

BUTTON FOR FASTENING FABRICS

The present invention relates to a button for fastening fabrics, for instance clothing, wherein the button comprises a body and is provided with attachment means arranged for attaching, for instance by sewing, the button to a fabric. The invention further relates to product at least partially manufactured from a fabric, for instance clothing, comprising at least one button.

Buttons for fastening sections of fabric as such are known and widely used in for instance clothing. Buttons typically have a planar body provided with attachment means, such as through holes for receiving threading, for connecting the button to the fabric. Although buttons are available having different shapes, most bodies of buttons are disc shaped.

JP2002330802A discloses a button according to the preamble with attachment means near a central location thereof and which has body with a tapering width ending in tip part at a distance from the central attachment means.

DE37327C relates to a button for forming a decorative string by interlocking a plurality of buttons at their peripheral edges. A button is hereto provided with an opening for receiving a ring of another button, wherein the ring is arranged for receiving a thread for forming the string.

US1232633A discloses a button arranged to link to margins of a garment, such as cut-away coats and dress coats, instead of being overlapped and buttoned by a button attached to one margin and fastened to a button hole on the opposite margin. The button is provided with a central shank so formed that it may be inserted through a button-hole on a garment and will clamp against the material at the margin of the button, and having a flexible link attached near an edge to the button itself and adapted to be looped over a button on the opposite margin of the garment.

JP2004173732A discloses a button with a round or disc shaped body provided with a leg and a base part provided with attachment means.

US2543056A discloses a button having a round body having a bottom plane provided with central holes as attachment means and entrance openings closer to the circumferential edge of the body.

An interconnection between the fabrics is achieved by inserting the button into an accordingly shaped button hole. For loosening the sections of fabric, the button is again passed through the slit

shaped button hole. In particular this unbuttoning action is however considered cumbersome, in particular when a plurality of buttons is used to fasten the sections of fabric.

It is therefore a goal of the present invention, amongst other goals, to provide an efficient, easy in use button which can be unbuttoned efficiently.

This goal, amongst other goals, is met by a button according to claim 1. More specifically, to meet this goal, amongst other goals, the button according to the preamble is characterized in that the button is provided with attachment means at or near the circumferential edge of the body. By attaching the button to the fabric at a location near the edge of the button such that these connection means are located on or near a slit shaped button hole on the other fabric section in fastened state, the button can be efficiently unbuttoned by pulling the two sections apart. The attachment means guide the button through the button hole on application of a pulling unbuttoning action.

The attachment means at or near the edge are preferably arranged to locally direct or bias the edge of the button towards the fabric for this guiding function. The attachment means are preferably arranged to guide one half, in particular the half of the button in the direction of the intended pulling action, through the button hole. The attachment means hereto preferable extend at a single half of the button.

Although it is possible to provided attachment means along a plurality of locations on the edge, it is preferred if the button is provided with attachment means at a single location at or near the circumferential edge. This results in an efficient design which is easy to unbutton.

The button is further provided with attachment means at a central location of the body. These central attachments for instance correspond to the connection means traditionally used in buttons and may include a plurality of through holes or a shank. According to this embodiment, the traditional attachment are located in or around the centre of the button, for instance in a regular pattern, while the attachment means near or at the edge extend a location radially outwardly at a distance from the centre, preferably at a single location.

To further guide the button through the button hole while unbuttoning, the body preferably has a tapered shape towards the attachment means near the edge arranged for guiding the button through

the button hole. The tapering, i.e. decreasing width and/or height, is hereby preferably oriented in the longitudinal direction of the slit shaped button hole in the fastened position.

More specifically, the body of the button has a tapering width, seen in a direction parallel to the plane of the lower surface of the body, towards the location of the attachment means at or near the edge. In other words, the width of the body decreases towards the attachment means at or near the edge of the body. While traditional button are disc shaped, wherein the outer edge is circular, the button according to the invention has a tapered outer edge, wherein the tapered sections of the outer edge preferable extend substantially rectilinearly as mentioned below.

As the bottom of a button generally has a substantially flat surface, the width of the button is defined with respect to this surface. However, more generally, the body of the button has a height, width and length, wherein the height is substantially smaller than the width and the length. The length is defined along the line extending through the attachment means at or near the edge of the body and the centre of the body. The width extends perpendicular to the length.

