

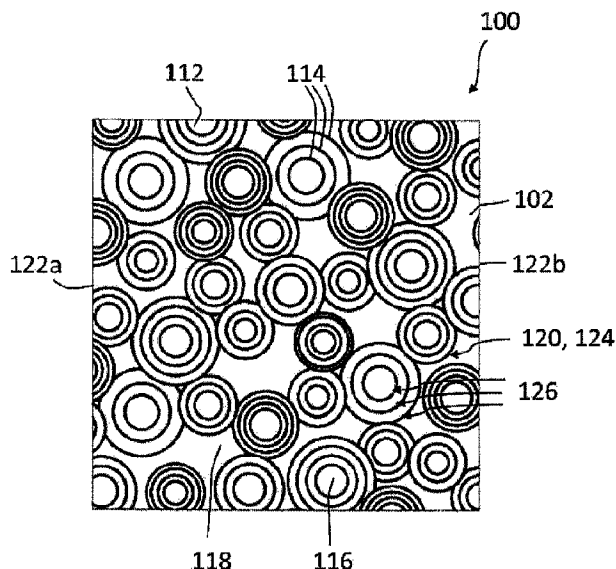


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(54) Titre : ARTICLE DE NETTOYAGE AYANT UN MATERIAU DE BASE ABSORBANT ET DES LIGNES DE REVETEMENT

(54) Title: CLEANING ARTICLE HAVING AN ABSORBENT BASE MATERIAL AND COATING LINES



(57) Abrégé/Abstract:

The invention relates to a cleaning article (100) having an absorbent base material formed from a flat material, with a first (102) and a second side surface, a coating (112) being provided on at least the first side surface (102) and conferring to said first side surface (102) of the cleaning article (100) a higher frictional force than that of an uncoated first side surface (102), characterised in that the coating (112) comprises a plurality of coating lines (114), said coating lines having a ratio of coating line width to coating line height of at least 2, the coating line width being 0.2-1.5 mm, and the coating line height being no more than 0.8 mm.

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(54) Title: CLEANING ARTICLE HAVING AN ABSORBENT BASE MATERIAL

(54) Bezeichnung : REINIGUNGSARTIKEL MIT EINEM ABSORBIERENDEN GRUNDMATERIAL

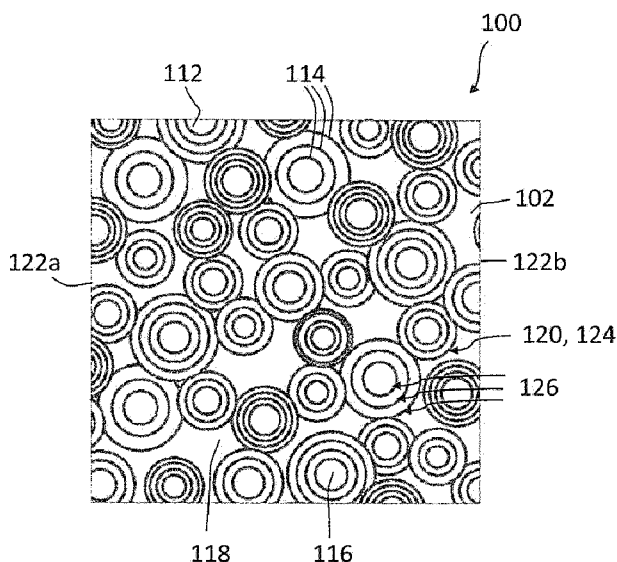


Fig. 3

(57) Abstract: The invention relates to a cleaning article (100) having an absorbent base material formed from a flat material, with a first (102) and a second side surface, a coating (112) being provided on at least the first side surface (102) and conferring to said first side surface (102) of the cleaning article (100) a higher frictional force than that of an uncoated first side surface (102), characterised in that the coating (112) comprises a plurality of coating lines (114), said coating lines having a ratio of coating line width to coating line height of at least 2, the coating line width being 0.2-1.5 mm, and the coating line height being no more than 0.8 mm.

(57) Zusammenfassung: Die Erfindung betrifft einen Reinigungsartikel (100) mit einem absorbierenden Grundmaterial, das durch ein Flachmaterial gebildet ist, mit einer ersten (102) und einer zweiten Seitenfläche, wobei auf mindestens der ersten Seitenfläche (102) eine Beschichtung (112) vorgesehen ist, die der ersten Seitenfläche (102) des Reinigungsartikels (100) eine gegenüber einer unbeschichteten ersten Seitenfläche (102) erhöhte Reibungskraft verleiht, dadurch gekennzeichnet, dass die Beschichtung (112) eine Vielzahl von Beschichtungslinien (114) umfasst und wobei die Beschichtungslinien ein Verhältnis von Beschichtungslinienbreite zu Beschichtungslinienhöhe von mindestens 2 und die Beschichtungslinienbreite 0,2-1,5 mm und die Beschichtungslinienhöhe höchstens 0,8 mm beträgt.

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3)

**Title: Cleaning Article having an Absorbent Base Material
 and Coating Lines**

5

Description

The invention relates to a cleaning article having an
absorbent base material formed by a flat material having a
10 first side face and a second side face, wherein a coating
which has been provided on at least the first side face
imparts elevated abrasiveness to the first side face of the
cleaning article compared to the uncoated first side face,
wherein the coating comprises a multitude of coating lines.

15

The prior art discloses a multitude of cleaning articles for
cleaning of surfaces, for example for domestic cleaning.

For example, WO 03/104544 A1 discloses a scrubbing wipe
20 article having a sheetlike structure composed of nonwoven
material and an application of a structured coating, wherein
discrete individual patterns in particular are provided as
coating pattern.

25 In addition, WO 2004/106002 A1 discloses a wiping article,
wherein the arrangement of the abrasive regions is preferably
not directional in order to assure good abrasion performance
in any direction.

Furthermore, DE 25 36 440 discloses an absorptive textile sheetlike structure consisting of a nonwoven coated with binder surfaces on either side, wherein a raised printed pattern that acts like a squeegee is formed from incoherent
5 geometric figures and, in particular, continuous channels or passages in the print pattern are to be avoided.

In addition, DE 10 2004 039 517 B4 discloses a cleaning cloth with a surface coating in the form of a printed pattern
10 comprising an abrasive medium, wherein patterns are provided over the full area.

In addition, EP 1 342 825 B1 discloses a nonwoven fabric for cleaning cloths that has very fine fibers, wherein an
15 application of binder is envisaged.

Proceeding from this prior art, it is an object of the present invention to provide a cleaning article that provides good abrasive action against adhering soil on the surfaces to
20 be cleaned with simultaneously good adequate means of absorption for the constituents to be removed.

A cleaning article in the context of the invention shall be understood especially to mean cleaning cloths for cleaning of
25 surfaces, for example for domestic purposes, especially for cleaning of dishware, but also for cleaning of surfaces, preferably in the kitchen or sanitary sector, and for window cleaning etc.

This object is achieved by the invention by means of a cleaning article having an absorbent base material formed by a flat material having a first side face and a second side face, wherein a coating which has been provided on at least the first side face imparts elevated abrasiveness to the first side face of the cleaning article compared to an uncoated first side face, wherein the coating comprises a multitude of coating lines and wherein the coating lines have a ratio of coating line width to coating line height of at least 2 and the coating line width is 0.2 to 1.5 mm and the coating line height is at most 0.8 mm.

In this way, it is possible to provide comparatively thin, fine coating lines that promise better abrasion than broader lines or areal patterns that are more likely to "slide away" across the soiling which is to be rubbed away.

Fine lines of this kind can preferably be implemented by intaglio printing. However, other methods are also conceivable in principle, for example screenprinting methods.

Especially preferably, the coating lines have a ratio of coating line width to coating line height of 2-15, particularly 2-10 and more particularly 2-6.

The line width of the coating line is particularly at least 0.3 mm, more particularly at least 0.4 mm, more particularly at least 0.5 mm and more particularly at least 0.6 mm. The line width of the coating lines is particularly at most

1.2 mm, more particularly at most 1.0 mm, more particularly at most 0.8 mm.

5 The length of the coating line in relation to the line width is especially to amount to at least 5 times, preferably at least 6 times, further preferably at least 8 times and further preferably at least 10 times the line width.

10 The height of the coating lines and of any further coatings provided is particularly to be at least 0.1 mm, more particularly at least 0.2 mm. The height of the coating line is more particularly to be at most 0.6 mm, more particularly at most 0.5 mm and more particularly at most 0.4 mm.

15 The measurement of the height of the coating can be ascertained with a microscope having appropriate magnification, specifically as the difference between an averaged upper top side of the coating material and the upper edge of the coating line or further coatings.

20

With these preferred heights of the coating lines and of any further coatings provided, it is possible to achieve a good abrasion effect, and nevertheless also to maintain the contact between the uncoated absorbent regions of the first
25 side face and the surface to be cleaned. In addition, tactile effects that are perceived as unpleasant are advantageously avoided.

Preferably, the entire coating is raised above the upper top side of the base material.

The coating of the cleaning article comprises coating lines.

5 Complete coating of the cleaning article in the sense of a continuous, uninterrupted application over the full area is not the intention. As well as coating in the form of coating lines, however, it is also possible to provide partial areal coatings or dotted coatings. Exclusively flat or exclusively
10 homogeneously distributed dotted coatings are thus not in accordance with the invention.

Especially preferably, the coating of the cleaning article consists entirely of coating lines.

15

The linear coatings may in principle either be straight lines or lines that deviate from a straight profile, such as curved lines, wavy lines, zigzag lines, and also intersecting straight lines or else intersecting lines that deviate from a
20 straight profile, such as curved, wavy or zigzag lines. The line may in principle be configured either in continuous or interrupted form, provided that the line as such remains clearly apparent. In other words, dotted, dashed-and-dotted or dotted coating lines are also conceivable in the context
25 of the present invention. More particularly, the sites of interruption must not be longer than ten times, particularly not longer than eight times, particularly not longer than six times, particularly not longer than four times, the line width of this line adjacent to this site of interruption.

