying a nail brace provided with a brace magnet element to a nail of a toe or finger to be corrected with a nail brace applicator according to the invention is described below by way of example. The method comprises the following steps: selecting a nail brace to be applied
- 15 with a suitable brace length and suitable brace width, fixing the nail brace to be applied to the first end face of the nail brace applicator, wherein the nail brace is held by means of magnetic interaction, applying an adhesive to the nail to be corrected and/or to the side of the nail brace facing away from the concave pressing recess, pressing the nail brace onto the nail to be
- 20 corrected with the nail brace applicator, wherein the nail brace is pressed into the concave pressing recess of the nail brace applicator at least partially and thereby adapts, at least partially, to the shape of the nail to be corrected, removing the nail brace applicator from the nail to be corrected, wherein the nail brace is detached from the nail brace applicator and fixed
- 25 to the nail thanks to the adhesive and/or cohesive interaction of the nail brace and/or the nail with the adhesive.

Furthermore, the method can comprise a step according to which, with a nail brace applicator according to one of Claims 11 or 12, a nail brace with

a suitable brace length and suitable brace width is selected and the toe is measured with the at least one concave measuring template recess.

Furthermore, the method can comprise a step according to which, with a
5 nail brace applicator according to Claim 12, the centre of the toe is marked with the marking aid, for example with an erasable writing instrument such as a pen.

Furthermore, the method can comprise a step according to which, with a
10 nail brace applicator according to Claim 13, the central marking of the nail brace applicator is arranged flush with the central marking of the nail.

Furthermore, the method can comprise a step according to which, with a
nail brace applicator according to Claim 9, a nail brace already fixed to the
15 nail is additionally pressed and/or repositioned at its edge regions by means of the pressing tips of the second end face of the nail brace applicator. This ensures that the nail brace is attached completely and evenly to the nail.

Further details, advantages and features of the invention are described be-
20 low with reference to the figures. In the drawings:

Fig. 1 shows an exemplary embodiment of a nail brace applicator in a perspective view;

25 Fig. 2 shows an exemplary embodiment of the nail brace applicator according to Fig. 1 in a side view;

Fig. 3 shows an exemplary embodiment of the nail brace applicator according to Fig. 1 in a front view;

- Fig. 4 shows a perspective view of a section of the nail brace applicator according to Fig. 1, in which the first base body end face is enlarged;
- 5 Fig. 5 shows an enlarged side view of a section of the nail brace applicator according to Fig. 1 with a nail brace;
- 10 Fig. 6 shows a top view of the application of a nail brace to a nail using a nail brace applicator according to Fig. 1; and
- 15 Fig. 7 shows a sectional view of the application region of another exemplary embodiment of a nail brace applicator with a longitudinally moveable applicator magnet element and a restoring device.

Corresponding parts bear the same reference numerals in Fig. 1 to 6. Details of the exemplary embodiment described in more detail below may
 20 also constitute an invention in their own right or form part of an invention.

Fig. 1 shows a nail brace applicator 1. The nail brace applicator 1 has a base body 2 extending along its longitudinal axis in a base body longitudinal direction x. The base body 2 has a first base body end face 3, which
 25 forms an application region.

The first base body end face 3 comprises two rectangular contact surfaces 4 and a concave pressing recess 5.

The concave pressing recess 5 extends into the base body 2 of the nail brace applicator 1.

5 The contact surfaces 4 are flat and have in particular no curvature. The contact surfaces 4 extend substantially perpendicular to the base body longitudinal direction x of the base body 2 of the nail brace applicator 1. The concave pressing recess 5 is arranged between the two contact surfaces 4.

10 The concave pressing recess 5 has a blind hole-like depression 5 on its base. The blind hole-like depression 6 is used to at least partially accommodate an applicator magnet element (not shown in Fig. 1).

15 The first base body end face 3 has two longitudinal edges 7 opposite one another in a base body depth direction z and two transverse edges 8 opposite one another in a base body width direction y . The longitudinal edge 7 runs substantially along the larger extension of the first base body end face 3 in the base body width direction y . The transverse edge 8 runs along the smaller extension of the base body end face 3 in the base body depth direction z . The longitudinal edge 7 is curved in the region of the concave pressing recess 5.