To further improve the guidance, according to a further preferred embodiment, the body of the button has a tapering height, seen in a direction perpendicular to the plane of the lower surface of the body, towards the location of the attachment means at or near the edge. In other words, the height of the body gets smaller towards the attachment means near the edge.

The guidance is further improved if the body tapers along at least half of the length of the body, preferably more than half of the length, wherein the length is measured along the line extending through the attachment means at or near the edge of the body and the centre of the body. An even better guidance is achieved when the body tapers substantially rectilinearly or planarly.

The button can be efficiently attached to a fabric using a hole extending through the body. Therefore, according to a further preferred embodiment, the attachment means at or near the circumferential edge comprise at least one through hole extending between the upper surface and the lower surface of the body of the button. The through hole is arranged to receive threading.

It is possible that the body comprises two adjacently located through holes at or near the edge of the button. This allows easy sewing of the button.

It is however also possible that the body is provided with a single through hole at or near the circumferential edge. A loop of threading for attaching the button to the fabric then runs through the hole and along the outer edge of the button. This further enhances the unbuttoning efficiency as the button is directed more efficiently through the accordingly orientated button hole while unbuttoning with a pulling motion.

To reduce the visibility of the thread running along the outer edge of the button, the circumferential edge of the body near the through hole may comprise a recess extending between the upper and lower surfaces. The recess is hereby arranged to receiving the thread and is shaped accordingly, preferably such that the thread is countersunk in the recess.

According to a further preferred embodiment of a button according to the invention, the attachment means at or near the circumferential edge comprise a passage having two ends extending through the body, wherein the ends are located at the lower surface and/or the circumferential edge of the body. The upper surface hereby does not contain an end, such that the attachment means near the edge are not or hardly visible. The passage may hereto be suitably curved.

According to a further preferred embodiment, the body, seen in a cross sectional plane perpendicular to the line extending through the attachment means at or near the edge of the body and the centre of the body, has a tapering surface extending from one surface with decreasing height towards a lateral edge with the other surface. The tapering surface induces a rotational movement of the button upon unbuttoning, such that the button is guided through the slit. The tapering surface is preferably under an angle of substantially smaller than 90° , preferably smaller than 45° with respect to the other surface. Preferably, the tapering surface extends from the line, in particular the longitudinal axis, towards said edge and more preferably the tapering surface extends along at least half of the distance between the lateral edge and the line.

To further facilitate unbuttoning, it is preferred if the body has a first tapering surface extending from a first surface with decreasing height towards a lateral edge with the second surface and a second tapering surface extending from the second surface with decreasing height towards the opposed lateral edge with the first surface. The button hereby has two, oppositely orientated, tapering surfaces. The planes of the two surfaces, seen along a point in the cross-section, hereby preferably extend substantially parallel. In other words, the angle at which the surfaces extend with respect to the other surfaces are preferably substantially the same. Upon pulling on the button for

unbuttoning, the two tapering surface induce a rotational movement, which makes it easier for the button to pass through the slit.

5 A smooth unbuttoning action is obtained if, seen in the cross sectional plane, the tapering surface makes an angle with the respect to the other surface, wherein the angle increases from a first lower value near the edge with the attachment means to a second larger value in a direction away from the edge with the attachment means. Near the location of the additional attachment means, i.e. at the tip of the tapering body, the angle is small, for instance 5 - 15°, preferably about 10° and increases in the direction along the lateral edge away from said point to an angle of for instance 40
10 - 50°, preferably about 45°. Upon movement of the button through the slit, the button then gradually rotated along an increasing angle, which allows an efficient unbuttoning action.

The button according to the invention can efficiently be unbuttoned by pulling in the unbuttoning direction, which is oriented in accordance with the tapering width of the body. However, to allow
15 easy unbuttoning while pulling in two opposite directions, it is preferred if the button is further provided with second attachment means at or near the circumferential edge substantially opposite the first attachment means at the first edge of the body and wherein the width of the body also tapers towards the location of the second attachment means at or near the edge. The body hereby tapers into two directions, preferably seen along the line extending through the centre and the two
20 attachment means at the edges. The button is hereby preferably mirror symmetrical with respect to a symmetry axis extending through said centre. It is even possible that such a button is not provided with additional attachment means, wherein the shape of the body itself already has a beneficiary effect on the ease of unbuttoning.