More preferably, it may be the case that the coating has a basis weight of 5-50 g/m², preferably of 5-40 g/m², more preferably of 5-25 g/m². This shall encompass both coating
5 lines and any additionally provided areal or dotted coatings. With such a basis weight, it is advantageously possible, in spite of coating for a good abrasive effect, for sufficient uncoated regions of the base material to be available simultaneously as absorption areas.

10

Further preferably, the base material has a basis weight of not more than 150 g/m². In particular, the basis weight of the base material is not more than 130 g/m², more particularly not more than 100 g/m², more particularly not
15 more than 80 g/m², more particularly at least 30 g/m², more particularly at least 40 g/m². In other words, the base materials for the cleaning articles in question are preferably comparatively thin, cloth-like materials. With relatively low basis weights of the base material, it is
20 advantageously possible to provide cleaning articles with good handling and drapability, i.e. having good adaptability to the contours of the surface to be cleaned.

The determination of the basis weight is based on the dry
25 state of the base material.

Especially advantageously, a ratio of the basis weights of coating to base material of 0.04 to 0.6 and especially 0.1 to 0.4 is found. This setting of the basis weight can

advantageously achieve sufficient stabilization of the relatively thin base material by the application of coating, and so the application of coating, as well the abrasive effect, also contributes to better usability of the cleaning article.

At the same time, an increase in the strengths of the base material, especially in the case of relatively lightweight materials, i.e. base materials of low basis weight, is desirable, both in machine direction and in cross direction.

In a further preferred working example, it may be the case that, when an imaginary grid of parallel, equidistant lines running at right angles to one another and having an edge length of 20 mm of each grid square is placed over the first side face of the cleaning article, the first side face does not have any grid square free of coating. What is achieved in this way is that a similarly good cleaning effect can be provided over the entire cleaning article.

A grid of parallel, equidistant lines running at right angles to one another shall be understood to mean an arrangement of lines in which an array of parallel, equidistant lines is intersected by a second array of parallel, equidistant lines to form right angles. In the grid thus formed, on which the cleaning article can be placed as desired, meaning that there is no preferential direction of the grid, all grid squares are then to have a coating, more particularly a degree of coverage of coating. By definition, only those grid squares

that are completely within the region of the cleaning article are to be used for the determination. Grid squares that are intersected by the boundary line (edge) of the cleaning article are disregarded for the evaluation of the grid squares to be considered.

The degree of coverage is understood to mean the region covered by the coating within a grid square based on the area of the grid square.

However, any further coatings other than the linear coatings are likewise to be taken into account in accordance with the invention in the determination of the degree of coverage. In other words, the respective degrees of coverage are found via the coatings disposed in the respective grid squares, irrespective of the configuration thereof.

More particularly, all grid squares are to have a degree of coverage of coating of at least 5%, particularly at least 8%, more particularly at least 10%, more particularly at most 45%, more particularly at most 40%, more particularly at most 35%, also counting non-linear coatings in this case. The degrees of coverage advantageously contribute both to the cleaning effect and to the strength of the cleaning article or of the base material.

It is particularly preferable that the distance of any coating line from at least one adjacent coating line in at least one direction, especially in machine direction and or

in cross direction, especially in any desired direction, of the cleaning article, especially of the base material, is not more than 20 mm, preferably not more than 15 mm, more preferably not more than 10 mm.

5

Machine direction, also referred to in abbreviated form as MD, is understood to mean the direction corresponding to the direction of transport in the production of the cleaning article, especially the production of the base material of the cleaning article. Cross direction, also referred to in
10 abbreviated form as CD, is accordingly the direction running at right angles thereto.

In the judgement of the distance between two adjacent coating lines, a radius of not more than 20 mm, preferably not more
15 than 15 mm, preferably not more than 10 mm, around any point on the coating line is considered here. The distance here is measured from one edge of the coating line to the closest edge of the adjacent coating line.

20

What is achieved by virtue of a multitude of thin coating lines being arranged within a small distance is that multiple attack by the coating lines as abrasive media can be effected and hence a better abrasive effect can be achieved than in
25 the case of areal application. This results in cleaning and abrasion properties with less expenditure of force, and what is especially also achieved by the multitude of thin lines is that the risk of sticking to the product can be reduced.

It is therefore equally preferable for further improvement in these properties that there are at least five points of intersection of any desired coating lines over an area of 25 cm², represented as an area of 5 x 5 cm, of the cleaning
5 article. In other words, within an area of 25 cm², the coating lines should preferably intersect, touch or behave as tangents to further coating lines at five points. In this way, reinforcement of the cleaning article, especially also in cross direction of the base material, can be further
10 improved. In addition, points of intersection also constitute attack sites for the cleaning effect.

An especially preferred coating is one in such a configuration that there is at least one point of
15 intersection, particularly at least 2, more particularly at least 3, more particularly at most 30, more particularly at most 25 and more particularly at most 20 points of intersection in at least 50%, especially in at least 75%, especially in 100%, of the grid squares of edge length 20 mm.
20

Points of intersection are understood to mean any regions of contact or points of contact of at least two coating lines.

In order to improve the stability and strength of the
25 cleaning article, especially in the case of base materials of relatively low basis weight, it may additionally be the case, in particular, that a coherent structure of coating lines across the coating from one lateral edge of the cleaning article to the opposite lateral edge is present at least in

sections, especially continuously over the entire cleaning article.

Especially with a view to improving the stability and
5 strength in cross direction of the cleaning article, the
coating lines are especially arranged such that no
interruptions exist between the coating lines at least in
sections in cross direction of the cleaning article,
especially of the base material.

10

This shall be understood to mean that, following a coating
line that begins at a lateral edge, which is especially a
lateral edge running in machine direction (MD), either by
following this coating line or by switching from one coating
15 line to another at points or regions of contact or crossing,
i.e. at points of intersection of the coating lines, without
having to cross a region free of coating lines, there is
access to the other lateral edge, which especially likewise
runs in machine direction. In this way, the two lateral edges
20 that especially run in machine direction are connected to one
another by the coating lines which especially form a coherent
structure in cross direction, and hence, in particular,
stabilization and an increase in strength is achieved,
especially in cross direction.

25

Borders or edges or lateral edges of the cleaning article are
understood to mean all borders of the cleaning article and
boundaries thereof.

In particular, at least one coating line, especially a multitude of coating lines, especially all coating lines, has/have been applied continuously from one lateral edge running to the opposite lateral edge on the first side face of the cleaning article. Preferably, there is continuity of coating lines in the different directions as well. More particularly, the coating can be formed by one or more continuous, especially regularly continuous, coating lines running continuously from a first edge of the first side face to an opposite, second edge of the first side face. Especially advantageous are coherent arrangements of crossing coating lines, as envisaged, for example, in the case of grid, diamond or honeycomb patterns.

In addition, it may be the case that the coating comprises or has been formed from a multitude of individual patterns. The individual patterns especially comprise coating lines or have especially been formed from coating lines. Individual patterns shall be understood to mean those patterns in the form of open or closed patterns. Open patterns are those patterns in which the start of the line has no contact with the end of the line, and closed patterns are those in which the start and end of a line can no longer be ascertained since they are joined to one another. Furthermore, only those patterns that cannot be reduced to a single point shall be considered as individual patterns according to the invention. In other words, an individual pattern must be more than one point, and individual patterns are preferably those in which the coating line does not extend exclusively in just one

vector direction as a straight line, but those in which the linear pattern has curves and/or kinks.

Individual patterns are those that are either completely
5 separated from one another or else individual patterns that
can also touch, intersect with and/or overlap with one
another. The individual pattern, in spite of touching,
intersecting and/or overlapping, is still recognizable as an
individual pattern from its areal extent defined by the
10 direction set by the coating line.

Individual patterns are also understood to mean groups of
patterns which are especially composed of at least two
identical and/or different pattern elements. Arrangements
15 regarded as groups of patterns are especially those in which
at least two pattern elements are arranged alongside and in
contact with one another, and/or especially also groups of
patterns in which a first pattern element at least partly,
especially completely, surrounds or encircles a second or
20 further pattern element for example concentric arrangements,
especially of circles, ovals or triangles or other polygons,
or else concentric geometric figures of any kind that are in
contact at one point or a line section. The coating may also
comprise combinations of such groups of patterns.

25

It will be apparent that the individual patterns formed from
coating lines in particular are only partly or at least
partly, preferably completely, encircled by an uncoated

region and/or else comprise an uncoated region and at least partly, preferably completely, encircle this uncoated region.

In a particularly preferred embodiment, it may be the case
5 that at least one individual pattern is formed on at least the first side face such that a section of this coating runs at right angles to any direction running across the area of the cleaning article or, in the case of a curved cleaning article, to any tangential direction across the cleaning
10 article. This means that, for any possible direction in the cleaning article, provided that the cleaning article lies flat, there exists a section or region in the coating that runs at right angles to any direction in the plane. By virtue of the configuration of the linear coating with a curve, it
15 is possible to achieve better distribution of the forces in different directions. The abrasive effect in respect of stains can be improved in this way. In a further particularly preferred embodiment, the section may be dotted, in which case an imaginary tangent applied to this point always runs
20 at right angles to a direction in the cleaning article. More preferably, at least 20%, especially at least 40%, especially at least 50%, especially at least 60%, especially at least 80%, especially 100%, of the individual patterns have at least one section that runs at right angles to any direction
25 of the pad area. Especially in at least 20%, especially at least 40%, especially at least 50%, especially at least 60%, especially at least 80%, especially 100%, of the individual patterns, this at least one section is in dotted form, and an

imaginary tangent applied thereto runs at right angles to any direction in the area of the cleaning article.