25 Guide elements 9, 10 extend along the longitudinal edge 7 and facilitate the arrangement of a nail brace (not shown in Fig. 1) on the application region of the nail brace applicator 1. The guide elements 9, 10 facilitate in particular the attachment of the nail brace along its longitudinal direction to the nail brace applicator 1. The guide elements 9, 10 are in particular designed to hold a nail brace attached to the nail brace applicator 1 in a form-fitting manner along the base body depth direction z . The nail brace is hereby prevented from slipping or tilting along the base body depth direction z .

In the exemplary embodiment shown in Fig. 1, the guide elements 9, 10 are partly designed as guide rails 9 and partly as guide pins 10. It is also possible that a nail brace applicator 1 has either only guide rails 9 or only guide pins 10 on its first base body end face 3.

The nail brace applicator 1 has a total of four guide rails 9 and four guide pins 10. The guide rails 9 and guide pins 10 are respectively arranged in pairs on the transverse edges 8 of the first base body end face and extend in the direction of the longitudinal edge 7. Two guide rails 9 and two guide pins 10 are respectively arranged per support surface 4.

The guide rails 9 have a larger extension than the guide pins 10 both in the base body depth direction z and in the base body width direction y . The guide pins 10 have a larger extension than the guide rails 9 in the base body longitudinal direction x . As a result, it is in particular possible to use the nail brace applicator 1 for applying nail braces with different widths. Wider nail braces can be mounted by the guide pins 10. Narrower nail braces can be mounted by the guide rail 9. Standard widths for nail braces are 3 mm and 4 mm. The guide rails 9 and guide pins 10 are tailored to these respective spacings.

In the region of the first base body end face 3, the base body 2 of the nail brace applicator 1 has a central marking 11. The central marking 11 is designed as an arrow-shaped marking. The arrow-shaped marking comprises a rectangular marking base body and a triangular tip. The tip points to the longitudinal edge 7 of the first base body end face 3.

The central marking 11 is arranged centrally between the two transverse edges 8. In particular, the tip of the central marking 11 points exactly to the centre of the concave pressing recess 5 of the first base body end face 3. Due to the fact that the concave pressing recess 5 is arranged centrally in the first base body end face 3, the tip of the central marking 11 thus also indicates the exact centre of the first base body end face 3.

Furthermore, Fig. 1 shows that the base body 2 of the nail brace applicator 1 has two base body longitudinal sides 12. The base body longitudinal sides 12 are the longest sides of the nail brace applicator 1 and extend along the base body longitudinal direction x.

The base body longitudinal sides 12 have a plurality of concave measuring template recesses 13. In the exemplary embodiment shown in Fig. 1, both base body longitudinal sides 12 respectively have three concave measuring template recesses 13. The concave measuring template recesses 13 extend into the inside of the base body 2 of the nail brace applicator 1 in the base body width direction y.

Each of the concave measuring template recesses 13 has a centrally arranged marking aid 14 on their respective base. The marking aid 14 is designed as a blind hole-like depression in the exemplary embodiment shown in Fig. 1. The marking aids 14 extend into the inside of the base body 2 in the base body width direction y. The marking aids 14 are not designed as through-openings either in the base body width direction y or in the base body depth direction z. The marking aids 14 have a substantially rectangular contour both in top view and side view.

A marking 15 is affixed to the base body 2 of the nail brace applicator 1 for each of the concave measuring template recesses 13. In the exemplary embodiment shown in Fig. 1, six such markings 15 are accordingly affixed. The markings 15 are formed as Arabic numerals “14”, “16”, “18”, “20”, “22”, and “24”. The markings 15 respectively indicate a length of the nail brace to be applied. In general, a measuring template recess 13 whose marking 15 is represented by a larger Arabic numeral correlates with a larger nail brace. The markings 15 can provide an indication of the length of the nail brace to be applied in arbitrary units or directly correspond to the length of the nail brace, for example in millimetres.

Each of the concave measuring template recesses 13 has two edges. The edges close off the respective measuring template recess 13 in the base body longitudinal direction x. Another concave measuring template recess 13 does not directly adjoin a concave measuring template recess 13. Rather, an intermediate space 17 is arranged between two measuring template recesses 13.