25 To induce a rotational movement upon pulling in both directions to facilitate unbuttoning as already described above, it is then preferred if both tapering ends, i.e. tapering in width, are provided with tapering surfaces for inducing the rotational movement. More specifically, it is preferred if the body comprises four lateral edges sections, wherein two first lateral edges sections extend towards the first attachment means at the first edge and wherein two second lateral edges
30 sections extend towards the second attachment means at the first edge, wherein the body comprises tapering surfaces at two, preferably opposite, lateral edges sections of the body. The body hereby at least comprises tapering surfaces at a first lateral edge section and at a second lateral edge section opposite said first lateral edges section.

A further improved unbuttoning action is obtained if the two tapering surfaces are mirror symmetrical with respect to a plane extending through said line and perpendicular to the bottom surface. Each of the other first or second lateral edges may also be provided with tapering surface, the orientation of this surfaces being such that the planes of the tapering surfaces at the first lateral edge section are parallel and such that the planes of the tapering surfaces at the second lateral edge sections are parallel.

It is noted that the tapering surfaces may also be used in buttons not having the additional attachment near or at the edge, or in buttons not having a tapering width in the plane of the lower surface, i.e. for instance round buttons as commonly used. The problem is that these buttons are difficult to unbutton, in particular to guide the buttons through the slits accommodating said buttons.

Therefore, the invention furthermore relates to a button for fastening fabrics, for instance clothing, wherein the button comprises a body and is provided with attachment means at a central location of the body, arranged for attaching, for instance by sewing, the button to a fabric, wherein, seen in a cross sectional plane perpendicular to a line extending through the attachment means in plane parallel to the plane of the lower surface of the body, the body has a tapering surface extending from one surface with decreasing height towards a lateral edge with the other surface, and wherein the tapering surface extends along at least half of the distance between the lateral edge and the line. The tapering surface induces a rotational movement of the body, which facilitates unbuttoning as described above. The button may hereby be round or for instance be provided with a body having a tapering width, wherein the body tapers in the direction of said line extending through the centre. It is again preferred if the body has a first tapering surface extending from a first surface with decreasing height towards a lateral edge with the second surface and a second tapering surface extending from the second surface with decreasing height towards the opposed lateral edge with the first surface, for the reasons set out above. It is further again, for the reasons set out above, preferred if, seen in the cross sectional plane, the tapering surface makes an angle with the respect to the other surface, wherein the angle increases from a first lower value near the edge with the attachment means to a second larger value in a direction away from the edge with the attachment means.

Another solution based on the idea to facilitate unbuttoning by making it easier to pass a button through a corresponding slit upon a pulling force, to provide an easy in use button which can be unbuttoned efficiently, is to, according to another aspect of the invention, to provide a button for

fastening fabrics, for instance clothing, wherein the button comprises a body and is provided with attachment means, arranged for attaching, for instance by sewing, the button to a fabric, wherein the body of the button has a tapering width, wherein the width decreases along a tapering direction seen in a direction parallel to the plane of the lower surface of the body, wherein the attachments
5 means are moveable from a central location towards an edge of the body along said line. As the attachment means are moveable towards the edge, the button can be unbuttoned easily, as the button is then efficiently urged through the slit. The attachment means are preferably moveable due to an applied unbuttoning pulling force. Upon pulling, the attachment shift towards the edge, thereby forcing said edge towards the slit and guiding the button through said slit upon a further
10 pulling action.

The attachment means, for instance in the form of a ring shaped member, are preferably moveable on, or in a plane parallel to, the lower surface of the body of the button. The lower surface may for instance be provided with guiding means, for instance a groove, for receiving and guiding the
15 attachment means.

It is preferred if the attachment means comprise biasing means for biasing the attachment means towards the central location. In an unloaded state, the attachment means hereby extend at the central location to prevent accidental unbuttoning, whereby upon a pulling force, the attachment
20 means shift towards the edge. Upon releasing the pulling force, the attachment means shift back to the centre. The attachment means preferably comprise resilient means, for instance in the form of a spring for biasing the attachment means towards the centre. The attachment means, for instance in the form of a ring for receiving threading, are for instance connected with the body via the biasing means, in particular in the form of the spring. The attachment may furthermore be in the form of a
25 hole arranged in the spring for receiving threading. It is further possible that the biasing means, preferably in the form of a spring, are arranged in the guiding means in the form of a groove.