5 The linear coatings provided on the at least one first side face of the cleaning article may have identical or different geometric shapes and may especially be configured in identical or different measurements/dimensions.

10 In addition, it is preferably possible for at least one individual pattern to be formed as a group of patterns comprising at least two pattern elements formed from coating lines. More preferably, at least 20%, especially at least 40%, especially at least 50%, especially at least 60%, especially at least 80%, especially 100%, of the individual
15 patterns are formed from a group of patterns. More particularly, every individual pattern is formed from a multitude of pattern elements. The group of patterns may be formed, for example, from internal and external pattern elements and/or may be formed to give an overall pattern of
20 adjoining pattern elements or further pattern elements arranged, for example, alongside and in contact with one another.

25 Particular preference may be given to the arrangement of a group of patterns in such a way that one pattern element of an individual pattern encircles at least regions of, but in particular entirely encircles, a second pattern element or further pattern elements. Encircling shall also be understood to mean that the lines are in contact with one another at

least in regions or run parallel to one another. More particularly, the group of patterns of an individual pattern may be configured such that a first pattern element is arranged alongside and in contact with a second pattern element or further pattern elements. Combinations of groups of patterns are also conceivable. Overall, the cleaning power and abrasive effect can be further improved by groups of patterns. In addition, groups of patterns are beneficial to the stabilization of the base material.

According to the desired degree of the abrasive properties and desired visual features and configuration, the multitude of coatings may be applied in a regular repeating pattern or may be arranged in an irregular manner.

It is especially the case here that the coating of the cleaning article and here especially the first side face comprises essentially over its entire extent, i.e. not just specific regions such as the middle or outer region of the cleaning article. It is therefore preferably the case that the coating extends over the entire at least first side face of the cleaning article, in which case it is possible, according to the pattern provided, for individual regions of the cleaning article to vary, for example the middle or edge region, with regard to the pattern density in the context of the invention defined. It is also conceivable to apply different patterns in some regions of the cleaning article than in other regions. For example, a different coating in the middle region than in the edge region may be provided.

In addition, it may be the case that the coating may be provided in homogeneous or inhomogeneous distribution across the area of the cleaning article. Preferably, just the first side face is coated. In another configuration, however, both side faces may also be coated.

More preferably, the cleaning article may have a degree of coverage by the coating based on the extent of the first side face of at least 6%, particularly at least 8%, particularly at least 10%, more particularly at least 20%, and particularly of at most 50%, more particularly at most 40% and more particularly at most 30%. In this way, a good cleaning effect of the cleaning article is achieved, and the desired properties of the base material, for example absorption capacities, are not altered too significantly, but maintained.

If the coating on the cleaning article comprises closed patterns, it may be the case that the individual patterns occupy a total area proportion of at least 10%, particularly at least 20%, more particularly at least 30%, more particularly at least 40%, and especially not more than 80%, more particularly not more than 70%, more particularly not more than 60%, more particularly not more than 50%, of the at least first side face.

The area of an individual pattern is understood here to mean the region enclosed by the outer coating lines (including the

coating lines); thus, the inner uncoated regions of the individual pattern or, in the case of execution as a group of patterns, the corresponding areas of the individual pattern elements are also taken into account. If individual patterns
5 have closed pattern regions, and further open, i.e. not intrinsically closed, coating lines extend away from them, these free appended coating lines are not taken into account in the calculation of the area of the individual pattern. Over the areas covered by the individual patterns, it is
10 possible for sufficient abrasive properties to be achieved while maintaining the properties inherent to the base material, such as softness and absorption properties.

An individual pattern preferably has an area having a
15 distance between the outer coating lines of at least 0.3 cm, preferably at least 0.5 cm, more preferably at least 0.7 cm, more preferably at least 1.0 cm, more preferably at least 1.5 cm, more preferably at least 2 cm, more preferably at most 5 cm, more preferably at most 4 cm, more preferably at
20 most 3 cm. The distance, which may be a diameter for example, is understood to mean the distance between the coating lines describing or delimiting an individual pattern that are the furthest apart in the distal direction in each case. This involves measurement at the outer edge of the coating line,
25 i.e. including the line width thereof.

In the case of closed individual patterns, these preferably have, including the encircling coating lines, an area of at least 0.2 cm², more preferably of at least 0.5 cm², more

preferably of at least 1.0 cm², more preferably of at least 1.5 cm², more preferably of at most 10.0 cm², more preferably of at most 8.0 cm², more preferably of at most 6.0 cm².

5 The coating features may be different in terms of their geometric form and/or their dimensions or the same. It is possible here for the different properties of the cleaning article, such as degree of coverage, abrasiveness, absorption properties, to be taken into account and to be implemented
10 via the establishment of the coating patterns.

Particular preference is given to coating patterns having curved or rounded regions, since these, in the use state, enable better ergonomic adaptation to the surface to be
15 cleaned and a more pleasant feel.

The coating is especially polymer-based. More particularly, the coating is based on a polymer taken from the group comprising PE (polyethylene), PP (polypropylene), APAO
20 (amorphous poly-alpha-olefins), EVA (ethylene-vinyl acetate), EVAC (ethylene-vinyl acetate copolymers), PA (polyamides), TPE-O (olefin-based thermoplastic elastomers), TPE-V (crosslinked olefin-based thermoplastic elastomers), TPE-E (thermoplastic copolyesters), TPE-U (urethane-based
25 thermoplastic elastomers), TPE-A (thermoplastic copolyamides, e.g. PEBA), TPE-S (thermoplastic styrene block copolymers), for example HSBC (hydrogenated styrene block copolymers), SEBS (styrene-ethylene-butadiene-styrene polymers), SBS (styrene-butadiene-styrene), SEPS (styrene-ethylene-

propylene-styrene), ABS (acrylonitrile-butadiene-styrene) or a combination of one or more of the polymers mentioned.

The coating is preferably homogeneous in terms of its
5 composition. Preferably, no abrasive particles are added to the coating.

Useful materials for the coating preferably include materials having a Shore A hardness of particularly at least 30,
10 particularly of at least 40, particularly at least 50, more particularly at least 60, and especially of not more than 95, more particularly of not more than 90, more particularly not more than 80, more particularly not more than 70. Shore A hardness is a material index for elastomers and polymers.
15 Shore A hardness is determined by the method which follows.

Method of determining Shore A hardness:

Shore A hardness is a measure of the resistance of a material
20 to the penetration of a body of a particular shape and under a defined spring force. In the units of Shore hardness, the value of 0 reports the lowest hardness and the value of 100 the greatest.

25 The measurement is in accordance with the standards DIN 53505:2000-08 and ISO 868:2003(E). A Shore A hardness tester is used here. A Shore A hardness tester of this kind, which is shown schematically in figure 6 with reference numeral 60, uses a sprung indentation body having the geometry of a

frustococone. The indentation body 62 made of steel has a diameter D1 of 1.25 ± 0.15 mm which merges into a lower frustococone having a lower area having a diameter D2 of 0.79 ± 0.01 mm with an angle of inclination W of $35^\circ \pm 0.25^\circ$. The distance C between the lower edge of a pressure foot 64 and the lower area of the indentation body is 2.5 ± 0.02 mm. The indentation body is centered within the pressure foot 64 with a recess having a diameter D3 of 3 ± 0.5 mm.

- 10 The test is to be conducted on mechanically non-prestressed specimens. For the test, the test specimen is already to have polymerized or vulcanized to completion for 16 hours. The test is conducted under standard conditions at $23 \pm 2^\circ\text{C}$ and $50 \pm 2\%$ air humidity. The test specimens and the instruments have been correspondingly conditioned for at least 1 hour.

- The test specimens need dimensions that allow measurements at least 12 mm from each edge, and at the same time have a sufficiently plane-parallel contact surface in order that the pressure foot can contact the test specimen over an area of radius at least 6 mm around the tip of the indentation body. Specimens having a material thickness of at least 4 mm are required. In the case of small thicknesses, the test specimens may be composed of multiple thinner layers.
- 25 Measurements are made at at least 5 different points on each test specimen, where the distance from the edges of the test specimen is at least 12 mm. The distance between the measurement sites is to be at least 6 mm. The contact weight of the indentation body is 1 kg.

The measurement time is 3 seconds; in other words, the hardness is read off 3 seconds after the contact surface of the test instrument and the test specimen come into contact.

5

The coating lines are preferably applied by means of a roller that has engraving corresponding to the pattern of the coating.

- 10 The first side face having the coating may have a dynamic coefficient of friction measured in accordance with ASTM D 1894-01 of at least 0.2, particularly at least 0.3, more particularly at least 0.4, more particularly at least 0.5, where the maximum values to be achieved are particularly at
15 most 1.0, more particularly at most 0.8, more particularly at most 0.6. In this way, sufficient abrasiveness and cleaning power is generated, without the cleaning article sliding too easily across the surface to be cleaned. The level of the rubbing effect should be adjusted according to the cleaning
20 purpose. More particularly, preference is given to a coating with fine, hard lines.

Test for determination of the dynamic coefficient of sliding friction

25

In the present context, the sliding characteristics and hence also force characteristics of cleaning articles of the invention with coating are to be ascertained. In this case, the first side face of the cleaning article provided with the

coating is drawn over a standardized surface. The force A of sliding friction that occurs here is to be measured, and this is then to be used to determine the dynamic coefficient of sliding friction. The test method is based on ASTM D 1894-01, for determination of the friction characteristics of polymer films.