In the exemplary embodiment according to Fig. 1, the intermediate spaces 17 are designed as indentations along the base body width direction y into the base body 2 of the nail brace applicator 1.

The base body 2 further has two curves 18, 19. The first curve 18 is used to separate that part of the base body 2 that contains the concave measuring template recesses 13 from the already described first end face 3 and the associated application region. In the region of the first curve 18, the extension of the base body 2 along the base body width direction y is smaller.

The second curve 19 connects that part of the base body 2 that has the concave measuring template recesses 13 with a second end face 20. The second curve 19 also results in a reduction of the extension of the base body 2 along the base body width direction y .

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The second end face 20 has a concave recess 21. The edges of the concave recess 21 are respectively designed as pressing tips 22. These pressing tips 22 make it possible to apply additional pressure to a nail brace that has already been partially applied to a nail, thereby stabilising it.

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Fig. 2 shows a nail brace applicator 1 according to the exemplary embodiment of Fig. 1 in side view. The viewing direction is the base body width direction y . The base body longitudinal side 12 is accordingly shown in Fig. 2. The first base body end face 3 and the second base body end face 20 are located at the two ends of the base body longitudinal side 12.

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The nail brace applicator has a main depth d_1 in the base body depth direction z . Towards the first base body end face 3, the extension of the base body 2 of the nail brace applicator 1 increases along the base body depth direction z continuously up to a depth d_3 . The depth d_3 describes in particular the largest extension of the nail brace applicator 1 in the base body depth direction z .

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Along the second curve 19, the extension of the base body 2 decreases along the base body depth direction z continuously up to a depth d_2 . The depth d_2 describes in particular the smallest extension of the nail brace applicator 1 in the base body depth direction z .

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For the main depth d_1 it may in particular be the case that $3 \text{ mm} \leq d_1 \leq 5 \text{ mm}$. In particular, the main depth d_1 can also be exactly 4 mm. For the depth d_2 it may in particular be the case that $2 \text{ mm} \leq d_2 \leq 4 \text{ mm}$. In particular, the depth d_2 can also be exactly 3 mm. For the depth d_3 it may in particular be the case that $4 \text{ mm} \leq d_3 \leq 6 \text{ mm}$. In particular, the depth d_3 can also be exactly 5 mm.

Fig. 3 shows a front view of the first base body end face 3 with a viewing direction in the base body longitudinal direction x . Alongside another illustration of the depths d_1 and d_3 , this figure shows the depression 6 which at least partially contains the applicator magnet element in more detail. The depression 6 has a depth extension d_4 along the base body depth direction z . The depression 6 has a width extension d_5 along the base body width direction y . The depth extension d_4 is in particular smaller than the main depth d_1 .

Fig. 3 further shows that the concave pressing recess 5 has a width extension d_6 in the base body width direction, which is in particular larger than the width extension d_5 of the depression 6.

For the depth extension d_4 it may in particular be the case that $1 \text{ mm} \leq d_4 \leq 3 \text{ mm}$. In particular, the depth extension d_4 can also be exactly 2 mm. For the width extension d_5 it may in particular be the case that $4 \text{ mm} \leq d_5 \leq 6 \text{ mm}$. In particular, the width extension d_5 can also be exactly 5 mm. For the width extension d_6 it may in particular be the case that $8 \text{ mm} \leq d_6 \leq 10 \text{ mm}$. In particular, the width extension d_6 can be exactly 9 mm.

The depression 6 is in particular arranged centrally within the concave pressing recess 5. According to the front view shown in Fig. 3, the geometric centres of the depression 6 and concave pressing recess 5 coincide.

5 Fig. 4 shows a three-dimensional cut-out of the base body 2 in the region of the first base body end face 3. The cut-out is incomplete in the base body width direction y . In particular, only two of the guide pins 10 and two of the guide rails 9 of one of the support surfaces 4 are shown.

10 Along the base body width direction y , a nail brace can be attached along its longitudinal direction to the nail brace applicator 1. The width of the nail brace can in particular be selected such that the movement of the nail brace along the base body depth direction z is positively limited by either the guide rails 10 or the guide pins 9.