The invention further relates to a product, in particular clothing, at least partly manufactured from a fabric, wherein the fabric is provided with at least one button according to the invention.

30 A further preferred embodiment of the product in accordance with the invention further comprises a slit extending in a longitudinal direction and arranged for receiving the button, wherein the button and the corresponding slit are oriented such that the attachment means at or near the circumferential edge of the body of the button is on the longitudinal direction of the slit. As said,
35 this enhances the efficient unbuttoning action.

To further direct the button in the direction of the button hole upon unbuttoning, according to a further preferred embodiment, the distance between the button and the fabric at the location of the attachment means at or near the edge is smaller than this distance at a central location of the button.

To provide a passage for the button upon unbuttoning through a slit provided in the product, it is preferred, according to a further preferred embodiment, if the slit is provided with widening means for widening a portion of the slit, for instance the end portion thereof, for easy unbuttoning of a button. The widening means are preferably provided at these location where the button is to pass through the slit upon unbuttoning. It is preferred if the widening means comprise at least one slit. This slit, preferably the plurality of slits, is/are preferably narrower than the main slit. The length of the slits of the widening means preferably have a length in the range of 5 – 30%, more preferably 5 – 15%, of the length of the main slit. Although the slits may be provided in line with the main slit, it is preferred if the slits as widening means extend under angle with respect to the longitudinal axis of the slit. This allows the body, in view of the width thereof, to pass through the slits.

To prevent accidental unbuttoning, it is preferred if product comprises resilient means associated with said widening means for biasing the widening means in their closed position. The widening means are arranged to widen the slit to allow passage of the button upon unbuttoning. By providing resilient means associated with said widening means, for instance in the form of slits as described above, the slits are kept closed, until a pulling force against said biasing force of the resilient means is exerted, thereby opening said slits to widen the main slit. The resilient means may for instance comprise elastic fabric provided to surround said widening means, for instance in the form of slits.

It is to be noted that a product provided with a slit for a button provided with the widening means can also be used with conventional buttons. The invention therefore also relates to a product, in particular clothing, at least partly manufactured from a fabric, wherein the fabric is provided with at least one button and at least one slit for receiving said button, wherein the slit is provided with widening means for widening a portion, for instance an end portion, of the slit for easy unbuttoning of a button.

The present invention is further illustrated by the following Figures, which show a preferred embodiment of the button according to the invention, and are not intended to limit the scope of the invention in any way, wherein:

- Figure 1 shows a first embodiment of the button in top view;
- Figure 2 shows the button of figure 1 in side view;
- Figures 3 – 5b show further embodiments in top view;
- Figure 6 shows a further embodiment in side view;
- Figure 7 shows a further embodiment of the button in bottom view;
- Figures 8 and 9 show cross sections of the button;
- Figure 10 shows a further embodiment of the button in top view;
- Figures 11a and b show cross sections of the button as shown in figure 10 along lines A and B;
- Figure 12 corresponds to the button of figure 1;
- Figures 13A and B show cross sections of the button of figure 12 along lines A, respectively line B;
- Figures 14 – 16 schematically show products provided with different embodiments of slits;
- Figure 17 shows another embodiment of the button according to the invention;
- Figure 18 shows another embodiment of the button in bottom view;
- Figure 19 show a cross section of the button of figure 18 along line C; and
- Figure 20 schematically shows an another embodiment of the button in bottom view.

A button 1 according to the invention is shown in figure 1 which is formed by a body 10. At the centre 5, the body 10 is provided with four traditional holes 2 for sewing the button 1 to a fabric. Provided near an edge 11 of the button is provided an extra hole 3 which extends through the body

10 from an upper surface 12 to a lower surface 13, see figure 2. The region with the through hole 3 is indicated with 6 in figure 2.

Figure 2 further shows that the body 10 is tapered towards the edge 11 provided with the extra hole
5 3. The height h of the body 10 at the location of the hole 3 is smaller than at a location at the opposite side, indicated with 4. The body 10 is tapered along more than half of the length l of the body 11.