The test specimens have to be conditioned under standard climatic conditions at $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and $50\% \pm 2\%$ air humidity for at least 2 hours. The samples must not be kinked, folded or scratched; other alterations and contaminations should be avoided. The same applies to the test plate made of steel. The test method should likewise be conducted under standard conditions ($23^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $50\% \pm 2\%$).

15

A test specimen of dimensions 50 x 50 mm is punched out of the cleaning article with coating or out of a corresponding material in roll form, and secured on a rubbing block in a fold-free manner. However, the material in roll form is exactly the same material from which the cleaning articles according to the invention have been punched or cut.

20

The rubbing block has a base area of edge length 63 mm x 63 mm, i.e. a contact base area of 40 cm^2 , and a mass of 200 g $\pm$ 5 g. It is secured by means of a thread (with no intrinsic strain) to the load cell of a tensile tester according to DIN 51 221 Class 1. A tensile tester of this kind is the Zwick Roell Z010 tester from Zwick GmbH&Co.KG, 89079 Ulm, Germany.

25

The additional instrument consisting of the sample table and rubbing block according to DIN EN ISO 8295:2014 is likewise supplied by Zwick. The rubbing block with the test specimen
5 is placed cautiously onto a defined material, a smooth polished steel plate (DIN EN 1939: 2003-12). 15 seconds after the application of the rubbing block, the test is started. The test speed is 150 mm/min, both for the actual measurement distance of 130 mm and for the pre- and post-measurement
10 distance each of 10 mm. For the determination of the dynamic coefficient of sliding friction μ , only the force profile of the measurement distance of 130 mm is used. The test is conducted for at least five test specimens. A mean $\bar{x}$ and the standard deviation s are reported with rounding to two post-
15 decimal places. The dynamic coefficient of sliding friction is found from the quotient of the force A of sliding friction thus determined, expressed in grams (g), divided by the force of 200 g exerted by the rubbing block.

20 The cleaning article, with regard to the base material, may be in single- or multi-ply form and may especially comprise a fiber material, especially a nonwoven material. Nonwoven materials preferably include cellulose-based fibers, for example, cotton or viscose, or synthetic fibers, for example
25 polyesters, preferably polyester bicomponent fibers or polyester microfibers, polypropylene or mixtures thereof. The nonwoven material may especially be a nonwoven made from continuous fibers or preferably a nonwoven made from staple fibers. The base material preferably consists of staple

fibers having a proportion of cellulose-based fibers of at least 20% by weight, particularly at least 30% by weight, more particularly at least 40% by weight, based on the mass of the base material. In a mixture, the residual proportion
5 of fiber material of the base material preferably consists of synthetic fibers. In synthetic fibers, it is preferably possible for heat-fusible binding fibers also to be present for possible thermal consolidation of the base material, preferably to an extent of 10-40% by weight, more
10 particularly to an extent of 10-30% by weight, based on the mass of the base material. Alternatively, a configuration of the base material composed of 100% by weight of cellulose-based fibers is also conceivable.

15 Nonwovens made from staple fibers are preferably needlefelts, hydroentangled webs or thermally consolidated webs.

The thickness of the cleaning article, in this case including the coating on the first side face or optionally a coating on
20 the second side face, is preferably 0.3-2.5 mm, preferably 0.5-2 mm.

The determination of the thickness of the cleaning article (including the coating) is conducted using a specific
25 measurement pressure of 0.5 kPa over a sensor area of 25 cm². More particularly, a Schröder DMT thickness meter can be used. For the rest, the thickness is determined in accordance with DIN EN ISO 9073-2: 1995.

Especially preferably, the cleaning article has the coating of the invention only on the first side face. In this way, the second coating-free side face of the cleaning article can be used in further acts of use that precede or follow the
5 cleaning and rubbing effect of the first side face.

Especially preferably, the cleaning article has a coating on the first and second side faces. More particularly, the cleaning article has the coating of the invention on both
10 side faces. In this way, the cleaning article can be used by the user for more intensive cleaning operations and also in a simpler manner without regard to the orientation of the cleaning article.

15 The base material without coating, especially of hydroentangled spunlaced or carded webs, preferably has a strength or ultimate tensile strength in MD direction of 10-50 N/25 mm and a strength or ultimate tensile strength in CD direction of 5-30 N/25 mm. The base material may already have
20 been compacted by consolidation methods, for example by means of hydroentanglement in the case of spunlaced or carded webs, or the action of heat in the case of nonwovens comprising thermoplastic fibers.

25 An increase in the strengths of the base material is desirable here, especially in the case of relatively lightweight materials, i.e. especially in the case of base materials having a basis weight of not more than 150 g/m²,

preferably not more than 130 g/m², both in machine direction and especially in cross direction.

The coating especially advantageously contributes to an
5 increase in the strengths of the base material. The cleaning
article or the base material with the coating may have an
elevated strength compared to the base material without
coating, with an increase in strength particularly by at
least 5%, more particularly by at least 10%, more
10 particularly by at least 20%, more particularly by at least
30%, more particularly by at least 50%, at least in one
direction, especially preferably in cross direction (CD
direction).

15 Preferably, the cleaning article having the coating has a
longitudinal strength or ultimate tensile strength in
longitudinal direction (machine direction) of 15-80 N/25 mm,
especially of 15-70 N/25 mm, and an ultimate tensile strength
in cross direction (transverse to machine direction) of 10-
20 50 N/25 mm, especially 10-40 N/25 mm.

The strength is determined here by the following test:

This ultimate tensile strength can be ascertained using a
25 standardized tensile tester according to DIN 51221: Samples
having a width of 25 mm and a length greater than the clamped
length, preferably of 200 mm, are punched out of the cleaning
article to be tested, specifically out of a middle region.
The direction of the cleaning article to be tested in each

case should be taken into account here, whether MD or CD direction. For the testing, the sample strips are fixed vertically and without tension into the jaws of the tensile tester with a clamped width of 25 mm and a clamped length
5 (the distance between the clamps) of 30 mm. The samples clamped in this way are then moved apart with a test speed of 100 mm/min in the plane of their extent, while measuring the tensile force that acts in this direction. The ultimate tensile strength is understood to mean that maximum force at
10 which the cleaning article or sample strip tears. When higher peak forces are measured beforehand in the course of elongation, these are then the ultimate tensile strength for the purposes of this test. In the case of measurements in longitudinal and cross direction, corresponding to machine
15 direction and the direction at right angles thereto, it is advantageously possible to undertake various individual measurements, especially five, and calculate the mean thereof. The figure is reported in N/25 mm.

20 The cleaning article is preferably usable for cleaning of hard surfaces. More particularly, the cleaning article is usable as a cleaning cloth, for example for domestic purposes, especially as a cleaning cloth for dishware cleaning, but also for surface cleaning, preferably in the
25 kitchen or sanitary sector, and for window cleaning. The cleaning article is especially a domestic cleaning cloth, a washing cloth, an oven or grill cleaning cloth, a floor wiping cloth or a window cleaning cloth.

In addition, the cleaning article can also be used in the cosmetics sector, for cleaning of the skin, especially face cleaning, in the configuration of a cosmetic cloth, such as, in particular, as a peeling cloth.

5

The cleaning article is preferably a disposable product. In principle, however, cleaning articles, for example in the domestic sector, that can be washed or cleaned are also conceivable.

10

In the present manner, it is possible to provide a cleaning article having particularly favorable properties in terms of abrasiveness and also absorptivity.

15 Further features and details and advantages of the invention will be apparent from the drawings and description of the cleaning article of the invention which follows. The figures show:

20 Figure 1 a diagram of a detail of a first side face of a cleaning article of the invention,

Figure 2 a diagram of a detail of a first side face of a further cleaning article of the invention,

25

Figure 3 a diagram of a detail of a first side face of a further cleaning article of the invention,

Figures

4a - c) various individual patterns and various configurations of coating lines,

5 Figures

5a - b) a diagram of the determination of the grid squares and

Figure 6 a schematic diagram, not to scale, of a detail of a
10 Shore A hardness measuring instrument.

Figure 1 shows a top view of a detail of the first side face 102 of a cleaning article 100 of the invention, in the configuration of a cloth for dishware cleaning, wherein the
15 first side face 102 faces the dishware on use for cleaning of dishware. The cleaning article 100 preferably consists of a base material composed of nonwoven materials, and in this case consists of a mixture of cellulose-based fibers, such as
20 cotton or viscose, and synthetic fibers, such as polyester or polypropylene.

The single-ply base material of the cleaning article has a base ply having a grammage of preferably not more than 150 g/m², preferably of 40-80 g/m².

25

As figure 1 shows, a coating 112 composed of coating lines 114 is provided on the first side face 102 of the cleaning article 100. The coating 112 serves to remove residues of food etc. in dishware cleaning. The coating lines 114 are

polymer-based. The material of the coating preferably has a Shore A hardness of 30-95. The coating lines are applied via gravure printing by means of a gravure method, wherein the cleaning article 100 is conducted between a gravure roll with
5 depressions set out therein containing coating material, and an opposing roll. The width of the coating lines 114 in the present case is 0.5-0.7 mm. The height of the coating lines is preferably 0.2-0.3 mm, such that the multitude of narrow hard coating lines achieves a good cleaning effect. The ratio
10 of coating line width to coating line height is 2-4. The coating lines 114 run continuously from one lateral edge 122a to another lateral edge not shown here, and do so in a coherent and crossing arrangement incorporating uncoated regions 116. The arrays of coating lines cross here at the
15 points of intersection 208. The coating lines are arranged here in the form of a rhombus pattern. The distance of any coating line from at least one adjacent coating line here is not more than 20 mm. A degree of coverage of coating lines on the first side face of 20-40% is achieved here.