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For this, the guide pins 10 protrude beyond the guide rails 9 opposite the base body longitudinal direction x . The guide rails 9 have a larger extension than the guide pins 10 in the base body depth direction z and/or in the base body width direction y . A nail brace is placed such that its width is
 20 oriented along the base body depth direction z . In this way, the support surfaces 4 are suitable for mounting nail braces with different widths.

Fig. 5 shows a partial side view of a nail brace applicator 1 in accordance with the exemplary embodiment according to Fig. 1 with a nail brace 23
 25 shortly before insertion into the nail brace applicator 1. The guide pins 10 or guide rails 9 are shown as before thanks to the selected illustration of the nail brace 23. Furthermore, the nail brace 23 has a brace magnet element 24.

The nail brace applicator 1 has an applicator magnet element 25, which is arranged at least partially in the depression 6 (not shown in Fig. 5).

5 In the base body longitudinal direction x, a free space d_7 is present between the brace magnet element 24 and the applicator magnet element 25. The brace magnet element 24 and the applicator magnet element 25 interact magnetically across the free space d_7 such that the nail brace 23 is fixed, in particular releasably, to the first base body end face.

10 The free space d_7 between the brace magnet element and the applicator magnet element is preferably in the range of 0.9 mm to 3 mm, in particular 1 mm to 2.8 mm, in particular 1.1 mm to 2.6 mm, in particular 1.2 mm to 2.4 mm, in particular 1.3 mm to 2.2 mm, in particular 1.4 mm to 2.0 mm and in particular 1.5 mm to 1.8 mm. The free space d_7 can also be exactly
15 1.6 mm.

The nail brace 23 can have a larger extension than the first base body end face 3 in the base body width direction y. As a result, the nail brace 23 protrudes beyond the first base body end face 3 on both sides along its longitudinal direction, in the base body width direction y.
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The nail brace 23 is form-fittingly held along the base body depth direction z, in the exemplary embodiment shown in Fig. 5, by the guide pins 10. It is also possible that a nail brace 23 is held by the guide rails 9.

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Fig. 6 shows a plan view of part of the nail brace applicator 1 with a nail brace 23, which is directly applied to a nail 26 of a body part 27, which can, for example, be a finger or a toe. When the nail brace 23 is applied to a nail 26, the nail brace 23 is pressed into the concave pressing recess 5 by

the pressure exerted during application and thereby also becomes concave in shape. The nail brace 23 thereby assumes substantially the same shape as the concave pressing recess 5. It is possible to press the nail brace 23 into the concave pressing recess 5 until the two magnet elements 24, 25 are touching. As a result, the nail brace 23 naturally adapts to the curvature of the nail 26, which makes it easier to apply the nail brace 23 to the nail 26.

Fig. 7 shows another exemplary embodiment of a nail brace applicator 1a in sectional view. The figure shows the application region of the nail brace applicator 1a with the nail brace 23 inserted, such that the guide pins 10 and guide rails 9 are not shown in Fig. 7.

Components equivalent to the nail brace applicator 1 according to the first exemplary embodiment are referenced using the same reference numerals with an added “a” and are not described again below.

In Fig. 7, in particular a narrow nail brace 23 (width 3 mm) is inserted into the nail brace applicator 1a and rests on the support surfaces 10 of the first base body end face 3a of the elongated base body 2a, and whose orientation is predetermined by the guide rails 9.

As already explained, it is also possible to apply wide nail braces 23 (width 4 mm) to a nail 26 with the nail brace applicator 1a. The nail brace 23 rests at least partially on the guide rails 9 and the orientation of the nail brace 23 is determined by the guide pins 10.

The blind hole-like depression 6a has a magnetic chamber 30 and a restoring chamber 31. The magnetic chamber 30 has a magnet extension which is larger than a restoring extension of the restoring chamber 31 in the base

body width direction y. An edge 32 is accordingly formed at the transition from the magnetic chamber 30 to the restoring chamber 31.