This length l is measured along the line 100, see figure 1, extending through the extra hole 3 and
10 the centre 5 of the button 1. Also the width w of the body 10 is tapered. The body 10 is provided with two linear sections 14a and 14b which also extend along at least the half of the length l of the button 1. The outer edge 11 is hereby formed by an arc shaped section 15, two linear sections 14a, 14b and again an arc shaped section near the extra hole 3, near the reference numeral 11 in figure 11. This shape of the body 11 allows an enhanced guidance through a button hole which facilitates
15 unbuttoning.

In figure 3 the button 1 is shown with a thread 7 for attaching the extra hole 3 to the fabric. It goes without saying that also the holes 2 are provided with suitable threading. As the button 1 is only provided with a single hole 3 at the edge region, the loop of the thread 7 extends along the outer
20 edge 11. The edge 11 of the embodiment as shown in figure 4 is provided with a recess 8 to receive the thread such that the thread is countersunk in the edge 11.

As an alternative as shown in figures 5a and 5b, the body 10 can be provided with two extra holes 3 for securing the button 1 to the fabric. In figure 5a the holes 3 extend adjacently in the width
25 direction of the body 10, whereas the holes 3 in the embodiment of figure 5b extend adjacently along the length of the body 10.

To hide the extra connection of the button 1 according to the invention, the edge 11 self can be provided with a curved passage 3a, see figure 6. The passage 3a extends between the surface
30 forming the edge 11, such that threading extending through this passage 3a is difficult to see from the top side 12.

As an alternative as shown in figure 7, a passage 3b extends between the lower surface 13, wherein both ends of the passage 3b are located on the lower surface 13. The passage 3b is hereto also
35 suitably curved.

In figure 8, the button 1 is shown in cross section, the cross section taken in a plane perpendicular to the line 100 in figure 1, which is shown as a plane 100a in figure 8. As can be seen, the bottom surface 13 is provided with a tapering surface 13a which tapers, i.e. has a decreasing height h
5 towards lateral edge 14a. The tapering surface 13a hereby forms an edge surface, wherein this surface is under an angle α of approximately 45° with the lower surface 13. The top surface 12 hereby extends substantially planar. The tapering surface 13a tapers from the plane of the lower surface 13 substantially towards the plane of the upper surface 12. In this example, the tapering surface 13a extends from a location near to the line 100 towards said lateral edge 14a. However, in
10 case of buttons having a smaller height, the surface may not extend until the line 100, if the surface is to extend at an angle of approximately 45° . The surface 13a induces a rotational movement upon unbuttoning, which makes unbuttoning more easily.

The other lateral edge 14b as shown in figure 8 is normal edge 14b and may be somewhat rounded
15 as is custom in the art. However, to further improve the rotational movement, it is preferred if also the other lateral edge 14b is provided with a tapering surface 12a, which tapering is opposite the tapering of the first tapering surface 13a. Indeed, as can be seen in figure 9, the top surface 12 is also provided with a tapering surface 12a which extends from the upper surface 12 downwardly towards the edge 14b in the plane of the lower surface 13. The surface 12a again covers almost half
20 of the upper surface 12, seen in cross section.

The button 1 as shown in figure 10 can be easily unbuttoned by pulling in any direction along line 100. The body is thereto provided with two tapered ends, i.e. towards edge 11a with additional attachment means 3d and towards edge 11b with additional attachment means 3e. At least in top
25 view, the button is mirror symmetrical along plane 101, also extending through centre 101. The button 1 comprises four lateral, tapering edges 14c, d which form the outer edges of the button 1. As is shown in figure 11a, which shows a cross section along line A in figure 10, the left lateral edge 14c is provided with a tapering surface 13a similar to the surface as shown in figure 8. The surface 13a extends from the plane of the top surface 12 towards the plane of the lower surface 13.
30 It is noted that the right lateral edge 14c as shown in figure 9a may also be provided with a tapering surface as is indicated with 12a in figure 9, such that the cross section along line A in figure 10 corresponds to the cross section as shown in figure 9.

The right lateral edge 14d on the lower side of the button, lower as seen in figure 10, i.e. opposite the plane 101, is at least provided with a tapering surface 12a at the top surface 12. Optionally, also the left edge 14d may be provided with a surface 13a.