20 Different arrangements of the coating lines are conceivable, as shown further by way of example in figures 2 and 3. Figures 2 and 3 likewise show a top view of a section of the first side face 102 for a cleaning article 100 of the
25 invention. Figure 2 shows an arrangement of coating lines 114, likewise in a coherent arrangement of the coating lines that crosses at the points of intersection 208, in the configuration of a rhombus pattern of greater dimensions.

The coating 112 shown in figure 3 has a multitude of individual patterns 120 formed by coating lines 114. In the case shown, each individual pattern 120 is preferably formed by groups of patterns 124, where the groups of patterns here consist of at least 3 pattern elements 126, composed here of concentric circles, and no coating composition has been applied between the individual pattern elements 126 of every single group of patterns that forms an individual pattern, i.e. there is an uncoated region 116 therein. In this way, the coating lines 114 overall achieve a degree of coverage on the first side face of about 20-30%. By virtue of the individual elements 120 as such, an overall area coverage of 60-70% of the first side face 102 is obtained, meaning that the clear areas outside the individual patterns 120, i.e. the outer uncoated regions 118 surrounding the individual patterns, take up about 30-40% of the first side face 102. The distance here between one coating line and at least one adjacent coating line is not more than 20 mm, more particularly not more than 15 mm. The coating lines have a line width of 0.5-0.7 mm and a line height of 0.2-0.3 mm. In this way, by virtue of the multitude of fine lines, additionally with a small distance from one another, it is possible to configure the abrasion power of the cleaning article 100 on dishware, for example, in an advantageous manner.

In addition, a coating in which the individual patterns 120 can intersect, overlap or touch one another, and wherein each individual pattern can still be seen, as shown by way of

example in figure 3 or else figure 5, but the individual patterns merge into one another such that the coating lines 114 are arranged at least in sections from one lateral edge 122a of the cleaning article to an opposite lateral edge 122b of the cleaning article such that there is no occurrence of interruptions between the patterns, has the advantage that there are firstly no preferential directions. In this way, however, the strengths of the cleaning article or of the base material are secondly advantageously improved in that direction. Especially advantageously, the continuity of coating lines runs especially in cross direction 212 of the cleaning article 100 or of the base material, i.e. the direction running at right angles to the production and machine direction 210 of the base material.

The coherence of the structure of coating lines (114) at least in sections across the coating from one side 122a to the other side 122b is shown by way of example in figure 5b, the pattern of which corresponds to that of figure 3, in schematic form by means of an imaginary line 214 drawn in bold.

A coherent structure of coating lines is also shown in figures 1 and 2.

The edges of the cleaning article 100 are considered in each case to be two opposite edges of the cleaning article 100. In this way, the abrasive properties and stability and hence

also the lifetime of the cleaning article can be improved in the respective direction.

Particular preference is given to a coating in which, owing
5 to the configuration of the individual patterns 120, at least one individual pattern 120, preferably at least 20% of the individual patterns 120, on the first side face, more preferably every individual pattern 120, has a section 134 or region 128 that runs at right angles, i.e. with an angle 132
10 of 90°, to any direction 130 in the surface of the cleaning article 100, as shown in schematic form in figure 4a. In this way, any direction can be faced by a proportion that runs at right angles thereto and hence has the optimal abrasion effect for this direction of movement.

15 Further individual patterns are shown by figures 4a-4c, it being possible both for different individual patterns to be combined with one another, as shown by figures 4a-4b, and additionally also for the individual patterns to have a
20 difference with regard to the formation of the coating lines both in terms of the height thereof and in terms of the width thereof. Furthermore, it is also conceivable to execute the coating lines not in a continuous, sustained manner but in an interrupted manner, such as a dotted, dashed-and-dotted or
25 dotted manner, as shown, for example, in figure 4a, provided that this does not lead to dissolution of the overall pattern in that the patterns as such can no longer be seen. The individual patterns 120 formed from coating lines may also

consist entirely of coating lines composed of a continuity of dots, as shown by way of example in figure 4c.

If an individual pattern 120 is composed of multiple pattern elements 126 as a group of patterns 124, these may, as shown in figures 4a and 4b, encircle one another at a distance over the full circumference, but may also encircle one another such that there are points of contact. In addition, it is also possible that the individual pattern elements of a single pattern 120 are arranged to form regions of contact or intersection, as shown, for example, by figure 4c. The individual patterns according to figures 4a to 4c may also be formed analogously to figure 3 such that the individual patterns intersect, touch or overlap with one another.

The dynamic coefficient of friction of the coated side face of the cleaning article according to figure 1, 2 or 3, measured in accordance with ASTM D 1894-01, is 0.4-0.7.

In the execution of a cleaning article with a base material (nonwoven material) composed of 30% by weight of viscose and 70% by weight of polyester and having a basis weight of 50 g/m², the uncoated base material has a strength in machine direction of 40-50 N/25 mm and in cross direction of 5-10 N/25 mm. With a coating composed of coating lines according to figure 1 and an application of coating of 20 g/m², the cleaning article has a strength in machine direction of 65-80 N/25 mm and in cross direction of 10-15 N/25 mm.

The distribution of the degrees of coating on the first side face of a cleaning article is judged using an imaginary grid. The determination is elucidated in detail with reference to
5 figures 5a-b:

Figure 5a shows, by way of example, a detail of a cleaning article 100 of rectangular dimensions with the top view of the first side face with a coating 112 distributed over the
10 entire extent of the first side face, as already shown in figure 2, and an imaginary grid 200 placed thereon.

The imaginary grid 200, formed from an arrangement of lines, wherein a first array 202 of parallel, equidistant lines is
15 intersected by a second array 204 of parallel, equidistant lines to form right angles, consists of grid squares 206, each having an edge length of 20 mm. The grid 200 may be placed in any desired manner over a cleaning article and its coating 112. The individual grid squares 206 and the degree
20 of coverage present in each are ascertained. Although the grid 200 in figure 5a is provided with the arrays of lines at an angle of 45° to the edge 122 in the case of a rectangular cleaning article, no preferential direction for placement of the grid is intended for the judgement. For the evaluation of
25 the degree of coverage of the coating in relation to the respective grid squares, it is possible to use any desired evaluation methods, for example computer-assisted graphic and drawing programs. In the evaluation, exclusively grid squares that are completely within the region of the cleaning article

are used for the determination. Grid squares that are intersected by the boundary line (edge) 122 of the cleaning article 100 remain out of consideration for the evaluation of the degrees of coverage per grid square. As can be seen in figure 5a, each grid square has a coating. There is no grid square 206 free of coating. More particularly, every grid square used for evaluation has a degree of coverage of coating of 5-15%.

In the case of a cleaning article 100, it may additionally advantageously be the case that at least five points of intersection between any coating lines are provided per 25 cm². The maximum distance of any coating line from at least one adjacent coating line is not more than 20 mm. More particularly, at least one point of intersection 208 is present for every grid square 206 of edge length 20 mm, and especially 1-3 points of intersection 208 are present, as indicated schematically and by way of example in figure 5a. This form of evaluation can be undertaken in any cleaning articles irrespective of the dimensions and geometric shape thereof, for example round, oval, angular or any other shape, and also independently of the configuration of the coating. Thus, figure 5b shows, by way of example, the evaluation of the coating from figure 3. A degree of coverage of the grid squares 206 of edge length 20 mm averaging 20-35% is apparent here. The number of points of intersection 208 of the coating lines of the touching individual patterns is between 1 and 4 per grid square.

Claims

1. A cleaning article having an absorbent base material formed by a flat material having a first side face and a second side face, wherein a coating which has been provided on at least the first side face imparts elevated abrasiveness to the first side face of the cleaning article compared to an uncoated first side face, wherein the coating comprises a multitude of coating lines and wherein:

the coating lines have a ratio of coating line width to coating line height of at least 2;

the coating line width is 0.2-1.5 mm;

the coating line height is at most 0.8 mm; and

coating line length is at least 5 times the coating line width.
2. The cleaning article as claimed in claim 1, wherein the coating line length is at least 6 times the coating line width.
3. The cleaning article as claimed in claim 2, wherein the coating line length is at least 10 times the coating line width.
4. The cleaning article as claimed in any one of claims 1-3, wherein the ratio is 2-15.
5. The cleaning article as claimed in claim 4, wherein the ratio is 2-10.

6. The cleaning article as claimed in claim 5, wherein the ratio is 2-6.
7. The cleaning article as claimed in any one of claims 1-6, wherein the coating has a basis weight of 5-50g/m².
8. The cleaning article as claimed in claim 7, wherein the coating has a basis weight of 5-40g/m².
9. The cleaning article as claimed in claim 8, wherein the coating has a basis weight of 5-25 g/m².
10. The cleaning article as claimed in any one of claims 1-9, wherein the base material has a basis weight of not more than 150 g/m².
11. The cleaning article as claimed in claim 10, wherein the base material has a basis weight of not more than 130 g/m².
12. The cleaning article as claimed in claim 11, wherein the base material has a basis weight of not more than 100 g/m².
13. The cleaning article as claimed in claim 12, wherein the base material has a basis weight of not more than 80 g/m².
14. The cleaning article as claimed in claim 10, wherein the base material has a basis weight of at least 30 g/m².

15. The cleaning article as claimed in claim 14, wherein the base material has a basis weight of at least 40 g/m².
16. The cleaning article as claimed in any one of claims 1-15, wherein, when an imaginary grid of parallel, equidistant lines running at right angles to one another and having an edge length of 20 mm of each grid square is placed over the first side face of the cleaning article, the first side face does not have any grid square free of coating.
17. The cleaning article as claimed in claim 16, wherein all grid squares have a degree of coating coverage of at least 5%.
18. The cleaning article as claimed in claim 17, wherein all grid squares have a degree of coating coverage of at least 8%.
19. The cleaning article as claimed in claim 18, wherein all grid squares have a degree of coating coverage of at least 10%.
20. The cleaning article as claimed in any one of claims 16-19, wherein all grid squares have a degree of coating coverage of at most 45%.
21. The cleaning article as claimed in claim 20, wherein all grid squares have a degree of coating coverage of at most 40%.