5 A restoring device 33 is arranged in the restoring chamber 31. In the present exemplary embodiment, the restoring device 33 is designed as an integrally cast plastic component and has three restoring elements 34 as partial components, which are respectively designed as spring washers.

10 The applicator magnet element 25a is moveably arranged within the blind hole-like depression 6a and in particular also guided accordingly. As indicated by the double arrow 40, the applicator magnet element 25a can be moved back and forth over a distance 41 in the base body longitudinal direction x of the nail brace applicator 1a. It is also in direct physical contact with the restoring device 33. The applicator magnet element 25a has a T-
15 shaped longitudinal cross-section and has a magnet width body 35 as well as a magnet longitudinal body 36.

The magnet width body 35 is in direct physical contact with one of the restoring elements 34. The magnet width body 35 is arranged fully in the
20 magnetic chamber 30.

The blind hole-like depression 6a tapers 37 towards its upper opening facing the first base body end face 3a. An edge 38 is formed at the transition from the magnetic chamber 30 to the taper 37.

25 The magnet longitudinal body 36 is at least partially arranged in the taper 37.

The blind hole-like depression 6a including the magnetic chamber 30 as well as the restoring chamber 31 has, in addition to the upper opening in one of the base body longitudinal sides 12 in particular also a lateral opening (not shown in the sectional illustration according to Fig. 7) for inserting the applicator magnet element 25a and the restoring device 33. The lateral opening is sealed by an in particular removable lid.

Fig. 7 shows the nail brace applicator 1a, and in particular the applicator magnet element 25a, in its rest position, i.e. without the nail brace 23 being applied to a nail 26. In this case, the applicator magnet element 25a, in particular the magnet longitudinal body 36 has a top surface 39, which is arranged parallel (and possibly also flush) with the two support surfaces 4a. The optional flush arrangement is not present in the exemplary embodiment according to Fig. 7 as the brace magnet element 24 is designed as an extended body. However, the in an alternative exemplary embodiment (not shown), the brace magnet element 24 can in particular also be designed as a magnetic point which has no substantial extension in the base body longitudinal direction x of the nail brace applicator 1a, such that the alignment of the top surface 39 with the two support surfaces 4a is ensured.

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If the narrow nail brace 23 is used as in Fig. 7, there is a direct physical contact between the applicator magnet element 25a and the brace magnet element 24. If a wide nail brace 23 is used (not shown), there is in particular a small free intermediate space between the applicator magnet element 25 and the brace magnet element 24. The spacing between the applicator magnet element 25 and the brace magnet element 24 is then in particular less than 0.1 mm such that a very strong magnetic attraction is also ensured.

When the nail brace 23 is applied, the nail brace 23 is pressed into the concave pressing recess 5a, whereby the applicator magnet element 25a is pressed into the blind hole-like depression 6a against the restoring force of the restoring device 33 in the base body longitudinal direction x. The restoring device is actuated, i.e. in particular (further) tensioned by this movement of the applicator magnet element 25a. The lower movement end point of the applicator magnet element 25a is reached as soon as the magnet width body 35 abuts against the edge 32. The edge 32 prevents in particular the restoring device 33 from being too heavily compressed and thus damaged, for example due to a movement of the applicator magnet element 25a extending too far into the blind hole-like depression 6a.

The distance 41 by which the magnet width body 35 can move within the magnetic chamber 30 between the edge 38 as the upper stop and the edge 32 as the lower stop in the base body longitudinal direction x determines the extent of the longitudinal mobility of the applicator magnet element 25a overall.

A spacing 42 is formed between the deepest point of the concave pressing recess 5a and the support surfaces 4a. This spacing 42 and the distance 41 can in particular be the same size. Then the applicator magnet element 25a can be pressed into the blind hole-like depression 6a to such an extent that the top surface 39 of the magnet longitudinal body 37 is no longer (even partially) arranged in the concave pressing recess 5a but rather located fully within the blind hole-like depression 6a.

Once the nail brace 23 has been applied to the nail 26 and the nail brace applicator 1a has been removed from the nail 26, there is no need to actuate the restoring device 33. The previously tensioned restoring device 33 now

exerts a restoring force on the applicator magnet element 25a, whereby the applicator magnet element 25a moves back to its upper rest position. In this rest position, the nail brace applicator 1a and in particular the applicator magnet element 25a are ready to receive and securely hold another nail
5 brace 23 for another application of this nail brace 23 to another nail 26.