- 5 The shape of a tapering surface 13a will further be elucidated with reference to figures 12 and 13, wherein the button 1 as shown in figure 12 corresponds to the button 1 as shown in figure 1. Figure 13A shows a cross section perpendicular to line 100 along line A in figure A, i.e. at a location away from the edge or point with the additional attachment means 3. The surface 13a at that location is under an angle α_2 of 45° which is larger than the angle α_1 that the surface 13a makes at the location B near the edge 11. The angle at which the surface 13a extends with respect to the upper surface 12 therefore decreases towards the edge 11. This induces a smooth rotational movement of the button upon unbuttoning, which facilitates unbuttoning. A tapering surface 12a provided at the top surface 12 may have a similar configuration.
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- 15 It is noted that the tapering surfaces as such as shown in figures 8, 9 and 13 can be also be used in buttons having other circumferential shapes, such as a round button as shown in figure 17. A first lateral edge section 14a may for instance be provided with a first tapering surface 13a similar to the surface 13a as shown in figure 9, while a second lateral edge section 14b opposite a plane 100a extending through the centre 5 may be provided with the surface 12a as shown in figure 9. The button may, or may not be, provided with attachment means 3 at the edge 11.
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With reference to figures 14 – 16 a product 20, in particular a piece of clothing, provided with a slit 21 for receiving a button. The slit is specifically suitable to cooperate with any of the buttons as shown in any of the earlier figures, or figures 18 and 19 as will be discussed later, but can also be used with a traditional shaped button.

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To allow easy passage of a button upon unbuttoning, the slit 21 is provided with extra slits 22a and 22b which open up when a pulling force is exerted on the product and/or the button accommodated in the slit 21. The slits 22a, 22b extend at both sides of the slit 21 and perpendicularly with respect to the longitudinal axis of the slit 21.

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The slits 22a, 22b then open up in a direction indicated with the arrows in figure 14 which increases the area for passage of a button. To prevent accidental unbuttoning, elastic sheets 23a and 23b are arranged behind the slits 22a and 22b on both sides of the slit 21. The elastic sheets 23a and 23b are sowed with sowing lines 24 along the outer perimeter and along the perimeters of the

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slits 22a,b. The elastic sheets 23a,b bias the slits 22a and 22b in their closed position, i.e. in a direction against the arrows shown in figure 14. The sowing lines 24 should preferably not cross the slits at any point.

- 5 The product 20 of figure 15 is different with respect to the product in figure 14 in that both ends of the slit 21 are provided with widening means, each of the widening means in the form of two smaller slits 22a and 22b extending under an angle with respect to the longitudinal axis of the slit 21. Each of the slits 22a, 22b is again backed by an elastic sheet 23 sowed 24 to the product 20 to prevent accidental unbuttoning. In particular this embodiment is also suitable to be used without
10 elastic sheets 23. The length of the slits 22a, 22b is then preferably in the range of 5 – 15% of the length of the main slit 21.

The extra slits 22a, b do not necessarily extend under an angle with respect to the longitudinal axis of the slit. As shown in figure 16, the extra slits 22 as provided at the ends of the main slit 21
15 extend in the same direction as the main slit 21, i.e. dependent on the orientation of main slit which may for instance be horizontal or vertical. Elastic sheets 23 are again provided.

An alternative for the attachment means 3 provided in addition to the central attachment means at the centre 5 of a button to allow easy unbuttoning, it is possible to provide attachment means 21
20 which are moveable with respect to the body 10b of a button 1b, see figures 18 and 19, wherein figures 19 shows the button 1b as shown in bottom view in cross sectional view along line C.

The attachment means are ring shaped, see in particular figure 19, and are provided with a protrusion 21 which is received and arranged to slide in a groove 16 provided in the lower surface
25 13 of the button 10b along the longitudinal direction 100 of the button 1b.

The attachment means 2a are connected with springs 15a and 15b near ends 11a, b on opposite ends on the longitudinal axis 100. Springs 15a, b bias the attachment means towards the centre 5. It is also possible to use a single spring, wherein the attachment means are connected to a central
30 section thereof. The body 10b of the button 1b is further tapered twice, similar to the embodiment of figure 10.

Upon exerting an unbuttoning force, the attachment means 2a will move in a direction indication with A or B, dependent on the direction of the pulling force, thereby moving the attachment means
35 to a location at or near the edge 11a, b of the body 10b of the button 1b. In this position, the button

1b is easily guided to a slit for easy unbuttoning. Upon releasing the button 1b, the springs 15a, b will force the attachment means 2a towards the initial, i.e. central location.