22. The cleaning article as claimed in claim 21, wherein all grid squares have a degree of coating coverage of at most 35%.
23. The cleaning article as claimed in any one of claims 1-22, wherein the distance of any coating line from at least one adjacent coating line in at least one direction is not more than 20 mm.
24. The cleaning article as claimed in any one of claims 1-22, wherein the distance of any coating line from at least one adjacent coating line in at least one direction, is not more than 15 mm.
25. The cleaning article as claimed in any one of claims 1-22, wherein the distance of any coating line from at least one adjacent coating line in at least one direction is not more than 10 mm.
26. The cleaning article as claimed in any one of claims 23-25, wherein the at least one direction comprises a machine direction.
27. The cleaning article as claimed in any one of claims 23-25, wherein the at least one direction comprises a cross direction.
28. The cleaning article as claimed in any one of claims 1-27, wherein there are at least 5 points of intersection of any coating lines over an area of 25 cm².

29. The cleaning article as claimed in any one of claims 16-28, wherein there is at least one point of intersection, in at least 50% of the grid squares.
30. The cleaning article as claimed in claim 29, wherein there is at least one point of intersection, in at least 75% of the grid squares.
31. The cleaning article as claimed in claim 30, wherein there is at least one point of intersection, in 100% of the grid squares.
32. The cleaning article as claimed in any one of claims 16-28, wherein there are at least 2 points of intersection, in at least 50% of the grid squares.
33. The cleaning article as claimed in claim 32, wherein there are at least 2 points of intersection, in at least 75% of the grid squares.
34. The cleaning article as claimed in claim 33, wherein there are at least 2 points of intersection, in 100% of the grid squares.
35. The cleaning article as claimed in any one of claims 16-28, wherein there are at most 30 points of intersection, in at least 50% of the grid squares.
36. The cleaning article as claimed in claim 35, wherein there are at most 30 points of intersection, in at least 75% of the grid squares.

37. The cleaning article as claimed in claim 36, wherein there are at most 30 points of intersection, in 100% of the grid squares.
38. The cleaning article as claimed in any one of claims 16-28, wherein there are at most 25 points of intersection, in at least 50% of the grid squares.
39. The cleaning article as claimed in claim 35, wherein there are at most 25 points of intersection, in at least 75% of the grid squares.
40. The cleaning article as claimed in claim 36, wherein there are at most 25 points of intersection, in 100% of the grid squares.
41. The cleaning article as claimed in any one of claims 16-28, wherein there are at most 20 points of intersection, in at least 50% of the grid squares.
42. The cleaning article as claimed in claim 41, wherein there are at most 20 points of intersection, in at least 75% of the grid squares.
43. The cleaning article as claimed in claim 42, wherein there are at most 20 points of intersection, in 100% of the grid squares.
44. The cleaning article as claimed in any one of claims 1-43, wherein there is a coherent structure of coating lines across the coating from one lateral edge of the cleaning article to the opposite lateral edge at least in sections.

45. The cleaning article as claimed in any one of claims 1-43, wherein there is a coherent structure of coating lines across the coating from one lateral edge of the cleaning article to the opposite lateral edge at least in sections, continuously.
46. The cleaning article as claimed in either one of claims 44 and 45, wherein the coating lines are arranged in such a way that there are no interruptions between the coating lines at least in sections in cross direction of the cleaning article.
47. The cleaning article as claimed in either one of claims 44 and 45, wherein the coating lines are arranged in such a way that there are no interruptions between the coating lines at least in sections in cross direction of the cleaning article, of the base material.
48. The cleaning article as claimed in any one of claims 1-47, wherein the coating has or has been formed from a multitude of individual patterns, especially individual patterns formed from coating lines.
49. The cleaning article as claimed in any one of claims 1-47, wherein the coating has or has been formed from a multitude of individual patterns, the individual patterns formed from coating lines.
50. The cleaning article as claimed in either one of claims 48 and 49, wherein at least one individual pattern takes the form of a group of patterns

comprising at least two pattern elements formed from coating lines.

51. The cleaning article as claimed in claim 50, wherein a first pattern element encircles at least regions of a second pattern element.
52. The cleaning article as claimed in claim 50, wherein a first pattern element encircles the entirety of a second pattern element.
53. The cleaning article as claimed in claim 50, wherein a first pattern element is assigned to and is arranged in contact with a second pattern element.
54. The cleaning article as claimed in claim 50, wherein a first pattern element is assigned to and is arranged in contact with a second pattern element, and further pattern elements alongside one another.
55. The cleaning article as claimed in any one of claims 1-54, wherein the first side face has a degree of coverage by the coating of at least 6%, particularly at least 8%, particularly at least 10%, more particularly at least 20%, and particularly at most 50%, more particularly at least 40%, and more particularly at most 30%.
56. The cleaning article as claimed in any one of claims 1-54, wherein the first side face has a degree of coverage by the coating of at least 6%.

57. The cleaning article as claimed in claim 55, wherein the first side face has a degree of coverage by the coating of at least 8%.
58. The cleaning article as claimed in claim 56, wherein the first side face has a degree of coverage by the coating of at least 10%.
59. The cleaning article as claimed in claim 57, wherein the first side face has a degree of coverage by the coating of at least 20%.
60. The cleaning article as claimed in any one of claims 1-54, wherein the first side face has a degree of coverage by the coating of at most 50%.
61. The cleaning article as claimed in claim 59, wherein the first side face has a degree of coverage by the coating of at most 40%.
62. The cleaning article as claimed in claim 60, wherein the first side face has a degree of coverage by the coating of at most 30%.
63. The cleaning article as claimed in any one of claims 1-61, wherein the coating lines take the form of continuous lines.
64. The cleaning article as claimed in any one of claims 1-61, wherein the coating lines take the form of lines that are interrupted at least in regions.
65. The cleaning article as claimed in any one of claims 1-61, wherein the coating lines take the form of lines

that are interrupted at least in regions, in dashed form.

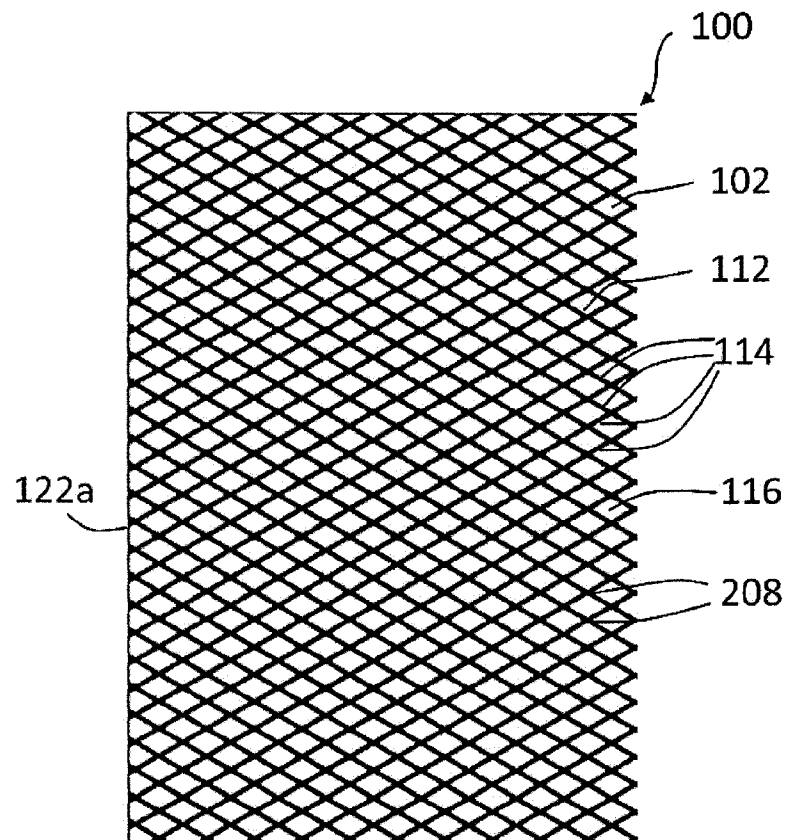
66. The cleaning article as claimed in any one of claims 1-61, wherein the coating lines take the form of lines that are interrupted at least in regions, in dashed-and-dotted form.
67. The cleaning article as claimed in any one of claims 1-61, wherein the coating lines take the form of lines that are interrupted at least in regions, in dotted form.
68. The cleaning article as claimed in any one of claims 63-66, wherein the interruption is not longer than 10 times the line width of the line adjacent to this site of interruption.
69. The cleaning article as claimed in claim 67, wherein the interruption is not longer than 8 times the line width of the line adjacent to this site of interruption.
70. The cleaning article as claimed in claim 68, wherein the interruption is not longer than 6 times the line width of the line adjacent to this site of interruption.
71. The cleaning article as claimed in claim 69, wherein the interruption is not longer than 4 times the line width of the line adjacent to this site of interruption.