Claims

1. Nail brace applicator for applying a nail brace (23) provided with a
brace magnet element (24) to a nail (26) of a toe (27) or finger (27) to
5 be corrected, having
 - a) an elongated base body (2; 2a), which extends in a base body lon-
gitudinal direction (x), a base body width direction (y) and a base
body depth direction (z) and has a first base body end face (3; 3a)
oriented perpendicular to the base body longitudinal direction (x),
10 which forms an application region, and
 - b) an applicator magnet element (25; 25a) arranged in the application
region for interaction with the brace magnet element (24) and for
thereby releasably holding the nail brace (23) to be applied in the
application region, wherein
 - 15 c) the application region has two support surfaces (4; 4a) for support-
ing the nail brace (23) to be applied and a concave pressing recess
(5; 5a) arranged between the two support surfaces (4; 4a).
2. Nail brace applicator according to Claim 1, **characterised in that** the
20 concave pressing recess (5; 5a) is arranged centrally in the first base
body end face (3; 3a) in the base body width direction (y).
3. Nail brace applicator according to Claim 1 or 2, **characterised in that**
a blind hole-like depression (6; 6a) is arranged on a base of the con-
25 cave pressing recess (5; 5a), into which the applicator magnet element
(25; 25a) is at least partially inserted.
4. Nail brace applicator according to one of the preceding claims, **charac-
terised in that** when the nail brace (23) is loosely positioned on the

two support surfaces (4; 4a), there is a free intermediate space between the brace magnet element (24) and the applicator magnet element (25; 25a).

- 5 5. Nail brace applicator according to one of the preceding claims, **characterised in that** the first base body end face (3; 3a) is delimited by two end face longitudinal edges (7; 7a) and two end face transverse edges (8) and each support surface (4) extends respectively up to one of the end face transverse edges (8) of the first base body end face (3; 3a).
- 10 6. Nail brace applicator according to one of the preceding claims, **characterised in that** each support surface (4; 4a) has guide elements (9, 10) for guiding the nail brace (23) longitudinally.
- 15 7. Nail brace applicator according to Claim 6, **characterised in that** the guide elements (9, 10) are designed to guide the nail brace (23) along the base body width direction (y).
- 20 8. Nail brace applicator (1) according to one of Claims 6 or 7, **characterised in that** the guide elements (9, 10) are designed as guide pins (10) or as guide rails (9).
- 25 9. Nail brace applicator (1) according to one of Claims 6 to 8, **characterised in that** the guide elements (9, 10) are designed as combination elements such that two receiving spacings are formed on each support surface (4) as seen in the base body depth direction (z), whereby nail braces (23) to be applied can be positioned with two different brace widths.

10. Nail brace applicator according to one of the preceding claims, **characterised in that** the base body (2; 2a) is equipped with two pressing tips (22) spaced apart from one another on a second base body end face (20) opposite the first base body end face (3; 3a).
- 5 11. Nail brace applicator according to one of the preceding claims, **characterised in that** the base body (2; 2a) has two narrow base body longitudinal sides (12) extending in the base body longitudinal direction (x), which are equipped with at least one concave measuring template recess (13) for determining the length of the nail brace (23) to be applied.
- 10 12. Nail brace applicator according to Claim 11, **characterised in that** the base body (2; 2a) has, adjacent to the at least one measuring template recess (13), a marking aid (14) arranged centrally with respect to the at least one measuring template recess (13) for marking the centre on the
- 15 nail (26) to be corrected.
13. Nail brace applicator according to one of the preceding claims, **characterised in that** the base body (2; 2a) has a central marking (11) on the
- 20 application region.
14. Nail brace applicator according to one of the preceding claims, **characterised by** a restoring device (33) arranged in the application region, wherein the applicator magnet element (25a) can be moved in particular in the base body longitudinal direction (x) and is arranged on the re-
- 25 storing device (33).
15. Nail brace applicator according to Claim 14, **characterised in that** the restoring device (33) has at least one restoring element (34).