5 In figure 20, an alternative for the moveable attachment means 2a are shown. In this figure, which shows a part of the bottom of a body 10b of a button, a ring shaped member 2b is attached to a central section of a spring 15. The spring 15 extends between points on a distance from each other seen on the line 100 through edges 11a and 11b, which may be tapered edges 11a and 11b as shown in figure 18. The spring 15 is arranged in a groove, similar to the groove 16 as shown in figure 19, such that the spring 15 is countersunk in the body 10b, while the button can be
10 connecting by threading through ring 2b. The spring again allows the movement of the attachment means, wherein the attachment means 2b are biased towards the initial, i.e. central location.

The present invention is not limited to the embodiment shown, but extends also to other embodiments falling within the scope of the appended claims.

CLAIMS

1. Button (1) for fastening fabrics, for instance clothing, wherein the button (1) comprises a body (10) and is provided with attachment means (2) at a central location (5) of the body (10), arranged for attaching, for instance by sewing, the button (1) to a fabric, wherein the body (10) of the button (1) has a tapering width (w), seen in a direction parallel to the plane of the lower surface (13) of the body (10), **characterized in that** the button (1) is further provided with attachment means (3) at or near the circumferential edge (11) of the body (10) and wherein the width (w) of the body (10) tapers towards the location (6) of the attachment means (3) at or near the edge (11).
2. Button (1) according to claim 1, wherein the button (1) is provided with attachment means (3) at a single location (6) at or near the circumferential edge (11).
3. Button (1) according to claim 1 or 2, wherein the body (10) of the button (1) has a tapering height (h), seen in a direction perpendicular to the plane of the lower surface (13) of the body (10), towards the location (6) of the attachment means (3) at or near the edge (11).
4. Button (1) according to claim 1, 2 or 3, wherein the body (10) tapers along at least half of the length (l) of the body (10), preferably more than half of the length (l), wherein the length (l) is measured along the line (100) extending through the attachment means (3) at or near the edge (11) of the body (10) and the centre (5) of the body (10).
5. Button (1) according to any of the claims 1 - 4, wherein the body (10) tapers substantially rectilinearly or planarly.
6. Button (1) according to any of the preceding claims, wherein the attachment means (3) at or near the circumferential edge (11) comprise at least one through hole extending between the upper surface (12) and the lower surface (13) of the body (10) of the button (1).
7. Button (1) according to claim 6, wherein the body (10) is provided with a single through hole at or near the circumferential edge (11).

8. Button (1) according to claim 7, wherein the circumferential edge (11) of the body (10) near the through hole comprises a recess (8) extending between the upper (12) and lower (13) surfaces.
- 5 9. Button (1) according to any of the preceding claims 1 - 5, wherein the attachment means (3) at or near the circumferential edge (11) comprise a passage having two ends (3a, 3b) extending through the body, wherein the ends (3a, 3b) are located at the lower surface (13) and/or the circumferential edge (11) of the body (10).
- 10 10. Button (1) according to any of the preceding claims, wherein, seen in a cross sectional plane perpendicular to the line (100) extending through the attachment means (3) at or near the edge (11) of the body (10) and the centre (5) of the body (10), the body has a tapering surface (12a, 13a) extending from one surface (12, 13) with decreasing height towards a lateral edge with the other surface (12, 13).
- 15 11. Button (1) according to claim 10, the body has a first tapering surface (13a) extending from a first surface (13) with decreasing height towards a lateral edge with the second surface (12) and a second tapering surface (12a) extending from the second surface (12) with decreasing height towards the opposed lateral edge with the first surface (13).
- 20 12. Button (1) according to claim 10 or 11, wherein, seen in the cross sectional plane, the tapering surface (12a, 13a) makes an angle with the respect to the other surface (12, 13), wherein the angle increases from a first lower value (α_1) near the edge (11) with the attachment means (3) to a second larger value (α_2) in a direction away from the edge (11)
- 25 with the attachment means (3).
13. Button (1) according to any of the preceding claims, wherein the button (1) is further provided with second attachment means (3e) at or near the circumferential edge (11b) substantially opposite the first attachment means (3d) at the first edge (11a) of the body (10)
- 30 and wherein the width (w) of the body (10) also tapers towards the location of the second attachment means (3e) at or near the edge (11b).
14. Button (1) according to claims 10 and 13, wherein the body comprises four lateral edges sections (14c,d), wherein two first lateral edges sections (14c) extend towards the first
- 35 attachment means (3d) at the first edge (11a) and wherein two second lateral edges sections (14d) extend towards the second attachment means (3e) at the first edge (11b), wherein the

body at least comprises tapering surfaces (13a, 12a) at a first lateral edge section (14c) and at a second lateral edge section (14d) opposite said first lateral edges section (14c).