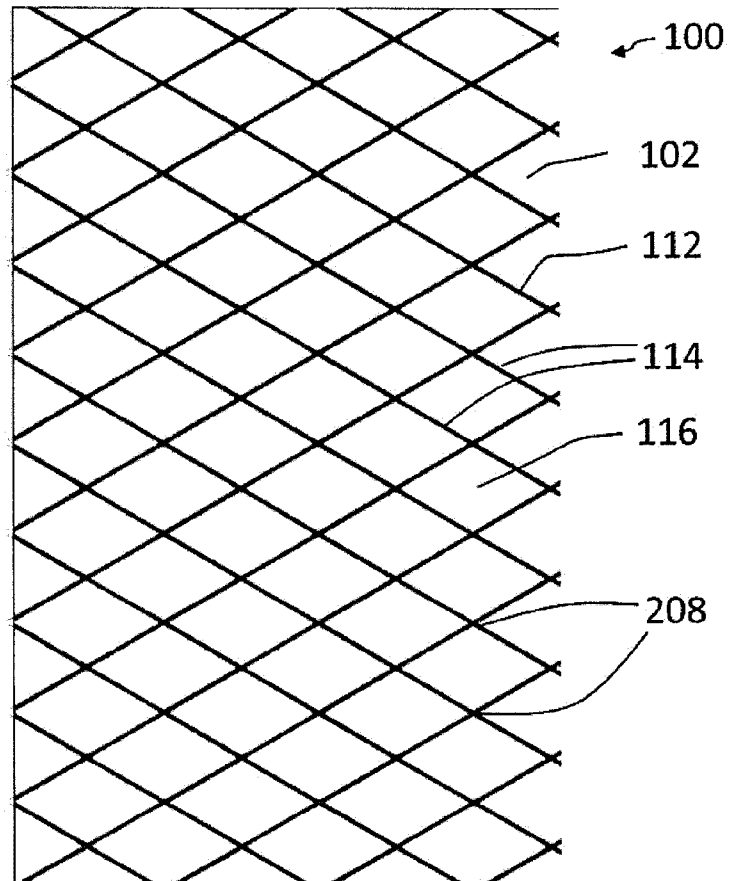
72. The cleaning article as claimed in any one of claims 1-70, wherein the coating is polymer-based.
73. The cleaning article as claimed in claim 71, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at least 30.
74. The cleaning article as claimed in claim 72, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at least 40.
75. The cleaning article as claimed in claim 73, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at least 50.
76. The cleaning article as claimed in claim 74, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at least 60.
77. The cleaning article as claimed in claim 71, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at most 95.
78. The cleaning article as claimed in claim 76, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at most 90.
79. The cleaning article as claimed in claim 77, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at most 80.
80. The cleaning article as claimed in claim 78, wherein the coating is polymer-based and formed from materials having a Shore A hardness of at most 70.

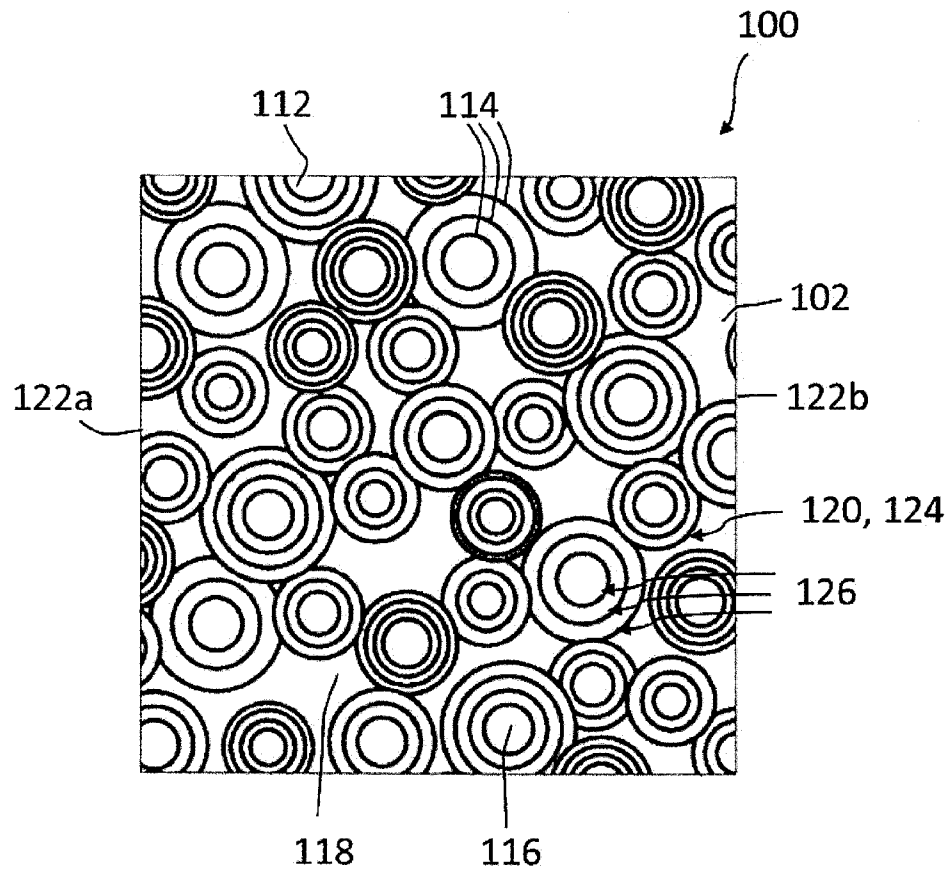
81. The cleaning article as claimed in any one of claims 1-79, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of at least 0.2.
82. The cleaning article as claimed in claim 80, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of at least 0.3.
83. The cleaning article as claimed in claim 81, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of at least 0.4.
84. The cleaning article as claimed in claim 82, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of at least 0.5.
85. The cleaning article as claimed in any one of claims 1-79, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of not more than 1.0.
86. The cleaning article as claimed in claim 84, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of not more than 0.8.
87. The cleaning article as claimed in claim 84, wherein the first side face having the coating has a dynamic coefficient of friction in accordance with ASTM D1894-01 of not more than 0.6.

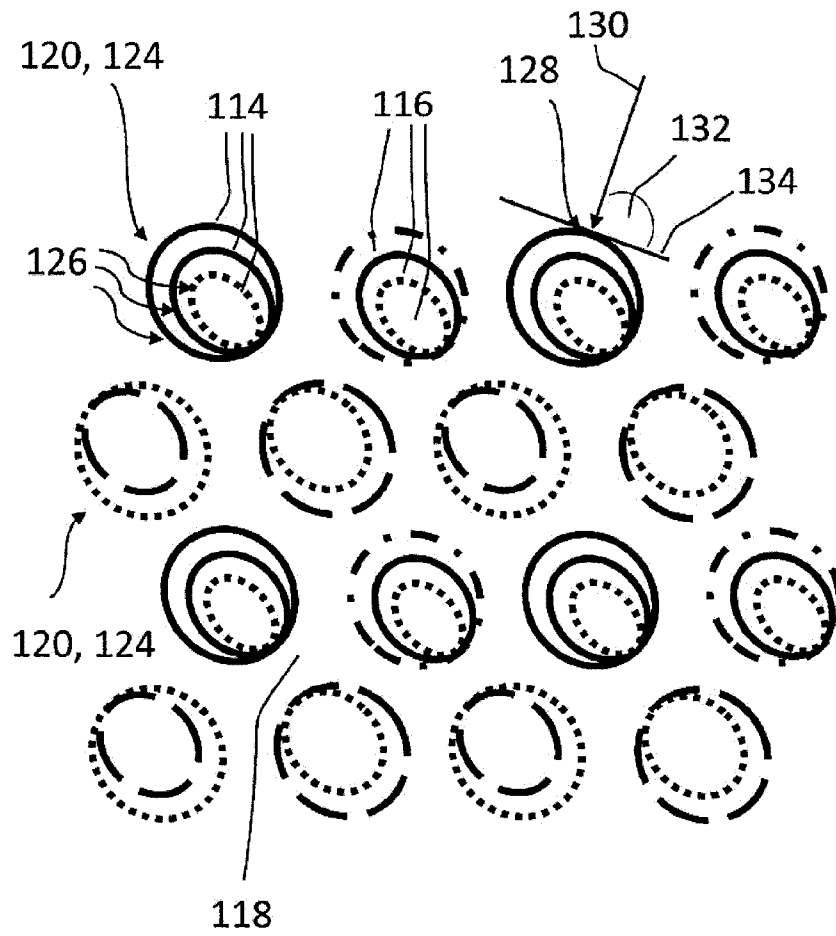
88. The cleaning article as claimed in any one of claims 1-86, wherein the cleaning article is configured for cleaning of hard surfaces.
89. The cleaning article as claimed in any one of claims 1-86, wherein the cleaning article is configured for cleaning dishware.
90. The cleaning article as claimed in any one of claims 1-86, wherein the cleaning article is configured for cleaning windows.
91. Use of the cleaning article as claimed in any one of claims 1-86, in an application selected from the group consisting of:
 - cleaning of hard surfaces,
 - cleaning of hard domestic surfaces,
 - cleaning dishware,
 - cleaning surfaces,
 - cleaning kitchen surfaces,
 - cleaning sanitary surfaces, and
 - cleaning windows.

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**Fig. 1**

**Fig. 2**

**Fig. 3**

**Fig. 4 a**

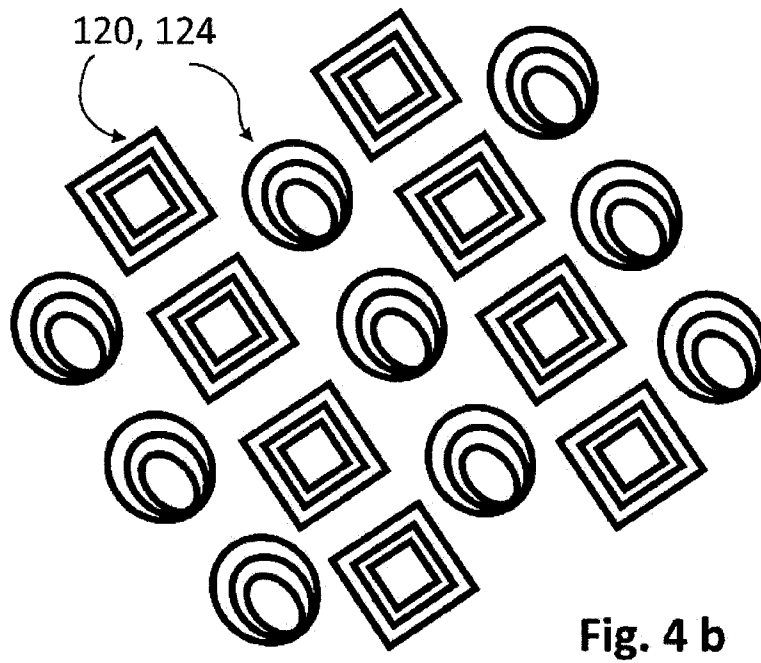


Fig. 4 b

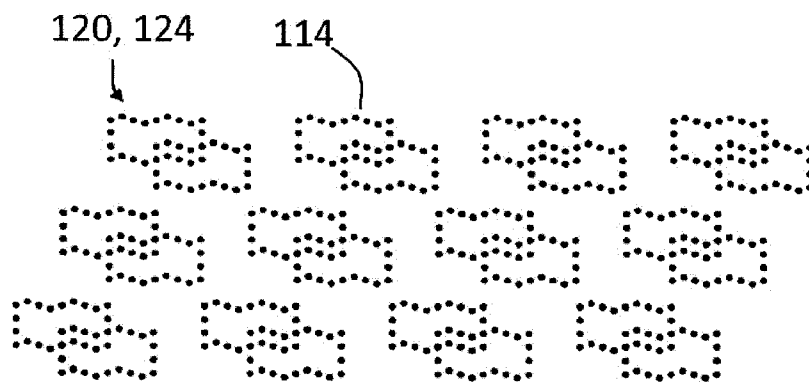
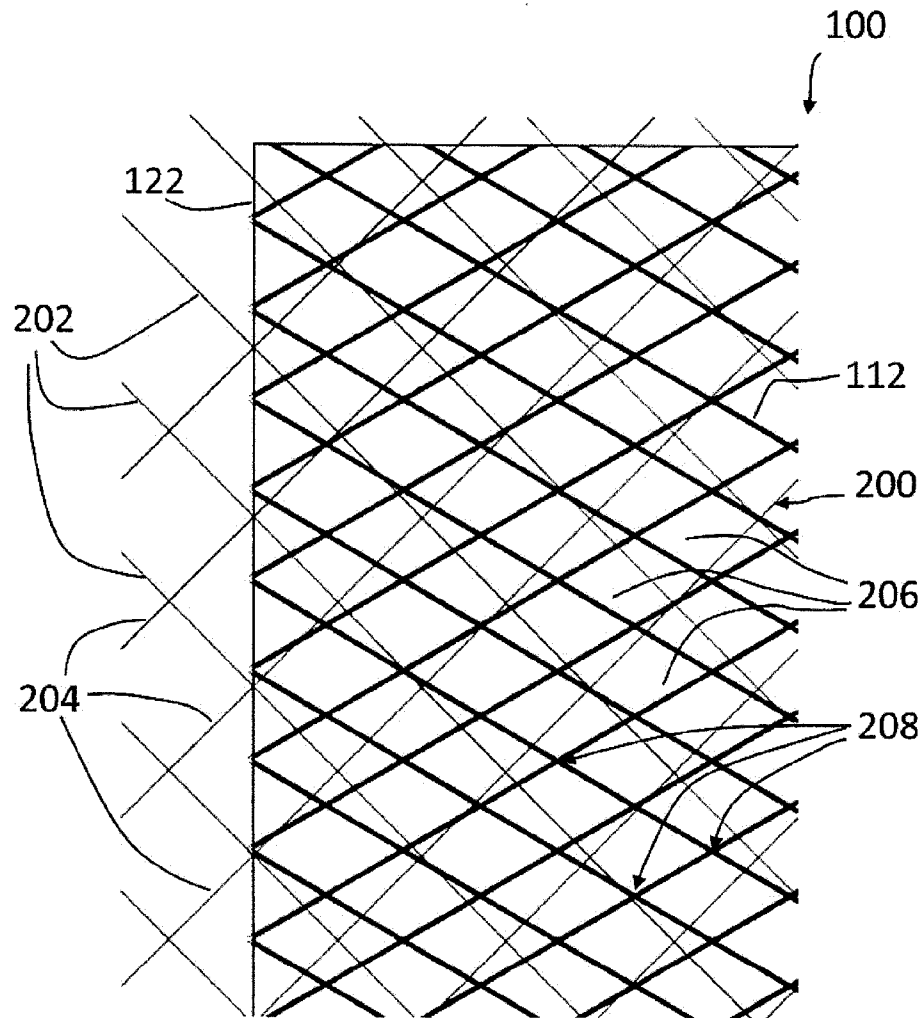


Fig. 4 c

**Fig. 5 a**

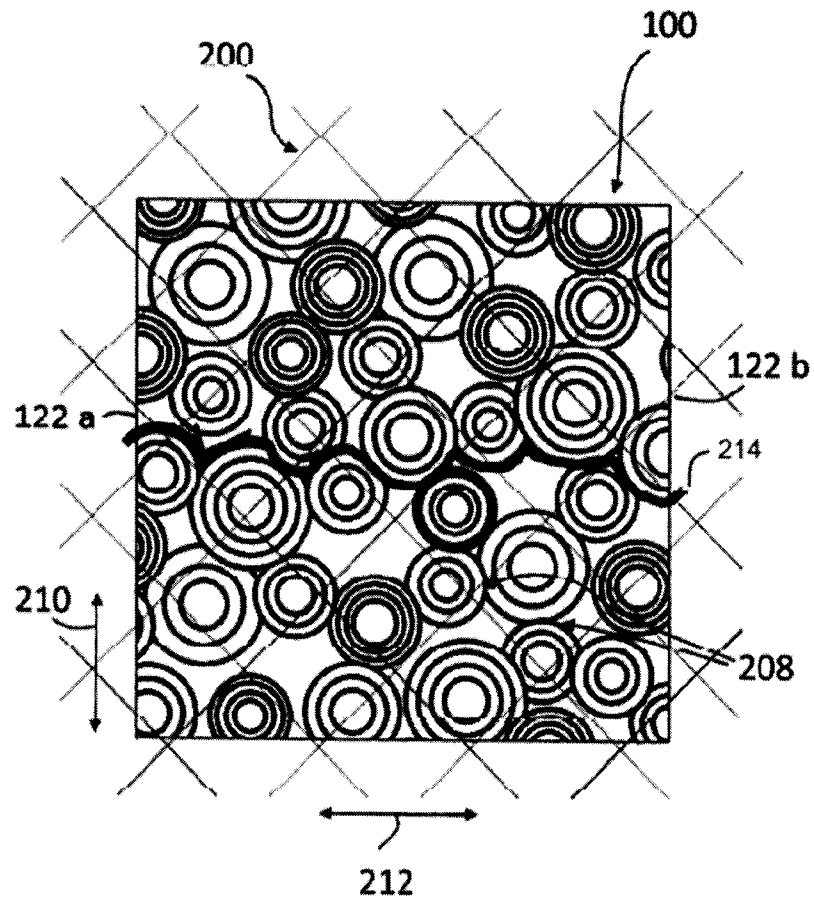
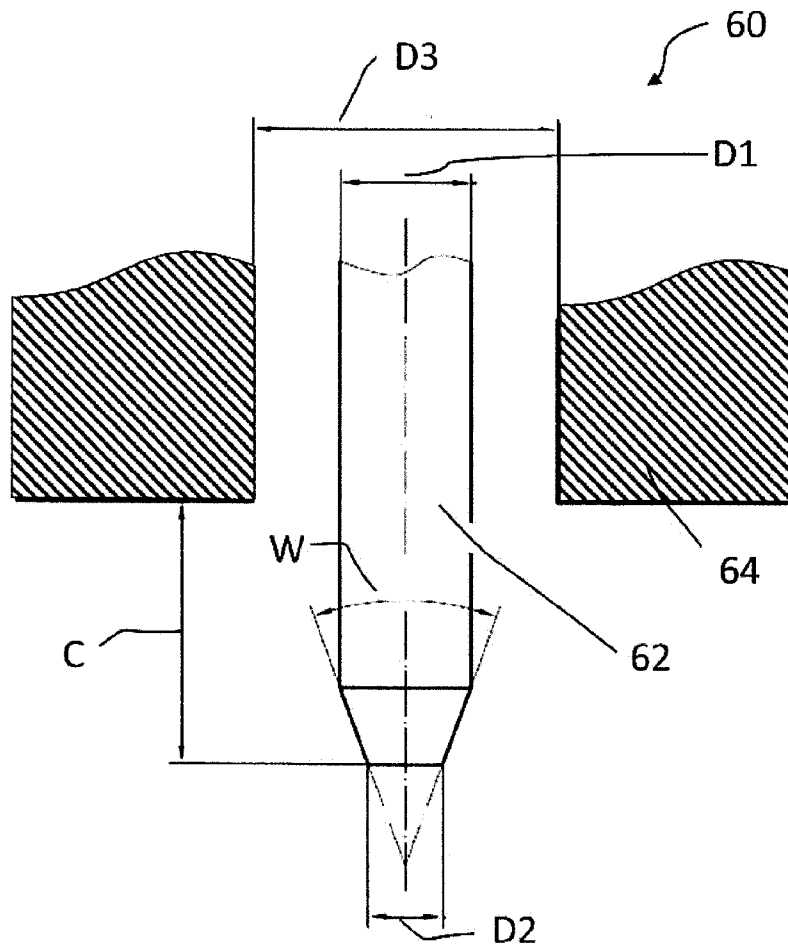


Fig. 5b

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**Fig. 6**