15. Button (1) according to claim 14, wherein the two tapering surfaces (12a, 13a) are mirror symmetrical with respect to a plane extending through said line (100) and perpendicular to the bottom surface (13).
16. Button (1a) for fastening fabrics, for instance clothing, wherein the button (1) comprises a body (10) and is provided with attachment means (2) at a central location (5) of the body (10), arranged for attaching, for instance by sewing, the button (1) to a fabric, wherein, seen in a cross sectional plane perpendicular to a line (100) extending through the attachment means in plane parallel to the plane of the lower surface (13) of the body (10), the body (10) has a tapering surface (12a, 13a) extending from one surface (12, 13) with decreasing height towards a lateral edge with the other surface (12, 13).
17. Button (1a) according to claim 16, the body has a first tapering surface (13a) extending from a first surface (13) with decreasing height towards a lateral edge with the second surface (12) and a second tapering surface (12a) extending from the second surface (12) with decreasing height towards the opposed lateral edge with the first surface (13).
18. Button (1a) according to claim 16 or 17, wherein, seen in the cross sectional plane, the tapering surface (12a, 13a) makes an angle with the respect to the other surface (12, 13), wherein the angle increases from a first lower value (α_1) near the edge (11) with the attachment means (3) to a second larger value (α_2) in a direction away from the edge (11) with the attachment means (3).
19. Button (1b) for fastening fabrics, for instance clothing, wherein the button (1) comprises a body (10) and is provided with attachment means (2a), arranged for attaching, for instance by sewing, the button (1) to a fabric, wherein the body (10) of the button (1) has a tapering width (w), wherein the width (w) decreases along a tapering direction (100) seen in a direction parallel to the plane of the lower surface (13) of the body (10b), wherein the attachments means (2a) are moveable from a central location (5) towards an edge (11a, b) of the body (10b) along said line (100).
20. Button (1b) according to claim 19, wherein the attachment means (2a) comprise biasing means (15a, 15b) for biasing the attachment means (2a) towards the central location (5).

21. Product (20), in particular clothing, at least partly manufactured from a fabric, wherein the fabric is provided with at least one button according to any of the preceding claims.
- 5 22. Product (20) according to claim 21 further comprising a slit (21) extending in a longitudinal direction and arranged for receiving the button (1), wherein the button and the corresponding slit (21) are oriented such that the attachment means (3) at or near the circumferential edge (11) of the body (5) of the button is on the longitudinal direction of the slit (21).
- 10 23. Product (20) according to claim 21 or 22, wherein the distance between the button (1) and the fabric at the location of the attachment means (3) at or near the edge (11) is smaller than this distance at a central location (5) of the button.
- 15 24. Product (20) according to any of the preceding claims provided with a slit (21), wherein the slit (21) is provided with widening means (22, 22a, 22b) for widening a portion of the slit (21) for easy unbuttoning of a button.
- 20 25. Product (20), in particular clothing, at least partly manufactured from a fabric, wherein the fabric is provided with at least one button (1) and at least one slit (21) for receiving said button, wherein the slit (21) is provided with widening means (22, 22a, 22b) for widening a portion of the slit (21) for easy unbuttoning of a button.
- 25 26. Product (20) according to claim 24 or 25, wherein said widening means comprise at least one slit (22a, 22b) extending under angle with respect to the longitudinal axis of the slit (21).
27. Product (20) according to claim 26, wherein the length of the slit (22a, 22b) of the widening means has a length in the range of 5 – 30% of the length of the main slit (21).
- 30 28. Product according to any of the claims 24 - 27, further comprising resilient means (23a, 23b) associated with said widening means (22, 22a, 22b) for biasing the widening means (22a, 22b) in their closed position.